This app is not for you: Bias and externalities in police/community interaction tools
The Catalan case

Eticas Research and Consulting

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Research team

Acknowledgements

List of acronyms

- ❏ CSOs: Civil Society Organizations
- ❏ GDPR: General Data Protection Regulation
- ❏ ICT: Information and Communications Technology
- ❏ PG-ME: Policia de la Generalitat- Mossos d'Esquadra
- ❏ NGO: Non-governmental Organizations
- ❏ MET: Metropolitan Police
- ❏ GDP: Gross Domestic Product
- ❏ SNS: Social Network Sites
- ❏ CCTV: Closed-Circuit Television
- ❏ LEA: Law Enforcement Agency
- ❏ MENAS: Unaccompanied Foreign Minors (*in Spanish*)

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1. Introduction

Community policing -also known as "proximity policing" in Spain- was born in the late 1970s as an attempt to decentralize police action and foster horizontal governance in public policing strategies, institutions, and mechanisms. The main idea behind this approach to policing was to leave behind the "car patrolling model" by making police more proactive and connected to citizens (Bayley & Shearing, 1996; Weisburd & Eck, 2004). Engagement of communities in policing and trust in authorities were placed as crucial factors for the modernization of security policies (Seaskate, 1998). Under these premises, police action was also expected to be more effective and efficient. Such a philosophy was adopted by police forces worldwide in the last decades (Oliver, 2000).

In parallel to this development, ICT aimed at supporting policing tasks became increasingly adopted by law enforcement agencies with multiple purposes, ranging from surveillance to the community-based organization against crime. The use of technologies as part of community policing operations was expected to act as an effective mechanism for strengthening ties between citizens and the local police. Along these lines, ICT-based relations between these actors may become a way of rendering information exchanges smoother, trustable, and more productive in this social-oriented perspective (Schuck and Rosenbaum, 2008).

Initial definitions around community policing underlined that this conception should be aimed at contributing to "liberty, equality, and fraternity in human affairs.", and that policing activities developed under this paradigm should "help reconcile freedom with security and to uphold the rule of law" as well as to protect people from fear (Alderson, 1979:199). Likewise, in the current international context of political instability and a growing perception of insecurity (Andersen and Mayer, 2018), it has been pointed out that principles of the community policing approach may support a more democratic, targeted, and preventive policing (Wrobleski and Hess, 2003; Kocak, 2018). This approach has been presented as a possible way to address the limitations of current policing strategies. For instance, the lack of communitarian engagement in policing implementation has been framed as one of the drives for terrorism (OSCE, 2014) and community policing has been recently framed as one an appropriate way of tackling racism and xenophobia (Pozzi, 2015).

However, actions implemented under the community-police paradigm have not always been compatible with its principles. Moreover, the use of certain technologies by local police working in this domain has not consistently been implemented neither following these ideas or efficiently. Even though we can identify many forms of technological implementation or tools currently used under the community policing approach, the use of

new digital solutions in this particular context has remained unclear and understudied. Therefore, before taking these assumptions for granted, the social and material conditions where community policing projects are established, as well as its specific social impact need to be considered.

This project investigates, by focusing on the Catalan case, whether the use of ICTs by community policing boosts or weakens the original purposes of this policing orientation, as well as their philosophy, including respect for the communities' interests and diversity. Our main goal is to explain the social implications of this technological mediation between the communities and the police. We divide the analysis into four registers of study:

- Firstly, to identify what technologies these police forces use, and to describe why, how and for which purposes they use them. At this point, we analyse whether the use of technology makes police operations more effective.
- Secondly, to understand how the adoption of these technologies affect the inner dynamics of community policing. This includes asking whether it prompts a more proactive or reactive nature of police action.
- Thirdly, to examine how the use of ICTs shape the relation between community police units and the civil society. Does the use of new technologies generate more collaborative and trustworthy horizontal exchanges between the police and the citizenry, or instead it prompts a reinforcement of police control and vertical impositions? A further question is addressed at this point: does the use of ICTs contribute to the legitimacy of community policing?
- Lastly, the study asks if the use of ICTs may harm vulnerable social groups by making social control, discrimination and exclusion dynamics more effective, while hiding its intrinsic nature. Does it have relevant effects over the community's human rights?

To address these issues, the project "This app is not for you: Bias and externalities in police/community interaction tools", developed by Eticas Research and Consulting for the Open Society Initiative for Europe, analyses the relationship between community policing and ICT in the socio-political framework of the Catalan case. This case is especially relevant for the study of the above-discussed issues since Catalonia has one of the most advanced community-policing institutional projects in Spain. Furthermore, even though technological adoption has been promoted as part of this development, the intersection between community-policing and ICT has remained understudied.

As for the methodological approach, this one-year project develops a thorough revision of the academic literature on community policing and technology. Furthermore, it conducts a comprehensive study of the situation with community policing technologies within Europe, which is supported by fieldwork aimed at collecting and analysing information about this phenomenon, carried out during 2019-2020 in Catalonia. Lastly, the study methods include

surveys, focus groups, interviews with relevant stakeholders and a digital ethnography on the social network Twitter.

This report presents the main results of the research. Firstly, the methodological strategy is summarized. Secondly, the document presents a state of the art on the academic debate around the adoption, implementation, and social impact of ICT in community policing. In this context, the problem and hypothesis of the study are shortly introduced. Thirdly, the results of the fieldwork activities conducted during 2019-2020 to address the case study of Catalonia are reflected and analysed in sections 4 and 5. The conclusions section includes the analysis of the fieldwork outcomes. It also reintroduces the theoretical discussion and proposes specific policy recommendations for improvement. In this way, this document assesses the increasing use and impact of Information and Communication Technologies (ICTs) by law enforcement bodies within the context of community policing.

2. Methodology

2.1 Methodological approach

In line with the research questions described in the previous section, this research is based on a mixed qualitative/quantitative methodology. This methodology is supported in a combined data collection strategy. Fieldwork tasks conducted in this context are aimed at analysing the efficiency and social impact of community policing based on new technologies. This analysis includes the issues of policing productivity, stigmatization, and discrimination analysed under the light of an accurate taxonomy of the existing scenario. The ultimate goal of this process is to construct a reliable diagnosis, which captures the social, communitarian, and organizational specificities of technological deployment. This approach also reinforces an understanding of the intentions behind different dimensions of the studied policies. Data collection methods are selected from a full repertoire of methodological options at any number of multiple points in the inquiry process. The methods chosen to meet our primary research aims were, therefore, adapted to different goals, as reflected in the following Table 1:

Table 1. Research questions and data collection tools

Main research questions	Data collection tools	Data analysis
Which types of technologies do the local police in Catalonia use? Which are their goals and forms of implementation?	Desk research, survey	Descriptive, prevalence, territorial distribution, interpretation
How does ICT affect the community-policing model,	Survey, semi-structured interview	Frequency, deviation, interpretations (views)

including the distance between police and community?		
How ICT-based police action affects community-police relations? Can ICT contribute to the stigmatization of certain social groups within CP activities?	Survey, semi-structured interview, digital ethnography	Frequency, deviation, interpretations (views)
May specific modes of citizen and police technological operations and practices be disruptive for community policing aims (social cohesion and information exchange)?	Desk research, digital ethnography	Qualitative analysis, frequency and discourse analysis

Source: Own elaboration.

Concerning our case study, Catalonia, we found that there is **no systematic information about systems and technological tools used by the community police in Catalonia**. Given this situation, after the first stage of the research, our analysis has been firstly oriented towards mapping the existing scenario and, secondly, to address our hypotheses through this specific case framed by the previous work on the European scenario. Along these lines, although having a broader set of research questions has a horizon, the research is focused on the institutional dimension. This analysis is contrasted with the police and community perceptions and opinions.

2.2 Data collection tools and target groups

Concerning the data collection tools, firstly, extensive desk research is conducted to establish a state of the art about community policing and technology. This part of the research is used to study this phenomenon in Europe as well as concerning concrete technological developments.

Short scale survey with local police

The methodological sequence followed with mapping and analysis established through a **short scale survey** which was distributed with the support of the board of the project, in particular, Officer Ángel Párraga, and the *Col·legi de Criminòlegs de Catalunya* (College of Criminologists of Catalonia). The online questionnaire addressed a set of 15 main variables concerning the adoption, implementation, and social impact of technologies by the local police focused on Catalonia. The dependent variable is the use of police technologies with social impact and the independent variables comprise the different causes of their use and

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their effects on the population.[1] The chosen scheme is diachronic, with closed questions and Likert scales.

The survey is targeted to ICT experts and officials holding intermediate or high management positions in all (213) local police units existing in Catalonia, with some role in the administration of ICT within the unit. 50 local police units responded. As we can see in the following Figure 1, the direct and representative sample includes both big cities, such as Barcelona and Terrassa, and also several small municipalities. It is used to establish a thorough mapping of the technologies used by these units and examine the perceptions of the end-users on its impact on police-community relations. With this tool, we explore what usages of the technologies are most common on the ground, inquired how these ICTs have enhanced the policing capabilities of non-members of the police and what impact they have on them. This exploratory method allows us to establish a full description of the use of technologies within the context of community policing in Catalonia, as well as to enhance our analytical tools and narrow down the set of variables to be used in later fieldwork.

Figure 1. Answers by police region[2]
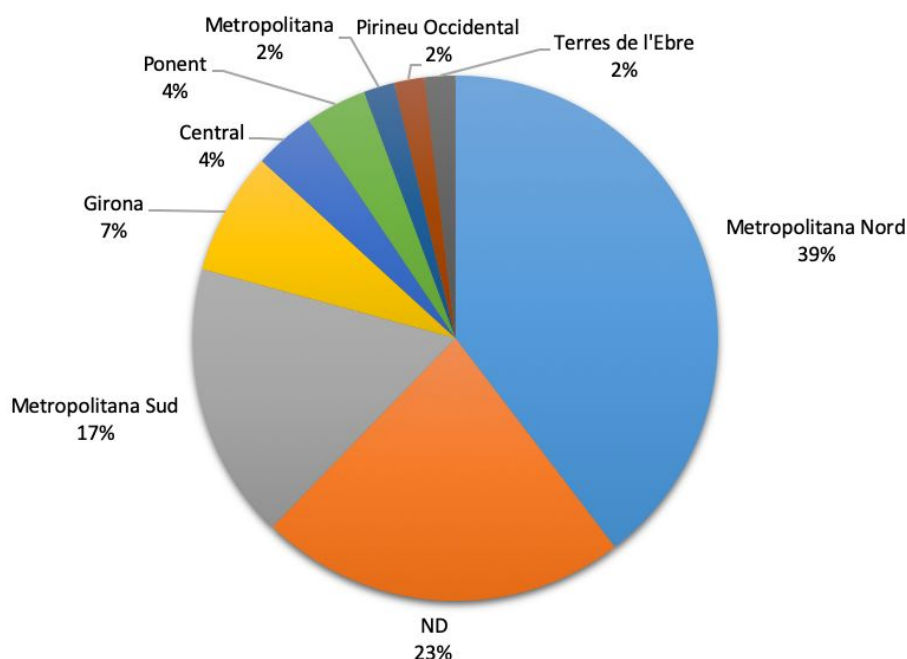
Source: Own elaboration.

The information provided by the survey is complemented and contrasted by following three different methods, namely **semi-structured interviews, focus groups, and a digital ethnography**.

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[1] Dimensions grouping variables and indicators are 1) types of technologies used; 2) objectives of its use, 3) implementation in different areas of activity (surveillance and community police); 4) impact analysis; 5) training of the police; 6) social impact and differential groups (privacy and violation of rights) and 7) identified technological needs/prospecting.

[2] ND stands for unknown.

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Interviews with relevant stakeholders

Semi-structured interviews are used to gather first-hand experiences of the stakeholders involved in the research and consider their subjective perceptions concerning the addressed variables. These interviews were conducted with both police officers and members of community organizations. Understanding the world of the target groups from their own frame was crucial for explaining the rationales behind their actions. The police officers integrating the Project Board also provided very valuable information during informal interviews.

Focus groups with police and social organizations

We conducted **focus group discussions** involving relevant stakeholders and representatives from both the **police and communities in the city of Barcelona**. In order to assess our hypothesis and get specific insight, we designed a guideline for each focus group comprising the set of variables to be discussed and examined. This process allows us to verify and discuss the same issues we derived from the survey questionnaires, but from the point of view of in-field agents.

The main aim at this stage of the research is, therefore, to understand what technologies are used in policing settings, which is the approach for this use and its mentioned societal consequences, including the extent to which different social groups have a real say and the possibility to give consent and exercise control over the technology's implementation, which is strongly linked to the technologies' degree of acceptability. Our population is integrated by citizens and members of local organizations involved directly or indirectly in community policing in Catalonia, including members of migrant collectives and vulnerable groups. This decision is taken in order to focus on the specific issue of the stop and search and surveillance capabilities of policing technologies concerning social groups who could be subjected to unfair discrimination but without biasing the sample. Thus, based on our literature review, the criteria for the sample takes into account the relation between the police and local communities, focusing on its possible implications in terms of social exclusion. We took into account previous projects of these organizations on community policing and their existing or future experiences, initiatives, or projects in the intersection between local policing and technology.

Table 2. Number of interviews and focus groups

Focus groups		Interviews	
Profile	Quantity	Profile	Quantity
Medium and Low ranking police officers[3]	2	High, medium and low ranking police officer (or ex police officer)[4]	3
Civil Society Organizations (CSO')s and Vulnerable groups[5]	2	CSO's members[6]	4
		Police investigative journalist[7]	1

Source: Own elaboration.

We investigated how citizens perceive and/or use these ICTs. Focus groups were structured in such a way that it makes them representative of Catalan civil society while focus on the individuals and communities that are the most likely to be affected negatively by the implementation of these new ICTs. This strategy has been envisaged to encourage discussions that build off each other's ideas and to identify similarities and differences between the experiences of a diverse set of stakeholders.

Table 3. Social organizations involved in the focus groups and interviews

Social organization	Description	Method
ProHabitatge	ProHabitatge (1999) is a non-profit, independent entity that aims to prevent and eradicate residential exclusion and homelessness in Catalonia from a Human Rights perspective.	Interview
SOS Racisme	SOS Racisme Catalunya (1989) is an NGO working in the fight for equal rights and opportunities for all people who make up society. It is an independent entity and governed by the decisions of the members' assembly and the governing bodies that choose it.	Focus group Interview
Fundació Arrels	Fundació Arrels (1987) is an NGO aimed at supporting people living on the street, mainly in Barcelona. Since its creation, it has accompanied more than 13,000 homeless	Focus group

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[3] The first focus group included six medium ranked police officers that worked in local police departments of urban municipalities bordering Barcelona. The second one was attended by high hierarchy and street officers of the local police in Barcelona.

[4] Three police officers, including one local police officer of the Hospitalet District, one high rank officer from the Division of Attestation and Detainees Custody of the PG-ME and one former PG-ME director.

[5] The six participant organizations include: SOS Racisme, Fundació Arrels, CEAR-CCAR, Casal dels Infants del Raval, Associació de Veïns del Raval, Eix Comercial del Raval.

[6] One of the interviewees is a journalist, academic and human rights activist. Moreover, we interviewed one member of each of the following social organizations: ProHabitatge, SOS Racisme and Iridia.

[7] Journalist and correspondent for Diari Ara and El Mundo.

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	people on their way to autonomy, offering guidance and useful services of accommodation, food and social and health care.	
CEAR-CCAR	The Catalan Commission for Refugee Assistance (1979) aims to defend the right of asylum and the rights of refugees and immigrants. It also assumes the defence of the rights of immigrants, while working to promote the processes of social integration of refugees and immigrants in Catalonia.	Focus group
Casal dels Infants del Raval[8]	The Casal dels Infants del Raval ("Children's Home of the Raval") Association (1983) is an NGO, which accompanies girls, boys, young people at risk of social exclusion, and their families, in their educational process. It also offers the support they need to make the most of their educational and personal growth opportunities.	Focus group
Associació de Veïns del Raval	The Raval Neighbourhood Association (1973) aims at improving the quality of life of the residents in this neighbourhood focusing on several issues ranging from public safety and security and hygiene to culture access.	Focus group
Eix Comercial del Raval	The "Federation of Trade Associations and Entities of the Raval", "the Eix Comercial del Raval", is a non-profit organization that brings together seven associations of merchants in the Raval district of Barcelona, with the desire to unite all the shops of the Raval to promote their trade.	Focus group

Source: Own elaboration.

In addition to identifying the ICTs used to interact with the local police, these fieldwork activities allowed us to understand better how policing technologies work form the social organizations' standpoint and which are their views and opinions on these matters. Although the participation of local associations in Barcelona in the focus groups was difficult to achieve, the six entities finally involved in the activities are very representative of the issues at stake.

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[8] Three of the organizations taking part in the project focus their duties on the Raval, which is relevant for the project. The Raval district is one of the districts with the greatest social and cultural diversity in the city of Barcelona, geographically privileged (centrally located) and with a census of cultural and social institutions and facilities unmatched.

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Lastly, a **digital ethnography** is conducted to analyse the use of social network and thematic analysis of the PG-ME official Twitter account, as well as diverse "neighbourhood watch" or "vigilante" SNS accounts. The objective was to examine possible disruptive developments of community policing in terms of alternative uses of technology in this domain. This method has been combined with the other described data collection tools and used as a complementary instrument for the analysis of the case. Following Jenny Krieg et al. (2017), the use online information is adequately contrasted, triangulated with other sources of information, and placed within broader societal knowledge.

3.   Background of the study: Technology and community policing

3.1 Evolution of policing technologies

Even though the current extension and diversification of ICTs are entirely novel, technologies have always been used by police forces to both prevent and solve crimes. However, while during the beginnings of policing at the nineteenth-century police officers only used a limited set of instruments for conducting their duties -such as batons to reduce criminals and rattles or other similar tools for raising the alarm about threats or criminal events-, the use of new communication and transport technologies to tackle crime grew exponentially in the next century (Johnson, 1981; Deflem and Chicoine, 2014).

Two-way radio and the spread of the use of cars in the 1930s made police patrols much more ad hoc, and the introduction of emergency telephone call services from 1937 onwards ensured much quicker responses to emergencies. Later, systems for receiving calls for rapid response and new radio systems, as well as computer-based dispatch systems, expanded (Harris, 2007). The first CCTVs used for security purposes came about in the 1950s. Furthermore, computers allowed, since the 1980s, for the crossing of different sources of data to produce crime maps and geolocate events of these maps (Galdon-Clavell, 2018). Currently, technologies such as mobile devices and apps, social media, algorithms used in predictive policing, and other surveillance or identification technologies -such as biometric devices- are substantially developed and extensively used by police forces worldwide[9].

According to Requena (2004) the technological diversity currently used by police organizations and other stakeholders involved in security can be classified into six main categories: biometric, surveillance (people and places), imaging, communication, support for decision making and database systems. For this author, the first three systems

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[9] For a complete overview of these technologies, see D1.

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mentioned have begun to configure the backbone of the policing technological ecosystem as an interactive web of services. Some of the unwanted effects, which are not necessarily related to liberties but should be kept in mind, highlighted by Requena include the following:

- Confusion between public and private spaces.
- Contested monopoly of surveillance attributions from the State.
- Internal resistances and tensions in police organizations.
- Loss of policing *savoir-faire.*
- Wasteful expenses in small-scale police organizations that cannot cope with the expenditure to sustain technology.
- Modification of labour relationships within police organizations.
- More impersonal relationships between police officers and central services and the community.
- Perception that technologies are a waste of time for certain officers that comes from a less tech intensive background.
- New workflows designed to facilitate the flow of information within the organization.
- Coordination problems when technologies are incompatible among different police organizations.

