PROTON

Modelling the processes leading
to organised crime and terrorist networks

Co-funded by the
European Union

Interim Societal Impact Report

March 2018 (M18)

D6.4: Interim Societal Impact Report
WP6, D6.4

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Modelling the PRocesses leading to Organised crime and TerrOrist Networks
FCT-16-2015

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 699824.

Technical References

Project Acronym	PROTON
Project Title	Modelling the PRocesses leading to Organised crime and TerrOrist Networks
Project Coordinator	Ernesto Savona Università Cattolica del Sacro Cuore ernesto.savona@unicatt.it
Project Duration	October 2016 – September 2019 (36 months)

Deliverable No.	D6.4
Dissemination level [1]	PU
Work Package	WP6 - Legal, Ethical and Societal Implications of PROTON
Task	T6.4 – Interim Societal Impact Report
Lead beneficiary	14 (UNIPV)
Contributing beneficiary(ies)	14 (UNIPV)
Due date of deliverable	31 March 2018
Actual submission date	30 March 2018

[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

Document history			
V	Date	Beneficiary	Author
1	29/03/2018	UNIPV	Gabriella Bottini, Marco Annoni, Maria Laura Fiorina

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 699824.

0 Summary

This deliverable is the *Interim Societal Impact report* (D6.4) of WP6 (*Ethical, Legal and Societal Implications of PROTON*) of PROTON.
It follows the submission of D6.1 and D6.6, *Ethical and societal issues and safeguards*, but precedes both the analysis of the legal aspects of PROTON (D6.2, scheduled for month 32) and, crucially, the release of the first operating version of the PROTON-S and PROTON-Wizard. Accordingly, the scope of this *interim* report is not to assess the full range of the societal impacts of PROTON, PROTON-S, and PROTON-Wizard – as they are still in the making –, but to explore their potential consequences from a theoretical and anticipatory perspective, thus allowing the partners involved in the development of PROTON to better identify, assess and manage some of the positive and negative societal consequences associated with the project.
A *Final Societal Impact assessment report* (D6.5) will be submitted at the end of PROTON at month 36. This *Final report* will build and extend on the findings of this assessment, and it will provide an in-depth evaluation of all the potential societal impacts of PROTON, PROTON-S, and PROTON-Wizard in sight of their completion and public release.
The main outcomes of this deliverable are that PROTON may enhance the security of society by fighting OCTNs in a more effective way, i.e. by preventing the recruitment of individuals into these criminal networks. However, the use of ABM models, which is at the core of the project, raises also some societal concerns – most notably about transparency, justice, and public engagement – that can and should be considered while developing the second half of the project.
The present deliverable is divided into three parts. First, a synthetic overview of the state of the art of Societal Impact Assessment (SIA) is provided. Second, the ASSERT methodology is introduced. Third, the results of a series of semi-structured interviews with a selected group of stakeholders are given. Finally, we set forth a list of operative actions meant to facilitate and orient the development of the remaining WPs in the second half of the project.

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1 Societal Impact Assessment (SIA)

1.1 Societal Impact Assessment: definitions

Any new technology, measure, research program or policy imparts some changes to the communities and societies for which and in which it is adopted, developed, or enforced. Some of these "effects" or "externalities" are positive, as they contribute to the good of society and to the fostering of its values, while others are negative, as they run against such goals. Also, some of these changes can be difficult to predict, identify and assess.

Against this background, today the term "Social impact assessment" (SIA) refers to a multifaceted and multidisciplinary set of practices meant to identify, evaluate, assess, enhance or mitigate the negative and positive effects of a variety of planned interventions. SIA developed as a specific concept with the 1969 National Environmental Policy Act of the USA (NEPA) in the context of the evaluation and assessment of the impact of new environmental policies on society, or EIA (*environmental impact assessment*) (Freudenburg 1986).

In the beginning, the practice of social impact assessment was considered a "soft requirement", namely, a complementary and voluntary activity that was perhaps praiseworthy, but that was neither compulsory nor binding in case negative impacts were foreseen. By contrast, nowadays SIA is increasingly seen as an indispensable and sometimes mandatory part of policy-making and research and development projects. This is especially true for European security-research projects like PROTON. Security projects may have a range of significant effects upon society and communities, as well as upon specific individuals, that may be difficult to foresee and quantify in advance (Vanclay 2003). SIA became a key-mandatory requirement for all security-related projects and actions under the *Horizon 2020* program, including calls and project funded under the H2020 EU.3.7 *Secure societies - protecting freedom and security of Europe and its citizens*[1]. In conjunction with other WP6 deliverables (D6.1, D6.2, D6.5, D6.6), this *interim societal report* provides a first step toward the fulfillment of these requirements for the PROTON project.

There is also a set of practical reasons that justify the need for societal impact assessments in security projects. These reasons hint at the *propositive* and

[1] The call "Secure societies - Protecting freedom and security of Europe and its citizens", (European Commission Decision C(2017)7124 of 27 October 2017, p. 5), makes explicit that "Security as societal value is a guiding principle throughout this work programme part. All individual actions must be in compliance with the provisions of the Charter of Fundamental Rights of the European Union.1. When dealing with the development of technologies, it is recommended that actions consider the concepts of "privacy by design", "data protection by design", "privacy by default", and "data protection by default", http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-security_en.pdf

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transformative character that an ideal process of societal impact assessment should have on the planned intervention. According to the traditional thinking, the assessment of the societal impact amounts only to the analysis of possible side effects. This view, however, is too restrictive and needs to be superseded. In fact, "it should and can be demonstrated that societal dimensions of security research taken into account from the very beginning of the "design process" can increase the variety pool of feasible solutions" (Barnard-Wills, Wadhwa, and Wright 2014: 13). On this more extensive view, rather than just identifying the possible negative externalities of a given intervention, the preventive deployment of societal impact assessment allows for the opportunity of adjusting, reshaping, redirecting and correcting the process itself through which the planned intervention is designed.

In the last decades, scholars have advanced several definitions of "SIA" (see, Vanclay 1995; 2003). The International Association for Impact Assessment (IAIA), which represents the institution of reference in the field, adopts the following definition:

> Social Impact Assessment includes the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment (Vanclay 2003: 6).

This definition is, unsurprisingly, very broad. "Planned interventions" is a capacious term that may refer to diverse measures, policies, and technologies. A policy for better water sanitation, a new online surveillance technology, or a school reform are all "measures" that are likely to have societal impacts. However, these impacts may significantly differ in kind and nature, and thus they may require diverse theoretical frameworks as well as diverse research methodologies in order to be identified, assessed and eventually managed.

As a result, today the acronym "SIA" represents an umbrella term covering a wide and developing field of practices, techniques, and methodologies (Howitt 2011: 78-79).

So far, SIA has relied heavily on a multidisciplinary approach in which the toolkits and methodologies from social sciences have been deployed in conjunction with other research methodologies. In other words, each instance of SIA represents an open-ended process of inquiry that reflects a certain set of theoretical and methodological assumptions.

In light of these considerations, in the following sections, we introduce the key-theoretical assumptions informing the present view of SIA; how such framework applies in the case of a security-related research project like PROTON through the specific ASSERT methodology; the results of this SIA analysis and the ensuing conclusions of the present *Interim report*.

