



# PROTON

Modelling the processes leading  
to organised crime and terrorist networks



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## Exploitation Roadmap 2 September 2019 – M36

**D7.15, WP 7**

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## Technical References

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<sup>1</sup> PU = Public

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## Summary

This deliverable titled Exploitation Roadmap 2 continues what has been introduced in the Exploitation Roadmap 1, Deliverable D7.9.

The deliverable is divided into four sections. Sections 1 to 4 include the exploitation plan and possible usability of the PROTON final results.

Annex A is focused on the manual addressed to policy makers and practitioners who want to set and test in the future policies against potential recruitment of OC and terrorist members. This manual explains all the steps that should be followed by those (policy makers, practitioners, researchers) who choice to replicate the procedure used by PROTON. It could be of some utility for those who want to consider a further implementation of the methodology used by PROTON project, aware of its advantages and limitations. Continuing in this way to fill the knowledge gaps in the area of OC and TN that PROTON project has started to do.



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## Exploitation Strategy of project PROTON

As part of the project PROTON, designing the exploitation plan is one of the key requirements for permitting the results to be pushed and utilised by end users and practitioners. The aim of task 7.6 is to involve the entire Consortium in preparing the exploitation pathway of PROTON Wizard.

To achieve the above objectives each partner has been asked to answer to the following question:

- Who will use these results? (Explain the policy context)
- What benefits will be delivered and how much benefit?
- How will end users be informed about the generated results?
- How the results can be used in further research activities (outside the action)?

In addition to the above the Consortium has held Ad-Hoc Meetings during the project, particularly devoted to end users and practitioners. After each meeting a report with a summary of exploitable results and discussion points has been compiled and circulated among the partners.

After the project completion the consortium takes part to initiatives carried out by policy makers, practitioners and researchers to disseminate the results of the project including the ABM and the Wizards.

At the same time, the academic partners have assessed the market conditions and opportunities for the exploitation of the project outcomes and they provided an adequate strategy to communicate the project results.

### 1. Market conditions for acceptance of PROTON-S and PROTON Wizard

As planned in the Grant Agreement, the outcome of the project PROTON was expected to reach development level up to Technology Readiness Level (TRL) 4; this means that PROTON-S and PROTON WIZARD have been both tested in laboratory.

In line with the Technology Readiness Level gained with the results of the project, the main goal of the exploitation plan for the coordinator and the whole consortium



is to find and intensify opportunities and extra financial resources to foster further research of PROTON- S and PROTON Wizard.

Final results of the project could be used by stakeholders interested in adapting PROTON-S simulations to specific social and economic environments. These include policy makers at different levels, from local to national, police agencies, and social workers. The simulations can be customized to specific settings by modifying the statistics data on socio-economic variables, crime variables and other data that inform them. As studied by CNR the simulations allow to test new policies “in silico” before applying them. The simulation code, framework and data are publicly available on GitHub (accessible also by the main PROTON website). Researchers and interested parties can autonomously access and personalize the simulation.

The further development of PROTON results towards a market solution should consider that additional research and development should be conducted. In particular, stakeholders should consider that this activity will likely require additional financial resources to ensure the necessary agent-based modelling, coding, and computational capacity and that they might come across technical malfunctions and unavailability of the tool in other languages than English. The main exploitation goal for the consortium is thus to identify exploitation opportunities and related resources to further develop PROTON results.

## 2. Exploitation opportunities both intra and extra consortium

### 2.1 Communication and dissemination

To identify exploitation opportunities, PROTON results and activities must be communicated and disseminated to potential interested stakeholders. The target public comprises policy and decision-makers, end-users, associations and platforms, academia, the general public and other stakeholders. To foster the results of the project extra consortium the majority of the partners have undertaken a series of dissemination activities and spread the results extra consortium.

Dissemination activities such as presentation at board meetings, workshops and international conferences are detailed below as well as combination of published articles, books and book chapters.



## UCSC:

The coordinator UCSC has participated and plans to present final results of PROTON-S and PROTON Wizard with the aim of finding resources and interested institutions of policy makers interested in the advancements of the tool.