The increasing use of new technologies in policing has changed the makeup of policing practices in many significant ways (Custers and Bas Vergouw, 2015). The recent expansion of data management software, data mining, algorithmic systems, and other tools used within policing activities has fostered modifications in the organizational structures and mechanisms of law enforcement agencies (LEAs). It has also redefined their relations with both the communities and citizenry. This phenomenon has had multiple implications for policing governance, strategies, and tactics. We have addressed these transformations taking into account the following four different dimensions of the phenomenon:

I. **Police governance**: Generally, ICT has fostered the institutionalization and specialization of police forces (Deflem and Chicoine, 2014: 2769). ICT have also reshaped the patterns of communication between the different hierarchies forming part of policing structure, from a more top-down dynamic of communication to flows in many directions, which even questioned previous protocols for limiting access to certain information (Manning, 1992b). Still, changes in the organizational characteristics of police agencies and their function due to the integration of new technologies have shown to be dependent on their philosophy, culture, and contextual goals (Weiss, 1997).

II. **Reasons and rationales behind the adoption of ICT**: According to Schuck (2017), the reasons for technological adoption can include functionality or design of a particular

technology, the organizational characteristics of the LEA involved, the sociodemographic of the community where the LEA acts, or the socio-political context determining its strategic project. The great variety in the aims and interpretations about the best mechanisms to address each form of criminal activity has revealed that technological integration is very case/organization dependent. In the same vein, it can also be based on the corporatist, economic, or agential interests of actors. The diversity of causes leading to the incorporation of new technology by police agencies has, therefore, been emphasized. These include variables such as the location and size of the organizations (Chamard, 2006; Mastrofski, Parks, and Wilson, 2003), their degree of compartmentalization/specialization -which relates to the previous factor- (Randol, 2012; Skogan and Hartnett, 2005), the identity of the agency linked to its relative "cosmopolitanism" (Weisburd and Lum, 2005), or its degree of interconnection to other global networks (Skogan and Hartnett, 2005).

III. **The implementation of ICT in policing**: Concerning the implementation of technologies in policing, Koper et al. (2015) have revealed the importance of taking the right measures to capitalize on new technologies in policing. According to this approach, new practices and protocols to be deployed by police must be adapted to the latest technological systems, and organizational measures must be taken to take advantage of ICT tools -including training of officers- (Willis, Mastrofski, and Weisburd 2004). However, there is an important corpus of evidence about the usual lack of preparation and efficient adoption of police technologies, which has had different negative social externalities (Koper et al., 2015, Manning, 1992a; Chan, 2001; Harris, 2007; Garicano and Heaton, 2010; Byrne and Marx, 2011).

IV. **Social impact of ICT when used in policing**: the literature shows that new technology systems can benefit police officers in terms of specific tasks (Roman et al., 2008; Danziger and Kraemer, 1985; Ioimo and Aronson, 2003). However, their use has not always fulfilled their original aims, such as reducing crime rates or increasing efficiency in preventing crime (Ioimo & Aronson, 2004; Roman et al., 2008; Roth, Koper, White, & Langston, 2000). Unexpected sociotechnical transformations produced by these communication technologies have also been highlighted, underlying those 911 systems could have also contributed to foster and reinforce reactive and incident-based policing models (Skogan and Frydl 2004; Sparrow, Moore, and Kennedy, 1990)[10]. Taking this above into account, the assessment of technological impact from early before their implementation becomes crucial.

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[10] One clear example of this issue is the use of combined communication and data processing systems to rapidly report crimes (911, radios, computer-based dispatch, and GIS), and its expected correlation to further arrests and crime prevention. Empirical studies have shown that this reduction in time response does not directly result in more arrests due to the delays in reporting criminal incidents to 911 and the use of this communication channels to report non-urgent events, which require much time and economic investment (Sherman and Eck, 2002; Mazerolle, Rogan, Frank, Famega, & Eck, 2002).

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Analysis in this line is a pending matter (Chapman, 2016:5). In this regard, Weisburd & Neyroud (2011) underline that technological integration is often produced without taking social impact or specific effects for policing action, which reflects a certain techno-optimism. Moreover, the limitations in the desirability analysis conducted by police agencies before adopting a particular technology have also been pointed out (Cohen, March, & Olsen, 1972).

Technological shift and the subsequent modernization of policing activities have been used as discourses to legitimize police action under the promise of a fairer and more effective policing. Instead, many studies have shown that the introduction of these systems can have multiple unintended and negative impacts on communities (Byrne and Marx, 2011; Koper, Taylor, and Kubu, 2009). In this framework, it becomes more critical to address the lack of studies assessing the characteristics of this transformation and the actual impact of these technologies in terms of acceptability and desirability. It is vital to correctly assess the rationales behind the integration of new technology but also its explicit and unexpected uses as well as its concrete social outputs.

3.2 How do technologies affect community policing?

Technology has historically been seen as an added value for policing activities. This techno-optimism has favoured the integration of a broad set of devices and digital applications into the day to day tasks of police officers. In this framework, some technologies aimed at surveillance, prevention, and response to crime have been inscribed within community policing and implemented under these coordinates. In this section, we will discuss which are their main specificities and characteristics.

For more than one century, since the London Metropolitan Police Services were established (1826), policing was mainly based on traditional patrolling and mechanisms focused on authorities' surveillance and response (Bayley & Shearing, 1996; Weisburd & Eck, 2004). Nevertheless, the effects of the social and economic crisis that occurred during the seventies led to the rethinking of security policies, focusing on the need for developing new strategies for reducing crime. Social engagement at the local level was, in this framework, seen as a critical aspect of modern policing strategies (Seaskate, 1998). These participatory mechanisms were mainly aimed at enhancing the prevention of crime based on more dynamic and accountable information exchanges (Roh and Willard, 2005). In this framework, community policing was seen as an effective instrument for improving the social perception of police, which was considered crucial for restoring its legitimacy (Ferrell, 1994; Skogan, 2006b).

Therefore, communication is key to the development and success of community policing. ICT has been one of the main elements integrated into this framework to foster more active and dynamic channels of communication. Both police officers and departments, as well as

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their interaction with citizens and residents, are based on these mechanisms. Joint solutions to local social and security problems should be reached through this ongoing exchange of information. This dynamic may foster a better consideration of specific and contextual elements such as cultural values involved in security and feeling of safety (Bayley and Shearing, 1996). In this context, it was expected that community policing would contribute to minimizing discriminatory or unfair police practices (Scarman, 1982; Skogan, 2006b).

In this way, one of the main rationales supporting the use of new technologies within community policing activities is the dynamization of this dialogue between police and community. In recent years, this concept has promoted the development of concrete systems with this purpose. Apps to jointly identify crime activities, webs to map hot spots within neighbourhoods, and social networks aimed at preventing robberies in real-time have been inscribed in this framework. Moreover, the efficiency gains sought by police organizations ought to be understood in terms of the availability of economic and financial resources to conduct daily activities. Improving the efficiency of police tasks requires achieving the goals set at the least cost or, conversely, given a certain level of resources, accomplish most of police activities. Efficiency is one of the performance measures of policing, commonly referred to as the three E's: equity, efficiency and effectiveness (Brantingham et. al., 2017). "Efficiency measures can be developed for some routine policing activities where the demand is predictable and reasonable short-term projections can be made. For these types of core policing and associated services, efficiency can be measured and, as technology advances, improved."(Brantingham et. al., 2017:33). Thus community policing techniques belong to this type of police services and are subject to the efficiency promoting effects of technology. However, the characteristics, effects, and extension of this phenomenon and its social consequences have not entirely addressed by the literature.

3.2.1 Mapping of community policing and technology in the European Union

Many national contexts in which community policing has been applied have been studied for this research. This analysis has two main objectives, namely:

- Explaining how the concept of community policing has been adapted to different policing cultures.
- Showing the flexibility of the community policing philosophy, this can mean a number of things depending on the national context and the circumstances.

Community-policing approaches have surged and flourished in English-speaking societies (mostly the United States and the United Kingdom) (Brogden, 2005; Casey 2010; Hail, 2015; Colover and Quinton, 2018). Continental models have structurally been more centralized and militaristic, functionally inclusive of many political and administrative tasks and much more tied to the central government (Mawby, 1999). Evidently, these preceding policing

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cultures shape the way in which community policing is applied to the different national contexts. While the Finish tradition prioritizes accessibility and proximity of local community from a national approach (Van der Giessen et al. 2017), the German approach has been characterized by its engagement mechanisms oriented towards fostering community participation under regional and local supervision (Marin 2011; Hail 2015).

At the supranational level, the widespread adoption of Community Policing during the late 1980s in Europe, led to a general shift from a top down and reactive conception of policing towards a more bottom up and community based philosophy (Hail 2015). The European Union itself and its various agencies, as well as organizations like CEPOL (European Police College) have streamlined the Community Policing between the Law Enforcement Agencies. Anyhow, other pressures have contributed to move continental European countries in the opposite direction or have increased tension with this approach in recent years, such as terrorism or fears associated to mass migration, which facilitates the spreading of "zero-tolerance" approaches to security (Report on the Theoretical Basis of Community Policing and Integration of Technology into Community Policing, Deliverable 3.1, 2015).

The case studies analysed are the UK, France, the Netherlands, Finland, Germany, Spain, Croatia, and Austria. These cases were selected because these are countries where the implementation of community policing has reached a degree of development, at least at some point in their history. Furthermore, such events and experiences have been adequately documented[11]. The following table provides a recap of the main characteristics of the models addressed:

Table 4. Main characteristics of community policing in Europe

National case study	Main characteristics	Salient technological projects
UK	The UK is considered to be the origin of community policing and has a long history of using this philosophy. However, as of the sixties, community policing has been complemented with stricter law enforcement approaches. Neighbourhood Policing is still a relevant element of UK policing, with a significant effort to implement it across England & Wales in the 2000s. The use of social media for community policing purposes seems to be taking off.	Use of social media with community policing purposes (MET, Leicester).
France	France's historical tradition concerning policing is much more centralized and top-bottom than in English speaking countries. That is why the	Initial stage of development.

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[11] For further details see Deliverable 2.

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	community policing approach adopted by the French police (*police de proximité*) has not challenged the main characteristics of the previous model. Moreover, this philosophy has been historically connected to the political left, which has hinged its implementation on politics. Technology has not played a central role within the *police de proximité*.	
The Netherlands	In the Netherlands, community policing has benefited from the liberal tendencies in society and the tendency to apply American ideas to limit the power of the central state. Although it had been implemented since the seventies, it has been abandoned in favour of tougher approaches in recent years. Technology plays a significant role.	Burgernet 2.0. Digital solution that has been used for community policing purposes (2009). Reporting app that enables citizens to work together with the police in order to enhance safety in their communities.
Finland	Community policing has a long history in Finland. The characteristics of the Finnish society are very different from those of English speaking ones, which have made community policing in Finland a way to foster collaboration between the police and the public. This consensus has been accomplished partially thanks to technology, which has eased links between civil society and the police.	Strong presence in social media. And, a series of solutions aimed at community policing: the mobile community police, the Helsinki virtual police taskforce ‖ , the secure chat.
Germany	The different *länder* in Germany have experimented with different versions of community policing since the nineties. The territorial organisation of Germany, divided between federal state, states (*länder*), and local councils, make it difficult to talk about a common German model.	Reported experiences include online police stations and active use of social media by local police.
Croatia	Community policing has been introduced in Croatia as a way to re-establish trust in the police and prevent crime. Technology does not play a big role within the Croatian approach to community policing.	Recent development. It is characterized by an active use of social media.
Austria	Austria has implemented community policing very recently and it has focused on communication and dissemination, which has made technology an important tool in order to implement the model.	Current extension of ICT.Active use of social media, apps and also WhatsApp.
Spain	The Spanish version of community policing (*policía*	Fragmented and

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	de proximidad) has been the dominant paradigm to policing in the post-Franco Spain, although the model's performance has rarely been put into question. The role of technology has not been central.	context-dependent developments. One of the main projects is Alert cops, an app to report criminal events.

Source: Own elaboration.

Taking our analysis into account, we consider that the reason due to which community policing has been adopted in the first place and the characteristics of civil society are very likely to determine if the mix of technology and community policing turns out to be a winning one for everyone. These characteristics also play a role in determining the relative alignment of technological implementation with CP principles of engagement and adaptiveness. For example, in relatively homogeneous and equal societies like Finland, community policing is seen as the logical next step in the development of a more effective and democratic policing style. In contrast, in Austria, it is seen as an adequate response to an increasingly diverse population. Necessarily, that first impulse and the characteristics of civil society (more or less equal, inclusive, homogeneous, connected) will determine chances of technology to become a useful tool at the service of an empowered citizenry. As a result of the above, a high heterogeneity and asymmetry in the technological development and deployment dedicated to community policing can be found across EU countries.

3.3 Background analysis and hypothesis

As the goal of community policing is to be closer to citizens and address matters proactively, community policing has some specificities that are worth considering, in terms of both its impact and the technologies it relies on. Literature has thoroughly addressed the social impact of community policing in the last decades. In general terms, the concrete effects of this orientation, in terms of the materialization of its principles, have been questioned (Zhao et al., 2001). Some authors consider community policing only as rhetoric. Both its definition and the variables determining its success have been considered ambiguous, underlining that it has multiple understandings according to different contexts (Ratcliffe, 2008), and also that there are significant overlaps between community policing and other forms of policing.

Decentralized forms of data management and communication must be put in place to develop policing models more aligned with community policing principles. However, although different from intelligence-led models of policing, which focus on detection or reduction of criminal activity (Ratcliffe, 2008), present-day community policing implementations are strongly marked by new surveillance technologies and criminal intelligence as instruments for crime prevention.

The differential impact of community policing over different social groups has also been noticed. The study conducted by Skogan (2006a) on the implementation of Community

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Policing in Chicago revealed relevant asymmetries in the benefits from this approach concerning different racial groups. While the white population is poorly involved in these policing activities, Hispanic groups receive relative benefits from it, and African Americans benefit the most. Also, its capacity to shift perceptions about safety and criminal activities in rural and suburban areas has been assessed as low (Rukus, et al., 2018).

Nevertheless, different studies have shown that some community policing strategies, including problem-solving community meetings and face-to-face police-citizen contacts, can reduce the fear of crime and increase confidence with the police (Weisburd & Eck, 2004; Zhao et al., 2002; Trojanowicz and Carter, 1988). In this line, the correlation between the implementation of community policing and an increase in perceived safety has been revealed (Maguire et al., 2017). Moreover, some authors have pointed out that community policing can increase the level of satisfaction of police officers with their jobs in comparison with traditional policing (Lurigio and Rosenbaum, 1994; Rosenbaum et al., 1994). Hence, the most accepted positive outcomes of this paradigm have been linked to the actors' representations about crime and security as well as concerning the public opinion of police forces as responsible for public order.

It should be noted that the above externalities of community policing can be problematic since social representations around safety can be easily instrumentalized with unethical political aims and can help to conceal the actual negative social impact of policing practices. This instrumentalization includes the possible correlation between detentions and police violence or the effects of surveillance policies on citizens' privacy within community policing actions (Herbert, 2006).

The three following hypotheses guiding this research take into account the above issues and theoretical debates:

- The use of ICTs would distance police and community, limiting the effectiveness of community policing.
- ICTs can be adopted as an instrument that contributes to the stigmatization of certain social groups within the framework of the proximity police action (for instance, veiled use for surveillance).
  - This fact may be deepened by the lack of participation of these social groups in policing governance and organization.
  - The legitimization that it provides to police activity under the concept of community policing may turn this problem more prominent.
- Specific modes of citizen and police technological operations and practices would, in fact, be disruptive for community policing aims (social cohesion and information exchange).
  - Some key examples are citizen apps or social networks.

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4. The Catalan scenario

The relevance of Catalonia as a case for studying the externalities and biases in police/community interaction tools relies on several aspects that range from the social, economic and demographic variables to the meagre research conducted so far about this topic as well as the historical background of police institutions in Spain and the region. The objective of this section is to provide several rationales for building the case study and contextualizing the findings that will be presented in the following sections. With this aim in mind, we will provide general features from Catalonia and then will include a deeper understanding of the evolution of the current police model, its deployment, and community policing elements.

4.1 Basic features of Catalonia crime scenario

For starters, according to the Generalitat de Catalunya (2003), even though the Catalan territory is not abundant, there is substantial variation in terms of landscapes, climate, and population distribution. The most densely populated region of Catalonia is Barcelona and its metropolitan zone, thereby concentrating two-thirds of the population[12]. The population structure has also changed due to internal and external migration flows fostering a more ethnically and culturally diverse society.

Furthermore, the economic activity of this region accounts for almost 20% of the Spanish Gross Domestic Product (GDP) and in per capita terms, the Catalan GDP is 1.24 larger than the average of Spain[13]. The economic structure has also evolved from an industrially led one to that of a service economy that significantly relies on tourism and retailing. Nonetheless, the contribution from the industrial sector remains vital for the economy since it has become a high added value activity and occupies 38% of the economically active population[14].

Besides the aggregate social and economic aspects, the assessment of crime prevalence trends and perceived security level according to the results of the Catalonia Public Safety Survey depict that both have increased since 2013. The latest year data showed that 25% of all adults were victims of at least one crime and specifically, in Barcelona the percentage rose to 32% (Departamento de Interior, 2017). Simultaneously, the scores for the perceived security level were 71 and 70 out of 1000 in Catalonia and Barcelona, respectively.

Figure 1 shows that the crime victimization rate is always higher in Barcelona than in Catalonia overall. Victimization grew at a constant rate between 2000 and 2006, then it increased drastically in 2009. For the next 4 years, it diminished and stabilized at levels

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[12] Up to date data Retrieved from: https://www.idescat.cat/pub/?id=pmh&lang=es
[13] Up to date information Retrieved from: https://www.ine.es/prodyser/espa_cifras/2019/31/
[14] More economic statistics Retrieved from: https://www.idescat.cat/treball/epa?tc=4&id=ic07&dt=&lang=es

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comparable to those observed in 2007 and 2008. Victimization rose again in 2015 and 2017, thus setting a record.

Furthermore, the perceived security in Barcelona and Catalonia depicts a different evolution concerning crime victimization. For Barcelona, the security level lies below the one of Catalonia, reflecting a less favourable view on security. The score plummeted between 2000 and 2002. For the next decade, the security level remained stable, with scores between 50 and 56%. Since 2013, the security level has increased and it reached its maximum in 2017, converging with the regional scores.

Figure 2. Crime victimization and security level in Barcelona and Catalonia 2000-2017
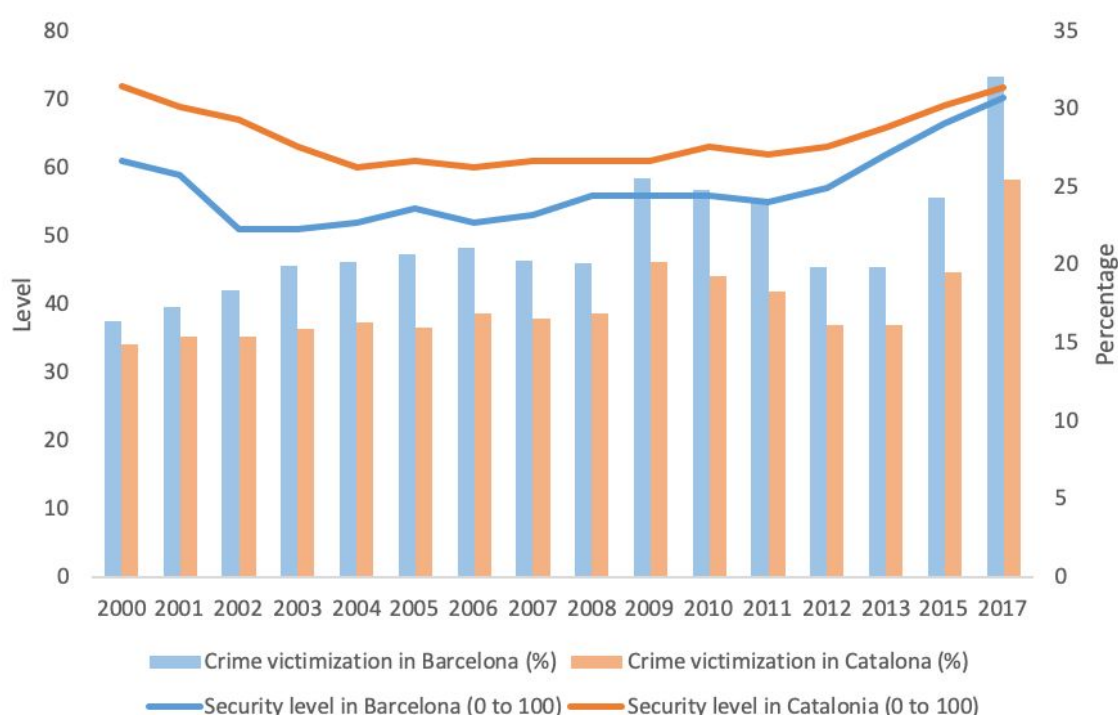
Source: Catalonia Public Safety Survey. Own elaboration.