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1.2 Categorizing societal impacts

The terms "social" or "societal impacts" cover an extensive series of positive and negative effects that a planned intervention may have on society. These effects extend beyond the effects on human agents and their relationship, leading some scholars to prefer the term "societal (rather than social) [to connote] the inclusion of anything affecting human, natural or artifactual systems, rather than just those effects that impact upon humans and their interactions" (Barnard-Wills, Wadhwa, Wright ASSERT 2014, p. 22). In the present deliverable, we endorse this latter and more inclusive perspective, hence favoring "societal" over "social".

Scholars have proposed a different categorization of societal effects (or "impacts", or "externalities") with the aim of reducing this inherent complexity and facilitating their assessment. Among the lists, the one provided by IAIA is the most cited in the literature; it recognizes eight main categories of possible effects [people's way of life; their culture; their community; their political systems; their environment; their health and wellbeing; their personal and property rights; their fears and aspirations (Vanclay, 2002: 389)].

Two aspects deserve attention in this categorization. First, this list underscores that SIA must consider different kinds of societal actors and entities. Aside from the impact that a planned intervention may have on society *as a whole*, SIA must consider also the effects for other social entities, including specific individuals, ethnic or cultural groups, sub-populations, different stakeholders, and end-users, etc. Thus, a SIA must be able to consider the effects of planned interventions for different kinds of social impacts along the entire individual-society axis.

Second, this list encompasses different kinds of societal effects. For instance, the quality of the air and water people use are easily measurable variables through adequate empirical means. However, assessing the effects of an intervention with respect to the state of people' civil liberties and their fundamental rights may call for a different approach and research methodology. In light of these considerations, Mordini *et al.* (2012; 12) have identified three categories of societal impacts that must be considered while conducting SIAs:

(a) *Quantitative variables*. These include all the changes that can be empirically measured through objective methods, such as air-temperature, unemployment rates, violent crime rates, etc.

(b) *Qualitative variables.* These include those impacts that refer to subjective outcomes and that, at least in principle, can be assessed and measured, albeit indirectly, using qualitative methodologies. Like quantitative variables, also the qualitative ones are measurable *as a matter of degree*, and can thus be understood and compared in metric terms: for instance, people may feel more or less secure, happy, optimistic, or engaged in democratic decisional processes, etc.

(c) *Non-metric variables.* These categories of "impacts" is more elusive than the first two, as it refers to all the effects that a planned intervention may have

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with respect to abstract and yet critical issues such as the respect of fundamental civil liberties and human rights. Obviously, in a sense also the respect of human rights may be measured and assessed according to specific indicators[2]. However, in another sense, the respect or the breach of a fundamental right may also be seen as an "all or nothing issue". While a violation may still be more or less severe, and a punishment may be more or less harsh, the breach of a right is, instead, not a matter of degree. Accordingly, rather than on empirical quantitative or qualitative means, the scrutiny of this latter and crucial aspect must rely on a different toolkit of theoretical, legal and philosophical concepts and instruments.

SIAs are sometimes very complex because an intervention may have a number of societal impacts that fall under one or more of the above categories. For instance, "the level of democratisation" in a population or society may be understood and inquired in terms of the rates of decisions that are taken using democratic means; in terms of the perceived expectations of the involved stakeholders; and, also, from the point of view of the respect, promotion and specification of fundamental human rights. Ideally, each process of SIA ought to adopt a methodology that allows to identify and properly assess *all* the significant positive and negative effects that a planned intervention could have across *all* the categories and kinds of possible variables described above.

2 The ASSERT methodology

This section integrates the theoretical background outlined in the previous section with the methodological toolkit of ASSERT (a*ssessing security research: tools and methodologies to measure societal impact*)[3]. The scope of the ASSERT toolkit is to provide an accessible, flexible and exhaustive methodology to conduct societal impact assessments for security projects like PROTON. First, we introduce the ASSERT theoretical and methodological framework; then we present an analysis of the main and secondary stakeholders in PROTON; third, we present the results of the SIA assessment.

[2] http://www.ohchr.org/Documents/Publications/Human_rights_indicators_en.pdf

[3] The ASSERT methodology is the outcome of a project that has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 313062. For more information about the ASSERT project and consortium: http://assert-project.eu/

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2.1 The framework

The ASSERT approach draws from three main existing approaches: Social/Societal impact Assessment (SIA); Constructive Technology Assessment (CTA); and Privacy Impact Assessment (PIA). As we have already outlined SIA, here we shall synthetically focus only on the CTA and PIA approaches.
CTA is a form of Technology Assessment (TA), a practice aimed at assessing the probable implications of technologies on various systems to avoid or identify possible negative effects. Similarly to SIA, different scholars have conceptualized different strands of TA (Smiths and Leyten 1991; Bechmann 1993; Genus 2006; Biegelbauer and Loeber 2010: 17-18). Differently from other forms of TA, however, "constructive TA" focuses on the short-term design of the innovation process. Rather than analyzing the long-term potentials or on the medium term, CTA is instead conceptualized as an approach finalized at providing a quick iterative series of feedbacks during the process meanwhile an innovative technology is developed. To this end, the distinctive feature of CTA lies in its *dialogical* and *participatory* character, which allows CTA to "produce better technology in a better society, and emphasis[ing] the early involvement of a broad array of actors to facilitate social learning about technology and potential impacts", thus increasing the "social robustness of technology" (Genus 2006: 13-14). In particular, Barnard-Wills, Wadhwa, and Wright (2014: 15-16), synthesize the state of the art of contemporary CTA within the literature by stressing its emphasis on three key aspects:

I. "the need for reflexivity and participation of a wide range of actors in the technology assessment activities […];
II. 'alignment', which focuses on how interactions among participants foster and facilitate social and political learning […] The modulation of processes should be seen as something ongoing, not as a one-off event";
III. "integration of anticipation of the future effects of technology into the promotion and introduction of technology (i.e. actors involved in control activities should actively participate in the technology design and development activities)".

The CTA approach is thus aimed at engaging diverse actors and stakeholders at a very early stage in the development of a technology, facilitating interactions and mutual understanding[4]. As it will become apparent in the next sections, this

[4] This sets CTA apart from the so-called "deficit model" of public engagement, for which, instead "publics are seen in need to be 'educated' about science in order to appropriately understand, and ultimately accept, new science and technology" (Barnard-Wills, Wadhwa, and Wright 2014: 16). By contrast, CTA is not finalized to educate the public, nor to facilitate a blind reception of new technologies, but in promoting a mutual understanding that grows out of the active confrontation between all the different actors and stakeholders, and which may lead to better comprehend the meaning of new technologies for and in society as well as the factors promoting or inhibiting their reception.

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dialogical, short-term participatory character of CTA is at the core also of the ASSERT methodology and, thus, also of the methodological approach adopted to engage the stakeholders in the present deliverable.
The second approach beneath the ASSERT methodology stems from Privacy and Surveillance Assessment approaches. Wright et al. (2013: 163) defines PIA as "a methodology for assessing the impacts on privacy of a project, technology, product, service, policy, program, or other initiative and, in consultation with stakeholders, for taking remedial actions as necessary in order to avoid or minimize negative impacts". Like CTA, also the PIA approach, on this view, should be conceptualized as a process that accompanies, rather than precedes or follows, the development of technologies. More recently, some scholars have proposed to extend the PIA as to include other technologies, thus inaugurating the field of *surveillance impact assessment* (Wright and Raab 2012). Differently from standard PIAs, *surveillance impact assessment* broadens the focus of the analysis and extends also to other social, legal, ethical and psychological impacts; it focuses on the impacts of surveillance technologies on social groups and society as a whole, rather than only on individual privacy infringements; and it seeks to engage a wider range of stakeholders that PIA (Wright and Raab 2012: 615; Barnard-Wills, Wadhwa, and Wright 2014: 17). The ASSERT methodology stems from this latter, broader, approach to privacy and surveillance assessment.