The list of the presentations is here below:

- Invitation by LIBE Committee of the European Parliament on December 3 2019 (Brussels). Presentation of final results
- Invitation by EUCPN to present the final results at their board meeting on 11 December 2019 (Helsinki)
- Invitation by Europol on February the 7<sup>th</sup> to contribute to the cooperation between academics, research centres and law enforcement
- Invitation by EUCPN to present PROTON at the European Crime Prevention conference on 19-20 February 2020 (Brussels)

## HUJI

The HUJI team is planning to present the different PROTON studies at a number of international conference throughout 2020 and it is expected that presentations of the studies will continue beyond this time.

HUJI will exploit its existing and ongoing relationships with governmental bodies to inform high-level officials and practitioners of PROTON and its results.

HUJI regularly participates in important conferences both locally and internationally and will continue to present PROTON studies in the coming years.

- American Society of Criminology 2019 (San Francisco) presentation of studies from T2.3, T3.4 and T5 (the ABM),.
- American Society of Criminology 2019 (San Francisco) T2.1 study at the Campbell Collaboration's 5RD group meeting
- The HUJI team has already presented the T3.4 and T4.3 studies in conference held by the Federman Cyber-Security centre, which included participants from Israeli and European governmental bodies involved in cyber-security research, practice and policy.

Additionally, HUJI team members are regularly interviewed by local and foreign media and plan to refer to PROTON studies in these interviews, articles, and newsletters. PROTON studies conducted by HUJI will also be featured in HUJI produced newsletters, as well as newsletter of Israeli criminology organizations, and distributed to their large mailing lists.



Publications already have appeared in peer reviewed journals pertaining to T2.1 and T2.3. Additional publications are under review for T3.4 and T4.3 and a manuscript is already being prepared for T5 (the ABM). The publication for T2.3 has already begun to generate interest and citations and the publication for T2.1 was downloaded over 100 times within days of publication.

Additional manuscripts being worked on in 2020 pertaining to:

T2.1-An updated version of the study will be published in the Campbell Collaboration journal.

T2.3-A study focusing on meso-level factors.

T3.4-Additional analyses that were carried out.

T4.3- A paper focusing on the non-experimental aspects of the study and its survey.

## CNR

CNR will share the processes that produced the results, and the results themselves, in the research community that CNR can access, and specifically to the Social Simulation series of conferences. CNR is planning to participate to the event organised in 2020 in Palermo by Major Leoluca Orlando.

## EUCPN

EUCPN has promoted the information of the project via a presentation at the Board Meeting in December 2019 where the national representatives were gathered and the coordinator presented. Furthermore, EUCPN has organized a conference in February 2020 where a presentation about the project will be given. At this conference they intend to gather policy officers and practitioners from all over Europe. As mentioned above the coordinator has been invited and will present the results.

## VU

Through PROTON-publications (reports and book chapters), extra publications in scientific journals (Kleemans & Van Koppen (2019) VU has informed end users about the generated results. Criminal careers in organized crime. Crime and Justice. A Review of Research (in press); Van Koppen, Van der Geest, Kleemans & Kruisbergen 2020. European Journal of Criminology), and by including results in a report for the



Dutch government (Report of the Dutch Organized Crime Monitor; fifth round: Kruisbergen, Roks & Kleemans, 2019).

## UB

UB were invited to participate in a public hearing organized by the Catalan Parliament (Research commission about the terrorist attacks in Barcelona, August 17-18) in which they were asked to share knowledge about youth violent radicalization prevention. They have also done different workshops and seminars at primary and secondary schools, civic associations and other local actors that are working on the ground on the prevention of youth violence, including youth radicalization. The entire record of all these activities can be found on the Interim Reports submitted throughout the lifespan of the project. As far as Scientific community is concerned they have presented the results for scientific debate and discussion in different national and international scientific conferences, mainly in the field of sociology and criminology. For instance, results have been presented at the European Conference of Sociology, the American Society of Criminology, the Multidisciplinary International Conference on Educational Research, among others. Grassroots actors that have either asked or received the results generated by CREA-UB in the framework of PROTON are located in diverse settings and in different countries. Additionally, they were asked to participate in the public hearing at the Parliament of Catalonia, another of the actors that was asked to participate was the Principal of the primary school "Mare de Deu de Montserrat" (located in one of the most deprived neighbourhoods in Terrassa, Barcelona). The research commission was eager to know what were the actions and strategies that were implemented in this school in order to promote inter-cultural and inter-faith dialogue, and community cohesion.

