

Operant Subjectivity

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Policy Requirements for Automated Border Control Systems: A Q Methodological Study of Finland in the Context of a Large European Research Project

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Abstract: With growing passenger volumes and pressures for secure identity control at the European Union's borders, interest is growing in automating and harmonising border control processes. A large research project entitled FastPass and funded by the European Commission is developing solutions for this purpose. Ultimately, however, the funding decisions for the acquisition of automated border control devices and software are taken by national parliaments, making politicians key stakeholders in the process. We examine their subjective views on the socio-ethical, legal, political, and privacy requirements for these systems with the help of Q methodology. In this way we account for the concerns, risks, and opportunities they identify in these systems. This initial case study reports the policy preferences and requirements for automated border control as found in the views of political stakeholders in Finland. The findings indicate some apprehensions, for example, on privacy, but also hope of finding common ground. We discuss the implications of the findings for future, politically sustainable solutions in automated border control in the European Union, and the needs for further Q methodological analyses in this type of research context.

Keywords: automated border control, border security, European Union, harmonisation, privacy rights, Smart Borders

Introduction

This article reports a Q methodological study on how political stakeholders view automated border control (ABC) systems in one Member State of the European Union (EU), Finland. The study is part of the ongoing European Commission funded research project FastPass, which aims at the harmonisation of ABC systems within the EU. FastPass recognises the multitude of stakeholder views in this rapidly evolving field where technology developers, border guards, politicians, and security authorities, airport operators, civil rights NGOs as well as travellers have interests. The political stakeholders are of particular interest to us. They reflect the spectrum of opinion and lead policy development in this field characterised by issues such as the changing nature of border security, new flows of migration, methods of surveillance, and

nationalist pressures in many EU Member States. Among them, especially crucial are the views of Members of Parliament (MPs) because they will ultimately decide on public funds for developing and commissioning ABC systems. Governments which in the future may initiate different border policies are also formed from their ranks.

This article examines the socio-ethical, legal, political, and privacy requirements Finnish MPs and political stakeholders advising them have for ABC systems. In addition we comment on the application of Q methodology in the context of the large, diverse and interdisciplinary FastPass consortium carrying out the project. As the study is the first in a series of Q methodological studies within the consortium, we will also discuss how to develop the research design further.

Literature Review

Although several countries on many continents are currently piloting or operating ABC systems, they are relatively new in the EU context. ABC systems rely on electronic gates processing passengers with the help of biometric identification technologies, checking the information against databases, utilising advanced technologies and software. They still require further scientific research and R&D to improve their usability. Regulation also needs enhancement for ABC systems to become more widely deployed, harmonised and eventually accepted by the various stakeholders.

The existing research reflects this dynamic state of the field. While one key area in the technological research ponders, for example, the benefits and drawbacks of different biometric applications (see e.g., Kwon & Moon, 2008), the first wave of studies in the social sciences in particular called for more attention to be paid to the political, social, ethical and legal implications of their deployment and use (see Petermann, Sauter, & Scherz, 2006; van der Ploeg, 2003). These concerns prompted several legal and ethical studies on the privacy implications of the personal data collected by means of biometrics (see e.g. Friedewald, Wright, & Gutwirth, 2010; Harel, 2009; Mordini & Rebera, 2012; Tomova, 2009; van der Ploeg, 2009), and the effects on the bodily integrity of the users of biometric systems (Pirelli, 2009; van der Ploeg, 2012).

The use of new technologies has also evoked wider debate on the social, political and security implications of ABC, the related technologies and solutions. For example, some studies scrutinise the possible risks of 'function creep', whereby the EU-wide biometric databases developed for and used in border control might be used for other than their original goals (Broeders, 2007). Others examine the potential effects of technologically reinforced border control and protection on the rights of asylum seekers (Palm, 2013; Spijkerbroer, 2007). Some see modern states as being pervaded with technologies of risk management (Ceyhan, 2008), while others associate the technologies within the post-9/11 War on Terror (Lodge, 2004; Muller, 2011). The alleged entanglement of security and immigration policies has sparked criticism (Dijstelbloem, Meijer, & Besters, 2011; Epstein, 2007; Feldman, 2011; Muller, 2004). Some note how governments in multi-party systems face significant, sometimes populist, pressure to use the latest technologies to enhance border control over travellers and migrants (Broeders & Hampshire, 2013).

