

# Predictive Policing:

## Perception of its risks and benefits by police trainees and citizens

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### Abstract

In the era of Big Data, law enforcement agencies are expected to analyze data in order to solve crimes, but also to prevent it. Predictive policing software aim to anticipate the most probable place and time for an offence to occur, giving police officer the opportunity to be “at the right place, at the right time”. Articles questioning the efficiency of the algorithm or the data used have been published in the past few years, but none of them step backed and search to know if the law enforcement agencies were ready for this paradigm-shift: from a reactive policing to a predictive policing. This article presents the results of the most recent (April 2018) France's project research regarding organizational resilience and resistance to change in lights of predictive policing. More than 1500 peoples have answered four surveys about predictive policing, among them: citizens, police officers, police trainees, city officials, etc.

**Keywords:** predictive policing, resilience, algorithm, Predpol, France

### Introduction to predictive policing<sup>1</sup>

In the early years of the 21<sup>st</sup> century, an innovation comes into the world of homeland security: predictive policing. The most widely known predictive policing software is Predpol from the eponymous company. Since then more and more companies have entered this market: for example, Hitachi (with Hitachi Visualization Suite), Microsoft (with Microsoft Power BI), IBM (with IBM SPSS), among smaller ones.

If so many companies invest in this field, it is to supply a demand from police departments across the world.

Today, beside the United States of America, where predictive policing is quite well-deployed, we can find history or actual use of predictive policing software in South America (Uruguay), Asia (India) and major cities in Western Europe (United Kingdom, Germany, Spain, Switzerland, France, etc.). It is understandable that governments and police departments are interested in a software that is claimed to reduce crime up to 30% and cost the annual salary of one police officer (Piotrowicz, 2014).

But despite this growth in interest, there is still a misconception of what predictive policing really is and what it can really achieve.

Predictive policing can be defined as: “A policing strategy focused on the spatiotemporal anticipation of the

<sup>1</sup> In the following, “predictive policing” will be seen only as place-oriented and as predictive crime mapping. Therefore, other form of “predictive policing”, such as, person-oriented or actuarial tools will not be studied.

criminal phenomenon, or at least a part of it, in the purpose to establish an operation either of prevention, investigation or repression” (Piotrowicz, 2016).

Technically, at its core, it is a software that will create a map displaying the crime likely to happen during the next day or week. The prediction is calculated with an algorithm (predictive analytics) supported by crime data, urban data and social data. Overall, the software does not need any personal data to establish predictive crime mapping.

## Presentation of our Research Project<sup>2</sup>

The project is leaded by University Jean-Moulin Lyon 3 and funded by France’s Ministry of Interior.

Overall, in order to achieve efficiency, a tool must be used as intended by the developer by the user, and with the least possible resistance from third parties.

Applied to new technologies in law enforcement agencies, we can make two assumptions: the effectiveness of a tool and its life span are tied to its acceptance by the user (police trainees and police officers) but also to its acceptance by those to whom it applies: citizens.

For example, regarding the ‘flash-ball’<sup>3</sup> in France, since 2015 the new model (LBD 40x46) was used more often each year by police officers (IGPN, 2017), but 42% of citizens were against its use (20Minutes, 2016). Then, France’s Defender of rights, which is an independent authority, officially asked in 2018 the Parliament to ban it (Défenseur des droits, 2018).

To prevent a loss of time, money but also in trust from citizens our project aimed to evaluate the acceptance by the actors of homeland security of predictive policing software before its nationwide deployment.

Our project revolved around the following question: *Is predictive policing software received by citizens, police officers, police trainees and city officials with sympathy and endorsement or with mistrust?* In a more scientific-way, we have studied the organizational resilience of Socie-

ty and Law Enforcement Agencies regarding Predictive policing.

Unlike other studies, we have not evaluated the effectiveness of the predictive policing approach. Even if measuring its effectiveness is a necessity, confirming its feasibility is a prerequisite: if the tool is not used, or misused, assessing its reliability is impossible.