Knowledge built in the framework of PROTON have added extensive value to the already existing line of research about violence prevention and what has been theorized as the "preventive socialization of violence". In this regard, results will be used in further research activities such as doctoral dissertations supervised by members of CREA-UB PROTON research team, and future research proposal presented for funding at either the Spanish National Plan of R&I, and the European Framework of Research and Innovation. Several publications are being drafted at the moment. An article focused on those elements identified as key for the prevention of youth violent radicalization is under peer-review in the Harvard Educational Review.



## 2.2 Intra Consortium opportunities

Exploitation plan includes multiple forms such as financial exploitation, research and education. Given the variety of PROTON results and particularly considering the large amount of studies and activities conducted in WP1-3 in addition to PROTON final results (WP5), several partners have planned additional research and exploitation activities.

The paragraphs below contains the individual exploitation plans by the project's partners.

### UCSC

UCSC plans to continue to expand its research activities based on PROTON results. In particular:

Research conducted under WP1 T1.1 will lead to a Campbell systematic review on the factors leading to recruitment into organized crime. Campbell systematic reviews are a prestigious and established publication where the most important systematic reviews in the field of crime and criminal justice are published. The publishing process with the Campbell Collaboration is particularly meticulous and can last several years. UCSC team has already achieved two out of the three main steps of this process (these are: 1) title registration, 2) protocol, and 3) complete review). The team is currently drafting the last step.

Research conducted under WP1 T1.4 on the criminal careers of mafiosi has stimulated further assessment and analyses on the PMM dataset. UCSC team has already published a few scientific articles and is planning to publish additional studies, also in collaboration with other consortium partners (VU) and external partners.

Research conducted under WP5 T5.1 has generated a large amount of data on the agent-based simulations on the recruitment into organized crime. The UCSC and CNR teams are considering several scientific publications to disseminate the results in the scientific community. Furthermore, the two teams are considering to further expand PROTON-S simulations by refining the policy interventions, updating data on the simulated societies and testing additional setups.



## HUJI

The results of HUJI's PROTON studies are intended to provide both inspiration, and direct contribution for the development of CVE policing. HUJI is already involved in the development of CVE strategies in Israel, in cooperation with a number of governmental and non-governmental bodies, in which the results of PROTON play a key role in informing the strategies' designs. Additionally, HUJI's ongoing relationships with the Israeli Department of Security and Israel Prison Service (providers of the data for T2.3) will be used as channels to exploit PROTON studies to improve the rehabilitation of radicals and former terrorists. These governmental bodies also share knowledge and expertise with governmental bodies from around Europe and the world.

HUJI has been contacted by researchers who are interested in the results of T2.1 for the purposes of improving existing risk assessment tools. Specifically, one of the lead researchers involved in the development of the VERA2 and ERG22+ risk assessment tools which are currently in use in the UK, Australia, Canada, the Netherlands, and elsewhere. The VERA2-R risk assessment tools is currently being promoted by the Netherlands' Ministry of Justice and Security and is partly funded by the EU.

Finally, HUJI has already received additional funding from the Campbell Collaboration to continue and expand its work conducted with the systematic reviews of PROTON's WP2 and WP3. As such, these projects in particular will be ongoing in the coming years.

## UNIPA

There are two projects UNIPA started, based on the insights explored in PROTON. The first one will incorporate what was our proposition for a study on social mobility and Mafia in Palermo, described in the Grant Agreement, that we did not completely pursue in the preparation of T1.6. The second one is an analysis of the historical origins of the Sicilian Mafia.

### **A study on Inequality, social mobility and Organized Crime in Palermo**

An observation of recent census data shows that Palermo is a highly segregated city, in which in particular high levels of education in certain districts coexist with extremely low levels in others. Education is a typical predictor of income, so that this type of inequality in space is likely to be associated to high levels of material disparity. Indeed, it is possible to show in a cross-section analysis evidence of a



robust correlation of the dispersion of inequality levels and the intensity of Mafia presence.