Figure 3 shows that the most victimized group belongs to those between 16 and 25 years old. The crime prevalence increase reported in 2017 affected more those aged between 26 and 40 years old (43% increase versus 2015). Crime prevalence for the elderly has remained the lowest of all; however, since 2009, the prevalence reached double digits. The age structure of the crime prevalence rates has remained stable since 2004. Moreover, time trends for prevalence rates do not vary significantly by age.

Figure 3. Crime prevalence rates by age 2004-2017

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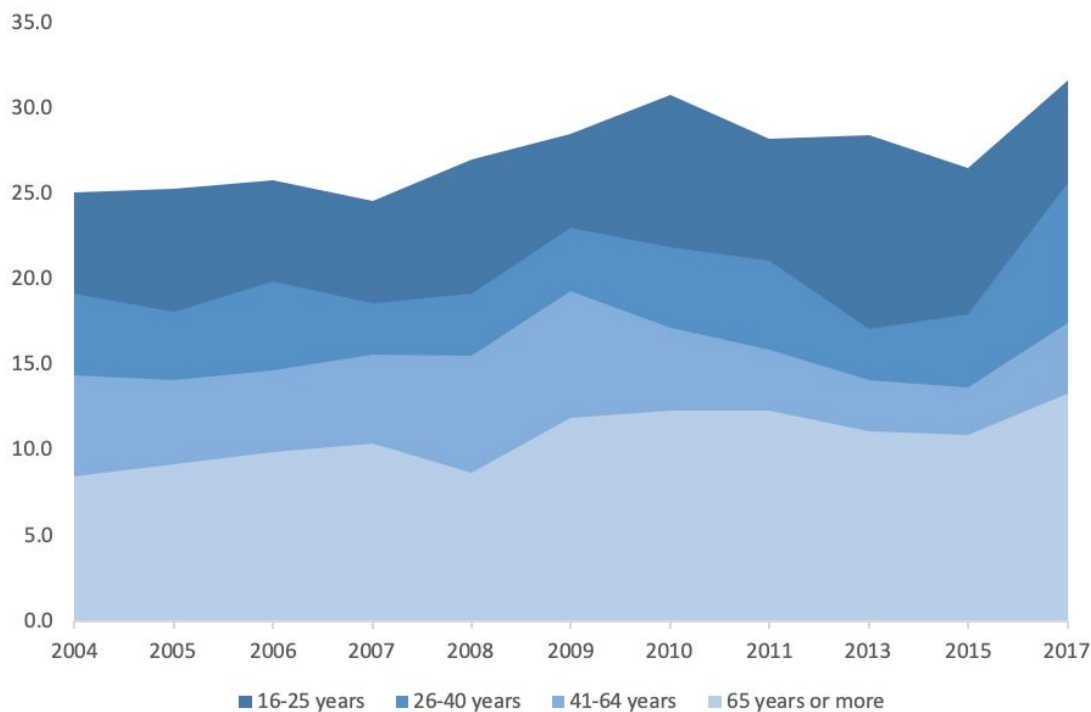
Source: Catalonia Public Safety Survey. Own elaboration.

As can be observed in the above Figure 4, there are considerable regional differences in crime prevalence rates in the different Catalan regions between 2004 and 2017. The difference between the highest (Barcelona) and the lowest rate (Pirineu Occidental) is quite substantial. Barcelona's rate more than doubles the one of Pirineu Occidental and is, on average, 27% higher than in the rest of Catalonia.

Figure 4. Crime prevalence rates by police region 2004-2017

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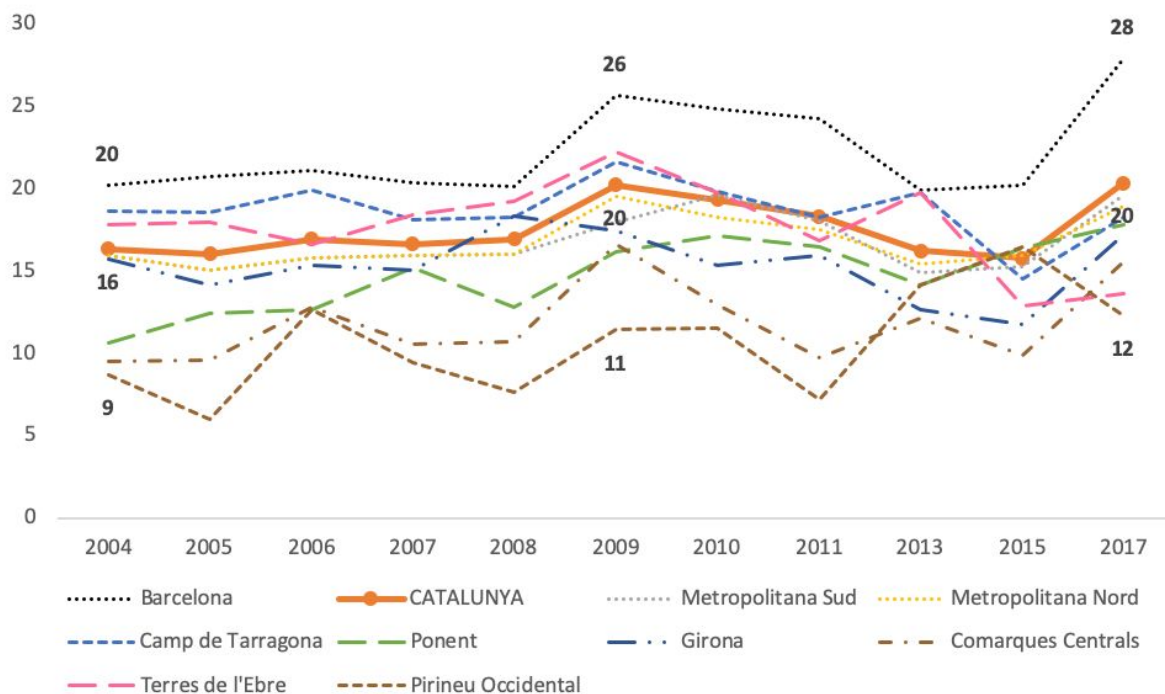
Source: Catalonia Public Safety Survey. Own elaboration.

Furthermore, crime prevalence rates from almost every police region have been lower than the aggregate rate except for Barcelona (during the whole period), Camp de Tarragona (except on 2015 and 2017) and Terres de l'Ebre (except on 2011, 2015 and 2017). The crime prevalence rate increased in 2017 in all regions except Pirineu Occidental. The rates of growth (vs. 2015) for each region are the following:

- Comarques Centrales (+58%),
- Girona (+47%),
- Barcelona (+38%),
- Metropolitana Sud (+29%),
- Camp de Tarragona (+25%),
- Metropolitana Nord (+19%),
- Ponent (+9%) and
- Terres de l'Ebre (+6%).

In terms of the distribution of the offenses between 2005 and 2017, vehicle crimes account for 44% of all events. However, the percentage has diminished consistently over time. The second categories of offenses in terms of volume are related to property. This category accounts for 23% of all events. This proportion is relatively constant over time. In addition, the percentages of offenses targeted to people have increased since 2015. The other offenses (against businesses and residences) have kept stable over time. Albeit, rural businesses offenses increased proportionally in 2013.

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Figure 5. Percentage distribution of the illicits 2005-2017
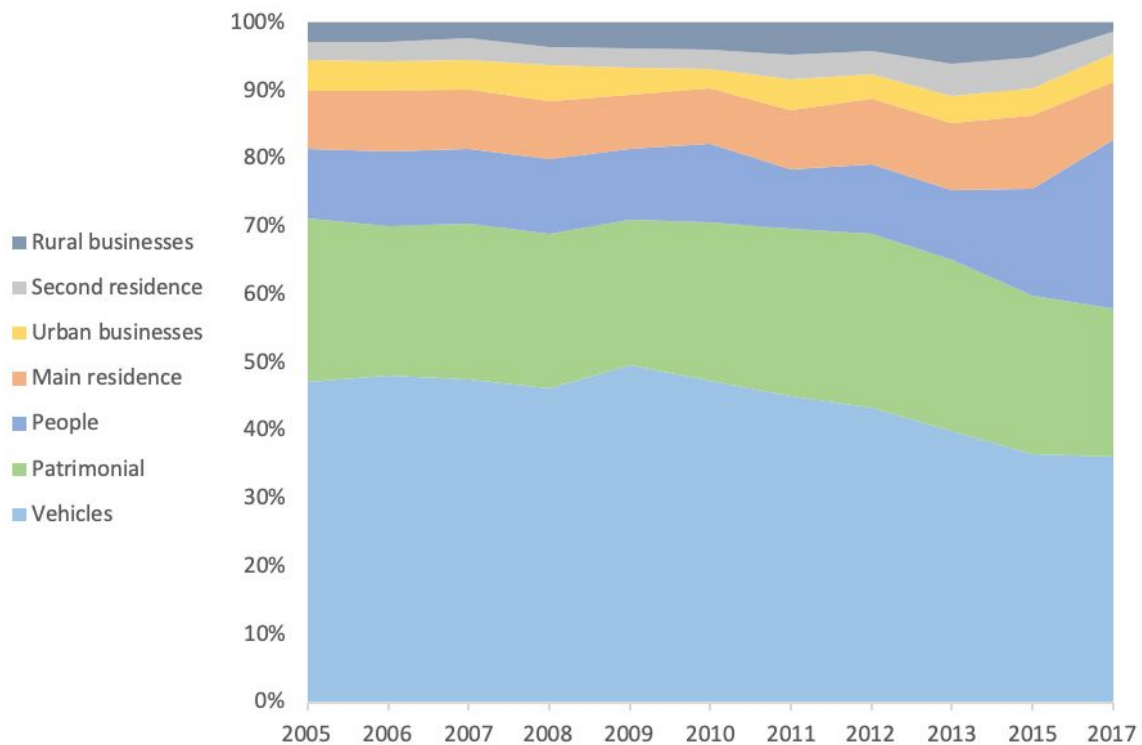
Source: Catalonia Public Safety Survey. Own elaboration.

4.2 The Catalan police model

The current Catalan police model is a result of the power distribution behind the Spanish Constitution of 1978, after the end of the dictatorship. This, in turn, has led to normative changes for autonomous communities (Recasens and Ponsaers, 2014) that allowed a certain degree of decentralization of police functions. In fact, the Catalan Government (Generalitat) assumed full competences over the police functions previously undertaken by the central government. Nadal et. al. (2017) describe that it was not until 1980 when the *Policia de la Generalitat – Mossos d'Esquadra*[15] (PG-ME) management was transferred to the Generalitat and until 1983 when the PG-ME was officially created and until 1994 when the territorial deployment began.

As pointed out by Recasens and Ponsaers (2014:121), the pluralisation of policing in Spain is not a result of local circumstances like in other EU member countries, but "the consequence of legal-constitutional arrangements during the reconstruction of the Spanish state". This is the case for autonomous regions like Catalonia, the Basque Country, Navarra and the Canary Islands. The degree and scope of each policing function vary and, thus, are not homogeneous between regions. The case of Catalonia stands out since it aimed at building an entirely new police model with its proprietary police institutions.

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[15] Regional police force.

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Therefore, the Catalan police system is composed of the Generalitat Police / Mossos d'Esquadra (PG-ME) and the local police forces from 200 municipalities[16]. Both the *Guardia Civil* and the *Cuerpo Nacional de Policía*[17] are still deployed in the region, but their functions have been bounded. As such, the PG-ME has become the cornerstone institution from the Catalan police model for several reasons.

Firstly, in terms of the diversity of functions, this institution fulfils a wide variety of them grouped into three main categories: judicial, public safety and administrative. The judicial function implies that the PG-ME investigates crimes and supports judicial authorities during criminal proceedings whereas the public safety tasks involve protecting people and their goods, keeping the public order, surveilling public spaces for crime prevention and controlling traffic in the main highways. Lastly, the administrative competences guarantee the enforcement of several laws enacted by the local Parliament that range from prison management to gambling activities.

Secondly, the territorial presence of the PG-ME has been fully achieved in the region up to date. The deployment began in 1994 and ended in 2008 and was organized in the following stages according to Nadal et. al. (2007):

1. 1994.- first agreements, meetings and decisions related to the functional distribution and the substitution of the *Fuerzas y Cuerpos de Seguridad del Estado*.
2. 1997.- design of a new service model and basic organizational structure (9 police regions and basic police areas).
3. 1999-2000.- PG-EM deployment for traffic functions for the definition of regional traffic areas (Girona, Lleida, Barcelona and Tarragona).
4. 2002-2005.- PG-ME deployment in Barcelona and the metropolitan area (10% of the territory but 70% of the population).
5. 2005-2008.- full deployment of the institution in the territory. It ended in Tarragona in 2008.
6. From 2008.- full consolidation of the police model.

Thirdly, the PG-ME holds a leading position in quantitative terms measured by the amount of personnel and physical infrastructure available. Recasens and Ponsaers (2014) highlight some estimates from 2011: 49% of all the police officers in Catalonia (an estimate of 17,160 officers) belonged to the PG-ME whereas 31% to the municipal police, 10% to the Civil Guard and 10% to the National Police[18]. Furthermore, the Generalitat provides more

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[16] Besides creating the PG-ME, the transition from the centralized police model also involved designing specific coordination and cooperation mechanisms with the State; that is, with the *Fuerzas y Cuerpos de Seguridad del Estado*. The *Junta de Seguridad de Catalunya* is in charge of this and it is composed of an equal number of representatives from the Generalitat and the State. Secondly, the *Consejo de Seguridad de Catanlunya* is the most important consultation body. Thirdly, the coordination with the local police forces is achieved through the *Comisión de Policía de Catalunya*. Lastly, the Juntas Locales de Seguridad are bodies created for designing, planning and executing local public safety policies.
[17] Both forces are led by the central government of Spain.
[18] Outside of Catalonia, the National Police and the Civil Guard account of almost two thirds of officers (Recasens and Ponsaers, 2014) thereby reflecting a competition rather than the composition of a complementary web of police

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statistics that reflect this dominant position. The personnel have increased by a factor of 30 and the amount of police stations passed from 2 to more than 80 during the last 15 years.

4.2.1 Public perception of PG-ME in Catalonia

Besides considering internal factors like the diversity of functions, the territorial deployment and organizational capacities; the role of public perception is also relevant for assessing why the PG-ME has become the cornerstone institution of the Catalan police model and understand its role in community policing. Figure 5 depicts the general score of the PG-ME, the local police, the National Police and the Civil Guard plus the crime prevalence rate with data from the Catalonia Public Safety Survey.

Figure 6. Crime prevalence rates and general score of the PG-ME 2004-2017
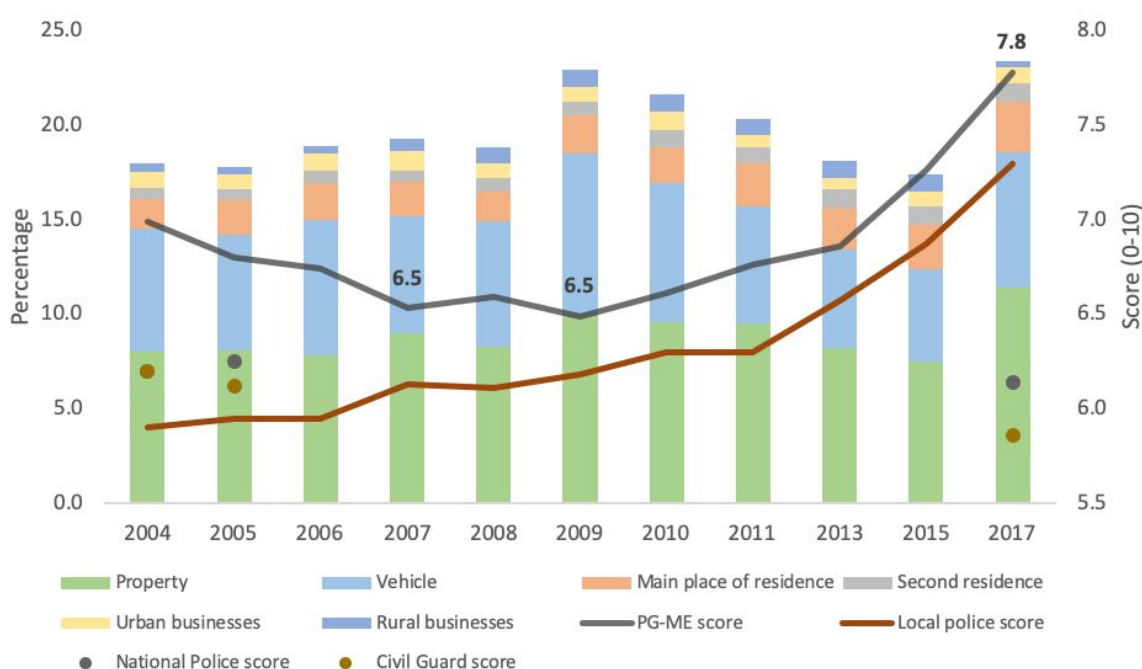
Source: Catalonia Public Safety Survey. Own elaboration.

The general score granted for the PG-ME shows a clear decline between 2004 and 2009. This decline is consistent with the above-mentioned increasing crime prevalence between 2004 and 2009 and corresponds to the fifth deployment stage mentioned previously. The general score granted for the PG-ME increased since 2010. This behaviour is consistent with the reduction of crime prevalence and the consolidation of the institution. Additionally, the PG-ME score has kept above those of the local police, the National Police and the Civil Guard.

Leaving behind the previous rationales, the service model for achieving the goals and functions is composed of two types of services: territorial and central. These are defined in organizational terms, so for every kind of service there are different bureaucratic bodies in charge of them. Thus, territorial services are a response to social demands and are

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geographically supplied based on each police region and primary police area. These units constitute the closest contact between the PG-ME and the population. Therefore, the services provided are general in nature like reporting a crime, patrolling, urgent call attention, judicial attestations, traffic management, among others.

Conversely, central services are of specialized nature. They provide technical and operative support whenever required from the territorial structure units. The PG-ME has developed at least the following central service units specialized in criminal investigation, public order, information, explosives deactivation, and canine services. One technical and two superior police stations grouped into the Police Prefecture are in charge of the operational command across the territory.

Nadal et. al. (2017) report that the main strengths of the Catalan police model rely on two factors. The first one is the geographical proximity, the knowledge of the environment and the officer-intensive deployment which enables efficient community policing and better crime control. The second one is the distribution of competences and resource management, such that optimization is achieved.

On the other hand, the main opportunities or weaknesses of the model relate to the type of threats posed by transnational crime and terrorism which, by definition, involves the participation of several state institutions from different jurisdictions. Facing these threats, that can affect the State as a whole, can be difficult when a decentralized model prevails. Lastly, the access, exchange and sharing of information is a challenge for this type of police model.

4.3 Community policing framework in Catalonia

As stated in the previous sections, the community policing experiences across EU countries are unlikely comparable and exhibit a high degree of heterogeneity. The case of Spain is not the exception since there have been several community policing experiments initiated by the central government, autonomous regions and by local police, yet they differ significantly in terms of design, execution, results and evaluation.