Nevertheless, today many critical studies acknowledge the strong support among airport operators, passenger carriers and immigration authorities for ABC systems owing to their efficiency (see e.g., Broeders & Hampshire, 2013). The more technologically oriented regulatory publications by influential actors such as the EU's border management agency Frontex (2012) also advocate these systems. Budgetary constraints in an increasingly financially strained EU speak in favour of automation of

border control as well. This contrast between advocacy and practical needs on the one hand and criticism on the other affords our research a useful point of departure to identify the requirements for politically acceptable ABC systems in the case of Finland. In other words, by means of Q methodology we can test empirically the extent to which this apparent contrast between criticism and advocacy is actually operant among the political stakeholders. At issue is the first application of Q methodology in this new field of policy.

We will next discuss the research design, and then the three different viewpoints as revealed in our factor analysis, alongside the located consensus, including the preliminary implications for the development, deployment and harmonisation of ABC systems in the case of Finland. Finally, we assess the further development of Q methodological work in the context of this large consortium and draw some conclusions.

Research Design

Q methodology is eminently suited to examine solutions and policies in their early stages of formulation such as ABC systems in Finland because of the methodology's communicative, operational and subject-centred properties. With this method, policy-relevant stakeholders participate in a communicative process where they prioritise certain policy preferences over others and can reflect thoroughly on their subjective views. Modelling policy preferences based on those views is of practical utility, as we attempt to comprehend the landscape of political debate and preferred policy solutions regarding ABC systems. The subjective views revealed are assumed to become operational in the ABC-related decision-making processes. The Q methodological analysis may also lead to identifying unpredicted grounds for compromise or consensus (see Ascher, 1987; Steelman & Maguire, 1999), which could prove useful in formulating accountable and stable policies on ABC and future border control regimes. Recent examples of applying the methodology for similar purposes focus on US foreign policy formation among elites (Aleprete & Rhoads, 2011) and the design and evaluation of stakeholder dialogue in policymaking (Cuppen, 2013).

In the context of the FastPass consortium which consists of 27 partners from several EU Member States and ranges from universities to technology and software developers, system integrators and consultancies, Q methodology is used to probe the political acceptability and feasibility of the solutions for the harmonisation of ABC systems which the consortium develops. In this way, the consortium gains knowledge of the possible constraints and requirements that the political processes in Member States may set for technology development and the related border policies. Q methodology offers the consortium a tool with which to monitor the degree and nature of political acceptability. As such, it complements the consortium's work on the ethical and legal requirements for ABC, and studies of the views of travellers, border guards and other stakeholders conducted by means of surveys, interviews and workshops.

Here we apply Q methodology to explore the views of political stakeholders on the development and deployment of ABC systems in the case of Finland. Finland's Helsinki-Vantaa airport is northern Europe's leading entry point for transit traffic between Europe and Asia. The country also has the longest EU border with Russia. Alongside these country-specific features, Finland is currently operating ABC systems, like many other EU Member States, and is an active participant in the EU's Schengen border convention (where internal border controls are lifted and cooperation increased on governing external borders). In this first Q methodological case study in the consortium,

we seek to assess the balance between political support and policy demand for ABC systems, and any possible obstacles, tensions and suspicions regarding ABC as found in the views of Finnish MPs and other political stakeholders advising them.

Preparation of the Q sample

We first consulted a variety of material to represent the debate on ABC, that is, the concourse in the form of 230 statements. We covered the technological approaches by accessing technical and operational guideline documents by, for example, Frontex and the International Civil Aviation Organization, as well as previous reports by FastPass and other related research projects; and the critical political scientific accounts by a selection of scientific articles and books (see Literature Review above). Policy preferences were also drawn, for example, from policy evaluations, agency publications, newspaper articles and press releases, as well as dissemination by political parties and advocacy groups.

Three main lines of debate or themes emerged from these sources. These were technological options (A), privacy, rights and legal issues (B), and institutional processes (C). Within each theme, we discerned three different types of statements: representative ones (a), normative ones (b), and policy recommendations (c). By cross-tabulating these themes and types of statements we formed a heuristic model of the concourse (see Table 1).

The final Q sample of 43 statements was selected with the help of the model. First, all compiled statements were placed in the cells of the model to map the volume of debate. Four or five statements from each cell (Aa, Ab, etc.) were selected for the final Q sample to arrive at a relevant, balanced sample (see Appendix 2). To fine-tune the sample we received expert comments from a Member of the European Parliament.

Table 1. The heuristic model of the concourse.

	Technological options (A)	Privacy, rights and legal issues (B)	Institutional processes (C)
Representative (a)	Aa	Ba	Ca
Normative (b)	Ab	Bb	Cb
Policy recommendation (c)	Ac	Bc	Cc

Participants

The political stakeholders whose views we wanted to examine regarding the Q sample were chosen on the basis of their involvement in the political decision-making processes on ABC. In Finland, committees consisting of MPs prepare decision proposals for the Parliament after having consulted experts, ministries and other stakeholders, such as civil society actors. Nineteen individuals involved in these processes took part in assessing and sorting the statements of the Q sample (see Appendix 1). Four of them were MPs, four advisors or assistants to MPs, and two policy experts. They were elected or hired representatives of six different political parties. Furthermore, nine experts working in ministries and offices accountable to them, in relevant NGOs and universities as professors took part, having expertise in public law, data protection, refugee and immigration questions among other fields.