When inequality is associated to segregation into geographical districts, this exposes individuals to different role models and set of opportunities, generating self-reinforcing mechanisms. This creates persistence in a given income class and, overall, is associated to low socio-economic mobility, as suggested by the membership theory of inequality (Durlauf, 1996). We want to study this dynamics in the city of Palermo, and analyze its relation with the spread and persistence of organized crime.

In our context, segregation into poor neighborhoods may imply exposure to “pro-mafia” values. In such neighborhoods, in particular, the most successful people might be the Mafiosi. Therefore, the link that we will explore is: inequality → low social mobility → diffusion/persistence of Mafia.

### **A study on the historical origins of the Sicilian Mafia.**

Recent works highlighted different explanations for the origin of the Sicilian Mafia: land fragmentation (Bandiera, 2003), the presence of sulphur mines (Buonanno et al., 2015), of citrus fruits (Dimico et al., 2017), or of socialist movements, that induced the landlords to resort to the Mafia for their repression (Acemoglu et al., 2017).

UB

Results are already being used mainly by three different type of agents: 1. Policy-makers at the regional (Catalonia) and national level (Spain).

Results of the project and the scientific publications generated by the CREA-UB have been sent to most of the interviewees that participated in the fieldwork, that is, organizations, experts and stakeholders based in Spain, Italy, the Netherlands, Romania, Germany and the UK. Besides, reports and materials produced have been also shared with international organisms that have explicitly asked for them (e.g.: Europol), and policy-makers and civil servants who are in charge of areas related to prevention of organized crime and violent radicalization in Catalonia and Spain. Because of the previous work of Prof. Puigvert mainly in the field of sex-trafficking and gender violence prevention, results done in the framework of PROTON have been also shared with members of Departments of Social Affairs and similar issues (Catalonia and Spain), as well as with police authorities.



## FRAUNHOFER

Fraunhofer will use their use cases developed in WP3 for the social media web-crawling and analysis tools. They are currently in negotiation with German LEAs to develop an analysis platform and integrate parts of the software or the concepts. The results will be used by a German LKA.

## BRÅ

In the Swedish context, the final results of PROTON will, in all likelihood, mainly be used by The Swedish National Council for Crime Prevention (Brå) itself. Brå is an agency under the auspices of the Ministry of Justice and a knowledge centre for the criminal justice system. The agency's mandate is to contribute to the development of knowledge within the criminal justice system and the criminal policy area, as well as to promote crime prevention work. Both terrorism and organized crime fall under its purview. Results from PROTON may thus be useful as an additional source in Brå's preventive advisory work. Brå may, for instance, be asked to weigh in on prioritizations in efforts against criminal networks. Among other things, PROTON illustrates the potential added benefits of targeting facilitators of large scale criminal operation. If supported by other kinds of information, this could be suggested as an important priority.

## VU

In particular, in the Netherlands the model and wizard regarding Terrorism recruitment might be used by the ministry of Justice to inform their policies, in particular by the Netherlands Coordinator for Terrorism and Safety (NCTV) department.

The main benefits are: 'improved insight into the criminal careers of organized crime offenders in the Netherlands' (and abroad), the phenomenon of 'adult onset', the fact that employment may also have a stimulating effect on criminal careers in organized crime (particularly: owning a business / self-employment), and the importance of particular professions/employees at logistical nodes (airports and seaports) for committing transit crime.

Extra analyses can be carried out on the same dataset and may result in new insights. Furthermore, a comparison between criminal careers of Dutch offenders and Italian offenders (PROTON dataset Transcrime) would be interesting. Vu will also continue our work on terrorism and radicalization. Currently they are doing research on families of terrorism suspects, violent and non-violent extremism,



radicalization and identity formation in adolescence, and disengagement from terrorism involvement.

## FAU

FAU has recently got a new grant from the German Ministry of the Interior to continue the systematic reviews of international sound evaluations on the effects of prevention programs against extremism and radicalization. Therefore, they wanted to update the PROTON research and needed some new funding for doing this.

Besides that, FAU will also organize sessions on our topic at international conferences and Friedrich Lösel is personally involved in consultancy on their topic to ministries (UK MoJ, German Ministry of the Interior).

## DPPS

DPPS imagine that PROTON Project potential could be shown and presented, by the Coordinator, in the next years during some ad hoc briefings or seminars in the Police Forces schools or academies.