Throughout Spain, the community policing concept has thrived since the end of the dictatorship, but the lack of research has not allowed identifying what works and what does not (Rabot, 2004). A few of the lessons learned prove that community policing is better suited for local implementation plans because it needs better cooperation between municipal authorities (Rabot, 2004). Moreover, within the same city, community policing should not be the same for each neighbourhood even though the problems faced by the population can be similar in nature and the general policy aspects are shared. These lessons illustrate that achieving community policing for national and autonomous region agencies can be challenging to implement.

Rabot (2004) highlights that the **transition to proximity models in Spain occurred since the eighties decade** to meet the social demands for new values and legitimacy of policing institutions. Therefore, proximity models have become socially and politically desirable even though little evidence has been produced to assess the results hindering the possibility of questioning their adequacy and possible reform.

In line with this, community policing began in Catalonia during the 80s with the objective of differentiating the previous policing style (more reactive and distant from society) and secondly, foster the participation of non-state actors so as to add informal social control measures to the formal tasks. This experience helped to rebuild a new relationship through techniques like on foot patrolling, community relations activities, talks in school, institutes and nursing homes, contact with businesses and meetings with neighbours and victims (Requena, 2013).

According to the official documents from the Generalitat (2016), the **PG-ME acts under a proximity model that**, in rhetoric terms, allows them to understand the needs of each community and ease the participation of the community for problem-solving (Nadal et al, 2017). In turn, this proximity is implemented mainly from a geographical point of view by providing general territorial services in every station of each basic area police unit.

Moreover, Requena (2013) argues that proximity needs to be thought from the point of view of police work since it impacts the type and sort of tasks performed day-to-day by officers. As such, the understanding of community policing from the officers themselves can deviate from what it is established in official documents and laws. For this author, the PG-ME does not abide by a formal and explicit proximity police model because it has not been properly defined institutionally and operationally. A standardized and formal work procedure related to proximity does not exist and unlike other police organizations in the EU, no methodological guidelines are available.

Thus, the proximity program set forth by the PG-ME consists of whatever the proximity groups, proximity patrols and agents from the community relations offices do based on a planned activity schedule. Organizationally, **each basic police area has a Citizen Security Unit where proximity groups, one community relations office and a victim attention group are attached to**. Requena (2013) refers to the fact that the members from these proximity groups are not often deployed in the same sectors so it becomes burdensome when trying to construct relational proximity. Even more so, the personnel from these groups are seen by their colleagues as less valuable or perceived as lazy since they do not conduct reactive work.

4.3.1 Evidence on the perception of community policing at the regional level

A quantitative assessment of the **PG-ME reassures that police proximity plays a crucial role in crime risk perception**. When Montolio and Planells-Struse (2015) ran an econometric model to estimate the effect of individual and neighbourhood characteristics on crime risk

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perception in Barcelona, they found that **after discounting the endogeneity bias, there was a negative effect of police proximity on the dependent variable for those individuals that had not recently been crime victims**. The results imply that being stopped by a police officer implies a lower crime risk perception. For those individuals that had been victims recently, the effect was the opposite.

Further evidence can be found in the Catalonia Public Safety Survey. This survey does not allow the identification of proximity groups and only presents aggregate evidence in terms of the evaluation of specific actions by the PG-ME, its visibility and contact with the citizenry. The former attributes shed some light from the citizen point of view of community policing and proximity.

Figure 6 shows the specific tasks evaluated by the citizens like the protection of people and property, the monitoring of public spaces and patrolling are the lowest ranked of the set after scoring 7.7 in 2017. These represent salient tasks related to community policing. Additionally, another relevant feature relates to the visibility of officers in terms of citizen security.

Figure 7. Evaluation of specific actions by the Mossos d'Esquadra 2017
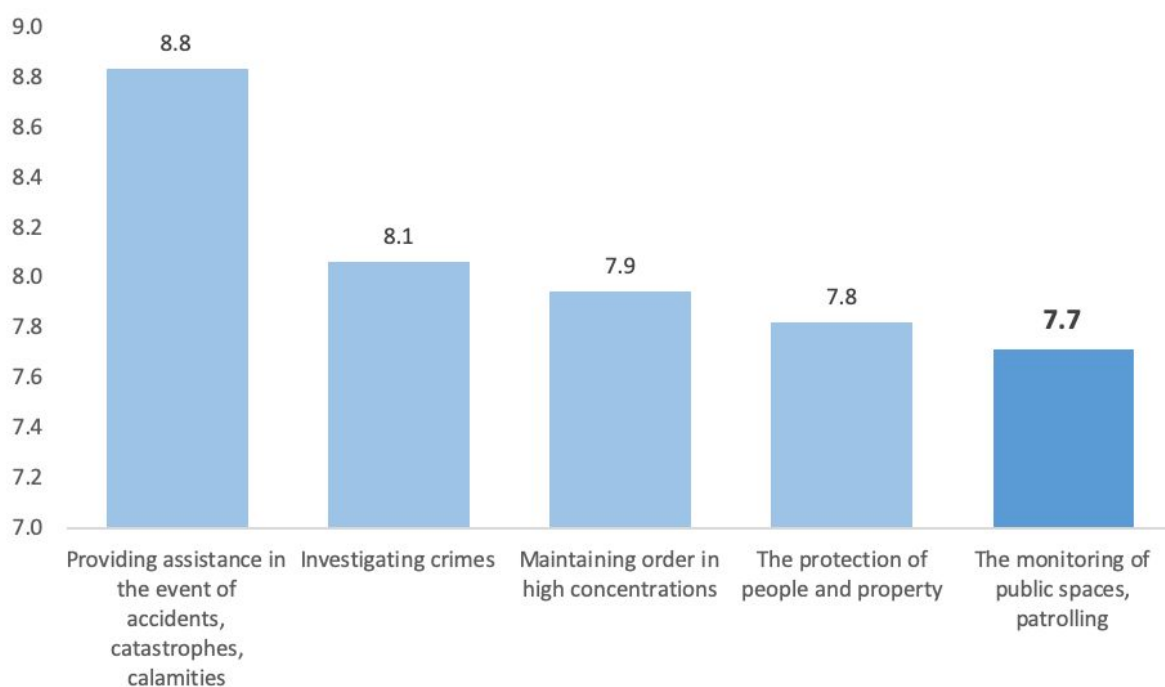
Source: Catalonia Public Safety Survey. Own elaboration.

Figure 8 depicts that the visibility (y-axis from 0 to 10) has grown steadily since 2013. By 2017, almost 7 out of 10 citizens considered it to be sufficient.

Figure 8. Visibility of the Mossos d'Esquadra in terms of citizens' security 2012- 2017

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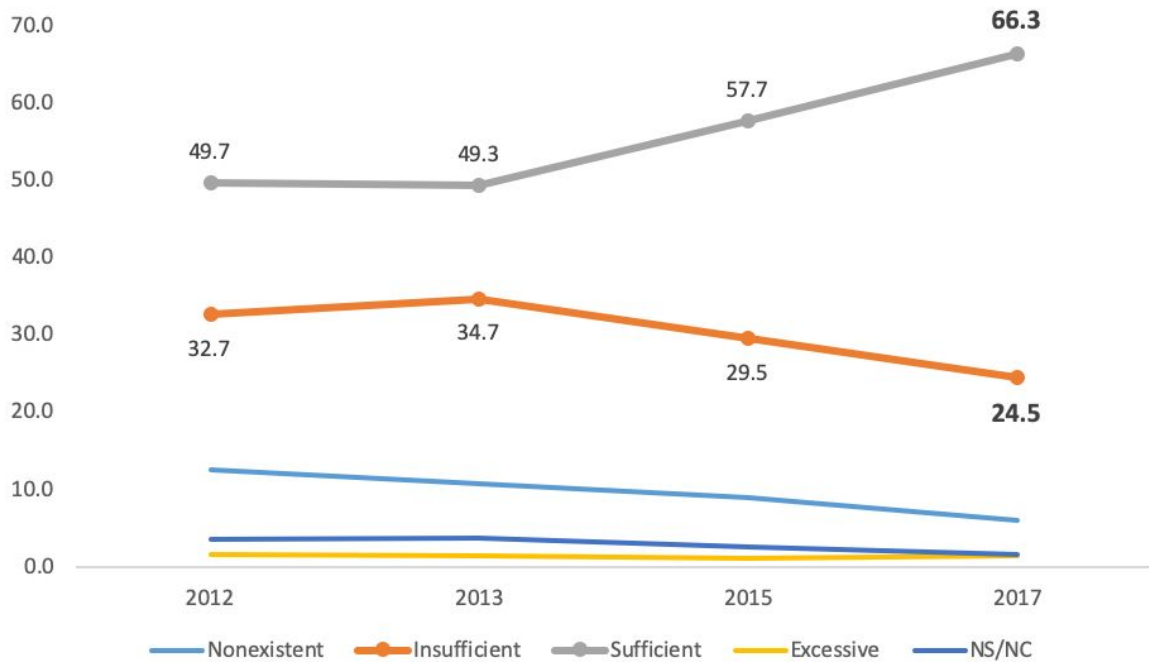
Figure 9 presents data related to citizen contact with the PG-ME personnel whether it was started on the initiative of the citizen or by the officers themselves. Contact with the PG-ME started by citizens increased between 2015 and 2017 (3.8 percentage points). This could be interpreted as a more frequent relationship probably caused by the growth of the crime prevalence rates. In contrast, the contacts started by the Mossos only increased marginally.

Figure 9. Citizen contact with the PG-ME (2015 and 2017)
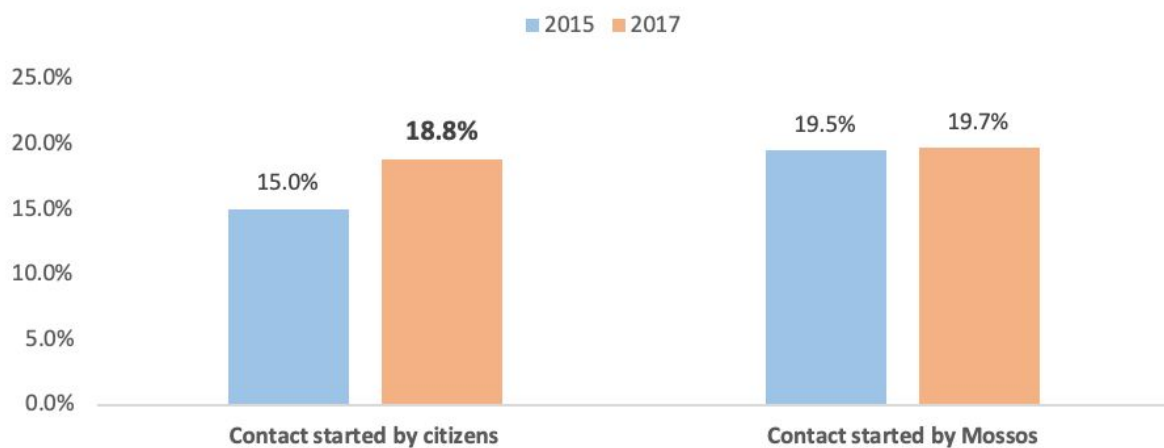
After exploring the main reasons for contacting the PG-ME on the initiative of the citizens, 36 times out of 100 they do it to report crime events and participate in proceedings. On only 23 occasions they ask for help regardless of the reasons. These results depict on-demand services from the PG-ME rather than a proactive role of citizens.

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Figure 10. Reasons for contacting the PG-ME on the initiative of citizens in 2017

Legend:
- Report crime events, participate in proceedings
- Ask for help for any reason (accidents, breakdowns, emergencies)
- Complain about annoying behavior (noise, neighborhood issues)
- Ask for information
- Others
- Ns/Nc
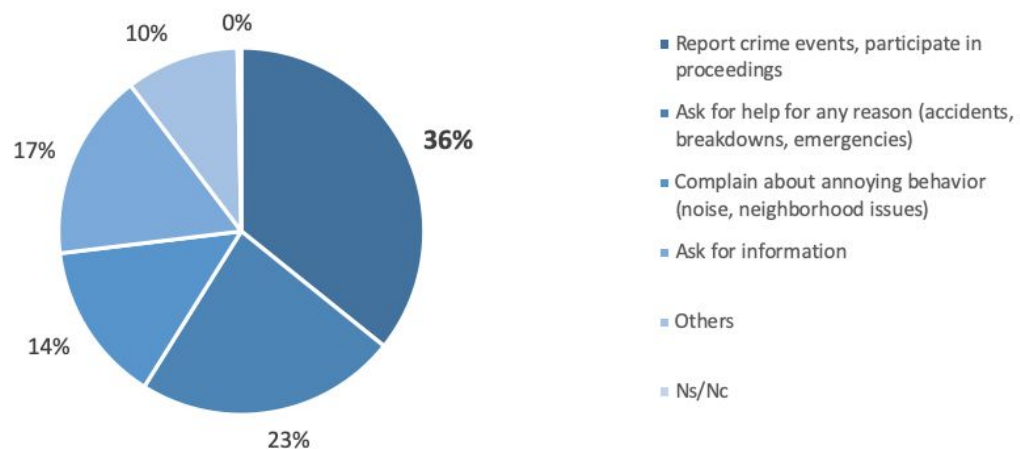
Source: Catalonia Public Safety Survey. Own elaboration.

Figure 11. Contact with the PG-ME started by Mossos in 2017 (2015 and 2017)

Legend:
- A traffic control on the road
- A traffic complaint or an administrative complaint
- Others
- Ns/Nc
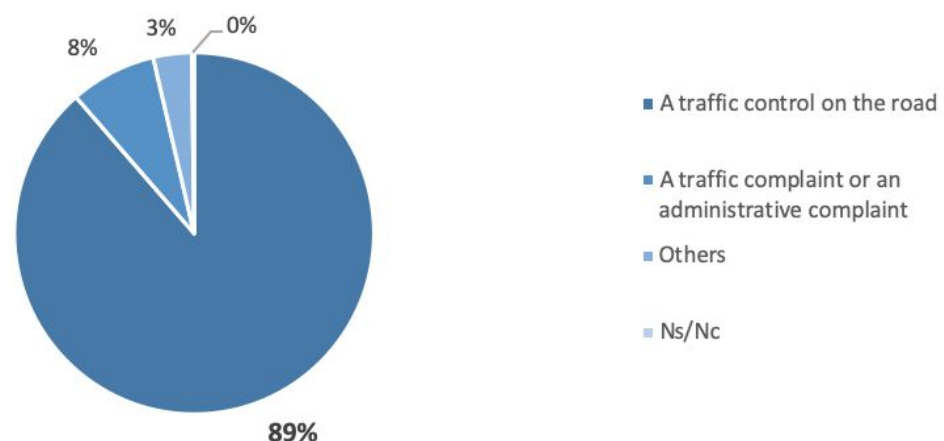
Source: Catalonia Public Safety Survey. Own elaboration.

Lastly, contacts with the PG-ME started by the same institution members are mainly due to traffic controls. Community policing would demand other motives/reasons different from traffic controls, traffic complaints and administrative complaints. It is not feasible to assess the amount of contacts started by the PG-ME related to community policing activities

4.3.2 The local police in Catalonia

Taking into account the role of local police in the above-described Catalan policing system, this research focuses their intervention within community policing and the use of technology at this policy level. As pointed out by Fuentes i Gasó and Capell i Manzanares (2016:11):

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"Local police, which until now have been characterized by their heterogeneity, have also in recent times positioned themselves as community police in the areas of neighbourhood coexistence and local public services, and at the same time with the police force of the Generalitat-Mossos d'Esquadra, as a police of proximity and aid and assistance to citizens."

The Spanish Constitution (article 148.1.22) and the "'Estatut de Catalunya" (article 164) entrust to the Government of Catalonia the planning and regulation of the system of public security and management of local police (Llei 16/1991 "de les policies locals de Catalunya"). This legal framework determines that all municipalities of more than 10,000 inhabitants have the power to create a local police force, though it is not obligatory. Currently, all those municipalities who surpass this population have local police, as well as a few other smaller municipalities per exceptional authorization of the Department. In this way, 213 of the 947 municipalities of Catalonia have municipal police (Fuentes i Gasó and Capell i Manzanares, 2016). The around 11,000 in-service police address a population of more than 5 million inhabitants (73% of the total). It is only present in the main population centres, that is to say, in 20% of the Catalan territory, and it has gone from 162 local police in 1983 to 213 in 2011, with an increase of 31.48%.

The difference in population between the Catalan municipalities sets up a scene of the plural municipal policies and diversity. While some districts have only 4 or 5 agents, others have more than 1 thousand officers. For instance, the Guàrdia Urbana of Barcelona has about 3,000 agents[19].

The functional and service delimitation between the different police officers present in the municipality is subjected to the local and regional administrations. Following an agreement established in 1996 between the Department of Interior and the Federation of Municipalities of Catalonia, the local policies are in the condition to contribute, according to their functional capacities, to the general finalities of the Catalan security and police system, including the PG-ME.

The Catalan public security system incorporates coordination strategies that the territorial deployment model entails as a priority to implement instruments, procedures, and methods of police coordination, as well as operational information. The territorial deployment model of the Police of the Generalitat is supramunicipal, in subregional demarcations dependent on police subregions (comarques). This model allows for the concentration of some services within principal municipalities of Catalonia and for the distribution of the service to the rest of the territory. This deployment, complemented by the local police, has configured a

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[19] Further information Retrieved from: http://www.idescat.cat/pub/?id=aec&n=900.

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different model of police implementation according to the municipality, giving a great diversity to the policing system in the region (Generalitat de Catalunya, 2019).

The Police of the Generalitat are responsible for providing essential services for the functioning of the overall policing system. It is also in charge of coordinating local policies and providing them with logistic support. In this framework, and according to the *Llei orgànica 2/1986, de 13 de març, de forces i cossos de seguretat* and the *Ley de Policía Local,* the local police has an essential role concerning the "relations with the community".

5. Community policing and technology in Catalonia

In this section, we discuss the main findings of the study concerning the adoption and implementation of ICT within the Catalan community police.

5.1 Community policing and technology in Catalonia: mapping and analysis

In this subsection, we focus on the descriptive level, identifying what technologies are being used in this region and their main explicit goals. We also consider the institutional implications of this phenomenon, in terms of the regional-local police model and its legitimacy.

5.1.1 Technologies used in policing in Catalonia

A set of technologies are used one way or another in everyday policing. However, some are more common than others. Almost 90% of the surveyed police answered that they used their mobile phones in their duties. Some of the police officers that participated in the interviews and focus groups confirmed the importance and usefulness of mobile phones. For example, one of the high ranks of the police pointed out:

> "Some parts of our jobs are done through mobile phones. For example, if there is a patrol that has encountered an incident, and needs to record the possible perpetrator, the only way the police officers can do it is by using their cell phone".[20]

Other police officers stated that they use their own mobile phones to follow social network accounts of organizations and groups from their municipality. Half of the officers that answered the survey stated that they used social networks in their daily police activities. The social network sites (SNS) that were mentioned were: Facebook, Twitter, and Instagram.

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[20] "Muchos trabajos se hacen a través del móvil. Por ejemplo, si hay una patrulla que ha captado un incidente y hay una grabación de un autor, el único método que tienen los agentes para captarlo es a través del teléfono móvil."[original quote in Spanish].

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As for CCTV, 60% of the surveyed officers affirmed that they had used them in daily police activity. In the qualitative part of the fieldwork, there were mentions of CCTV specifically used to monitor traffic but also for surveillance, investigation and prevention. One of the police officers mentioned the importance of CCTV installed inside police stations for police accountability. The same officer suggested that mobile and wearable cameras could also help to hold police officers accountable when they are on the street. Others indicated that, instead, it could be a burden only oriented to monitor their daily work. However, only 20% of the surveyed officers mentioned that they used them as part of their regular job.

Apps are being used by 37.5% of the surveyed police and the ones that were mentioned in the survey were linked to the Intranet of the police corps. Intranet was acknowledged as one of the most important technologies for policing because it contained resources that were useful for their police activities such as formats for complaints, information on courts and other resources.