Q sorting

The participants sorted the statements individually with the condition of instruction of relying on their current, subjective opinions – as in how strongly they agreed or disagreed with the statements – because we assumed their subjective opinions to be operant in their advisory and decision-making tasks. After pre-sorting the statements in three piles of *agree*, *neutral* and *disagree*, the participants conducted their Q sorting, placing each statement in one slot in the quasi-normal distribution grid ranging from -4 (least agree) to +4 (most agree). Following each Q sorting we interviewed the participants face-to-face, and asked them to comment on their motivations for placing statements in the extreme columns; furthermore we asked for feedback on the representativeness of the Q sample for the purposes of further research.

Data analysis

The Q sort data was analysed with PQ Method. We experimented with various factor solutions combining Centroid analysis or Principal Component Analysis (PCA) for factor extraction with Varimax and/or judgmental factor rotation methods for factor rotation. We aimed at a solution uncovering factors that would be analytically most distinguishable and empirically useful. In particular, we were interested in examining the possibilities for a solution which would include more than two factors, or in empirical terms, include more policy options than for example simple pro-ABC technology and ABC-critical factors. Of the various possibilities, we chose a PCA and Varimax solution, followed by judgmental factor rotations in order to improve the definition and reliability of the factors by seeking to maximise the number of participants defining each factor and increase their loadings if possible. In this way, we obtained three factors, explaining altogether 62% of the Q sort variations. Four or more participants loaded significantly on each factor (see Appendix 1). In the following section, we present the three factors and the two statements conveying consensus, referring throughout to the factors' Q sort values for individual statements, and discussing the correlations between factors in the context of the third factor. Appendix 2 lists the factor Q sort values for all statements and factors.

Results

Factor 1: ABC and collecting biometric data are the necessary, secure way forward

Factor 1 is the largest, explaining 25% of the variation among the Q sorts. Its seven significant loaders are four politicians across party lines and three ministry experts, including the Border Guard representative. This factor communicates a strong need for ABC systems and for biometric data to be collected to ensure security in border control.

Participants supporting Factor 1 appear to agree with the plans of the European Commission and the goals of the FastPass project. They point out that automation is needed to free border personnel, whom they believe to be under heavy pressure, to check risky passengers manually (statement 1, +4; statement 29, +3). They also want to harmonise the automated border control procedures throughout Europe, so that border crossing would flow as fast as possible (statement 8, +3). Altogether participants loading significantly on Factor 1 see much potential in the cost-effective development of ABC systems (statement 9, +4). They recommend that the EU go forward with ABC regardless of budget cuts and austerity measures (statement 4, -3), with several of them expecting savings from ABC especially in Finland, where employment costs are high.

Factor 1 reflects a firm belief in biometric data collection for security reasons. The gathering of citizens' fingerprints is not considered to be problematic (statement 32, -4;

statement 38, -3), as long as clear criteria prevail as to who shall have access to the data. The passengers should thus be explicitly informed about how their data is to be used and with whom it is to be shared (statement 43, +3). Stakeholders adhering to Factor 1 think that EU-wide databases must be created for the biometric identification data; they do not believe that verifying that a person's biometrics match the data on the passport at the border would be sufficiently safe in future systems (statement 33, -2). Somewhat radically, two individuals sharing this view, participants 2 and 11, state that today's society is already a surveillance society, which is fine by them, as they value security over privacy.

Factor 2: Privacy is crucial while technological advancement should not be an intrinsic value

Factor 2 explains 20% of the variation in the Q sorts and has four significant loaders: two human rights-oriented experts from NGOs, a professor of law and a political participant representing the Left Alliance. The second factor's main views accentuate the importance of privacy and civil liberties and convey scepticism towards ABC.

Adherents of Factor 2 acknowledge the privacy concerns relating to ABC as valid (statement 20, -4; statement 16, -3) and accordingly believe in the data minimization principle, which implies collecting the least possible amount of data (statement 42, +3). In this case it would mean strict regulation of biometrics in border control owing to the highly sensitive nature of biometric data. Contrary to the subscribers to Factor 1, those associated with this factor are wary of granting law enforcement officials access to the data used or obtained in border control (statement 38, +4). They also have apprehensions about the implications of ABC for international protection of asylum seekers and their rights, fearing that increased surveillance at airports could result in asylum seekers trying to enter the Schengen area through more dangerous irregular routes, such as by precarious boats across the Mediterranean Sea (statement 24, +3). Furthermore, legal expert 13 remarks that strict restrictions should apply on giving Third Countries information about attempts to cross a Schengen border for purposes of seeking asylum, as an automated system sending out information could compromise the asylum seekers' safety.

