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Public preference for data privacy – A pan-European study on metro/train surveillance

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ABSTRACT

This paper presents a pan-European application of a stated preference discrete choice experiment for eliciting respondents' preferences for various data-privacy settings in the context of security and surveillance of train/metro facilities in Europe. Results show that respondents across the 27 European Union Member States (EU27) prefer some Closed Circuit Television Cameras (CCTV) surveillance across in all countries, except Sweden where the most advanced type of CCTV with face recognition capabilities is preferred. Most respondents prefer that CCTV data is stored for future use rather than just being used for real-time monitoring, with the exception of respondents in Greece. However, an intermediate period of storage (15 days) is preferred over a shorter or longer duration (45 days). Respondents across the EU27 are averse to police force outside their home country having access to CCTV data. Respondents prefer the presence of unarmed security personnel over absence of security personnel. The majority of respondents are averse to any kind of security checks. However, in Belgium, France, Italy, Spain and the UK there is a preference for randomly selected people to go through a metal detector or full body scanner. Further this study shows that preferences also vary by age and gender. Overall, analysis of the data illustrates the complexity of the privacy over security debate as it pertains to transportation infrastructures. In particular, the increased use of transportation user data for various reasons (efficiency, safety and security) can pose complex social and ethical challenges to users, especially around perceptions of consent, accountability and transparency.

1. Introduction

Railway and metro infrastructure are subject to a variety of types of criminal behaviour such as robbery, abuse and anti-social behaviour. In the last decade, these infrastructures have also become popular targets for terrorist attacks with deadly consequences. In the case of the latter, these have taken place at stations or on-board buses and trains at major capitals including Brussels (22/03/2016), London (7/7/2005), Madrid (11/03/2004), Moscow (29/03/2010), Paris (25/06/1995, 17/08/1995, 26/08/1995), and many other cities across the globe (Global Terrorism Database, 2016). These incidents have shown that public transport systems are vulnerable and given the volume of travellers using them do remain a likely target for future terrorist attacks.

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As a consequence, there has been a shift in European security-policy towards – as stated by the European Commission President Jean-Claude Juncker, a 'common European Responsibility' (Friesen, 2007; European Commission, 2016). For example, the Internal Security Strategy 2010–2014, the European Agenda on Security and the Treaty of Lisbon provide the policy and legal frameworks 'aiming at achieving liberty and security' in the European Union (European Commission, 2015).

Practically, responses to the aforementioned terrorist attacks have also brought forward the deployment of a wide range of security measures and surveillance technologies in an attempt to mitigate the risk of incidents re-occurring and address the consequences should they occur. In many European countries and beyond, surveillance involving video or camera technology – what is widely known as Closed Circuit Television Cameras – is now a standard feature at stations and on board buses and carriages. For example, the London Underground has now more than 15,000 CCTVs with a default footage-retention period of 14 days (TfL, 2016). Development of advanced CCTV-based surveillance technologies also means these systems are now capable of incorporating automated algorithms for the detection of dangerous conditions; for example, whether an individual carries a knife or firearms (Grega et al., 2016). New surveillance technologies are also capable of tracking behaviour and detect suspicious movements or certain patterns of clothing or baggage (Sahm, 2006).

Other measures include deployment of additional number and of varying specialism security personnel including armed police and the military. Following the Brussels attacks in spring 2016, armed police were deployed to airports, train stations and other urban infrastructure where large numbers of people congregate in Europe. For example, France deployed an extra 1600 police officers to transport hubs across the country with the majority of them based at Paris (The Local, 2016). In many cases, security personnel were accompanied with sniffer dogs and extensive checks were also implemented.

While such measures are aimed at providing increased levels of reassurance to the general public, they may compete with citizens' privacy, civil liberties and dignity (e.g., because of the need to physically check passengers and their bags) and protection of personal information (e.g., by recording CCTV footage). Thus a key aim for policy- making when confronted with the security challenge should be to strike the appropriate balance across security, privacy and dignity, while maintaining efficiency and convenience (since although extensive checks would achieve security objectives they would also bring the infrastructure to a halt, thus contributing to the achievement of the goals of the terrorist acts). In this context, it is important to capture and understand the citizens' perspectives. Capturing public preferences is the only way to ensure public views are represented in the decision- and policy-making process. Moreover, eliciting citizens' preferences provides guidance on best practices for communicating potential threats from loss of privacy and offer reasons on how potential threats to privacy may be mitigated. Thus one of the key aims of this study is to contribute to this debate and provide robust evidence based on citizens' preferences for security and privacy in the context of rail/metro travel.

Using data from a pan-European survey, we investigate public preferences relating to data collected on train/metro facilities mainly for security and surveillance through the use of CCTV. The specific research questions include the following:

1. Do respondents prefer facilities where less data is collected?
2. Does the duration of data storage (retention) matter?
3. Do respondents prefer certain geographic level of access (sharing) to data by authorities and government agencies (i.e., home country, EU, internationally)?
4. Do these preferences vary across individuals and countries?

The pan-European survey was conducted as part of PACT – "Public perception of security and privacy: Assessing knowledge, Collecting evidence, Translating research into action", a three-year research project funded by the European Commission's 7th Framework Programme. The overall aim of PACT has been to understand public perceptions of security, privacy and surveillance across the 27 European Union Member States (EU27[1]). Among other research activities, PACT involved a survey questionnaire with three stated preference experiments each corresponding to the following choice contexts:

1. Travel on metro or train.
2. Choice of an Internet Service Provider.
3. Purchasing a device or service for storing health-related personal data.

For the purposes of this paper, we only focus on travel on metro/train. Findings from this paper can inform on how planned security and surveillance measures on transport infrastructure facilities are perceived by users, providing the evidence base for informing regulations and best practices related to security and surveillance measures. This study also adds to the evidence on the applicability of stated preference methods for measuring perceptions related to security and privacy, which are frequently described as abstract and complex concepts.

2. Literature review

Previous studies aimed at better understanding travellers' acceptance for travel-security and surveillance measures, have been limited in both their numbers and geographical context. Robinson et al. (2010) and Potoglou et al. (2010) was one of the

[1] At the time of inception of this project (in 2012) there were only 27 Member States of the EU. Croatia joined the EU in 2013 and was not included in the scope of this project.