Within these Apps, some are specifically aimed at facilitating relations with the community. Launched in 2014, the Android App of citizen security "Seguretat Ciutadana- L'H" from the L'Hospitalet de Llobregat district is one of the most relevant examples in this line. Presented as "the first experience of cooperation in the field of citizen security of the local police - Local Police or Urban Guard - using Smartphone technology."[21], it is an "interface" between people and the city. The system allows users to interact with the local police and the city (including alerts about the state of the city, educational information related to preventive safety, road safety and civility, first aid, etc.). The APP is multi-language.

This initiative was reproduced by other capital districts, reaching in 2018 more than 40,000 users in the Metropolitan Area of Barcelona (12 municipalities), mainly of the Baix Llobregat. In Santa Coloma de Gramenet, the Town Hall also launched the app but took advantage of the opportunity and launched two other apps (Topo and Santa Coloma es Smart) in 2019. According to one of the activists interviewed, Topo has been the most successful one because it allows citizens to notify the municipality any incident related to street maintenance and cleaning services. This statement is in line with an analysis of its functionalities[22], which go beyond police competencies and include reporting urban issues such as paving or street furniture deterioration by sending a geolocalisable picture.

Tablets were not included in the survey but were mentioned by some of the interviewees. According to Figueredo (2015), 1000 tablets were bought in 2015 as part of the plan to modernize citizen security. One of the police officers interviewed stated that these tablets

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[21] Further information Retrieved from: https://www.muniapps.cat/ca/apps/seguretat-ciutadana-lh.
[22] Further information Retrieved from:
https://ajuntamentinforma.gramenet.cat/es/info-local/nuevas-aplicaciones-para-moviles-sobre-seguridad-ciudadana-via-publica-y-ciudad/.

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are mainly used for identification purposes and that their main problem is that they are not connected with the Intranet of the police.

Most of the police officers that participated in the focus groups considered databases as the most important technology for their everyday duties. One of the officers stated the following:

> "Databases are the most important technology. Police manage a lot of data like telephone reports, officer visits, security requirements, among others. All this information is computerized".[23]

The technologies that were least mentioned as part of the daily police activities were the webs to map crimes or respond to incidents (8) and the drones (2). Only one of the interviewees mentioned the use of drones but by the traffic police. The following Figure 12, summarizes the results of the survey in this domain.

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[23] "Son las más importantes. La policía gestiona mucha información, ya sea vía requerimientos telefónicos, visitadurías, requerimientos de seguridad ciudadana todo se informatiza."[original quote in Spanish].

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Figure 12. Type of technologies for community policing (in %) and period of implementation

15 YEARS
Mobile phones 90%
CCTV 60%
Social networks 50%

10 YEARS
Apps 37%
Mobile cameras 20%
Webs 20%

5 YEARS
Drones 5%
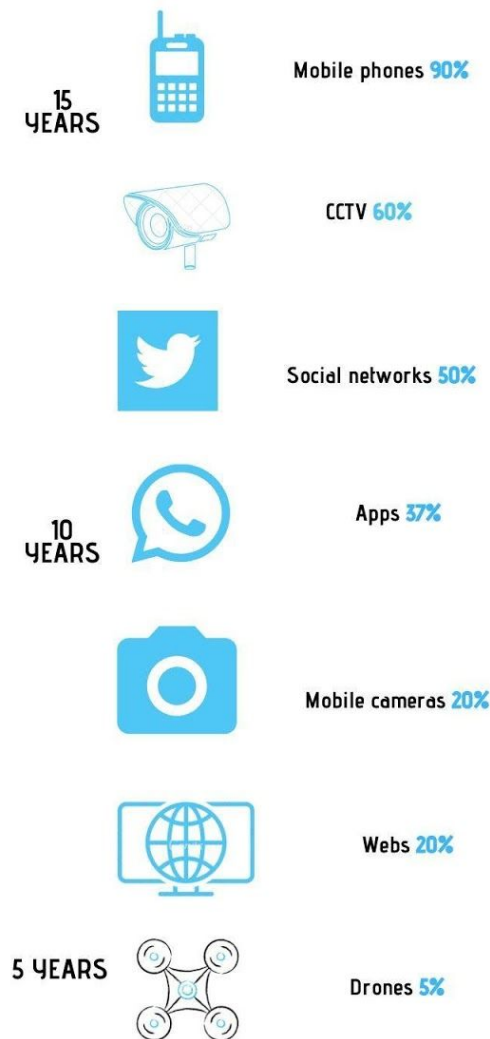
5.1.2 Aims of technological adoption and implementation by the Catalan police

As we can see in figure 13, the respondents identified that the three main objectives of the surveyed technologies were crime prevention, the coordination of police activity and surveillance. Community police and communication with the community were mentioned 41 and 40 times, respectively. However, there could have been a certain degree of collinearity between both categories in the survey, and community policing could be the most critical objective. Crime investigation and deterrence were the least mentioned objectives.

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Figure 13. What do the police seek when using these technologies?
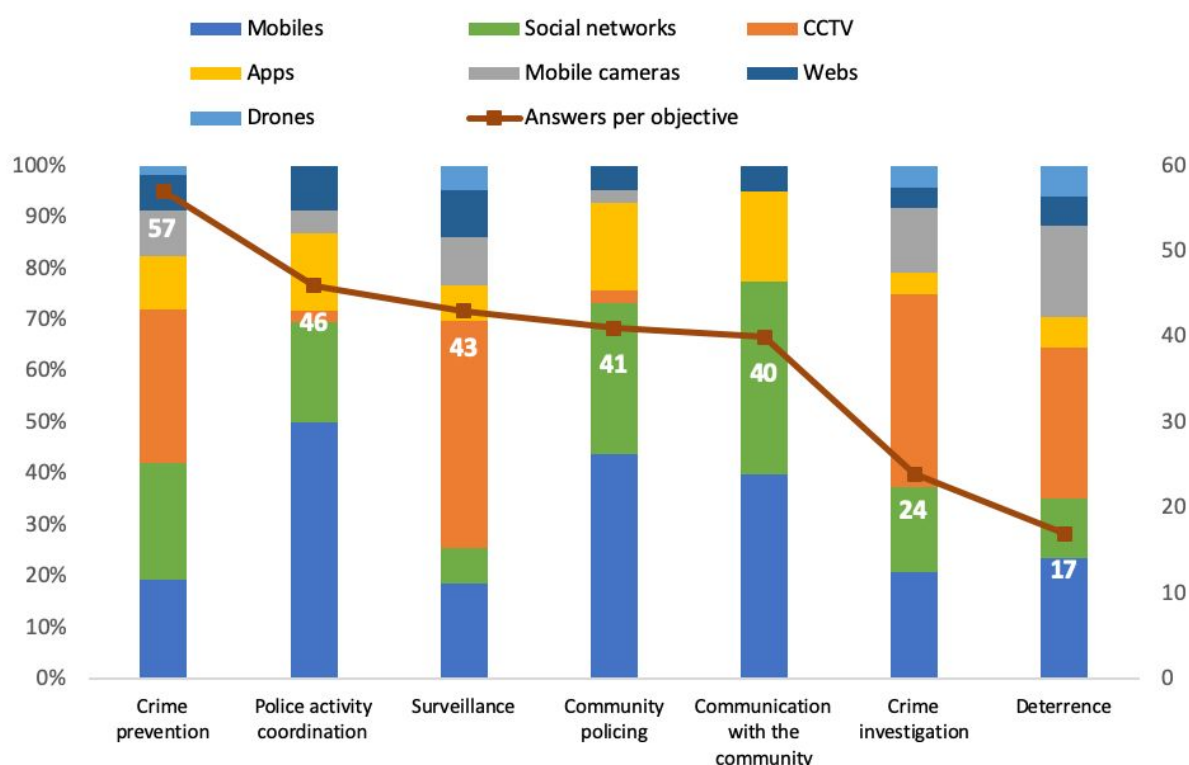
Source: Applied survey.

Respondents answered that they were using CCTV for prevention, surveillance, crime investigation and deterrence purposes. The use of CCTV as a crime prevention and deterrence measure is consistent with how the police departments usually promote the use of this technology. For example, on August 1, 2019, Albert Batlle Prevention and Security Mayor of Barcelona, stated that they would install more CCTV near the Olympic Port to prevent crime, especially sexual aggressions (La Vanguardia, 2019). However, it should be noted that CCTV has been considered as useful for investigations once a crime has been committed but the evidence of its preventative effect is weak (Lim and Wilcox, 2017). As for crime investigation, one of the officers interviewed mentioned that:

> "Having cameras on the street is criminologically useful. It let us know if someone committed a crime or to identify how the crime was committed".[24]

As mentioned above, another use that was especially mentioned by high ranking officers that were interviewed was accountability. They stated the importance of CCTV installed inside the police departments and especially inside the cells or interrogation rooms.

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[24] "Tener cámaras en las calles tiene más eficacia criminológica para saber si ha cometido un ilícito penal, también para identificar y saber cómo se han cometido los hechos. No es una medida de seguridad."[original quote in Spanish].

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As for mobile cameras, surveyed officers linked them to deterrence objectives more than any other aim. One of the interviewed police officers considered the cameras installed in the patrol cars as an accountability measure because they start recording minutes before an incident. He thinks this type of camera can protect the officers, the citizens and allow the central command to evaluate how the officers face different situations. No police surveyed or interviewed mentioned the wearable cameras that the PG-ME and local police started testing in 2018 and 2019.

Mobile phones were considered essential for achieving police activity coordination, communicating with the citizens and community policing. As we have seen in the previous section, police officers use their personal mobile phones when they are working, so they use to share pictures and information through messaging apps like Whatsapp and Telegram. One of the interviewed officers said that mobiles were almost as important as police radios because they were used as a tool to capture information – video, and photos, mostly– and communicate with other officers.

SNS were considered important for community policing and communicating with the community. One of the interviewed police officers stated that for him the best tool for community policing were social networks because now communities are digital, and everything happens in the digital space.

> "30 years ago, I was every morning in the local market, I talked with elders and women and I got what I needed to know in my community. Right now I can't only go to the market, I need to use the social networks: Twitter, Facebook, Instagram".[25]

Other officers were not so sure about the importance of social network sites, some of them still preferred human contact, especially for community policing. One in particular explained that these community policing activities were more common in some Barcelona neighbourhoods where programs around this philosophy were initially developed during the nineties.

Apps were considered the third technology most associated with community policing and communication with the community, but also for police coordination activities and organization. Even if there are no public apps used by the PG-ME to engage with citizens, police officers mentioned internal apps that were linked with the police Intranet that made their job easier. The above-mentioned "Seguretat Ciutadana" App is one the examples of technologies used by local police. The application was designed to protect citizens by using alert buttons and a geolocation system that inform the local police about the specifics of an event. According to Carol Carbonell, Local Police of Castelldefels (a southern district in

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[25] "Hace 30 años me la pasaba en el mercado de barrio y platicando con la gente mayor y las mujeres ya tenia la información que necesitaba de la comunidad. Ahora vas al mercado y no es lo mismo. Necesito usar las redes: Twitter, Facebook, Instagram".[original quote in Spanish].

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Catalonia), the application "is vital for those vulnerable sectors that have more difficulties to contact (with the police), such as minors or the elderly or the group of women at risk for gender-based violence." (El Far, 2018). In brief, this system is in line with community policing in terms of its functionalities aimed at the citizens' engagement.

Websites (only 8 cases) and drones (only in 2 units) were not clearly associated with any of the mentioned objectives. They seemed to be a rather indefinite and nonspecific technologies from the point of view of the respondents and the officers interviewed.

As for the technologies that were not mentioned in the survey, several of the police officers interviewed stressed the importance of databases to string together different types of information. The existence of useful databases and software to work with data was considered important for community policing, but also for crime prevention and crime investigation.

Tablets were also considered important as a way to access information in real time. Some of the interviewees stated that tablets were extremely useful for identification purposes. Other officers mentioned that they were important for community policing activities, but they lacked access to databases.

5.1.3 Operational issues and policy implications of technological implementation in Catalan police

Postman (1992) argues that technology is a "change that generates total change" and that it could alter the structure of implementers' interests (Postman, 1992:6). To stress his point, he quotes the legend of King Thamus that Socrates tells in the *Phaedrus* in which a god called Theud visits Thamus and urges him to disseminate the arts around Egypt. When Theud makes the case for writing, Thamus rejects it because it would damage memory and create the feeling of false wisdom among youngsters (Postman, 1992: 1). Postman uses the example to show why social leaders must consider not only the benefits that new technology may bring but also its drawbacks. Even if the author does not refer explicitly to policing in his book, his analogy could easily be applied to the decisions that police departments and decision-makers have to take before choosing and implementing new technologies. For Strom (2017), even though there are theoretical connections between the technologies and the policing tactics and outcomes, sometimes how the technologies are selected and for what purpose is not very well understood (Postman, 1992: 3-1).

A prominent concern across literature is that police departments are adopting and implementing different technologies without having enough evidence of their efficacy and negative shortcomings (Koper et al. 2015, Willis, Mastrofski, and Weisburd 2004). That is the case of the Marbella municipality in Spain, where the police department has deployed "body recognition" CCTV that can spot people through their physiological traits such as hair

color, and clothing (Pérez Colomé, 2019), which rests in the grey zone of the General Data Protection Regulation.

In Catalonia, the decisions on the adoption and implementation of policing technologies are taken by the Security Council of Catalonia and the Police Commission of Catalonia. However, since the local police depend on the municipalities, town councils can decide on what technologies should be used and implemented. These decisions could affect not only the police role, but the policies in terms of security implemented in each municipality (Fuentes i Gasó and Capell i Manzanares, 2016).

The technical and geographical diversity of technologies reveals a lack of a strategic view in its selection and deployment, a phenomenon that seems to be more evident in the case of community police.

The first problem raised by several police officers during the focus groups is that several town councils seem to have, in the words of a respondent, **a "bright and shiny object syndrome", meaning that they get lured by the functionalities and possibilities of new technological developments**, instead of focusing on the needs and capacities of the local police.

For example, we already mentioned that technologies such as drones were seldom used and were not linked to a specific policing objective by surveyed and interviewed officers, so it raises the question whether the adoption and implementation of these technologies was planned according to the department's policing strategy or whether it was just a matter of acquiring the newest technology available. One of the officers who participated in the focus groups labelled those kinds of technological implementations as "political marketing":

> "Dazzle the citizens with toys usually works. We are full of electric cars, patrols with OCR cameras, shiny and ultra-technological command centres. This is political marketing, there are several technological tools that are not used or are being underused by the police".[26]

As some of the interviewees stated, sometimes the technologies purchased are not in accordance with the needs or capabilities of the police. This could not only impact the way policing is done, but also affect the relations with the community. In order to avoid this kind of situation, police departments usually develop implementation strategies and conduct regular impact evaluations. For example, the UK Policing College has a Policing Evaluation Toolkit (Kime and Wheller, 2018) that brings together evaluation design and implementation strategies for policies, practices and decisions such as the implementation of new technology.

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[26] "Obnubilar al ciudadano con juguetes funciona. Tenemos vehículos eléctricos, patrullas con cámaras que leen matrículas, tenemos salas de mando ultra tecnológicas. Todo es marketing político, eso no se usa o se infrautiliza".

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As other interviewees stated, sometimes the technologies purchased do not follow the needs or capacities of the police. This phenomenon could not only impact the way policing is done, but also affect the relations with the community. In order to avoid this kind of situation, police departments usually develop implementation strategies and conduct regular impact evaluations. Hastings (2018) recommended performing these evaluations frequently to identify if there is a disconnection between the police mission and the new technologies that could lead to unrealized potential, limited integration of technologies and failure to recognize the benefits and drawbacks of technology.

For example, the UK Policing College' Policing Evaluation Toolkit brings together evaluation design and implementation strategies for policies, practices, and decisions such as the implementation of new technology. However, as shown in Table 5, the results of the survey do not reflect this strategic view.

Table 5. Technological training, impact evaluation and implementation strategies in the PG-ME

Question	Yes (%)	No (%)	Does not know
Have you received specific training for these technologies?	47	47	ND
Were impact evaluations conducted before implementing these technologies?	23	60	17
Were implementation strategies designed for these technologies?	39	47	14

Source: applied survey.

Half of the surveyed officers affirmed that they had not received any specific training for the technologies cited. This result is consistent with the responses gotten in the interviews and focus groups.

Table 6. Intensity of technology usage and key implementation aspects

Technology used by the local police	% that declared the use of these technologies for daily activities	Date of earliest known use	Most frequent date of earliest known use	Most common problem identified during the implementation of these technologies
Mobiles	92.5%	Last 15 years	Last 15 years	Inadequate police training / Lack of preparation
CCTV	60%	Last 15 years	Last 10 years / Last 5 years	Inadequate police training / mismanagement
Social networks	50%	Last 15 years	Last 5 years	Inadequate police training
Apps	37.5%	Last 10 years	Last 5 years / Last 2 years	Lack of preparation
Mobile cameras	20%	Last 10 years	Last 2 years	Inadequate police training / Lack of understanding from citizenry
Webs	20%	Last 15 years	Last 2 years	Lack of preparation
Drones	5%	Last 2 years	Last 2 years	Inadequate police training

Source: own elaboration.

Furthermore, inadequate police training was reported for 5 out of 7 technologies used for daily police activities, and is the most common problem identified during the implementation. Out of these technologies, it is interesting to note that at least 3 of them (mobiles, CCTV, and social networks) started being used at least 5 years ago. This information discards the hypothesis that there has been no formal training because technological innovations are too recent.

It would also mean that during the implementation of some technologies, police officers have experienced more day to day use. Depending on the technology, day to day use is not enough to master said technology. Furthermore, some of the officers interviewed confirmed that there were significant technological knowledge asymmetries between senior officers and younger ones.

> "There are some senior police officers that are not very skilled in certain technologies like social networks, but some of them are retiring and the new generation do have that expertise."[27]

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[27] "Hay algunos policías de más edad que no son muy experimentados en tecnologías como las redes sociales, pero muchos se están retirando dejando a las nuevas generaciones que son más expertas."[original quote in Spanish].

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Table 7. Use of technology by the police, evaluations conducted and perception about the quality of its implementation

Technology used by the local policy	% of police that declared the use of these technologies for daily activities	% of police that declared impact evaluations were conducted before implementation	% of police that declared an implementation strategy was designed	% that consider the implementation of each technology was good and very good
Mobiles	92.5%	44	21	96
CCTV	60%	100	86	82
Social networks	50%	33	29	80
Apps	37.5%	33	29	100
Mobile cameras	20%	44	21	83
Webs	20%	11	7	86
Drones	5%	11	7	100

Source: applied survey.

Concerning impact evaluations and implementation strategy, the previous table shows that they were only designed for CCTV. All the respondents in the survey answered that the PG-ME or local units conducted impact evaluations before its implementation, and 86% declared that an implementation strategy was designed. In this regard, the CCTV Control Committee of Catalonia (Department of the Interior of the Generalitat) is in charge of the approval, renewal, and extension of the CCTV system. It should be noted that its main legal functions are issuing a preliminary and mandatory report on the authorization to install fixed cameras requested by any of the police bodies operating in the territory of Catalonia and monitor the use of mobile cameras. As part of these policies, a more strategic view of the system and its functioning has been achieved.

Even though mobile cameras are also surveillance technologies, only 44% of the surveyed police answered the PG-ME/local police conducted impact evaluations and 21% that they were implemented with a specific strategy.

As for the rest of the technologies, the surveyed police indicated that they were implemented without a strategy and without evaluating its impact. This fact may relate to

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the conception behind technological adoption, which significantly relies on the actual functionality of the technology at stake from a deterministic standpoint in relation to its operational aims. In line with this view, another key data from the survey is that even if impact evaluations and strategies were not conducted, at least 8 out of 10 police officers considered the implementation of every technology as good or very good.