Factor 2 participants wish to evaluate carefully the needs and implications of ABC systems before ABC is implemented throughout Europe (statement 40, -3; statement 28, -4). ABC technology acquisition should be based on clear policies and needs (statement 3, +4), not on the EU striving to be a pioneer (statement 7, -2), or "the world champion of border control" for the mere sake of it, as expert 14 puts it. Factor 2 stakeholders also treat security differently than their counterparts on Factor 1. For instance, for participant 3, security does not necessarily improve by increasing surveillance or coercive action in general; it stems from trust. In sum, affirming the concerns of the critical social scientific literature discussed above, participants sharing the view of Factor 2 argue that ABC systems could become discriminatory and exclusionary apparatuses hiding behind an expert discourse of technological advancement if the criticism is not taken into account during their development (statement 27, +3; statement 19, -3).

Factor 3: The middle ground

While Factor 3 explains 17% of the variation in the Q sorts, its independent status is unclear. Participants supporting Factor 3 side with those adhering to Factor 2 in some privacy matters but the view Factor 3 conveys is closer to Factor 1's standpoint as a whole due to the ample potential it considers ABC to have. Factor 3 correlates with Factor 1 (0.40) and with Factor 2 (0.35), while Factors 1 and 2 do not correlate

positively (-0.06). Nevertheless, Factor 3 may have political relevance regarding future analyses. Five participants have significant loadings on Factor 3, which is also a reason to believe in its explanatory potential. The participants are a professor of law, two representatives from the Finnish Centre Party and one from the Social Democrats, and an expert from the Ministry of the Interior who is also involved in party politics.

Participants supporting Factor 3 set certain preconditions for the use of ABC systems. They emphasise that the general population should approve of ABC before making a decision to proceed with it (statement 39, +3), and thus express a need to promote public discussion on the subject. They feel the ABC technology needs to be further developed and perfected to avoid deploying it before it is completely trustworthy (statement 5, +4). However, the reservations leave room for optimism and ABC is observed to be “a great possibility” by politician 8, and “very useful as long as it is designed and regulated well” by politician 15. Overall, those associated with Factor 3 wish to proceed with ABC despite budget cuts (statement 4, -3) and see it as a probably profitable investment in the same way as Factor 1 participants.

Factor 3 further reflects a belief that biometric identification is valuable in border control, but should be subjected to privacy considerations (statement 18, -4). Hidden surveillance of passengers is vehemently opposed (statement 2, -4) and the data minimisation principle is supported (statement 42, +4). Agreeing with Factor 2, the participants associated with this factor think that biometric data is highly sensitive and hence not something that should be provided to law enforcement officials (statement 38, +3). However, the concerns for privacy rights are by far not as extensive as those described by participants on Factor 2; the individuals sharing the third factor’s view make remarks that contrast the strict privacy measures the participants supporting the second factor call for. For instance, politician 8 says that people are nowadays often too concerned with safeguarding privacy. For politician 15, so much private data already exists in registers, that data collection in automated border control would hardly constitute a drastic increase.

Consensus statements across the factors: Regulation before action

Participants on all three factors strongly support two statements. Firstly, participants believe that biometric technologies and the storing of biometric data for border control should build on a clear definition of who shall be granted access to such data (statement 37, +4 on all factors). Secondly, they demand that binding regulation for the future EU-wide IT-systems for ABC needs to be created before they can be introduced (statement 35, +3 on each factor); a professor of law, participant 4 observes that this regulation will have to include *monitoring mechanisms*. In addition, during our interviews, participants on all factors also stressed that ABC systems should be developed duly mindful of their cost-effectiveness.

Discussion

This first Q methodological study within the FastPass consortium has pointed at several areas in which the FastPass consortium should pursue further research on the subjective views of stakeholders in order to be able to develop politically more sustainable ABC systems.

First, it will be useful to study in more detail the common ground expressed by the consensus statements and Factor 3, which mediates the pro-technologisation Factor 1 and the more cautious and sceptical Factor 2. This will help in finding legitimate, politically acceptable and feasible solutions that would be less susceptible to policy shifts resulting from changes of government or populist pressures. In other words, the

harmonisation of ABC systems and related border policies should build on issues on which we can expect potentially opposing groups to agree. Overall, we need to enquire more profoundly into the above-mentioned political concerns regarding ABC systems to foresee their policy implications in both the short and long term.