This could – eventually – allow end users to think about some adjustments to the PROTON Wizard, basing on the Police Forces operational requirements.

The hypothetical briefings about PROTON could be also given by the Coordinator during criminal analysis courses, which are normally attended by Officers or Non Commissioned Officers in charge of investigations against OC or Terrorism and belonging to specialized investigative units instituted throughout all the Police Forces.

All the above mentioned potential exploitations are to be understood as absolutely theoretical: they do not take into account an effective possibility of relying on side events. For this matter, training institutes of all Police Forces should be approached, in order to evaluate the possibility of inserting those seminars during their courses. This could take many weeks or months spent in bureaucratic work.

## EUROPOL

Since, in their current versions, both PROTON Wizards' simulations (OC and TN) are based on the socio-economic and criminal data of European cities, the actual PROTON Wizard could fit the needs of an urban/metropolitan authority, interested in testing an array of potential prevention strategies which could be then concretely implemented at municipal/city level.



As the simulation allows for future updating of the methodology, according to the evolving needs of policy makers, the ABM has additional potential impacts. In the future, policy makers at different levels (e.g. regional, national and international) could participate in the development of further PROTON-S and PROTON Wizards, to update the simulations in order to match their particular needs and expectations.

In this way, the PROTON project has established an innovative method for designing prevention policies in a more targeted and efficient way, which allows the exploitation of its results in infinite possibilities and by policy makers at many different levels.

## 2.3 Extra Consortium Opportunities

Looking at extra consortium opportunities the coordinator is already in contact with other institutions interested to the ABM and the OC recruitment.

Thanks to different dissemination opportunities occurred during the project, UCSC has made contact with stakeholders interested in adapting and updating PROTON-S results to address specific environment and policy needs. In particular, UCSC has already started discussing with the Australian Institute of Criminology a possible application of PROTON-S to the recruitment into outlaw motorcycle gangs in Australia. Furthermore, UCSC and the University of Limerick are considering to adapt PROTON-S approaches to support the evaluation of possible policy interventions to holistic approaches to organised crime networks in Ireland.

As explained above this requires data, computational capacity and time to customize the tools for their necessities. Once the feasibility of the project will be assessed, additional financial resources should be allocated to UCSC by the requesting institutions to allow UCSC to develop the study.

## 3. Risks and barriers and design of mitigation plans

Risks associated with the PROTON exploitation have been identified, analysed, and will be managed by the Consortium according to our mitigation plan. The internal process has consisted in exchanging ideas and developing options amongst the members of the Consortium, through skype calls and internal workshops pivoting on:

- Risks identification
- Risks analysis
- Risks response planning



Risks with the PROTON exploitation have been named and then categorized by probability, impact and priority. Past experiences of the whole Consortium have been very useful to identify lessons learned from the exploitation of past projects, problems encountered, mistakes made, and finally to facilitate a consensus on the right mitigation plans to adopt.

According to our proposal, our risk response planning has been focused on mitigation plans strategies (how to reduce the probability or the impact of the risk), more than on the three other typical strategies of project management (avoid, transfer, accept).

| Response | Strategy                                    |
|----------|---|
| Avoid    | Eliminate uncertainty changing the activity |
| Transfer | Allocate ownership                          |
| Mitigate | Reduce the probability or the impact        |
| Accept   | Include in baseline of the project          |

#### Design of mitigation plans:

| Potential risk/barrier  | Level   | Mitigation plans  |
|---|---|---|
| The input data procedure requires that stakeholders have some internal data collection and social statistics capacity | Probability: high<br>Impact: high<br>Priority: high       | The Consortium has made available a Proton Technical Manual to guide the stakeholders with the input of their own information |
| Data extracted by the Wizard are not adapted to all environments  | Probability: high<br>Impact: high<br>Priority: high       | Users can tailor the simulation environment depending on socio-economic, crime and other characteristics of chosen cities     |
| Barrier to access to Wizard for policy makers in different countries  | Probability: high<br>Impact: high<br>Priority: high       | The Wizard is available for everyone who has an access to web address   |
| Every end user has different needs  | Probability: high<br>Impact: medium<br>Priority: high     | The Wizard can be personalized according to the needs of the interested parties   |
| Data extracted by the Wizard are in forms difficult to use for future analysis  | Probability: medium<br>Impact: high<br>Priority: high     | The data can be extracted in tables, charts, diagrams   |
| The end users need a specialised assistant to customise the outputs of the simulations                                | Probability: medium<br>Impact: medium<br>Priority: medium | The Consortium will be available for further assistance on the OC simulations in terms of                                     |