5.1.4 Adaptability to policy goals and desirability of technological implementation in Catalan community policing

Innovation in law enforcement agencies has become a salient topic during the last decades. These agencies implement these technological advances as a result of the evolution of criminal threats or by the desires of tech-savvy police managers and governments. Technological applications (hardware and software) have granted organizations the opportunity of enhancing day-to-day tasks and improving the quality of services like in other fields such as health, defence and education. Nevertheless, in the most abstract terms, technology is only an alternative way to achieve a specific goal or set of goals at a lower cost or perhaps, with better results or even, attain what seemed formerly unfeasible. For Costa (2004, p.4), "technology can enhance the work of law enforcement but cannot completely substitute for traditional policing or intelligence methods."

As has been reflected in the previous subsection, the myriad of objectives that can be pursued from any technology can range from better communication between members of the organization, a more efficient territorial deployment, faster reaction to emergencies and crises to more specialized applications for criminal investigation or explosives deactivation. Some of these are generic in nature and aim to improve the police management in broad terms, while others exhibit a high degree of specificity and therefore require substantial training and human capital.

Differentiating between aims and objectives from contributions is clear cut. Whereas the former can be understood mainly from the operational and technical perspective, the latter must address how innovation can boost police performance in terms of equity, effectiveness and efficiency. These contributions can depend on the assigned functions of each agency, its relationships with similar organizations at different levels of government, the urban and rural geography, among many other factors. The flexibility of the policing model to attend the needs of local communities from a decentralized technological and operational system can lead to a diverse technological map, in line with community policing principles. However, not having an overall strategy may harm the capacity of these local policies to reach their expected objectives.

In the case of the PG-ME, the Generalitat (2013) stated that there is a need to adapt to a changing social environment. There are two requirements to solve this need: a flexible structure for technology adoption (as a response to new forms of crime) and the willingness

to approach the increasingly multicultural society (as a response to migration flows). Aside from this statement, technology implementation is scantly addressed in the Generalitat report. Therefore, it might seem that for this particular organization, technology is not the foremost or most publicly discussed aspect. The lack of transparency on innovation decisions contrasts the experiences of Anglo-Saxon police departments where there are specific programs for ICT deployment and evaluation (Sedelmaier, 2019). Nevertheless, the COMPOSITE project had identified certain ICT trends in European Policing up to 2011. The results for the PG-ME showed the following ones:

Table 8. Technologies, functionalities and contributions

Type of technology	Functionality and contribution
Digital geo-references	· There is a tool for analysing crime data and producing reports (maps). The system allows information visualization, support for crime prevention, and facilitates countermeasures at operational, investigational and strategic levels. · Another tool is an "in-car" system that creates information directly from cars. This will reduce the workload on command centres.
Data exchange between Police and Prosecution Authorities	· There is a system that allows the police to receive orders digitally after being signed by the judiciary secretary. Once this order arrives, it is delegated to each basic police unit. · Another system allows the sharing of digital biometric data.
Mobile and handheld PCs	· Each patrol carries a personal digital assistant (PDA) that can be used to process fines. This, in turn, reduces intermediation between the police force and the traffic force. · The PDA can process payments, can search warrants and enables the documentation of accidents (photos). · The report states that there is a plan for deploying one PDA per officer.
Fingerprint scanners	· There are 31 dedicated computer terminals to make use of digital fingerprints and aid in the identification processes. These are distributed in forensic police units that can handle a high amount of cases.

Source: Own elaboration.

Another analytical aspect comes from the government incentives to justify hardware and software purchases even though the application does not fully guarantee the contributions it promises to deliver. It is then important to bear in mind that government organizations are not isolated from the tech fads. As we have seen before, one participant of a focus group asserted that technology is regarded more as a topic for politicians than for professional police since the former can promise more safety, less fear of crime and risk perception as well as better crime control and prevention by bringing up certain technologies without any precise plan or strategy whatsoever.

These predetermined choices are problematic because stakeholders have already identified a solution to a problem that might not need it or that is not the first-best option in terms of resources. As such, this bias has a political root that can only focus on certain forms of crime or favour practices incompatible or unsuitable with/for the prevailing police model. What results crucial for assessing the role of technologies in policing is how these support policy objectives without compromising the citizen's rights. That is, achieving a balance between equity, effectiveness and efficiency.

An example of this was found during fieldwork and is related to CCTV surveillance. Whereas some officers consider that this ICT can reduce the fear of crime and risk perception in certain spots and provide accountability; other stakeholders like personnel from local shops stated that whenever they see a concentration of cameras, they feel more afraid and perceive that the choice of installing these might be a signal of criminal activity. Other stakeholders pointed out that as officers already knew the angles of CCTV recordings, they eluded these spots when an unethical action was to be executed, as occurred in the case of Kamal, a young citizen from Bangladesh that was arrested and hit by an officer of the Urban Guard. The members of SOS Racisme told some more details of the case:

> "An officer of the Urban Guard found Kamal walking on the Rambles and asked him for his residence documents. Since Kamal was an irregular immigrant at the time he just showed the officer a document with the registration of residency. The officer got him on the patrol and took him to the Ceuta vela Police Station. They entered the station by the backdoor and the officer placed Kamal inside a small corridor with no surveillance and hit him for 42 seconds. Since there was no CCTV in that corridor, there was no evidence of what had happened".[28]

5.2 Views and findings on community policing and technology in Catalonia

In this subsection, we will examine the above described findings under the light of the three main hypotheses guiding this study. Therefore, we will first examine the implications of technological meditations for the distance between the community and the police. Secondly, we will discuss the positive and negative social impacts of deploying new technologies in community policing. Finally, we will consider specific disruptive dynamics acting against the operationalization of community policing principles based on ICT.

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[28]"Un oficial de la Guardia Urbana encontró a Kamal caminando por las Ramblas y le pidió sus documentos de residencia. Como Kamal se encontraba en un inmigrante irregular en ese momento, solo le mostró al oficial un documento con el registro de residencia. El oficial lo subió a la patrulla y lo llevó al Departamento de Policía de Ciutat Vella. Lo metió dentro de un pequeño corredor en la entrada trasera del departamento de policía donde no había vigilancia y lo golpeó durante 42 segundos. Como no había CCTV en ese corredor, no había evidencia de lo que había sucedido."[original quote in Spanish].

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5.2.1 View 1: ICT will increase the distance between the stakeholders

It is undeniable that ICT has become an integral part of everyday life for many people: blogging and micro blogging, social network sites (SNS), media sharing, virtual game platforms are being used exponentially. ICT's have flooded almost all aspects of life and policing is not the exception. Let's take a look at the following example to grasp the way ICT can affect community policing in Catalonia.

On February 26, 2019, the Catalan National TV (TV3)[29] reported an increase of theft around the Grèvol and Montseny schools located in the Sant Martí neighbourhood in the western part of Barcelona. Most of these acts were committed against adolescents who attend those schools. They consisted of stealing their cell phones with or without violence. Some of the parents interviewed for the news affirmed that they had already placed several complaints and demanded more police presence around the neighbourhood.

Even though the news got aired on television, the discussion around the cell phone thefts in Sant Martí started some days before in SNS. As a matter of fact, Merche Carballo (Congostrina, 2019), Urban Guard Sergeant, told *El País* in an interview that there was a sense of insecurity created in Social Networks after one student that skipped classes was deprived of his cell phone. She stated that their website[30] was flooded with requests for more police presence in the zone and helps to identify teenagers that skip classes. Finally, she explained that some proximity agents met with several neighbour associations and school management to try to find the best solutions to the situation.

The way the Urban Guard took care of the problem is an excellent example of the *savoir-faire* of community-oriented policing; however, the role ICT played in the case and could play in other cases deserves a more thorough analysis. There are several ways in which police could use ICT: intelligence, enforcement, investigation and engagement. As we have seen before, the proximity model[31] of the PG-ME and the local police in Catalonia favours the engagement with citizens (Mossos d'Esquadra, 2019). It also promotes geographical proximity as a way to establish close and friendly relationships with the community, so the opportunities opened by the use and implementation of ICT are numerous and appealing.

On June 20, 2011, Emili Quevedo, Chief of Planning and Organization of the PG-ME, stated that technology has been important to improve the internal efficiency of the police, but that their new priority was to get closer to the community through the use of Apps and Social Networks such as Facebook (EcoDiario, 2011). That year, the PG-ME opened their FB

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[29] More information Retrieved from (Catalan): https://www.youtube.com/watch?v=gEo74dyP18E.
[30] More information Retrieved from (Catalan): https://ajuntament.barcelona.cat/guardiaurbana/es/tramites.
[31] Further information at the PG-ME webpage: https://mossos.gencat.cat/es/temes/policia-de-proximitat/.

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account and promised it would soon be an open channel that would let the citizens have direct contact with the police.

When talking about technology, most of the interviewees thought the human relationship was more important than technological tools, but, as we can see in the following table, most survey respondents stated that they have been using mobile phones, social network sites, and apps on community policing or to communicate better with the community. Interestingly, 66% of the respondents considered that apps have made police action closer to the people, while 82% of the respondents considered that SNS have made police action closer to the communities they work with. None of the respondents considered that apps or SNS have increased the distance between them and their stakeholders. It is also interesting to note that more than half of the respondents considered apps, mobiles, and SNS as proactive tools (53%, 72%, and 70%, respectively) rather than reactive.

Table 9. Do you think the implementation of these technological systems has made police action...?

Response rate (%)	Technology	Proactive (%)	Close to the community (%)	Reactive (%)	Far from the community (%)
63	CCTV	86	18	27	0
43	Apps	53	66	6	0
83	Mobiles	72	48	27	0
48	Social network sites	70	82	17	0

 Source: Applied survey.

However, during the interviews several police officers insisted on the importance of the human factor in community policing. One police officer made this funny analogy to stress his point:

> "If a police department sells the idea of a community police that is close to the community and then shows you a robot that is driving around the neighbourhood, but when someone needs to place a complaint there is no one in the police department to receive it and take care of it that is not a real community police".[32]

Based on these results, it seems that even if most police officers consider the direct relationships with the citizens as vital for community policing, most of them trust ICT as tools that could facilitate communication with the citizens. The digital divide (Van Dijk

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[32] "Hay policías que venden el concepto de policía comunitaria y te presentan un robot que pasea por la ciudad, pero no hay nadie que reciba una denuncia y le de seguimiento. Eso no es policía comunitaria".[original quote in Spanish].

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2006), which describes inequalities in the use and access to modern ICTs could play a key role on defining which populations and stakeholders get closer to the community police.

Organized neighbours could be one of the stakeholders that could make the best out of the use of ICT. One example is the residents in the Santa Coloma de Gramenet municipality that created a Facebook group to inform on all the things that happen in the neighbourhood[33]. The group has more than 50,000 followers and according to a Santa Coloma activist, municipal authorities follow closely all the posts on the group:

> "The group is uncensored, you can post reviews of bad restaurants, advertise stuff that you're selling or post a security incident. The people that started the group are now famous and the municipality is in touch with them." [34]

Here is one example of a post shared in the group about two thieves that were arrested by the PG-ME after robbing and hurting two elder citizens before entering their homes.

Figure 14. Screenshot taken from Santa Coloma de Gramenet Facebook public group

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[33] https://www.facebook.com/groups/santacolomadegramenet/.
[34] "El grupo no está censurado, puedes poner críticas a malos restaurantes, anunciar cosas que vendes o bien poner algún post sobre algún evento de inseguridad. Los administradores son muy populares y el ayuntamiento está en contacto con ellos."[original quote in Spanish].

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El Mirall.net shared a post.
January 30 at 4:32 AM

▶ VIDEO | Els Mossos han informat que es tractava d'un individu molt perillós que va ofegar fins a deixar inconscients dos veïns de #SantaColoma utilitzant la tècnica coneguda com el "Mataleón".

ELWEBDELMIRALL.NET
Atrapat un lladre molt perillós que va robar i escanyar dos veïns

😠👍😮 55   11 Comments 20 Shares

Source: elmirall.net on Facebook.

Other stakeholders that could benefit from the implementation of ICT in community policing are the retailers and small businesses. During the focus group we had with members of Eix Raval, they stated that they already have meetings with Urban Guard, with PG-ME and even with the district authorities to discuss security issues that happen in the neighbourhood, but if some "easy" technology could help them they could certainly use it. SOS Racisme were critical of ICT but agreed that small business and retailers could definitely benefit from a more efficient and rapid contact with police.

However, ICT could increase the distance between some populations and stakeholders and the community police. This is because the use of ICT could discriminate against certain stakeholders that do not have access or do not have the minimum expertise. In one of the focus groups, the participants pointed at the problems the elderly would have with apps or social networks:

"You can't tell the elderly that the solution to insecurity is on a phone. Most of them don't know how to use them and even if they know you have to make it easier for them".[35]

Low-income and migrant communities could face the same problem because some of them may not have access to the technology and if they do, the language barrier could isolate them from the ICT promoted by the police. In the same focus group, the members of Eix Raval mentioned that almost 50% of the people that lived in the neighbourhood did not speak Spanish or Catalan, so in case there was an app for community policing they could not profit from it. In another focus group, most of the representatives of vulnerable collectives agreed on that access to new technologies could represent a barrier for community policing collaboration.

Community policing has been defined by Van der Giessen et. al (2017) as a new kind of social contract that requires the acceptance and recognition of both, police and communities, as partners in safety and security issues. For Fuentes i Gasó and Capell i Manzanares (2016) This social contract could demand higher requirement levels for community police than from other types of officers because they work closer to the citizens. If we agree on this view, there is a problem when certain people fear or distrust the police that are supposed to look after them. One of the police officers interviewed accepted that there are groups that distrust the police:

"The police in the world are not the same. There are places where the police are repressive, so there are people that whenever they see a police officer they think of him or her as an enemy. We should understand that as police officers."[36]

In the interviews and focus groups we found that mistrust and fear of police goes beyond the argument employed by the interviewed police officer. Some of the interviewees mentioned cases of discrimination, police abuse and categorization that have created an unfathomable distance between the police and certain communities like irregular (and regular) migrants, Roma communities, sex workers, homeless population, among others. According to the Catalonia Public Safety Survey (2017), at least 23% of the citizens decided not to report a crime because they did not have confidence in the police, and little more than 10% because they were afraid of the police.

Figure 15. Reasons for not reporting crimes in Catalonia 2011-2017

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[35] "No se le puede decir a las personas mayores que la solución para estar seguros es el teléfono. Muchas no saben cómo usarlo, pero para los que lo saben usar es necesario facilitarles el acceso." [original quote in Spanish].
[36] No toda la policía en el mundo es igual. Hay lugares en los que la policía es represiva, por lo que hay personas que cada que ven a un policía sienten que están frente a un enemigo. Tenemos que entender eso. [original quote in Spanish].

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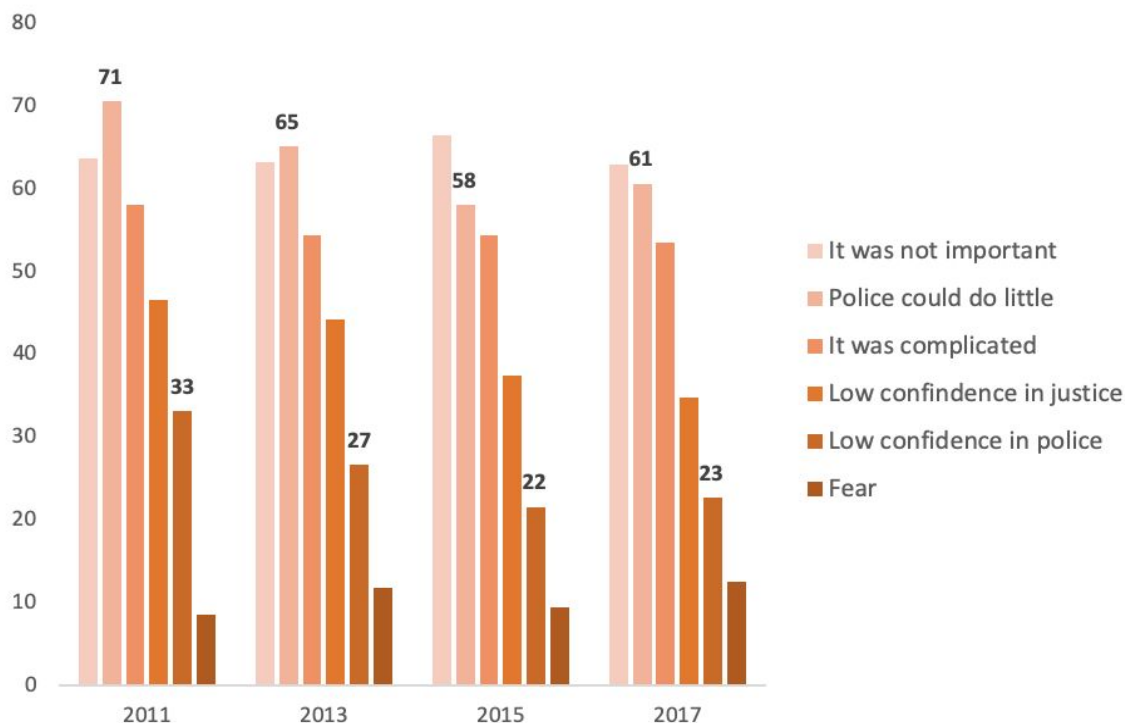
Source: Catalonia Public Safety Survey. Own elaboration.

In this scenario, during the focus group with organizations gathering migrants, homeless people, excluded minors and individuals subjected to discrimination, most of the attendees questioned the capacity of new technologies to get their communities closer to police officers due to mistrust, fear and the digital divide. They also did not report any specific utilization of ICT beyond regular communication via phone or email and pointed out that the aims of any technology implementation should be scrutinized before any new project in this domain.

Instead, in line with police responses to the survey and interviews, the participants explained that new ICT could be used to social control and collect information about these right' holders, which may be questionable given their irregular migration status. Using ICT as mediation would involve a dangerous innovation for the members of their organizations in terms of human rights and data protection. One of the activists shared the possibilities of control if the police could get more technological tools and be able to connect all the information:

> "Imagine that the police could use facial recognition and geolocalize people in real time. Whenever they stop a migrant they could profile him or her and then follow the route they're taking. It would be racial profiling but more complex."[37]

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[37] "Imaginemos que la policía puede usar reconocimiento facial o georreferenciar en tiempo real. Cuando detenga a un migrante podría no solo ficharlo sino seguir la ruta que toma. Sería como una categorización racial pero más compleja."[original quote in Spanish].

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Given the above, most of the technologies cited by these organizations relate to the protection or hiddening of vulnerable collectives from police action. Somehow far from community policing, one of the members of the focus group (SOS Racisme) described the use of the web Pareu de Parar-Me[38]:

> "What we do, from the project, is to give some recommendations and there is a bit of technology. Because we believe that the society that observes this type of abuse or police persecution, has to become vigilant. So, what we propose is this to be done through technology, such as mobile phones. This can work as a mechanism that helps to record according to what abuses and persecutions for a future judicial process."[39]

The representative of SOS added that they do not establish contact with the police but gather relevant information about abuses or receive individuals that had an incident. Along the same lines, from Fundació Arrels, aimed at supporting the homeless population of Barcelona, the collaboration with police was considered in the same line:

> "On the side of the police, we do have contact with services for the community of Poble Sec and Ciutat Vella because we have two buildings and there is a relationship. In some cases, when we have had serious aggression, we have contacted them for advice, and, on the other hand, being an open centre where there may be people who have some issues or search and capture, etc., sometimes there is PG-ME's intention to locate someone who is in our centre. We have been asked to access databases, but unless there is a court order, they have not been given access."[40]

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38 See at: https://www.pareudepararme.org/.

39 "Lo que nosotros hacemos, desde el proyecto, es dar unas recomendaciones y allí sí que entra un poco el tema de las tecnologías. Porque nosotros creemos que la sociedad que observa este tipo de abusos o de persecución policial, tiene que convertirse un poco en el vigilante. Entonces lo que proponemos es que se haga a través de la tecnología, de los móviles, como mecanismo que ayuda a dejar registrados según qué abusos y persecuciones para un futuro proceso judicial."[original quote in Spanish].