Second, the FastPass consortium is on the right track in recognising the limitations of the technological options theme supported by Factor 1 participants in this study, and consequently exploring stakeholder views broadly. Our Q methodological work corroborates how the concerns expressed by Factor 2 participants – regarding privacy, increasing surveillance, and the lack of trust in fellow human beings that it symbolises for many, as well as new risks to asylum seekers and the possible infringement of their rights – need to be addressed seriously and convincingly. Here the industry, consultancies and policy developers at EU and national levels hold great responsibilities. The harmonisation process of ABC systems in the EU may also encounter some of the apprehensions conveyed by those associated with Factor 2. In response to these worries, EU-linked actors, in particular, should avoid excessive reliance on technocracy, or seek to critically assess the role of functional expert knowledge in decision-making which instinctively plays a major part in the EU over and above ABC matters (see e.g., Eriksen, 2011).

Third, further Q methodological work should try to foresee how the rise of populist, anti-immigration parties throughout the EU may affect the future prospects and functions of ABC systems. Indeed, border and immigration control policies are becoming more politicised (see Broeders & Hampshire, 2013). We need to know more about the political pressures regarding ABC systems in Member States and how they could affect the work of projects like FastPass, the EU Joint Research Centre, and ultimately the Commission's border policies including the currently discussed 'Smart Borders' package through which ABC systems are likely eventually to be viewed on the wider political level (see European Commission, 2013a; 2013b; 2013c).

What complicates the assessment of the findings most is, perhaps, the not yet well-established nature of the research topic. For instance, one MP declined to participate in the research because the working committee of which (s)he is a member was processing the European Commission's Smart Borders initiative at the time of conducting this first round of Q methodological inquiry, in anticipation that his/her standpoint could still change upon the committee receiving further expert opinions. Indeed, many MPs may not yet have well-formed political views on ABC systems. The uncertain status of Factor 3 could also be a result of political indecision, given that all but one of the participants loading significantly on this factor are involved in party politics.

At the same time, the process of sorting the statements of the Q sample helped many participants to develop their views on the topic as they started to ponder how to develop ABC into an ethically sustainable process. For example, in relation to statement 13, expert 17 and politician 5 raised the issue of whether electronic gates would be less prejudiced than the border guards are. Another notion concerning the ABC users' hesitations was voiced by expert 16, who argued that familiarity with technology cuts back on scepticism and fears about it; people are comfortable using smartphones with little data protection but may dislike being fingerprinted for a biometric passport. This would suggest a need for more information to be provided to the general public and voluntary pilot testing of any new electronic gates – something that the FastPass consortium plans to work on – so that people would become acquainted with the

technology and not see it as something imposed by their government or the EU; a view supported by Factor 3 participants in this study.

As the FastPass consortium seeks to promote the harmonisation of ABC systems, the Q methodological enquiries need to be expanded into more cases to ascertain the political preferences and restrictions concerning ABC in different EU Member States. Member States face different border control challenges in the South (with migration pressures), East and North (land borders with Russia, Belarus and Ukraine, accompanied by diverse local trade and traffic patterns), and West (the UK not being a member of the common Schengen border regime). Populist pressures also vary from case to case, as do the ethical and privacy reservations regarding adopting ABC on a larger scale.

Within large, diverse consortia such as FastPass the use of Q methodology also encounters the challenges of interdisciplinary communication. In the case we report, the political constraints that were located and the positive features of ABC systems that were identified need to be converted into the technical requirements the consortium generates for technology, system and software developers. Methodological triangulation poses its own challenges as in this consortium, the views of border guards, travellers and NGOs are assessed by means of interviews and surveys, while only those of political stakeholders in some Member States are established by means of Q methodology. The comparison of the Q methodological material with other material can hence only be qualitative and indirect. At the same time, in the best possible case the use of Q methodology can serve as the political conscience of the consortium by producing information on what ultimately is politically feasible and what is not, helping other consortium members to avoid potentially risky and costly choices in the proposed harmonisation and related R&D.

Conclusion

The main findings of this first Q methodological study in the FastPass consortium concern how a focus on subjectivity can help to elucidate the political acceptability of ABC systems in the case of Finland, as witnessed in the three distinct viewpoints expressed by the factors. Factor 1 is the most security and technology oriented, and most pro-ABC, while Factor 2 is the most critical towards ABC and emphasises the importance of preserving privacy. Factor 3 conveys a moderate stance on proceeding with ABC, but see it as a viable option. The participants on all three factors agree on asking for data protection in the sense of wanting legal instruments to regulate the EU-wide IT-systems for border control, and demanding a clear definition of who would be granted access to the information in them.