|  |  |   |
|--|--|---|
|  |  | additional information but also operational help  |
| Additional financial resources are needed to ensure the necessary agent-based modelling, coding, and computational capacity. |  | UCSC will acquire the best cost effectiveness resources in order to answer the needs of the end users |

## 4. Fine tune and validate the exploitation plan

As shown in the previous paragraphs each partner has contributed to the deliverable by detailing its own exploitation plan.

Considering the barriers that the possible end users might encounter developing additional studies on the PROTON-S and PROTON Wizard the coordinator during the Third Consortium Meeting has decided to produce an additional manual for practitioners to explain how PROTON results can be adapted in future scenarios (Annex A). The manual was built on the whole consortium feedback and shared with the partners.



# ANNEX A - A brief introduction to agent-based models and their use in project PROTON

As explained in the summary, this section comprises the manual addressed to policy makers and practitioners who want to set and test policies against potential recruitment of OC and terrorist members. It includes the possibility to adapt the models to other contexts and how can the simulation settings be modified in the Wizard.

## 1.1 What is an ABM?

- An agent-based model (ABM) is a computer simulation that models relations among agents (e.g. individuals) and their behaviour, thus providing a simplified representation of the social reality

## 1.2 Why are ABMs useful?

- ABMs are increasingly used to simulate the impact of specific policy interventions
- ABMs offer many advantages:
  - They enable policy makers and others to conduct virtual randomized experiments to assess the impact of different policies before actual deployment
  - They are often more cost-efficient and provide results more quickly than field experiments or pilot experimentations
  - They enable policy makers and others to test policies without harming individuals' rights and freedoms since the simulations are completely virtual
  - They enable policy makers and others to test the long-term effect of specific policies, e.g. the impact over a few years.
- ABMs applied to social processes have some caveats:
  - Simulation of complex social processes is still in its early days and it inevitably requires simplification of reality.
  - Results should be used with caution and preferably in conjunction with other data and information (e.g. social and financial costs of the policies, political, social and ethical assessment of the policies)
  - Simulations should be considered additional tools for policy makers in addition to other strategies such as experiments and evaluations
- The development and use of ABMs include a few requirements:



- Proper simulation design and validation require specific expertise in the field of study (e.g. organised crime and terrorism) and in ABM design.
- Simulations are just as good as the input data, i.e. simulations must be realistic to provide realistic results
- The development of ABMs requires coding, statistical, and computational capacities

### 1.3 The ABMs in Project PROTON

- The ABMs in Project PROTON comprise a set of different simulations (PROTON-S) modelling the factors leading individuals to join organised crime or terrorist networks
- The **PROTON-S simulations on organised crime** model how multiple social relations may influence individuals' involvement into organised crime: family, friendship, school, professional, and co-offending relations. The simulations also include relevant individual-level characteristics (age, sex, education, employment, and membership of an organised crime group). Based on their relations and individual traits, agents evolve through time. For example, agents grow up, study, marry, get/lose a job, have children, and commit crimes. The simulations assume that individual and social relations are important drivers of recruitment into organised crime. Furthermore, recruitment into organised crime occurs whenever a non-organised crime agent commits a crime with organised crime members.
- The **PROTON-S simulations on terrorism** model the behaviour of heterogeneous agents whose routine activities take place in a neighbourhood of a representative European city. Agents are characterized by a set of socio-demographic characteristics, and opinion based risk and protective factors, namely: Integration/non-integration, institutional trust/legitimacy, and subjective deprivation. The simulation assumes that the agents' characteristics determine their routine activities, which in turn dictate their patterns of socialization. Socialization, as modelled by opinion-dynamics, consists of interactions between individuals. Over time, the cumulative effects of social interactions can lead to changes in these factors, affecting the overall risk of radicalization and recruitment to terrorism.
- The PROTON-S simulations were developed on the basis of systematic reviews on the factors leading to recruitment into organised crime and terrorist networks, innovative studies on organised crime, terrorism, and cybercrime, and laboratory experiments conducted during the course of Project PROTON. Results of these studies are available on PROTON's website (<https://www.projectproton.eu/>).
- The hypotheses and assumptions underlying the PROTON-S simulations are presented below and discussed in detail in PROTON Deliverable 5.1