This project combines, on one side, empirical researches, regarding surveys and semi-structured interviews of hundreds of police and law enforcement officers or trainees, citizens and city officials, with, on the other side, an academic study about organizational resiliency and managing resistance to change.

This project explored three objectives:

1. *Identify and evaluate the causes of resistance and/or interest* from police officers or trainees, citizens and city officials regarding predictive policing.
2. *Propose solutions to create a soft transition toward predictive policing methodologies*, in order to reduce the resistance to change and the cost associated with technological change and to increase predictive policing operational deployment speed and efficiency.
3. *Develop professional education or training and management methods* to help law enforcement agencies to use predictive policing technology at its fullest as soon as its implementation is completed.

## Methodology

Including all four categories of respondents, we collected more than 1650 fully-answered survey in four months, but this article will only, in a first part, provide results regarding police trainees from the 22<sup>nd</sup> promotion of France’s National Police College, which oversees training of newly recruited police officers. The 22<sup>nd</sup> promotion has a response rate of 86% and 62 fully-answered survey. The survey was a multiple-choice questionnaire self-administered, with 40 questions.

Then, we review results from citizen’s survey, which had 31 questions and was deployed among citizens aged 15 and more, living in France’s region of Rhone. We used a quota sampling method crossing genders and age (with a gap up to 15 years) and extract a representative sample of 384 individuals.

<sup>2</sup> This article is a brief summary of the full report (unpublished), for more information and full results, please do not hesitate to contact: [cyril.piotrowicz@wanadoo.fr](mailto:cyril.piotrowicz@wanadoo.fr)

<sup>3</sup> Rubber-bullet gun.

## Police trainees and predictive policing

### How do they perceive predictive policing?

Prior to the survey, 63% of police trainees had already heard about predictive policing. But even without knowing what predictive policing exactly is, 87% of them had a good idea of what it is ("anticipate the place of the next offence").

Before specific training, 79% of police trainees thought that predictive policing should or could be used by police forces and 68% think about predictive policing as a "scientific tool". But, at the same time, only 8% see it as a "reliable tool" and less than 2% thought that they had enough knowledge and information.

After a brief explanation of what predictive policing is and where and how it's used, 74% of police trainees admit they have learned new information about it. The explanation made a small but significant difference to their perception of predictive policing: after the briefing 85% were thinking of predictive policing as a "scientific tool" (+17 points), 23% as "reliable" (+15 points), but even so, 82% were unsatisfied with these explanations.

One of the major concerns about predictive policing is the potential threat to civil rights and liberties. Prior to the explanation, 35% of police trainees thought of predictive policing as harmless for civil rights: after the briefing, this rose to 56% (+21 points).

Finally, 71% of police trainees wanted police forces to use predictive policing but with guarantees such as transparency about algorithms and data (47%) and strengthening the control of police activities (47%).

### How do they want to use predictive policing?

Police trainees are not unanimous on how they want to use predictive policing: 32% of them are in favour of a prevention policy, 23% favour an enforcement policy and 45% prefer a hybrid approach.

When asked "What could justify the use of predictive policing?", the top answers were:

- Tackling crimes such as robberies or violence (66%);
- Tackling serious offences such as murder or rape (45%);
- Dealing with the feeling of insecurity and minor offences such as fixed penalty notices (40%).

Furthermore, 52% of them think that identity-checking an individual, without any other suspicion, based only on a predictive crime map is justified, but only 29% see this action as legal.

Indeed, when asked about the "major difficulties of predictive policing", legal issues are on the top of the list (77%), followed by a lack of acceptance from citizens (65%) and then the professional training (52%).

Police trainees ask for a specific formation regarding predictive policing (73%) and they all wanted that to be delivered by police officer who had previous experience with predictive policing.