While we found a limited amount of common ground among Finnish political stakeholders, the concomitant existence of different factors makes it clear that the stakeholder dialogue that FastPass has initiated needs to continue in the form of further Q methodological case studies and related research on other EU Member States. To succeed in its objectives, the consortium needs to develop a harmonisation solution to ABC that would take sufficient account of the different viewpoints expressed by the factors. EU-level solutions such as the one pursued by FastPass are usually compromises sought over a long period. Q methodology can help to clarify the prospects of such a compromise.

References

- Aleprete, M. E., & Rhoads, J. C. (2011). U. S. foreign policy: Structure of elite opinion. *Operant Subjectivity, 34*(4), 247-270.

- Ascher, W. (1987). Subjectivity and the policy sciences. *Operant Subjectivity*, 10(3), 73-80.
- Broeders, D. (2007). The new digital borders of Europe: EU databases and the surveillance of irregular migrants. *International Sociology*, 22(1), 71-92.
- Broeders, D., & Hampshire, J. (2013). Dreaming of seamless borders: ICTs and the preemptive governance of mobility in Europe. *Journal of Ethnic and Migration Studies*, 39(8), 1201-1218.
- Brown, S. R. (1986). Q technique and method: Principles and procedures. In W. D. Berry & M. S. Lewis-Beck (Eds.), *New tools for social scientists: Advances and applications in research methods* (pp. 57-77). Beverly Hills: Sage.
- Ceyhan, A. (2008). Technologization of security: Management of uncertainty and risk in the age of biometrics. *Surveillance & Society*, 5(2), 102-123.
- Cuppen, E. (2013). Q methodology to support the design and evaluation of stakeholder dialogue. *Operant Subjectivity*, 36(2), 135-161.
- Dijstebloem, H., Meijer, A., & Besters, M. (2011). The migration machine. In H. Dijstebloem & A. Meijer (Eds.), *Migration and the new technological borders in Europe* (pp. 1-21). Basingstoke: Palgrave Macmillan.
- Epstein, C. (2007). Guilty bodies, productive bodies, destructive bodies: Crossing the biometric borders. *International Political Sociology*, 1, 149-164.
- Eriksen, E. O. (2011). Governance between expertise and democracy: The case of European security. *Journal of European Public Policy*, 18(8), 1169-1189.
- European Commission. (2013a). *Proposal for a regulation of the European Parliament and of the Council establishing an entry/exit system (EES)*. Proposal 2013/0057, 28 February 2013, Brussels. Retrieved from http://ec.europa.eu/dgs/home-affairs/doc_centre/borders/docs/1_en_act_part1_v12.pdf
- European Commission. (2013b). *Proposal for a regulation of the European Parliament and of the Council establishing a registered traveller programme*. Proposal 2013/0059, 28 February 2013, Brussels. Retrieved from http://ec.europa.eu/dgs/home-affairs/doc_centre/borders/docs/1_en_act_part1_v14.pdf
- European Commission. (2013c). "Smart borders": enhancing mobility and security. February 28, 2013. Press release IP/13/162. Retrieved from http://europa.eu/rapid/press-release_IP-13-162_en.htm
- Feldman, G. (2011). *The migration apparatus. Security, labor and policymaking in the European Union*. Stanford: Stanford University Press.
- Friedewald, M., Wright, D., & Gutwirth, S. M. (2010). Research note: Privacy, data protection and emerging sciences and technologies: Towards a common framework. *Innovation - The European Journal of Social Science Research*, 23(1), 61-67.
- Frontex. (2012). *Best practice operational guidelines for automated border control (ABC) systems*. Research and Development Unit. Warsaw: European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union (Frontex). Retrieved from <http://frontex.europa.eu/assets/Publications/Research/Best Practice Operational Guidelines for Automated Border Control.pdf>
- Harel, A. (2009). Biometrics, identification and practical ethics. In E. Mordini & M. Green (Eds.), *Identity, security and democracy: The wider social and ethical implications of automated systems for human identification* (pp. 69-84). Amsterdam: IOS Press.
- Kwon, T., & Moon, H. (2008). Biometric authentication for border control applications. *IEEE Transactions on Knowledge and Data Engineering*, 20(8), 1091-1096.