2.2 The methodology

The core of the ASSERT methodology "is based upon an analysis driven by interaction with stakeholders and posing a series of questions that enable the discovery of varying views on impacts" (Barnard-Wills, Wadhwa, and Wright 2014: 29). Within the present deliverable, we have structured a series of interviews with a selected group of stakeholders, end-users, and policy-makers. Following the ASSERT methodology, the process of interaction/interview follows a procedure divided into six different aspects of societal impacts, combined from the list proposed by Vanclay (2003; 7) and adopted by the IAIA, as explained in section 2:

1. Way of life, fears, and aspirations (how people live and interact with each other on a daily basis, their perceptions about their safety and that of their communities, and their aspirations for future, including the future of their children);
2. Culture and community (people's shared beliefs, customs, values and languages, the cohesion, stability, and character of their communities);
3. Political systems (participation in the decisions and processes that affect people's lives, the nature and functioning of democratic processes, and the resources available to support people's involvement in these);

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4. Environment (access to and quality of air, water, and other natural resources, the level of exposure to pollutants and harmful substances, adequacy of sanitation);
5. Health & well-being (physical and mental wellbeing, not just an absence of infirmity);
6. Personal and property rights (economic effects, civil rights, and liberties, personal disadvantage) (Barnard-Wills, Wadhwa, and Wright 2014: 30).

The ASSERT procedure is recursive and iterative. The assessor should start the evaluation process by considering the above six categories through the lenses of three dimensions:

(1) Examine whether the security project meets the need of society;
(2) Review the potential societal impacts, enumerating risks and ways to mitigate them;
(3) Identify potential benefits for society.

Once combined, the above six groups of societal impacts and the three dimensions reported above provide a structured path of how an assessor should conduct the interaction with the stakeholders to perform the SIA. Before we turn to the result of the SIA, however, it is first necessary to identify and analyze the stakeholders in relation to the PROTON project.

3 Stakeholders analysis

According to the literature, there are few definitions of stakeholder. The Oxford dictionary defines stakeholder as "a person with an interest or concern in something, especially a business". Nutt et al (1992) stated that stakeholders are "all parties who will be affected by or will affect [the organisation] strategy". A few years later, attempting to narrow the definition, Bryson (2011) defined a stakeholder as "any person, group or organisation that can place a claim on the organisation attention, resources or output, or is affected by that output". From a more comprehensive and practical point of view, Johnson and Scholes (2002) stated that stakeholders are in fact "those individuals or groups who depend on the organisation to fulfill their own goals and on whom, in turn, the organisation depends".
The stakeholders' analysis conducted for the PROTON project is based on the ASSERT methodology. The categorization of the identified stakeholders has been performed following the seminal paper by Reed at al. (2009) as adapted by the PACT (*Public perception of security and privacy: assessing knowledge, collecting evidence, translating research into action*) project[5]. The authors distinguish between three groups of methods depending on the stage they are applied at.

[5] http://www.projectpact.eu/

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Reed et al. (2009) divide stakeholder analysis into the following stages: 1) identifying stakeholders; 2) differentiating between and categorizing stakeholders; and 3) investigating relationships between stakeholders in the framework of the expected outcome of a procedure, action or toward the use of a new technology.
Semi-structured interviews (as conducted by our team in the PROTON project) are one of the proposed methodologies to be used for the stakeholder identification.

3.1 Stakeholders categories

The methods for differentiating between stakeholders can be divided into analytical (top-down) and reconstructive (bottom-up) techniques. Analytical methods like interest-influence matrices suppose little engagement of the stakeholders and rely mostly on the knowledge of the expert community. As stated by the *Stakeholder Analysis guide* provided by the International Security Sector Advisory Team, "[…] the stakeholder analysis can be part of a large SSR assessment or strategic conflict analysis encompassing field studies and surveys. It can also be conducted during a few hours with the project/program team as part of a monitoring and evaluation session adjusting the theory of change in a results-oriented management exercise".[6]
According to the stage of development of the PROTON project, we performed only the first two steps of the Reed et al (2009) methodology, identifying and categorizing the stakeholders using a top-down, analytical approach, conducting interviews with experts. Based on a "power versus interest" analysis[7], in accordance with the PROTON project objectives and scope, we identified two main categories of stakeholders: main stakeholders and secondary stakeholders. In the first category, we identified three specific categories: law-enforcement stakeholders, policy-makers, and communities (see Table 1). In the secondary category, we identified two specific groups: non-governmental stakeholders, research and development stakeholders (see Table 2).

[6] https://issat.dcaf.ch/Learn/SSR-Methodology-Guidance/Programme-Cycle/Assess/Types-of-assessments/Stakeholder-Analysis .
[7] Eden C., Ackerman F. et al., *Making strategy: the journey of strategic management*. London (UK): Sage (2002).

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Table 1 – Main stakeholders

PROTON: Main Stakeholders	
Law enforcement	• Police • Coastguards /maritime police • Airport security authorities (private and public) • Border control authorities • Customs services • Cyber-crime units (civil and military) • Emergency teams/first responders (civil and military) • Intelligence (civil) • Military intelligence • Legal scholars/jurists/attorneys/judges
Policy makers	• Independent public authorities (data protection) • Public (state) services • Parliamentary authorities (national/European) • Local administrative authorities (cities, regions) • European/international bureaucratic organizations • International organizations (UN agencies) • Policy makers in security (national, European and international level) • Policy consultant • Pressure groups, lobbies
Communities	• Muslim community • Palestinian community • Southern Italy communities • Immigrants/asylum seekers • Ethnic groups (Latinos, Roma)

Table 2 – Secondary stakeholders

PROTON: secondary stakeholders	
Non-governmental	• Civil society organizations • Privacy advocates and privacy protection groups • Human rights protection organizations • Media
Research and development establishment	• Defense and security industry • Civil industry (dual-use and military security applications) • Scientific associations (criminologists, jurists) • Academy

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3.2 Stakeholders analysis and SIA

In order to perform the interviews with experts and representatives of the stakeholders, we took into account the fact that the main outcomes of the PROTON project (the PROTON-S Agent-Based Simulations and the PROTON Wizard) are still in the making. The consortium is still selecting the risk factors and the databases that will feed the simulations. A larger number of interviews, with representatives of all main stakeholders, will be performed for the final version of the social impact assessment due by month 36. The analysis of the ethical and social issues related to the dual use of the PROTON project datasets and outcomes will be conducted during the next months and reported in deliverable D9.6 at month 24. The analysis of the legal impact of the PROTON-S and PROTON Wizard will be delivered by month 32 when the final design of the simulation tools will be available. Currently, the interviews are focused on the general purpose of the project and the methodology, involving mainly jurists, policy makers and representatives of the main communities interested in the development of predictive tools.