40 "Por parte de la policía hay un interés en conocer (hay en épocas en que hay más interés que en otras), sí que tenemos contacto con servicios para la comunidad de Poble Sec como de Ciutat Vella, porque tenemos dos edificios hay esta relación de conocernos de que ellos quieran conocer el perfil que tenemos. En algçun caso, cuando hemos tenido una agresión grave nos hemos puesto en contacto con ellos por asesoramiento, y por otro lado al ser un centro abierto donde pueden haber personas pues que tengan algún tipo de tema o búsqueda y captura, etc, algunas veces hay intención por parte de PG-ME de localizar a alguien que esté en nuestro centro. Nos han pedido acceder a bases de datos, pero excepto que haya orden judicial no se les ha dado acceso."[original quote in Spanish].

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Concerning the use of technologies, the representative added:

> "We have an application, which is the locator. That it is an application that we have as an entity, that it is free to download and everyone can download it. The intention is that the citizens, anyone, provide us with the people who are living in the street to be able to access them. The community police have never asked us anything in relation to it. "[41]

Consequently, the relationship between the police and these organizations is only established due to formal training about security conducted by the police for their members or in particular situations when any incident needs to be reported[42]. At the same time, these entities reported a general lack of interest in PG-ME and local police for the concrete problems they face or the interests these collectives have. Nevertheless, having a more direct technological link between the groups represented by the stakeholders and the proximity police is seen as a harming situation in some cases. For instance, in the case of the CCAR-CEAR, working with migrants, technology is mainly seen as a social control and surveillance mechanism:

> "I have many doubts. In fact, I don't see it positive in any case. I speak from the legal perspective, I am a lawyer, the use that the police can make of all the data that we collect concerns me. For the type of use they make of that information, and for the groups we work for."[43]

Approaching these groups to community police could, therefore, only be done by reframing the police model to put technologies at the service of their needs. This process should also take into account the role of community policing in addressing security from a holistic standpoint while taking into account the situation of concrete collectives. For instance, while regular and irregular migrants protected by CCAR-CEAR are mainly targeted by National Police and Guardia Civil (although also identified by local police), the homeless population is very dependent on the local regulation establishing the intervention of social services in certain conditions and situations. The representative of Fundació Arrels pointed out that technology could be used by the police to localize and identify homeless people, and then derive them to social services. As a matter of fact, one of the police officers interviewed stated that one of the communities that were most grateful for their work was the homeless population.

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[41] "Si que tenemos una app, que es el localizador. Que es una app que tenemos como entidad, que es de descarga gratuita y que todo el mundo puede descargarla, y que la intención es que la ciudadanía, cualquiera, nos facilita ubicaciones de personas que estén viviendo en la calle para poder acceder a ellas.Policía comunitaria nunca nos han pedido nada en relación a ella."[original quote in Spanish].

[42] Still, a series of experiences targeting these social groups from the community policing approach can be found. For instance, the way of solving a conflict with the Maghrebi community in Salt in 2011, one of the municipalities with more immigrants of Spain (around 50%), could be inscribed in this line (Pineda, 2011). Nevertheless, cases in which technology plays a vital role have not been reported.

[43] "A mi me surgen muchísimas dudas. Vamos no lo veo positivo en ningún caso. Yo hablo desde la perspectiva jurídica, que soy abogada, la utilización que la policía pueda hacer de todos los datos que recaba a mi me preocupa. Por el tipo de utilici´çon que hagan de esa información y por los colectivos que trabajamos."[original quote in Spanish].

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> "Especially during Winter, the homeless population usually welcomes the help of proximity officers. They receive the information of the Social Services and the shelters where they can go and pass the night."[44]

This task could potentially strengthen the relationship between police and homeless population. The representative of ProHabitatge considered that police could do a better job with homeless populations:

> "If police do real proximity work it could make our job much easier because we don't have to focus on the repressive treatment and just look at other situations of vulnerability."[45]

However, as the police often opt for fining people in these conditions instead of checking if they need to help from the social services, having a technological device might harm these collectives, increasing discretionality. Technology, therefore, is a possible way of automating the punitive character of the current police orientation towards these particular collectives.

5.2.2 View 2: The integration of ICT into community policing can lead to the stigmatization of certain social groups

Assessing the effects of technology in policing requires precise identification of what contributions can be expected from it. Even though police departments can share the same technologies like hardware and software, the effects in terms of liberties are contingent of several other factors such as prevailing police model, societal attitudes towards technologies, the implementation processes, and technology oversight, among others. Yet, technology is often seen as the only or the most relevant factor in the equation when discussing this potential trade-off.

Another caveat we should not ignore is that technologies in policing are not independent of one another and, thus, are characterized by a certain degree of complementarity. For example, suppose that any given police department conducts targeted patrolling in a certain neighbourhood that is based on hot spot maps or risk-terrain models (RTM) available through apps and webs. The inputs for the RTM come from remote sensing technologies like drones or CCTV or social network reports. Furthermore, the officers carry body-worn cameras and communicate through cell phones. If this targeted patrolling is biased towards specific group or groups, what technologies are responsible and up to what extent?

This section will help to identify the risks of sacrificing liberties (increasing bias and other negative externalities) at the expense of efficiency gains as a result of technologies used for

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[44] "Normalmente reciben muy bien a la policía de proximidad, sobre todo cuando es invierno y les dan información de los Servicios Sociales o de los albergues para pasar la noche."[original quote in Spanish].

[45] "Si la policia realitza tasques reals de proximitat, podria fer la nostra feina molt més fàcil perquè no ens hem de centrar en el tractament repressiu i només mirar cap altra situació de vulnerabilitat".[original quote in Catalan].

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community policing in the PG-ME and local police. We will provide evidence of biases that have been perceived from certain stakeholders and how these vary depending on each technology.

5.2.2.1 Initial evidence

According to the survey, the main contribution identified from technological systems has to do with police efficiency. Yet the survey does not reveal if the classical notion of efficiency cited previously matches the one held by the stakeholders themselves. It could be the case that the surveyed officers understand efficiency as effectiveness. Nonetheless, the answer "resource rationalization" incorporates the aspects related to the orthodox meaning of efficiency and ranks third after "better communication with the community". Figure 16 below depicts that police officers consider technology as efficiency promoting in general.

Figure 16. What contributions can be expected from these technological systems according to the Mossos d'Esquadra?
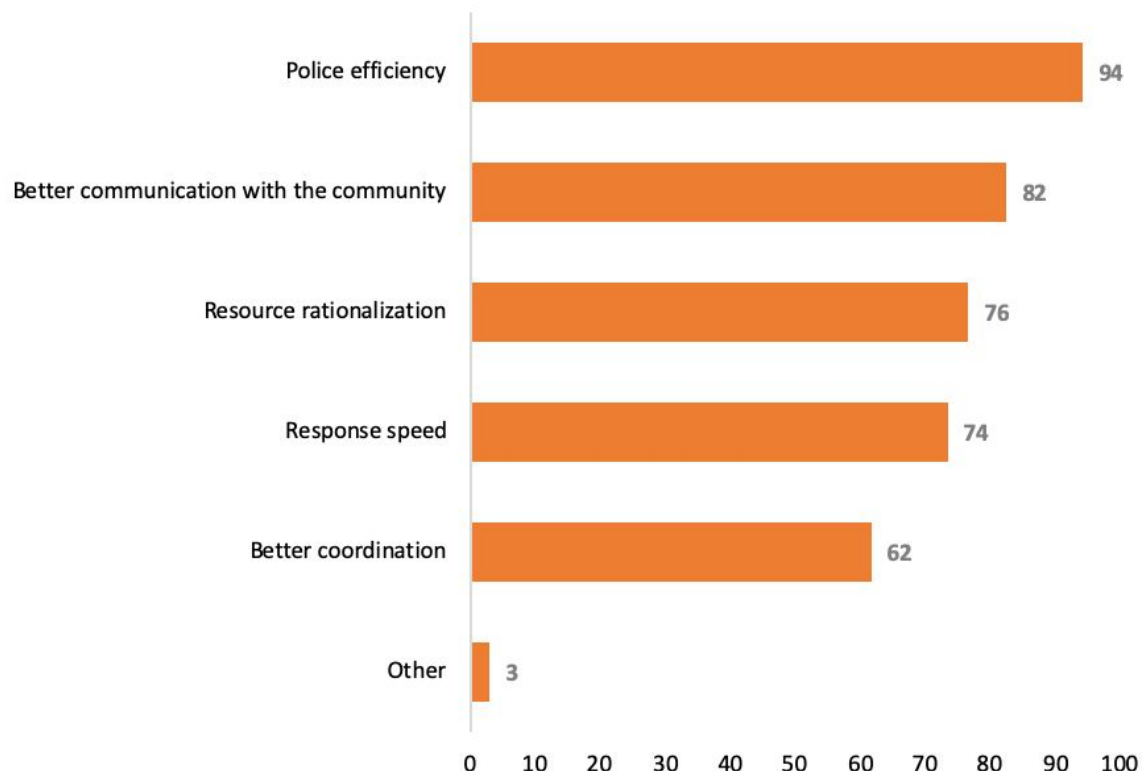
Source: Applied survey.

In terms of the specific tasks, Figure 17 describes that technologies should be used most to aid in neighbourhood problems and public space issues, assistance activities, police activity and actions related to criminal acts. The first two tasks are widely seen as paramount community policing. By associating specific tasks with general contributions, it is easy to state that stakeholders hold high expectations of technology for efficiency gains and community policing.

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Figure 17. What tasks should technologies be used for in daily police activities?
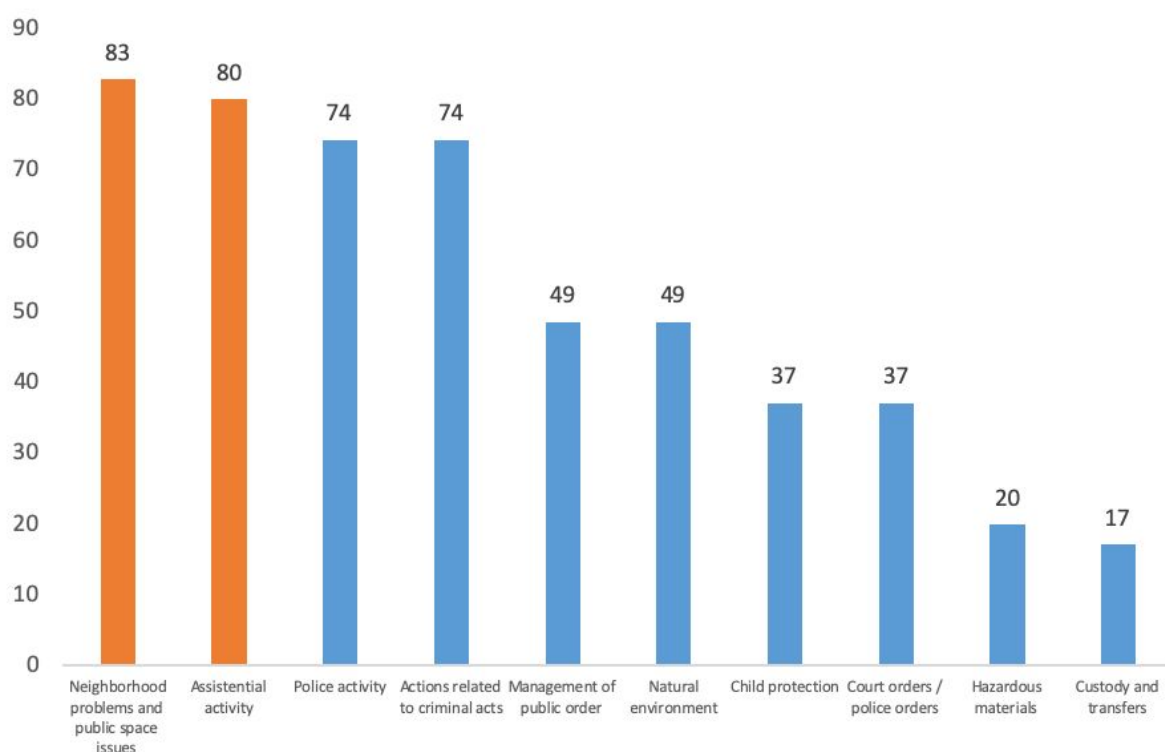
Source: applied survey.

Police officers asserted that the police model conditions technological use, and this, in turn, reflects the cultural and social environment. For some, implementing technologies does not necessarily lead to biases automatically or assert that there exists a trade-off between efficiency and liberties. For example, one interviewee stated that whenever police officers tried coming close to unaccompanied children (MENAS)[46], they flee because they refuse to be "protected": that is being delivered to Social Services where they should be taken care of. One of the police officers stated that, indeed, most of the time, these children flee from them, but when they get them they should take them back to those places the Social Services offers them housing. For some stakeholders like social organizations and activists, the job of getting along with the unaccompanied minors should be done by social workers or mediators to avoid their stigmatization and criminalization. An activist from Santa Coloma de Gramenet explained how the police usually deal with accompanied minors in the neighbourhood:

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[46] This is the acronym (in Spanish) used for the Unaccompanied Foreign Minors. It designates children and adolescents under 18 and of foreign origin, who are in Spain without the care or accompaniment of an adult. This collective has been particularly stigmatized by far-right movements and within public media in the last years (Vargas, 2018).

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> "Police and minors know each other very well. Minors know what type of misdemeanours they can commit without going to jail and police know that if they arrest them for some petty crime, they will get out. It's like a Tom and Jerry cartoon." [47]

As we have stated before, the relationship between police and homeless people depends on the aim of the police. If police intend to help, they are usually welcomed; however, if they intend to fine them because they are committing some civic ordinance offence, they are generally received with scorn. Here it is important to remember that in 2005 Barcelona Municipality passed a Civility Ordinance to promote and guarantee peaceful coexistence in the city. This ordinance includes fines for deviant behaviours such as sleeping in benches, washing clothes on fountains, or showering in the beach showers. Organizations like Fundació Arrels have criticized the ordinance because it criminalizes some of the activities of the homeless population. Instead of implementing new technology, most of the activists that work with this population think that that ordinance should be changed. This is the opinion of one of the members of ProHabitatge.

> "There is no logic in fining every day the people that sleep on the streets. Most of them live there because they have no other option. If police continue fining them we can say they are being a repressive force." [48]

Besides, since the adoption of the Civility Ordinance in Barcelona the trust and public safety has not improved, so it raises questions if those ordinances have worked or not (Galdón, 2015).

As we stated in the last section, some migrant communities usually do not trust the police because they have been categorized or discriminated against in stop and search operations and irregular migration checkpoints, or they have suffered other kinds of police abuse. This is the case of Lucien Padurau, Romanian citizen, who was arrested on July 27, 2006, by five police officers outside his house in Barcelona. He was hit in the streets in front of his pregnant wife and assaulted again on the way to the Les Corts Police Station, where he was threatened with a gun. A day after, he was released after the police realized he was not the man they had been seeking (Amnesty, 2009). Besides these situations, some police officers and activists mentioned the cultural differences such as language or previous experiences as barriers for community policing. For one of the interviewees, technologies can facilitate contact without imposing a burden on liberties or biasing police activities.

Furthermore, the survey suggests that there is a widespread perception that technologies have a positive and very positive impact on communities. A negative effect was only

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[47] "La policía y los menores se conocen muy bien. Los menores saben que tipo de faltas pueden cometer sin que los lleven a la cárcel, y los policías saben que si los arrestan por alguna falta menor, saldrán rápidamente. Es como la caricatura de Tom y Jerry." [original quote in Spanish].

[48] "No hay lógica en que todo los días multes a las personas que duermen en la calle. La mayoría no tienen otra opción. Si la policía los sigue multando está siendo represiva." [original quote in Spanish].

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reported for mobiles and CCTV, which are the technologies with a higher intensity of use and have been deployed for a more extended period than the others. This fact might reflect that undesirable experiences have happened and, thus, have changed the internal appreciation of those techs.

The survey depicts that social networks are the only technology whose impact is exclusively thought to be positive and very positive for the community. No mention of negative impact nor indifference was reported from the sample. This finding contrasts the qualitative appreciation of social networks found in one of the focus groups in which police officers recognize that the police department seems to be afraid of them since these deviate significantly from the dominant police culture in Catalonia. Albeit, they agreed that more openness was needed if social networks were to be implemented with more intensity for policing.

> "Police are scared of opening social networks for policing. There is a lot of fear of being criticized, interactions scare the police institutions. Things are not going to change in the short term."[49]

A very interesting example of bias mentioned in one of the focus groups relates to the database systems used for policing by the PG-ME. When asked if technology could discriminate, participants answered that technology was neutral and only police officers could discriminate; however, they agreed that police officers could enter biased information (like racial categories) into the databases. Moreover, another remark was made related to the language used by officers through their internal communication system.

> "There are racist officers, however when they are on duty they do their job professionally. When you hear the police radio, they use inclusive, respectful and non-discriminatory language".[50]

Besides the positive impression that the surveyed PG-ME officers share about how new technologies relate to local communities, from their point of view, technologies have specific effects on vulnerable groups. However, none of them consider that ICT can have adverse or very negative effects. For socially excluded people, 56% remain indifferent. For people with mental or physical disabilities, 55.5% consider there are positive effects. As regards children, 50% consider there are positive effects. Concerning elderly, 63% think there are positive effects.

They also do not seem to perceive potential discrimination against groups due to racial, gender, economic, or religious reasons. The survey shows that most police members do not

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[49] "A la policía le da miedo abrir las redes. La crítica les da mucho miedo, así como las interacciones con la ciudadanía. La situación no va a cambiar en el corto plazo."[original quote in Spanish].
[50] "Hay oficiales racistas, pero cuando están de servicio hacen su trabajo de forma profesional. Cuando escuchas las comunicaciones policiales, usan lenguaje inclusivo, respetuoso y no discriminatorio."

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believe that ICT can favour racial, gender, economic, or religious discrimination. The most likely is due to financial motives (14.7% of police members thought so and 5.8% were uncertain). 150 surveyed police fail to recognize that ICT can lead to certain biases or even discrimination of vulnerable groups. Nonetheless, this result can be attributable to either a degree of desirability bias proper of the survey, or it can represent a genuine belief that ICT does not necessarily and exclusively bias community policing in the Catalan context, based on certain assumptions about their neutrality and objectives-oriented character.

Figure 18. Do technologies favour or not discrimination from the point of view of the police?
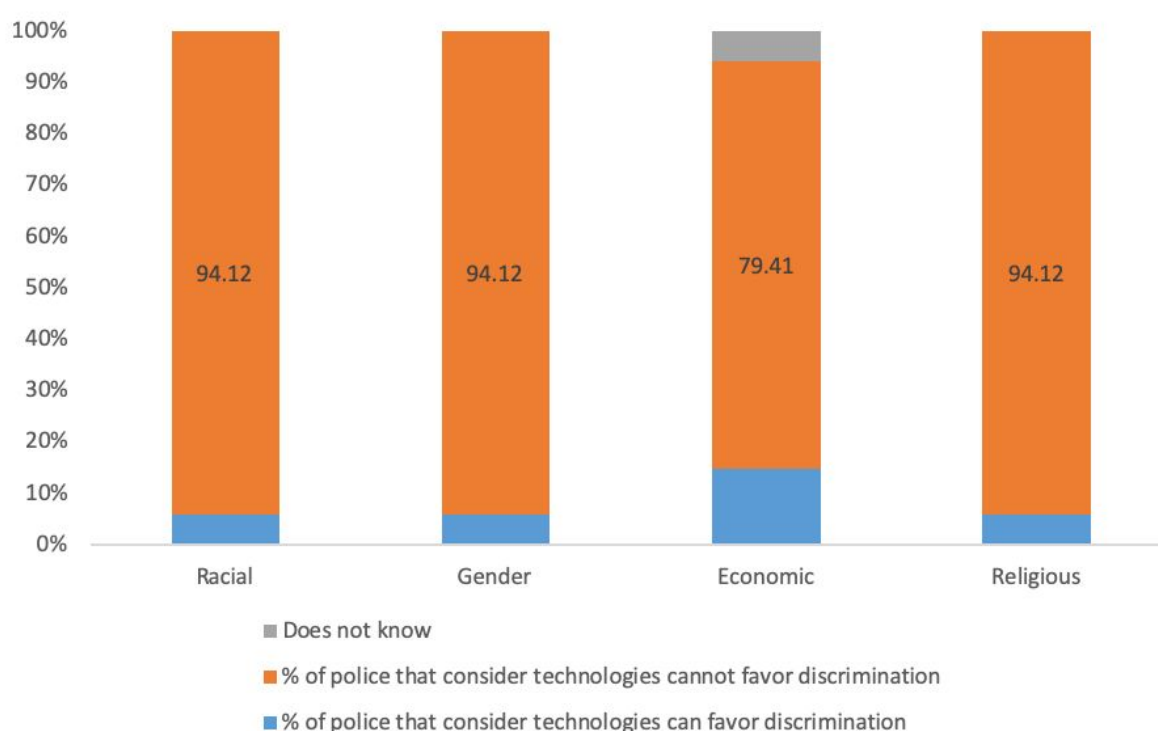
Source: applied survey.