- Lodge, J. (2004). EU homeland security: Citizens or suspects? *European Integration*, 26(3), 253-279.
- Mordini, E., & Rebera, A. P. (2012). No Identification without representation: Constraints of the use of biometric identification systems. *Review of Policy Research*, 29(1), 5-20.
- Muller, B. J. (2004). (Dis)qualified bodies: Securitization, citizenship and 'identity management'. *Citizenship Studies*, 8(3), 279-294.
- Muller, B. J. (2011). Risking it all at the biometric border: Mobility, limits, and the persistence of securitisation. *Geopolitics* (16), 91-106.
- Palm, E. (2013). Rights that trump: Surveillance-based migration governance and a substantial right to mobility. *Journal of Information, Communication and Ethics in Society*, 11(4), 196-209.
- Petermann, T., Sauter, A., & Scherz, C. (2006). Biometrics at the borders – the challenges of a political technology. *International Review of Law Computers & Technology*, 20(1-2), 149-166.
- Pirelli, G. (2009). *Usability in public services and border control. New technologies and challenges for people with disability*. Ispra: European Commission Joint Research Centre, Institute for the Protection and Security of the Citizen.
- Spijkerboer, T. (2007). The human costs of border control. *European Journal of Migration and Law*, 9, 127-139.
- Steelman, T., & Maguire, L. (1999). Understanding participant perspectives: Q methodology in national forest management. *Journal of Policy Analysis and Management*, 18(3), 361-388.
- Tomova, S. (2009). Ethical and legal aspects of biometrics (Convention 108). In E. Mordini & M. Green (Eds.), *Identity, security and democracy: The wider social and ethical implications of automated systems for human interaction* (pp. 111-114). Amsterdam: IOS Press.
- van der Ploeg, I. (2003). Biometrics and privacy. A note on the politics of theorizing technology. *Information, Communication & Society*, 6(1), 85-104.
- van der Ploeg, I. (2009). Machine-readable bodies. Biometrics, informatization and surveillance. In E. Mordini & M. Green (Eds.), *Identity, security and democracy: The wider social and ethical implications of automated systems for human identification*. (pp. 85-94). Amsterdam: IOS Press.
- van der Ploeg, I. (2012). Security in the danger zone: Normative issues of next generation biometrics. In E. Mordini & D. Tzovaras (Eds.), *Second generation biometrics: The ethical, legal and social context* (pp. 287-303). New York: Springer.

Appendix 1: Participant Sample and Factor Loadings

	Organisation or Sector	Political Party Affiliation	F1	F2	F3
1	Office of the Data Protection Ombudsman	-	0.07	0.51	0.66
2	Finnish Border Guard	-	(0.82)	0.04	0.19
3	Parliament of Finland	Left Alliance	-0.26	(0.84)	0.24
4	University	-	-0.08	(0.84)	0.24
5	Parliament of Finland	Social Democratic Party	(0.79)	0.14	0.28
6	Parliament of Finland	Centre Party	0.09	0.01	(0.76)

	Organisation or Sector	Political Party Affiliation	F1	F2	F3
7	Parliament of Finland	Finns Party	0.30	-0.23	0.17
8	Parliament of Finland	Centre Party	0.38	-0.27	(0.56)
9	Ministry of the Interior	-	(0.82)	-0.12	0.18
10	Ministry of the Interior	-	(0.82)	-0.13	0.00
11	Parliament of Finland	National Coalition Party	(0.73)	-0.39	0.17
12	Ministry of the Interior	(involved in a party)	0.25	0.15	(0.68)
13	Non-governmental organisation	-	-0.08	(0.89)	0.19
14	Non-governmental organisation	-	0.13	(0.82)	0.18
15	Parliament of Finland	Social Democratic Party	0.16	0.33	(0.73)
16	Ministry of Transport and Communications	-	(0.74)	0.05	0.34
17	University	-	0.10	0.23	(0.66)
18	Parliament of Finland	Left Alliance	(0.70)	0.37	-0.19
19	Parliament of Finland	National Coalition Party	0.07	-0.01	-0.01
		Explained Variance	25 %	20 %	17 %

Key: Parentheses indicate a significant loading on the factor. The significance level was set to 0.39, using Brown's formula (1986, p. 64). Participant 1 loads significantly on Factors 2 and 3 and has not been regarded as a defining sort in order to keep the factors as distinctive as possible.

Appendix 2: Q Sample and Factor Scores

No.	Statement	Factor		
		1	2	3
1	Automating border check procedures allows a better use of personnel by allocating more resources to check risky travellers. It would be best if the passengers wouldn't know where, when and which controls are occurring so that potential attackers wouldn't be able to outwit them.	+4	0	+2
2	Border control technology should only be acquired after a careful assessment of needs and according to a clear policy.	-1	-2	-4
3	The EU shouldn't go forward with ABC because it's too expensive, especially against the background of pervasive budget cuts and austerity measures.	+2	+4	+2
4	The technology of the ABC should be perfected and made more trustworthy before taking it into use.	-3	0	-3
5	Member States carrying a bigger financial burden than others in implementing the common standards on external border controls should be compensated by the EU.	0	+2	+4
6	The EU should be a pioneer in moving towards more modern and more efficient border management by using state-of-the-art technology.	+2	-1	-3
7		+2	-2	+2