3.3 List of interviewees

Antigone is an Italian NGO that fosters the protection of civil rights in the penal system, with specific regard to the condition of prisoners. It promotes information campaigns to raise awareness about issues of Italian criminal and procedural law.

Libera is an Italian NGO that promotes outstanding activities involving civil society against the Mafia and the organised crime in general, and it encourages the creation and the development of local "alternative" communities in the areas where organised crime has stronger power.

Europol is a European policy maker that supports the Member States in their fight against terrorism, cybercrime and other serious and organised forms of crime. Europol research team is a member of the policy makers' group involved in the PROTON project.

Prof. Ehsan Masood is a science journalist, professor of International science policies at Imperial College (London, UK) and chair of trustees of the Muslim Institute, a UK based charity that supports critical thinking among British Muslims. He has a worldwide working experience (EU, Middle East, Africa, United States). He is a member of the ELAG.


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Dr Amedeo Santosuosso is the President of the First Chamber of the Court of Appeal in Milan and a Professor of Law in the field of Law, Science and New Technologies. He is an international expert in law and technology.

Anonymous. XY is a social justice lawyer and expert in human rights. She is a member of an Israeli NGO devoted to informing the Israeli public about human rights violations and to pressure the State institutions to redress possible injustices. The NGO offers legal support both to Palestinian and Israeli citizens whenever they suspect a human rights violation.

4 PROTON SIA: *interim* results

In this section, we present the results of this *interim* societal impact assessment process for the PROTON project.
According to the ASSERT methodology, we have divided our semi-structured interviews with the identified stakeholders into three conceptual units, namely: (*i*) the societal analysis of PROTON with respect to the needs of society; (*ii*) the societal analysis with respect to its potential negative impacts; (*iii*) the societal analysis with respect to its potential benefits.
On the left side of each table there are the questions that we have identified and then used to conduct the present societal impact assessment. The list of questions has been decided by taking into account: the review of the scientific literature on SIA conducted for the present deliverable; the blueprint provided by the ASSERT toolkit; the specific features of the PROTON project.
On the right side of each table, we have listed in a very synthetic form the outcomes of the societal impact assessment. These outcomes integrate two sets of considerations, i.e., (*i*) the conclusions of the group that has conducted the SIA; (*ii*) and the opinions and views of the engaged stakeholders. For clarity, we have transcribed, coded and selected the most relevant quotes from each of the semi-structured interviews that we have performed; each quote is identified by a progressive number in brackets – from (1) to (45). All the selected quotes are reported in Appendix (a) at the end of this deliverable. The tables are then followed by a succinct discussion of their main findings.

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ASSESSMENT ROUND 1: Ensuring security measures/research meet the needs of society	
Questions	**Assessment**
Which documented societal security needs does the proposed research address? What threats to society does the research address?	PROTON addresses the need to protect and foster the security of individuals and society by providing innovative tools to fight the activities of organised crime and terrorist networks (OCTNs) (7; 8; 14; 15)
How will the research output meet these needs?	PROTON meets the needs of society by: (i) improving existing knowledge on the recruitment in OCTNs; (ii) providing new tools for policy makers to adopt more evidence-based policies against OCTNs (8) PROTON will build: (i) an agent-based model (ABM) to simulate policy impact in different scenarios (PROTON-S); (ii) a user-friendly software tool (PROTON-Wizard) that will support policy makers in designing and testing evidence-based policies against OCTNs
How will this be demonstrated?	PROTON-S and Wizard will be validated in lab-environment by running pilot versions of the simulations
How will the level of societal acceptance be assessed?	PROTON envisages the assessment of its societal impacts through dedicated WPs and the involvement of stakeholders throughout its development (in WP1, WP2, and WP6)

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Does addressing the documented societal needs through the proposed research require any trade-offs with other societal needs?	*Freedom*. The enhancement of security in society may disproportionately prevail over the respect and guarantee of other fundamental freedoms (see table 2; 39; 40; 41). *Transparency*. Security and surveillance technologies often operate within a grey-area, as their success may depend on remaining partially secretive to society and the public (16; 17; 21; 36; 45). *Accountability.* The opaque character of security technologies may lower the level of *actual* and *perceived* accountability with respect to the decisions taken by policy-makers with PROTON-S and Wizard (1; 2; 29; 30). *Participation.* Using a computational model to support and/or base policy-making may lower the engagement and democratic participation of citizens with respect to decisions that have relevant impacts on society (21; 38).

ASSESSMENT ROUND 2 **Ensuring security measures/research do not have negative impacts on society**		
Questions	**Assessment**	**Actions**
How could the project have a negative impact on fundamental freedoms?	The fear of stigmatization and/or discrimination may hinder the *freedom of expression* of individuals and sub-groups in particular with respect to digital environments and social media (20; 41; 42). All security projects present risks associated with their use for: (i) previously unintended and/or anticipated ends (i.e. "functional creep"); (ii) peaceful and military purposes (i.e. "dual use"). A lack of transparency and accountability may further enhance the above risks (40).	Promote transparency (17; 18; 21; 45; see below). Promote early participation (11; 12). Enhance responsible dissemination (WP7) (11; 12; 21). Clarify the consent procedures regarding the use of digital data, especially those taken from social media (20). Exclude operational law enforcement agents from the list of end-users to prevent individual profiling and discrimination (see below).

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How could the research have a negative impact on the protection of personal dignity?	Misuse of PROTON outcomes could lead to overly simplistic profiling, compromising human dignity (28; 35; 39).	Ensure that PROTON-S and PROTON Wizard are properly developed, tested and used to achieve their intended ends (16; 17; 18; 21; 23, 25; 27; 28; 29; 35; 44).
How could the research have a negative impact on privacy and data protection?	Privacy and data protection concerns may arise from the way in which PROTON data repository is built, maintained and used (6; 34). Privacy and data protection concerns may derive from a lack of adequate consent procedures for data acquisition, especially from digital sources and social media (20).	Foresee and assess PROTON legal implications (to be done in Deliverable 6.2). Enact ethical safeguards (Deliverables 6.1 and 6.6). Implement appropriate data protection policies (34). Clarify the consent procedures regarding the use of data from digital sources and social media (20).
How could the research have a negative impact on transparency?	Transparency concerns may emerge by: (i) leaving opaque how the data repository has been built, maintained and used; (ii) leaving opaque how PROTON's outcomes will impact policy-making (16; 17).	Consider making the data repository open-source to increase transparency (17; 18). Promote the engagement of end-users and stakeholders (11; 12; 21). Promote the open confrontation with other communities of scholars and scientists to extend the ABM. Promote an inclusive public dissemination (11; 12; 21). Clarify the consent procedures regarding the use of data from digital sourced and social media (20).