## Citizens and predictive policing

### How do they perceive predictive policing?

Unlike the police trainees, most French citizens had not heard of predictive policing prior to this survey (70%) but they still had a good idea of its purpose ("anticipate the place of a future offence", 63%).

More curiously, despite not knowing what predictive policing is, they pictured the tool as "scientific" (59%).

As we could have expected, they were undecided regarding its "reliability" ("not knowing", 54%) and its risk regarding civil rights and liberties ("not knowing", 36%). Overall, they found that predictive policing had been insufficiently explained to them (85%) and they wanted to be better informed about it (73%).

But this lack of information, did not prevent them supporting predictive policing since 59% of them thought that police forces should or could use it.

Following our brief explanation of predictive policing, 85% of citizens considered it as useful, and it was a first explanation for 56% of them.

It also had a positive influence: they were more likely (now 83%) to see predictive policing as a "scientific tool" (+24 points), and they were less undecided regarding its "reliability" (-14 points) and risks (-12 points).

Finally, 61% of citizens wanted police forces to use predictive policing but with guarantees such as strengthening the control of police activities (65%) and strengthening the rights of the defense (57%).

### How do they want predictive policing to be used?

Unlike police trainees, citizens are more in favour of a predictive-based prevention policy (54%).

When asked “What could justify the use of predictive policing?”, the top answers were:

- Tackling crimes such as robberies or violences (53%);
- Tackling serious offences such as murder or rape (49%);
- Fighting terrorism (44%).

Furthermore, 59% of them accept the idea of an identity-check performed against an individual, without any other suspicion, based only on a predictive crime map.

Regarding the “risks of predictive policing”, citizens are worried about misuse by the police forces (71%) and risks linked to the technology, such as unreliable data or hacking (61%).

An interesting point is that citizens surveyed did not think that predictive policing would degrade the trust between them and police forces (61%).

## Conclusion

Thanks to this survey, we have learned that:

- Police trainees have a reasonable understanding of what predictive policing is and they are interested in using it in the field. However, they are less sure about its reliability, they ask for guarantees about its legality and they feel that they need specific training.
- Citizens have less understanding as to what predictive policing is, but they agree police forces should be using it, even if they think it could be dangerous. They also want strengthened accountability.

Knowing that citizens and police trainees have a broadly similar thought regarding the desirability of predictive policing (reliability and risks of the software, for example) but also some differences (such as public policy regarding predictive policing), France’s National

Police College is now able to create for police trainees a specific training, and for citizens a specific information campaign. Both will tend to generate a favorable prior situation to a nationwide deployment of predictive policing software preventing misunderstanding, misusing and unproven fear or resistance.

By analyzing our brief explanation of predictive policing and its impact on the answers, we will be able to design a public communication strategy to reassure citizens prior to a nation-wide predictive policing deployment. By fully informing citizens, based on this research, we aim to raise awareness and reduce concerns. It is also an opportunity to fight the spreading of fake news or misunderstanding regarding an important matter: public safety.

Based on the results from this survey, we are now able to create a specific training that will meet the needs of our police officers, will reassure them regarding predictive policing and made them to be aware of the capabilities of the software. Therefore, we hope that they will gain even more interest in predictive policing and will use it as it was intended to: as a decision-support tools, not as a tool making decisions for them.

Finally, one of the major issues of predictive policing concerns its legal implications. As shown in the survey, both citizens and police trainees agree to an identity-check solely based on a predictive algorithm.

### Is it legal?

Police trainees, who often have a criminal law degree, must take criminal law courses during their training, and yet they are still uncertain. However, when looking back to France’s Criminal Procedure Code, it appears that article 78-2 al.8 may provide a suitable basis, even if this has not been brought yet before a court of justice.

Until this is clearly resolved, we need to prevent the uncertainty, the risk of a procedural defect, by harmonizing the practice and sensitizing our future police officers to what can, and can’t be legally done, solely based on an algorithm.

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