No.	Statement	Factor		
		1	2	3
8	The ABC process should work as similarly as possible throughout Europe to cause less confusion to the travellers and thus to speed up crossing.	+3	+1	+3
9	The costs of the ABC gates should be lower and the processing times faster than performing the same functions with manpower.	+4	-1	0
10	ABC is needed, because more and more countries are becoming visa-exempted, which will add to the masses of travellers wanting to cross the EU's borders.	+2	-3	+1
11	The plan to align the information systems of numerous EU agencies with national and international surveillance, immigration and border control systems is not technically viable.	-2	0	-1
12	Facilitating the entry to the EU by using new technologies will boost the European economy.	+1	-1	0
13	The ABC does not discriminate, because the decision to allow entrance is automatic if the data matches.	+1	-2	+1
14	Developing applications suitable for land and maritime crossings should be a priority in the ABC-process.	0	-2	-1
15	No computer systems can currently detect nervousness and suspicion as well as experienced border officers.	0	-1	-2
16	The relation between security and privacy is a zero-sum game where an increase in security automatically means a reduction in privacy.	-1	-3	0
17	A key challenge in ABC is for the Member States to agree on which biometric identifier (e.g. facial, iris, fingerprints) they all wish to use, so that the systems would be inter-operable.	-1	-2	+2
18	The safe storage of one's biometrics is no more concerning than providing one's billing information to businesses.	-1	-4	-4
19	The goal of ABC is simply to make travelling easier and more comfortable.	+1	-3	0
20	The security and other benefits the current biometric deployments offer far outweigh the social concerns relating to personal privacy.	0	-4	0
21	Biometric identification produces symbolic violence in the forms of inequality, exclusion, and humiliation.	-4	+1	-4
22	Biometric identification paves the road to totalitarian regime.	-4	0	-3
23	Biometric systems are risky because it is difficult to build them so that they fit only their designated purpose.	-2	+2	+1
24	The use of highly effective technologies at parts of the border may trigger the increased use of other, more dangerous illegal entry points (maritime routes, deserts, etc.).	+1	+3	-3
25	Biometric identification will not hinder terrorists as they probably have legitimate biometric documents.	-1	+1	0
26	The accelerating spread of biometrics represents a convergence of business interests and the aims of political hardliners who view migration as a threat to the EU's homeland security.	-2	+1	-2

<i>No.</i>	<i>Statement</i>	<i>Factor</i>		
		<i>1</i>	<i>2</i>	<i>3</i>
27	Biometric technologies mask their often discriminatory, exclusionary character behind a technological, and scientific discourse.	-3	+3	-2
28	Opposing ABC often stems from the radical desire to oppose all kinds of governmental surveillance, including border control	0	-4	-2
29	The border control personnel is under heavy pressure and desperately needs the benefits of improved technology and modern resources.	+3	-1	-2
30	The long queues at border crossings represent a poor image of the European Union to visitors.	0	-1	-1
31	The digital divide between developed and developing countries will be reinforced by placing suspicion on travellers, whose passports lack the latest technological security requirements.	-1	+1	-1
32	Gathering fingerprints at border crossings essentially makes travellers suspects, which threatens the general, democratic presumption of innocence.	-4	+2	+1
33	It is always better for passenger privacy, if personal data is stored in a passport or other user-held document instead of a database.	-2	0	+1
34	It is shameful that the ones who profit the most from ABC are the big European defence contractors.	-3	0	-1
35	The EU must not produce any union-wide IT-systems without binding legal instruments.	+3	+3	+3
36	ABC systems should not lead to a situation where those who do not wish to use the automated gates are treated with suspect and subjected to more intrusive searching and inconvenient delays.	+2	0	+2
37	Before using biometric technologies and storing biometric data, there should be a clear definition of who will get access to the data.	+4	+4	+4
38	It is a dangerous trend to give law enforcement authorities access to data of individuals, who are not suspected of committing any crime.	-3	+4	+3
39	Before proceeding with ABC, there should be an informed acceptance among the general population.	-2	+1	+3
40	ABC should be taken into use as fast as possible throughout Europe.	+1	-3	0
41	It is unacceptable that ABC systems do not provide full access for all travellers with disabilities, such as wheelchair users.	0	+2	-1
42	The principle of data minimization (collecting the least amount of data possible) should be the cornerstone of any biometric policy.	+1	+3	+4
43	Clear statements should be provided to the travellers, as to exactly how biometric data is used, with whom it is shared and for what purpose.	+3	+2	+1