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If implemented, how could the research have a negative impact on other fundamental aspects (culture and community, way of life, etc.)?	The research may have negative effects on the way of life of individual and specific groups by impacting their fundamental freedoms (32; 43). Misuse of PROTON outcomes could lead to over simplistic profiling, thus harming individuals in vulnerable groups (e.g. ethnic and religious minorities, individuals belonging to subcultures) (28).	Maximize the reliability of PROTON tools (27). Enhance the trust of society in PROTON tools by promoting their public understanding (38). Conduct a wide and inclusive process of SIA by the end of the project (WP6 deliverable 6.5).
How could the research impact disproportionately upon specific groups or unduly discriminate against them?	PROTON and its tools may impact disproportionately specific groups because of: (i) their reliance on a potentially biased dataset; (ii) the use of insufficiently validated tools; (iii) and/or the misuse of PROTON outcomes (PROTON-S and PROTON Wizard) (3; 5 17; 18; 29; 32; 36; 43)	Avoid the reinforcement of existing societal biases (29; 36). Ensure a representative and transparent data repository (1; 7; 17; 18; 21; 23, 25; 27; 28; 29; 35; 45). Ensure appropriate testing of PROTON-S and PROTON-Wizard (23, 25; 27; 28; 29; 35). Promote accountability and participation (2; 21). Ensure the technical competence of end-users (33; 37). Avoid the replacement of human judgment with machine judgment, which could lead to a dangerous pre-deterministic approach (31; 39).

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Could the research have impacts on vulnerable groups?	PROTON may negatively impact social groups that are already stigmatized as being intrinsically close to OCTNs (ex-prisoners; individuals belonging to subcultures; specific ethnic or religious minorities; etc.) depending on how (i) the source data are collected; (ii) the model is validated and tested; (iii) policy makers take actions based on PROTON-S and PROTON-Wizard (4; 6; 32)	(See box above)

ASSESSMENT ROUND 3 **Ensuring security measures/research benefit society**		
Questions	**Assessment**	**Actions**
What segment(s) of society will benefit from increased security as a result of the proposed research? *How will society as a whole benefit from the proposed research?*	Society will benefit from the reduction of the power and activity of OCTNs (22; 35; 44). Policy makers will be able to better evaluate preventive rather than repressive interventions against OCTNs (8). Fostering preventive interventions, PROTON may indirectly support policies aiming at improving societal and economic welfare (e.g. education, employment, social cohesion) (9). Testing policies in a simulated environment allows a better allocation of public resources. The scholarly and scientific community will benefit from the knowledge produced by the project.	Promote a deeper knowledge of local contexts to maximize the utility of PROTON-S and PROTON Wizard (7). Involve local communities in the final assessment and validation of the outcomes (12). Restrict the use of predictive tools to research environments before their proper and official validation (44).

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Are additional measures required to achieve this benefit?	Participation of potential local-level-stakeholders in the construction of the model is fundamental to gain the confidence of people in complex [social] contexts (11). End-users need to be trained with regard to the use of PROTON Wizard (37).	Enhance transparency (1; 7; 17; 18; 21; 23, 25; 27; 28; 29; 35). Consider an open source dataset accessible to other experts (18). Provide sustained technical support to end-users (37). Enhance the awareness and acceptance of the output in society through education, proper communication (38).
In what contexts might this benefit be lacking or not be delivered by the research project?	The tools could be ignored by those (local) policy makers that are more focused on personal rather than public interests (10). Lack of confidence in the reliability of PROTON outcomes (PROTON-S, PROTON Wizard) (44). Wrong implementation of PROTON outcomes (32).	Ensure a proper validation of the final outcomes (27; 34). Provide technical support to end-users (37). Enhance the awareness and acceptance of new technologies in society through education, proper communication (38).
Are there other European societal values that are enhanced by the proposed research?	Besides security, the research may enhance:(i) Good governance (15; 22; 24); (ii) Societal and economic welfare (9); (iii) Improvement of the academic knowledge	Design and provide technical support for policy makers (37)

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4.1 Discussion of the results

The first table focuses on the societal needs met by the research project. PROTON aims at enhancing societal security by addressing threats to society related to the activity of organised crime and terrorist networks (OCTNs). Increasing both actual and perceived security is undoubtedly a primary need of society: security is a fundamental societal value and, together with other societal and political values, it is at the basis of democracies. In particular, PROTON aims at improving existing knowledge on the processes of recruitment to organised crime and terrorist networks (OCTNs) through a multidisciplinary approach (social, psychological, economic and computational sciences, including data mining in social networks). Its aim is to provide policy makers with a new tool that enables the adoption of more efficient preventive policies to fight recruitment. To reach its goals, PROTON will develop: (i) PROTON-S, agent-based modelling simulations, which will generate virtual societies in a computer laboratory, thus enabling to test the impact of different scenarios on the recruitment in OCTNs; (ii) PROTON Wizard, a user-friendly software tool embedding the results of the simulations, to support policy makers in designing and testing evidence-based policies against OCTNs.
However, recognizing security as a fundamental societal value raises also complex social, political and theoretical issues. Security is a multifaceted value, and sometimes security-based interventions may both enable the fostering of other fundamental values, freedoms, and rights, as well as hinder them. An excessive focus on security, and the progressive extension of security concerns to new possible security risks, may lead to the undue "securitization" of society and to the normalization of security as the leading organizing principle of the political agenda at the expense of other equally fundamental values, such as the freedom of speech, the right to assembly, to privacy, and transparency (Nissenbaum 2009; Buzan and Hansen 2009; Barnard-Wills, Wadhwa, and Wright (2014, 21). Furthermore, security interventions may significantly impact in disproportioned ways the life and rights of specific groups of vulnerable people, while the benefits may also be unevenly and unjustly distributed within society. In particular, three different societal needs have to be taken into account:
(i) Freedom. The development of new methods to enhance security within a society increases the tension between two constitutive obligations linking modern states and their citizens, namely between freedom and security, which are both recognized as fundamental rights in the *Charter of Fundamental Rights of the European Union* (art. 6: "Everyone has the right to liberty and security of person"). The main challenge in this regard is finding the proportional balance between the obligations of protecting people's life and property and of preserving their fundamental rights.
(ii) Transparency and accountability. Security and surveillance technologies often operate within a grey-area, as their success may depend on remaining partially secretive and opaque to society and the public. On the other hand, this

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opaque character may lower the level of *actual* and *perceived* accountability for the decisions taken by policy-makers. Security should not unconditionally prevail over transparency and political accountability, which should always be granted in democracies.
(iii) Participation. Creating a computational model to support policy-making may subtract society from the engagement and democratic participation with respect to decisions that conversely may have relevant impacts on individuals. Moreover, a lag in "social awareness" is common in security interventions, which may further negatively impact public participation in democratic decision-making process, as mentioned by some stakeholders we interviewed (see comments 21 and 38).

The second table analyses potential negative impacts of PROTON's outcomes and provides mitigation strategies to neutralize them. Given the features of ABM, the main risks associated with the project may consist in an over-deterministic understanding (and consequent use) of the tool. PROTON's methodology and design are thought to preventively avoid these risks: the project structure, the constant attention to societal, ethical and legal matters, the involvement of stakeholders both in the Ethics board and in the social impact assessment, the awareness of the importance of proper validation of PROTON-S and PROTON Wizard and the exclusion of law enforcement agencies from the end-users are measures that should ensure the reliability of PROTON's outcomes.
Despite these precautions, potential negative impacts may derive from misunderstanding or misuses of the tools by end users. With regard to the first aspect, PROTON-S and PROTON Wizard should not be seen as tools that allow the replacement of human judgment with machine judgment, which could lead to a dangerous pre-deterministic approach: they are additional tools to support policy makers activity, who should always be held responsible for their decisions. With regard to the second aspect, there could be a risk of "functional creep", i.e. the risk that a technology might be used in ways that were initially unplanned and not scrutinized. This is especially the case with the advent of new technologies that rely on the collection and processing of vast amount of digital data[8]. In this regard, the main issues may concern fundamental rights, whose respect should always be the premises of every measure adopted by policy makers. The following areas may be particularly affected:
(i) *Freedom of thought and expression*. The collection of data and personal information from social media may have negative impacts on the freedom of thought and expression, particularly when they are used to adopt individual preventive security measures.