## 1.4 What type of policy interventions do PROTON-S simulations test?

### PROTON-S simulations on organised crime test two different types of policy interventions

- The first type comprises preventive measures to reduce recruitment into organised crime. This intervention includes two policy interventions:
  - Prevention through a policy specifically targeting juveniles living in organised crime families. The policy will provide them with educational and welfare support and diminishing the influence of organised crime relatives (by removing the connection with a father convicted for OC offences and OC-involved relatives). The intervention assumes that the public authorities know who are the OC members and that some wives of OC members may be willing to separate from the fathers to prevent their children involvement into a criminal culture.
  - Prevention through a policy targeting minors “at risk” in the general population. The policy will provide them educational and welfare support through the promotion of positive social relations with non-delinquent peers and adults. The intervention assumes that the public authorities can identify children at risk (e.g. by violent or aggressive behaviour reported by teachers) and that the children can be enrolled in the intervention. It also assumes that the intervention improves the educational attainment of the enrolled students.
- The second type of intervention comprises law enforcement disruption strategies and their impact on the recruitment into organised crime. It includes two policy interventions:
  - Disruption by targeting the leaders of organised crime networks. While keeping constant the overall arrest rates in the simulations, organised crime members will be targeted with a higher probability, depending on their positioning in the relational networks. The intervention assumes that the law enforcement agencies can identify the social relations of OC members and select the members with more prominent social connections.
  - Disruption by targeting individuals possessing specific skills necessary for the commission of complex crimes (also called facilitators). While keeping constant the overall arrest rates in the simulations, facilitators will have a higher risk of arrest whenever they commit a crime. The intervention assumes that the law enforcement agencies have identified potential facilitators of the commission of complex crimes (e.g. based on previous experiences, it is known that specific workers or skills are necessary for committing complex crimes).

**PROTON-S simulations on terrorism** tests two different types of policy interventions.



- The first type of policy intervention seeks to change the level of unemployment among high risk agents. Beyond affecting agents' propensity (a static feature of their overall risk), changes in employment status alter routine activities. According to the theoretical model, changes in routine activities should have a direct impact on opportunities for recruitment and secondary effects on socialization, and thereby, through opinion-dynamics, on risk and protective factors. It consists of the following:
  - Reduction of risk through a policy that specifically targets to change the propensity, risk, routine activities, and socialization opportunities of already high-risk individuals through offering incentives to employers and would-be employees. The intervention assumes that government agencies are able to identify a population of high-risk individuals who are in need of employment. It assumes that employed individuals have less time, and are less likely to come into contact with radicalizing influences and recruiters.
- The second type of policy intervention involves the deployment of two different types of "special agents" in the modelled environment, namely community workers, and community-police officers. It consists of the following:
  - Reduction of risk by introducing more community workers to operate at community centres, promoting trust/legitimacy, integration/connectedness, and improving subjective feelings of deprivation. The intervention assumes that community workers have positive values which will help to prevent radicalization, but that the number of such community workers is conventionally too small to have major impact on the community. Having more community workers in each Center will increase the likelihood that individuals in the community will have contact with them. As a result of these increased contacts, community workers will be more likely to affect agents' opinion-based protective factors, thereby reducing radicalization and the risk of recruitment.
  - Reduction of risk by training more police officers in community policing is also expected to act as a preventive factor. Our model assumes that police officers trained in this way will have more positive relationships with community members, and will reduce their sense of alienation from the larger community. In the base model, police officers have a neutral or negative effect on key values that affect radicalization. The intervention assumes that having more specially trained community police officers increases the likelihood of positive interactions, and decreases the likelihood of negative interactions. As a result of these increased opportunities, community police officers will be more likely to affect agents' opinion-based protective factors, thereby reducing radicalization and the risk of recruitment.