[8] A related issue regards the potential *dual-use* of security technologies. The term "dual use" refers to the potential of a technology (or other intervention) to be used for peaceful and military purposes. For instance, the creation of a mutated virus in a laboratory may foster our understanding of a disease as well as create a new, potentially dangerous, bio-weapon. A dedicated deliverable of WP9 will specifically consider the implications of the potential of the data sets and tools developed in the project with regard to the use by military units (D9.6, month 24).


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(ii) *Privacy and data protection*. Unclear procedures to collect personal data threaten the respect of individual privacy. This may occur particularly in social media, where the procedures regarding consent are often obscure.
(iii) *Non-discrimination.* The use of incomplete or biased datasets may reinforce already existing biases particularly towards vulnerable groups (e.g. ethnic or religious minorities, ex-prisoners, individuals belonging to subcultures).
(iv) *Personal dignity*. Misuse of PROTON outcomes could lead to over simplistic profiling, thus harming personal dignity.
To avoid these risks, the following values need to be fostered:
(i) *Transparency and public accountability*. Although security technologies often take advantage of operating within a grey-area, potential stakeholders perceive transparency as a key value for a successful implementation of PROTON-S and PROTON Wizard. Transparent and robust data repository and procedures and clear purposes of use are crucial to avoid misuses of PROTON outcomes, which could lead to human rights violation. Transparency is a key measure that affects public accountability for a new technology. It also fosters the participation of citizens in the process of adopting it, leading to a more responsible research and final use.
(ii) *Technical competence.* Ensuring appropriate testing of PROTON-S and PROTON-Wizard before they are delivered to end-users is the first requirement for their reliable use. However, the reliability of the tool is not enough to guarantee its correct use: end-users need to be trained to correctly use PROTON-S and Wizard and technical support should continuously be provided.
(iii) *Context awareness.* The responsible use of reliable tools (i and ii) should be supported by a deep knowledge of their context of application. In other words, policy makers should be fully aware of the societal, economic and cultural characteristics of the community of interests, in order to avoid the reinforcement of already existing biases and forms of discrimination against minorities and vulnerable groups.

The last table focuses on the benefits of PROTON and its outcomes for society. In this regard, the first, fundamental and direct benefit for society would derive from the enhancement of security through the reduction of OCTNs power and activity. But the adoption of more effective policies against OCTNs may have other indirect benefits. Projects like PROTON could bring to a new methodology to analyse criminal behaviors. Traditionally, criminological research uses qualitative and quantitative approaches to test criminological theories (Johnson-Groff, 2014). Qualitative research has a bottom-up approach: the research normally involves interactions (e.g. interviews) with a sample of participants and has the advantage of clarifying how decisions are made and how patterns of behavior emerge; however, it is not easily generalizable. In contrast, quantitative approaches have a top-down structure: they analyze a large sample of data and look for regularities that are supposed by a particular theory. Unfortunately, many criminological theories cannot be tested using these empirical approaches, since they involve complex interactions that evolve over time that cannot be systematically studied. Thus, simulation systems like the

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one developed by PROTON can be useful complementary tools to qualitative and quantitative approaches in criminological research.
PROTON aims also at better understanding the recruitment in OCTNs and supporting policy makers in taking a more preventive, rather than repressive, approach. In this regard, the research carried out in WP1 and WP2 have shown that most risk factors for recruitment in OCTNs are related to societal and economic adverse conditions (e.g. social exclusion, poor integration, school drop-out, low social mobility, relative deprivation, economic inequalities, the existence of informal and illicit markets). PROTON-S and Wizard, which allow policy makers to test and compare diverse preventive measures based on societal and economic welfare, might translate into direct benefits for diverse societal groups beyond the sole enhancement of security.
Moreover, PROTON-S and PROTON Wizard allow to test different policies in *simulated* environments. Large-scale social studies are often difficult, impractical, or undesirable to conduct in the real world; testing empirically new strategies to fight OCTNs is expensive, time-consuming and, if the results are not effective, might turn out to be a waste of resources. Simulations have the advantage of allowing experimenting diverse crime prevention strategies in advance and without huge resources, fostering a better allocation of public resources, which represent another societal benefit. Nevertheless, the usefulness of PROTON-S and PROTON Wizard (and the related effectiveness of the policies adopted based on them) depends on four elements:
(i) *The quality of the dataset*. The product of a simulation depends on the type and quality of the data used and the rules coded. Without a robust, representative and validated dataset, PROTON-S and Wizard cannot be held reliable. For this reason, promoting the transparency of the tool, for instance through the use of open source datasets, might be a worthy measure to take.
(ii) *A proper knowledge of the context of application.* A model is by definition a simplification of reality, not its complete representation; it is based on choices and assumptions made by the designer, consequently, the conclusions drawn from the model are related to the assumptions made by the designer. In order to maximize the utility of PROTON-S and PROTON Wizard, it is crucially important to have a deep knowledge of the context of their application, in particular at the *local* level. A suggestion could be to involve stakeholders from local communities before the end of the project, that could also be potentially open to "direct testing" of certain policies.
(iii) *Technical competency and understanding.* Technological tools require specific knowledge and skills. Thus, end-users need to be trained to correctly use PROTON-S and Wizard and technical support should continuously be provided.
(iv) *Societal acceptance*. Technological tools sometimes frighten society, especially when they appear as "black boxes", hard to understand and manage; this poor understanding of technology could easily lead to a low level of confidence in the reliability of the tool and potentially its refusal. To address potential societal refusal, the awareness and acceptance of technologies such as PROTON-S and PROTON Wizard should be enhanced through "technological"

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education and proper communication in society, thus "confronting" the myth of obscure technology and reinforcing the confidence in new technological tools. Media can play a crucial role in presenting the pros and cons of a new technology if they succeed in reporting accurately and independently from the agenda of researchers, policy makers, and end-users. With regard to communication, PROTON has developed internal guidelines to guarantee a proper dissemination of the project outcomes.

5 Conclusions

This section synthesizes the conclusions of the *Interim Societal Impact report* (D6.4). This deliverable aimed to assess the societal impact of PROTON halfway through its development (month 18). Hence, this report was meant to explore the societal impacts of PROTON *before* the release of PROTON-S and PROTON-Wizard, anticipating some of their potential positive and negative societal implications.
The results of this interim societal impact assessment can be summarized in the following findings. First, all the stakeholders were aware of the potential societal benefits of PROTON, that is to say, of its potential to increase individual and societal security by leading policy-makers to adopt more effective policies against OCTNs. However, the development of the PROTON project (and of its outcomes) raises also two general societal concerns. The first regards the current and future *transparency* of the data set needed to develop PROTON-S and PROTON-Wizard. By their own admission, many of the societal concerns raised by the interviewed stakeholders – for instance about the final reliability or the biases entrenched in the final ABM – could be effectively mitigated by increasing the *transparency* of the PROTON data set, i.e. by making it more accessible to different stakeholders. Another major concern is the technical competency and understanding of the limits of the tools in the end-users. Both these issues can be addressed in the second part of the project through appropriate remedial actions. Transparency is also a key element to foster public acceptance of this innovative technology and to avoid stigma and discrimination toward the involved communities by society in general, by the police and the intelligence. The communication and dissemination plan of the PROTON project should take this point into account in the next months.

A *Final Societal Impact Report* will be delivered at the end of the PROTON project (D6.5, month 36). This final SIA report will build on the present deliverable and it will include a further process of SIA focused on the second phase of PROTON and its final outcomes, and a second set of semi-structured interviews with selected stakeholders.

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7 Appendix A: Selected Stakeholders quotes

ANTIGONE

1. "The product of a simulation depends on what data has been used at the beginning and on the rules, that have been coded. Thus, it very much depends on the initial data and studies. [the model] is not a neutral tool."
2. "The decision is always political. The decision of a policy maker is a policy: my model may tell me that to solve the immigration crisis in Italy one can let all immigrants drawn in the sea or invest more in welfare and solidarity measures; in both cases the problem might be solved, but through very different policies, for which a politician ought to take full responsibility. Hence, I am afraid of automatic decisions because they risk to cover with a "patina of science" those who chose the worse policies and can always say "we did that because the model said so!"
3. Discrimination "I think that the risks exist because the characteristics that [the researchers] find will be grouped and thus [referred to specific social groups or populations], thus one might become afraid of all those who share a certain characteristic. Human decisions take into account [the actuality of] individual cases, while the decisions of a machine always proceed serially. If in a machine one has put that 9 out of 10 the terrorists have a beard, then the machine will have prejudice versus those with a beard, a thing that a human being might not have as he can always evaluate the single case, for there are a lot of good people with a beard".
4. "[With respect to ex-prisoners] it is rare that a stigma toward detention is not already in place, and [this research project] will likely increase it […] if the institution sees that there is a statistical percentage of people who are affiliated to OC among persons who have been incarcerated, then an appropriate reaction would be not to have a prejudice towards those people, […] but rather that of seeking to understand what conditions have led these people to make such choices".
5. Dignity "within the international debate it has been a deliberate choice that of not defining "human dignity". The closest thing to it is perhaps the idea of dignity found in Kant, which is linked to the idea that a human subject can (and should) never become [solely] an object […] the machine is not capable of looking at exceptions because it "reasons" using categories, while human beings are individuals. Therefore, the respect for human dignity is always a matter of individuality".
6. Privacy "[I do not believe that] PROTON violates someone's privacy directly, but that [such a risk exists in] the studies that have been conducted before

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in order to gather the data to feed the system. The problem is how these initial data have been collected".

LIBERA

7. "The tools of PROTON [i.e., PROTON-S and PROTON Wizard] can be very useful to support the activity of policy-makers in the fight against OCTNs, especially when used at a local level. In order to implement an effective policy, it is crucial to have a deep knowledge of the context in which the policy will be applied (i.e., the local level) – of the local dimension of the study and intervention rather than an international one. The more a policy want to be specific, the deeper the knowledge of the local reality has to be".
8. "Supporting preventive interventions, PROTON aims at offering complementary tools for policy makers' activity, which mainly adopt repressive policies".
9. "Stressing the importance of preventive interventions, PROTON indirectly supports those policies that aim at improving the societal and economic welfare (education, employment, health system…)".
10. "The tools could be ignored by those (local) policy makers that are more focused on personal rather than public interests".
11. "Effective dissemination is called participation - Participation not in the dissemination of the results of a path, rather in the construction of the path itself. Participation is fundamental to gain the confidence of people in complex [social] contexts".
12. "Involving for example 10 local communities in an intermediate phase between the definitive construction of the model and its presentation to the stakeholders is of great importance because those communities who have been directly involved will be potentially open to "direct testing".

EHSAN MASOOD

13. "It's hard for me to know what the benefits are because I don't think they are very articulated in the proposal […] there is a lot about the methodology, about the research and scientific aspects, but there is no clear articulation of what the societal benefits are".
14. "Enhancing the security of citizens or the well-being of citizens in Europe, if that's an important element in the project I think maybe the case needs to be made".
15. "We are not operating in a vacuum, policy makers are making decisions about these issues every day, ministries of interior, ministries of defense, they are every day making decisions [about crime and prevention of OCTNs], so having an additional tool is completely a good thing, I can completely see its utility".

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16. "I think it would be useful to know what are the sources of data that are going into these models because so much modeling is very dependent on the authenticity of the data sources".
17. "But I think this probably where the data question comes in, because you know policy people are busy, and they don't interrogate methodology in the way that you [researchers] and those of you who are designing [PROTON] do, because they don't have time and so what will happen is that very quickly. If this becomes widely used, then there would be very uncritical applications of whatever [these tools] say. This is how the policy world uses computational and other mechanistic things".
18. The importance of open source "I think having an open source [dataset] is good because it allows other people in the community to interrogate it [which is a very powerful feature] in research methodology because of the ability of all of us to share data sets and ask questions and interrogate and help each other out and provide critiques. I think an open sources repository for the data might be a way of doing this"
19. "Like in the UK the PREVENT program, the government security, and the anti-terrorism program is a good example of that. There are very wild divergences it the academic community, there are a lot of concerns about its implications, about unintended consequences, about profiling."
20. "What I would be more concerned about is consent. Am I consenting? [I]f social media data are being used, what are the consent procedures being applied? And do people know that they are being used? Do they have the option? Even in basic public engagement terms, when you ask a group, often […] you want people's opinions, not only to be able to experiment on them, but also to engage them, so where does public engagement fit [in PROTON] if social media is one of the sources?"
21. "I would encourage maximum openness, and that means making all the information and the raw data available. So, this is transparency in disseminating is very important and I would strongly encourage it, so I would urge you not to have a kind of finished black box as it works, but to have all the names of the people who have been involved, all the data sources available […] And I would do it as soon as you are ready. The more are the people who become involved, the better experts with other ideas and ways of thinking are getting involved […] If you publish the material at an *interim* stage, and then [during the] dissemination, then there might other disciplinary communities [that want to be] involved […] Rather than wait, make it fully transparent and be open to changing it when people come – which is the essence of engagement. They might have interesting ideas and ways of improving it."