## 1.5 How the results of PROTON-S can be accessible to the wider public?

1. A selection of the main results of the simulations are available on PROTON Wizard, a web-based interface accessible from PROTON website (<https://www.projectproton.eu/>)
2. The PROTON Wizard stores and makes freely accessible online to any interested user some of the results of the complex simulations of PROTON-S
3. The PROTON Wizard allows users to test different environments and policy interventions. At present, PROTON Wizard presents the results of the above summarised scenarios.

## 1.6 What is the use and advantage of PROTON Wizard?

4. PROTON Wizard grants users the ability to visualise the results of the simulations through a few simple steps. Through a guided procedure the user will select the main options and will immediately access the results.
5. Users can select multiple possible scenarios and policy interventions, and results are immediately retrieved from a set of pre-calculated simulations, instead of requiring hundreds of hours of computation
6. The PROTON Wizard is user-friendly and requires no computational or statistical skills. PROTON provides a webinar to introduce the use of PROTON Wizard and a user guide is available on the Wizard page on PROTON website

## 1.7 How can PROTON simulation settings be modified in the PROTON Wizard?

The **PROTON Wizard on organised crime** allows policy makers and others to choose the following options:

7. **Select between two possible environments:** a society resembling a Southern European city and one simulating a Northern European city
8. For each environment, **select among four possible policy interventions** (presented above)
9. For each combination of environment and policy intervention, users are able to **choose low/medium/high levels of:**
  - Number of organised crime members
  - Crime Rate, including unreported crime
  - Unemployment Rate
  - Law Enforcement Intervention Rate (criminal convictions resulting in a prison sentence for 10,000 inhabitants)



- Punishment Length (duration of prison sentences)
10. The medium level of each options will be based on empirical data from the Southern or Northern European city. Instructions and mouse-over popup will provide indications on the empirical values to guide the user in the choice of the preferred combination

The **PROTON Wizard on terrorism** allows policy makers and others to choose the following options:

- **Tailor the environment:** Adjust socio-demographic characteristics to tailor the environment to most closely match the European city of interest:
  - Gender ratio
  - Employment rate
  - Criminal history rate
- For each tailored environment, **select among three different policy scenarios** (described above)
- For each combination of environment and policy scenario, users are able to **choose from different levels of policy implementation:**
  - Number of community workers per community center
  - Proportion of community-policing officers on police force
  - Percentage change in employment of high-risk agents

## 1.8 How can PROTON simulations be adapted to other contexts/scenarios?

In addition to the options already available in the PROTON Wizard, further development and expansion of PROTON-S simulations and of the Wizard will be possible

- **The PROTON-S simulations codes are open access and freely available**, allowing any researchers, policy maker and interested stakeholder to download and modify the simulations (*note: this is part of Deliverable 5.1 an hyperlink will connect to the code*)
- **Interested stakeholders may modify additional settings through the use of NetLogo**, one of the most popular freeware software for agent-base modelling (available on <http://ccl.northwestern.edu/netlogo/> ). Working on NetLogo, however, requires some internal expertise in agent-based modelling and coding. Interested stakeholder can find details on PROTON Technical Manual or can contact the consortium for further advice (*(part of PROTON Deliverable 5.1.)*)
- **Stakeholders interested in adapting PROTON-S simulations to specific social and economic environments may modify the input data of the simulations.** The input data of PROTON-S are a



set of statistics on socio-economic variables, crime variables and other data. This procedure will require some data collection and social statistics capacity. Stakeholders willing to input their own information to adapt the simulations to a specific social environment can modify the data as specified in the PROTON Technical Manual (*part of PROTON Deliverable 5.1.*)

- **Stakeholders interested in further expansion of the PROTON-S simulations**, e.g. The consortium will be happy to support and participate in future expansions. Please refer to PROTON Technical Manual (*part of PROTON Deliverable 5.1.*)

## 1.9 Additional sources (will be delivered as part of deliverables of WP5)

**PROTON Deliverable 5.1 Report on PROTON simulator**

**PROTON-S Technical Manual (CNR)**

**PROTON Wizard User Manual (ITTI)**

**PROTON Wizard Technical Manual (ITTI)**

## 1.10 Contacts

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