EUROPOL

22. "The potential benefits are very broad. If you prevent people going into OCTNs then obviously the result of that should be that the harm caused by

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those activities is reduced and those are harms, which can have a very broad and negative impact in EU […]. If you're preventing people from going into those activities that means you're hopefully reducing the capability of OCTNs groups. If the project gives policy makers a better understanding of the phenomena and the ways people get into these activities, then hopefully their activity becomes more effective and efficient prevention"

23. [the "PROTON wizard can be a concrete help for policy makers] but that takes some time because one thing is to develop a model, but before a model like that can be used and applied in a practical setting you need a certain degree of confidence about the reliability, so [you'll want] to validate that quite a lot before it can be used by practitioners."
24. "… and I think practitioners are looking for that kind of tool."
25. "It's not the intention that the human judgment is replaced by predictive or probabilistic computer model but that, once such model can be used as an additional element for human judgement, that it can actually accelerate, reduce the time and effort for the analysis and it can also improve the quality of the results as well. But you first need to demonstrate that it is reliable."
26. "So it can be indeed a support to our work and would not necessarily change entirely what we do but it can be used as a help and as a complementary to our work"
27. "First of all it needs to be well tested with different factors and indicators that fit into the model, and then it can be used […] to help understand the patterns, to help understand the behaviors, [and then be] translated into preventative actions; it may also help identify certain risks or contribute to better risk profiling so there are definitely many possibilities and opportunities that the model could offer and contribute to our daily work at both the strategic and, potentially, also at the operational level. But indeed it may take some time and it needs to be properly tested and verified before it can be put into practice and affects perhaps certain decisions or actions." C4
28. "The risk for us would be if practitioners would move too quickly into using models which haven't been properly validated […] if they're using them to replace the way they normally work, to replace the judgment they normally apply, then there's a risk that models like that could actually reinforce an overly simplistic profiling".
29. "if you give incomplete data, then, machine learning will actually kind of reinforce the imbalance in the original data so if you are looking at examples where you already have ethnic or religious factors as criteria and if it's not done well then you can actually come out with the model which is actually reinforcing excessive focus on those factors".
30. "it's not that the model shouldn't include factors like having spent time in prison and things like that but the point is that it needs to be sophisticated enough. So what you don't want is a model, which comes back with the

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results if a man has a beard then he must be a threat to society. It's not so much about censoring the model but it's about a sufficient degree of sophistication."

31. "The model should not replace and should not be the only way of identifying potential criminals and maybe as a reminder, there could be a small pop up window mentioning the aspect of the human judgment and that there should be additional assessment involved. Maybe that could be a general reminder that could be useful for the purpose."

32. "If you read about the "stop and search" policy in London and the controversy around that is quite interesting, is a good example good evidence base for prioritizing police activity but on the other hand if you look at how it is perceived in the community it's very discriminatory and a lot of that comes down to the way it is implemented. Is not that every police officer is having the wrong opinion about the analysis that has been done around the scene, is more about what instructions they are given and how they execute the activity."

33. "[INTERVIEWER] since PROTON and its results need to be complementary to human judgment rather than replacing it, this entails that those decision-makers that could potentially evaluate the results of simulations run with PROTON need to be prepared in order to interpret and integrate the resulting data into their decisions but that not everyone could or should have access to such data, since they have to be integrated with proper formation, proper knowledge of how they should be interpreted and used in real cases scenario."

34. "Privacy could be one of them and it really depends on the way the sub-projects get their datasets for the studies and how they treat the personal data, they handle personal data. This may potentially have an impact on privacy, at the early stage when building the model and later if such data is used to fit in the model then, of course, certain precautions and data protection policies should also be implemented."

AMEDEO SANTOSUOSSO

35. "PROTON belongs to the group of technologies that rely on big data analytics, which allow for the evaluation […] not only what has happened [but, based on that, to some extent of what might happen in the] future. From this point of view, the tool is very useful: these are very important and useful matters, which call for a fundamental cautionary stance, i.e. that of remaining at the level of the analysis of collective trends, of sufficiently ample groups, otherwise the risk is very high, from a political, legal and constitutional perspective, to have predictions bases biased toward specific persons […]"

36. "The algorithm must be unpacked […] As to the social groups it is important to construct in the appropriate way the algorithms on the basis of which a given community operates, for it is clear that depending on way in which I set the instruments, I can confirm some biases (e.g. "all back-skinned

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persons are disgraceful", "all Muslims are terrorists"); or I can utilize the same tool in a clear and fully honest way where the effects of stigma cannot be greater than those embedded in traditional sociological techniques. There have always been biases, [we just need to be transparent about how the algorithm was made]".

37. "There is no possibility of utilizing technologies of this kind without continuous technical assistance. It is clear that one thing is to build the system, the algorithms, or utilize it or maintaining it; [another thing is then to give this tool to someone who will take decisions based on it but lacks the skills and knowledge to fully comprehend how it was built]. The policy-makers […] who will utilize this toll must have an appropriate understanding of this instrument […] this is why this kind of technologies must be adequately explained to those who will use them."

38. "It is not necessary that the people are rightly informed in a way that does not frighten them. This answer is correct, but it is not sufficient. There is a research from Eurobarometer that demonstrates that a high level of technological literacy does not necessarily correlate with the acceptance of a new technology […] I don't have the solution [about the problem of how the public ought to be involved], but my answer is: more education, communication, awareness of the fact that the gap that we are confronting is more cultural than technological".

39. "I see a danger for privacy not so much as a treat to the mythical and perhaps impossible condition of a perfectly isolated individual, but as a sort of non-interference, or pre-determinism about the future for – in spite of the machines – our rate of variability remains very high, especially for young people. This is important for privacy, not so much in abstract terms, but for preserving the "social bet" on the possibility and plasticity [of other's behavior]".

HUMAN RIGHTS NGO, ISRAEL

40. "What your project is doing is already done in Israel by the intelligence. In July 2016, the Israeli Defense Force spokesperson conducted several press briefings describing their predictive tools based on social media analysis. Hundreds of Palestinians have been arrested as a preventive policy since 2015 lone-wolf Intifada, in many cases because of posts on social media. The issue is highly debated in the country, especially among jurists and human rights advocates"

41. "Administrative detention orders occur mainly in the West Bank based on the charge of "incitement of terrorism on social media". Most of the material in administrative detentions are confidential, and neither the file nor the indictment is shown to the defendant, but when the case arrives in court, screenshots of Facebook posts are often presented as evidence, especially if sensitive words like "martyr" or "stabbing" are included in the text. As an Israeli NGO who support human rights in the country and in the Palestinian

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Territories, we are worried about the impact of such intelligence tools on the freedom of expression and the free speech".

42. “The legal system is a different in Israel and in the Palestinian Territories. There are differences between the way Israel allocates rights within Israel and the way it allocates rights in the Palestinian Territories, especially in the limits on the right to freedom of speech. Human rights laws do not apply in the Palestinian Territories and therefore freedom of speech is not given the same protection in the military courts”.
43. "Simulations based on datasets coming from Palestinian prisoners can have a disruptive effect on the Palestinian communities in Israel. They are full citizens of the country, nonetheless, their neighborhoods and villages could be, one day, simulated to identify possible terrorists. Even if there is no chance to use these tools to identify a single person by name, the stigma and the prejudice against those neighborhoods will increase, undermining the many efforts part of our society is doing to fully include our citizens from Palestinian origins".
44. "Of course, I see the benefits of such tools if they are really reliable and effective: they could certainly save lives. But I'm not sure the technology and the theory behind is mature enough to be released to the policy makers. It should be kept at the experimental level, within the academy. A few months ago, the Israeli newspaper Haaretz conducted an extensive report on this issue. They mentioned two studies conducted in the US by RAND corporation to assess the efficacy of predictive tools on the security of the citizens. Both studies ended up stating that there was non-evidence of benefits, while predictive policing systems can focus the police activity on specific racial and ethnic groups without real need”.
45. "Transparency is the keyword. As a human rights advocate, I want to know how those tools are built, how reliable are the datasets, who can use them and how the users will be trained to fully understand what they will get from the predictive tool. I want a legal framework to protect people from being arrested only on the basis of predictive tools".

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