The initial evidence discussed previously points out the necessity of assessing with greater detail each technology and how they have been implemented for community policing purposes from the point of view of other relevant actors. For example, how do other stakeholders like non-government organizations and business owners view technologies for policing? Do they fail to see the potential biases and externalities that could occur in day-to-day activities?

Evidence from one of the interviews (SOS Racisme) shows that police organizations have a particular interest in the use of technologies, but not always do they act according to ethical principles. Besides the elements provided in previous sections, two prominent examples were provided. The first one is related to body-worn cameras that initially were thought to hold officers more accountable for their actions and omissions. However, this intention

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began to complicate policing since body-worn cameras only show one side of every problem and, thus, fail to detect facial expressions from the officers themselves that could reveal another sort of non-verbal language incompatible with ethical standards. The second example relates to how certain officers conduct police activity out of sight from the CCTV systems where any wrongdoing cannot be thoroughly assessed and adequately sanctioned. For this stakeholder, the goals of technologies in policing should be to sensitize the population, make the organization and their constituents more transparent and accountable, and to foster better linkages between collectives and the officers.

In a different direction, other stakeholders (businesses and neighbours associations of the Raval) conclude that since police proximity seems to be withdrawing (due to a lack of officers and fewer foot-patrolling), technologies like apps could be useful for rebuilding the relationship between them and the police. These actors perceive the implementation of this type of technology positively as it would imply the construction of other communications channels besides the telephone number. In the case of the business owners' organization, no biases or potential externalities perceived by them were identified. On the contrary, they consider that this measure could diminish the fear of migrants to report the crimes they suffer, and therefore PG-ME and local police could have a more specific diagnosis of the security situation in different communities. The lack of a security diagnosis that contemplates the victimization of migrants is not a minor problem because it reveals a possible bias of the actions designed and implemented as well as the orientation of the services provided by the institution. The adoption of new ICT could affect the exercise of human rights of migrants, such as access to security, justice, and damage reparation.

These two examples of different types of stakeholders not only show opposite perceptions of the possible uses and implications of technologies, but they reveal different stages where there could be bias in the use of technology by police: design, adequacy, and implementation. The PG-ME is a particular security institution in terms of the use of technology as it began to operate as such at the time the new technologies emerged. Therefore, some of the stakeholders interviewed consider that technology is not a determining factor in their police model. Thus, the possible biases in the mentioned stages could be due to the institutional and technical criteria settled by those who define police management.

Concerning the forms of addressing discrimination trough technology within policing policy, SOS Racisme mentioned the project PIPE[51], develop in Fuenlabrada in 2010, in which they expect to collaborate with police:

> "It sought to register all the police IDs so that they could then collect data about them. For instance, if there were data of disproportionality or not, if there were

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[51] http://www.observatorioreligion.es/upload/67/54/Programa__PIPE.pdf.

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groups on identified or not, ... We are pressing some municipalities to see if they want to do a pilot project in this line."[52]

The following table shows the more extended technologies identified during the research that have been used in Catalonia, together with two perspectives of their use: the benefits for community policing and the biases or externalities for certain communities.

Table 10. Perspectives on the use of technology in community policing

Type of technology	Possible benefits for community policing	Stage	Possible biases
Digital geo-references	It can open spaces for the community and it may be useful for the design of prevention programs.	Design	Data can be biased towards a specific group of population or it can respond to the degree of citizen participation and trust in police.
		Adequacy	It can generate a negative image and stigmatize a community. This can generate an impact on the economic development of the neighbourhood.
		Implementation	That police can be deployed only in certain spots. This might strengthen the control over some communities and therefore limit their liberties.
Mobile and handheld PCs	They can help the police reduce the perception of insecurity in a community by showing *in situ* the objective information on criminal incidence to the population and respond immediately to a citizen. It also makes the exchange of information and response to certain events.	Design	That the technical protection mechanisms that guarantee the privacy and ethical management of the information registered are not established.
		Adequacy	That by not having the technical interlocks between databases, the police have access to restricted data that may lead to the criminalization of racialized people.

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[52] "Buscaba dejar registradas todas las identificaciones policiales para que luego se pudiesen recoger datos. Si habían datos de desproporcionalidad o no, si habían colectivos sobre identificados o no- Nosotros estamos presionando a algunos Ayuntamientos para ver si quieren hacer un proyecto piloto."[original quote in Spanish].

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		Implementation	That the information displayed is result of biased databases
Fingerprints scanners		Design	That the technical protection mechanisms that guarantee the privacy and ethical management of the scanned fingerprints are not established.
		Adequacy	That by not having the technical interlocks between databases, the police have access to restricted data that may lead to the criminalization of racialized people.
		Implementation	The fingerprints scanned as a result of individual criteria or perceptions may enable police to check fingerprints against other records or government databases.
Internal databases and Intranet	It can enhance the ability to process information collected by the police to prioritize and provide its services more effectively to the community.	Design	The criteria for collecting information can be biased from a racial perspective and, based on this, databases of potential suspects can be generated without evidence.
		Adequacy	That by not having the technical interlocks between databases, the police have access to restricted data that may lead to the criminalization of racialized people and ethnic profiling.
		Implementation	The biased databases can lead to the identification and surveillance of racialised non-criminal persons.
CCTV systems	They can provide important elements for the investigation of crimes if they are watched by specialized officials. In addition, they can strengthen	Design	Data can be biased towards a specific spot without enough objective evidence.
		Adequacy	The ethical principles for the collection and safekeeping of

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	transparency and accountability as it has happened with the CCTV systems installed where detainees are located.		information may be minimized or not implemented.
		Implementation	They represent an increasing intrusion into individual privacy in certain communities.

Source: Own elaboration.

5.2.3 View 3: Some ICT applications used by stakeholders can disrupt community policing goals

"Insecurity is growing in Barcelona" (La Vanguardia, 2019a), "Insecurity continues in Barcelona" (La Vanguardia, 2019b), "Violence becomes deeply embedded in Barcelona" (Guerrero, 2019), are just some of the newspaper headlines of *La Vanguardia* during last year. In the three news, the journalists depict a city "lashed by crimes" such as robberies, stabbings and drug trafficking. While it is true that the crime victimization rate in Barcelona has increased from 2015 to 2018, the levels are still far below from the ones of other big European cities. Even though victimization rates in Barcelona are not as high as in other cities, according to the latest Municipal Services Survey (2017), 17% of the Barcelona citizens considered insecurity as the gravest problem of the city. This trend is consistent with other studies that have shown that the relationship between victimization threat and victimization rates is usually not linear (Cossman and Rader, 2011).

According to Rader (2004), victimization threat involve three components: affective (fear of crime), cognitive (perceived risk), and behavioural (restricted behaviours). The relationship between these components is complex, but literature (Heath and Gilbert, 1996; Altheide, 2006) has shown that mass media can amplify the fear of crime and can change the behaviours of citizens. This is usually the case of media hypes, situations created when mass media exaggerate a particular subject and creates a false perception of these situations. Media hypes are not just excessive coverage of certain topics, but the result of complicated interactions between media and the society in which they function (Vasterman, 2005). According to Maneri (2018), it is not the number of news that define the media hype, but the lowering of the threshold of newsworthiness that leads to massive reporting. The investigative journalist interviewed commented that the problem is that we have oversimplified the social problems and the stakeholders involved: "It's very easy to blame the junkies, the street vendors, the prostitutes and the immigrants of all the problems."[53]

An example of a media hype in Barcelona occurred around 2003 when the news on conflicts among Latin American gangs Ñetas and Latin Kings started to populate the TV and radio programs. This is an excerpt of a news article published by El País (Riu, 2003):

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[53] "Es muy sencillo culpar a los yonquis, vendedores ambulantes, prostitutas e inmigrantes de todos los problemas". [original quote in Spanish].

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"The security forces have already noticed the presence of these groups. They are in alert mode and prepared to deal with a new type of street gangs in Barcelona. There were several adolescents arrested and several wounded when two of these gangs clashed around El Clot. The ones arrested were Ecuadorians and members of the latin kings that had just arrived from Madrid."

Feixa, et. al. (2008) consider that the excessive dissemination of this news created a distorted and stigmatized version of Latin American youngsters that has endured in the imaginary of the citizens. Even one of Latin King's members (Burke, 2006) in Barcelona thought that the attention that media were dedicating to them was excessive:

"There is a lot of media hype and sensationalism about us. They say they are "legalising" us, but we have never been criminals."

If mass media amplify a problem like the struggle between Latino gangs and it creates a sense of moral outrage it then transforms into a moral panic (Kepplinger & Habermeier, 1995). According to Cohen (2002), moral panic emerges when a condition, episode, person or group threatens societal values and interests and is being presented in a stereotypical way by the media . When the mass media blames a specific group like the Latino gangs for the deviant behaviour it creates a folk devil that will remain in the imaginary of the people as the sole responsible of the problem.

In the case of Catalonia, one of the preferred folk devils has been migrants. Whenever mass media reports on "disembarkment of illegal immigrants", "wave of Sub Saharan people", "invasion of people without papers" there is a feeling as if they are guilty of everything in Spain from unemployment to insecurity (Fernández, 2014). As the interviewed activist explained, there is always one population to blame for the problems. In Santa Coloma de Gramenet she identified this cycle:

"It started with the Latinos, "Sudacas" or "Panchitos". Then people were afraid of Romanian Roma and now all the attention is on the MENAS (unaccompanied minors from Morocco, mainly)."[54]

Catalan authorities such as Major Ada Colau have blamed the media for fuelling the "insecurity discourse," but at the same time, she has accepted that there is a security problem in the city. Some journalists like Lola García (2019), *La Vanguardia* director, have responded to Colau's accusation stating that behind the perceived insecurity of the citizens, there is huge distrust of the police, judges, and institutions that should guarantee security.

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[54] "Comenzó con los latinos, las "sudacas" o "panchitos". Después todos comenzaron a temer a los gitanos rumanos. Ahora todos prestan atención a los MENAS (menores no acompañados, generalmente de Marruecos)".[original quote in Spanish].

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In the last section, we discussed the distrust and estrangement that some stakeholders feel towards the police (including proximity police) because of encounters such as illegal stop and search operations, racial categorization and cases of police abuses. As the theory reveals (Goldsmith, 2005, Orum and Cossyleon, 2019), a lack of trust in police authorities is a basic form of disruption for community policing implementation. In this regard, it seems that the "distrust" that García is describing in her column is different from the one expressed by organizations gathering migrants, homeless people, excluded minors and individuals subjected to discrimination. At first sight, it seems that this other form of "mistrust" is being created by the insecurity media hype and the feeling that the police are not doing their job to keep the citizens and their property safe. This is a tweet that condemns a stabbing that took place in Plaça St. Jaume in downtown Barcelona and demands action by the authorities to solve the "sustained insecurity" :

Figure 19. Screenshot taken from @raval_net Twitter account

Source:@raval_net Twitter account
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Insecurity is usually in the imagination of people that think about the Raval neighbourhood in Barcelona. Miquel Fernández (2014) carried out a lengthy ethnography in d'en Robador Street and spoke with neighbours, small business and police officers about the perceived insecurity. Here is a description by a police officer of the hyperbolic stories of Raval that were repeated by different neighbours:

> "They tell me that they are robbing on the tourists, whom they are robbing inside the houses, that there are MENAS around (even though two of the centres that housed them in the neighbourhood closed). I tell them that the thefts have decreased but the violent robberies have increased a bit. You must always be careful in the neighbourhood, but without exaggerating."

This blend of police distrust with a high perception of insecurity is usually an excellent breeding ground for vigilantism. Vigilantes represent the individual or collective use or threat of extra-legal violence in response to an alleged criminal act or a deviated behaviour. According to the a document issued by the Home Office Crime Prevention Unit of the United Kingdom in 1988:

> "Neighbourhood Watch is generally understood to be a community-based activity supported by local police that is directed towards crime prevention. It involves residents becoming more responsive to the risk of crime and taking action to protect their own and neighbours'

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property. Such actions may include marking property, reporting suspicious activities and improving home security, which reduce opportunity for crime and increase the risk of detection"

This was the case of the citizen patrols established in the outskirts of Barcelona during the early '90s that chased and expelled the drug addicts and dealers from the neighbourhoods. It was also the case of a few citizens of Ciutat Vella district in Barcelona that took the streets in the spring of 2000 to protest against the general feeling of insecurity in the neighbourhood which they blamed on migrants and prostitutes (Galdon, 2013).

To some extent, the vigilantes think of themselves as the antonyms of folk devils: they represent the "we", the "family" and the "community" that antagonize with the "others", the ones who deviate from social norms (Loseke, 2019). In line with this, we can find a new ensemble of vigilantes dressed in paramilitary clothing chasing and unveiling pickpockets mostly inside the Barcelona subway but also surveilling the social network sites looking for security incidents. Some of these new vigilantes are Barcelona Guardian Angels, Patrulla Ciudadana, Salvalona or ROAR. When interviewed by mass media, most of the members of these citizen patrols affirm that they were forced to organize because society is fed up with insecurity and authorities are doing nothing to solve the problem. One of the most visible members of Patrulla Ciudadana responded to a newspaper interview with a sense of urgency: "Either we do something to save Barcelona or it will turn into a South American city" (The Journal, 2019).

It is interesting to note that peers have inspired some of these citizens' patrols in other countries. This is the case of the Guardian Angels, a group that split from Patrulla Ciudadana and that has its primary reference on the New York Guardian Angels, a controversial volunteer crime-prevention organization that was created in the Bronx at the end of the 1970s to help stop the crimes in the subway system. Guardian Angels gained a lot of fame among NYC citizens, but had its problems with NYC police. According to one of the police officers, they were not enthusiastic with amateurs getting between them and their job (NYT, 1981). One of the members Guardian Angels confirmed the perception and added: "they believed we shouldn't be on the subway doing their job. But they weren't doing their job." (Messy Nessy, 2019)

In Catalonia, the relationship between the authorities and the citizen patrols have changed through time: while in the '80s and 90's the authorities were clearly against them, in the 2000, after the first patrols protested in the Ciutat Vella district, some members of the Town Hall conceived the idea of recognizing them and giving them some authority (Galdon, 2013). This was also the case of the "Somaténs", groups inspired in parapolice medieval corps, that started patrolling rural areas of Catalonia around 2012 to prevent cattle theft and other robberies, that were also almost legalized by the Catalan authorities in 2012 (Galdón, 2013).

Even if authorities changed their mind on legitimizing or legalizing the patrols, it is important to mention that some state-sponsored actions fuelled the conversation on vigilantism again in 2012. The first action was the launching of a website with pictures of more than 200 persons that participated in a general strike against the wage cuts and labour reform (Galdon, 2013). Probably inspired by what the Canadian police did after the Stanley Cup riots on Vancouver in 2011 (Schneider and Trottier, 2013), the Catalan authorities uploaded a webpage with the pictures of some of suspects and invited ordinary citizens to help identify and locate them. The other experience that gave excessive attributions to citizens was an application launched by the Catalan Transport Authority whose main purpose was to inform on train schedules, but it had a button to report anti-social behaviour like begging or playing music on trains. In both cases, the pressure of civil society and media convinced the authorities to reconsider the actions: either by taking down the website with the pictures or by removing the app (Galdón, 2013).

Current authorities have been public in their disapproval of citizen patrols. For example, a spokesperson (Congostrina, 2019) of the PG-ME declared:

> "The so-called citizen patrols who go after pickpockets on the [Barcelona] Metro are not doing any good. They are increasing the sense of insecurity and using tactics that are bordering on criminal offenses."

Security Deputy Mayor, Albert Batlle (Quelart, 2019), has even stated that he has ordered the Urban Guard to identify the members of these patrols to penalize them if they exceed their attributions. It is difficult to assess if these warnings have dissuaded citizen patrols from keeping pointing out at pickpockets, but the reality is that they are more visible than ever because they have found another habitat to function: cyberspace. New ICT and digital media have provided vigilantes and citizen patrols with a new space and new tools to communicate.

Thanks to the ICT, vigilantes have turned into digital vigilantes or "digilantes". Chang (2018) has defined "digilantism" as an action taken by netizens (internet citizens, citizens actively involved in the online community) to track down and publish online information that might help to solve a crime or to identify the personal information of someone who has engaged in corrupt practices, non-compliance, or deviant behaviour. This definition infers that "digilantes" and similar accounts could have the best interests of helping their community, but Trottier (2017) thinks that digital vigilantism should be considered as a parallel form of justice "that works with visibility and public shaming as its main weapons. Just as the citizen patrols mentioned early, some of the digital vigilantes just want to make justice by their own hands assuming chores that should be done by police, either by proximity or investigative officers.

Taking into consideration the Boston Marathon bombings and the sloppy participation of the cyber-community in the investigations, Hill (2017) has advised on the dangers of digital vigilantes accusing them on exacerbating the chaos, misidentifying subjects and sharing inadequate or false information. The problem is that unlike the mass media, social media sites work as a "many to many" communication system where the supposed audience can also produce enormous amounts of content that can be disseminated right away (Walsh and O'Connor, 2018).

We identified at least 8 accounts with more than 2,000 followers that share information on insecurity issues such as pickpocketing, robberies or drug dealing in Barcelona, but also share content on Catalonia. There are several more, but these ones gather the most traffic and have the most reach:

Table 11. Digilante accounts and followers

Name	Twitter account	Number of followers
Helpers [BCN]	@BCNHelpers	25,800
Patrulla Ciudadana BCN	@PatrullaBCN	5,726
Hartos de Hurtos	@Harto_de_Hurtos	4234
Barcelona Residents Against Robbery	@BCNRAR	3,189
Tsunami Veïnal	@tsunamiveinal	2,285
Barcelona es queixa	@Barcelonaesque1	2165
Infocarteristas	@infocarteristas	1577
Net Raval	@raval_net	1409
Plataforma Sant Antoni Vigila	@stoprobossanta1	524

Source: Own elaboration.

Out of these accounts, the most popular one is Helpers BCN with almost 25,800 unique followers and an influencer score[55] of 8/10, which means it's content is being seen and shared by thousands of users. According to their Twitter account description, Helpers BCN maps almost in real-time all the aggressions, pickpocketing or any other criminal offenses perpetrated on the streets of Barcelona. People can send information to Helpers via DM or tag them in their tweet feed. Helpers BCN tweets and retweets whenever someone

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[55] Influencer score is a score created by Brand 24 that considers the importance of an account based on its number of followers and interactions.

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mentions the account. Helpers BCN was activated in May 2019 with the following message accompanied by a map: "Narcopiso detected on Calle de l'Om, 9. Sale of drugs. Unprecedented acts and aggressive attitude with neighbours. Illegal floor occupation."

Figure 20. Screenshot taken from @BCNHelpers Twitter account

Source: Helpers Twitter account.

According to the community manager of the account (Teller Report, 2019), the platform has as many as 150 collaborators that wish to remain anonymous because they have been threatened by some of the drug dealers they have accused. He also stated that they were also inspired by the Guardian Angels of New York City (Teller Report, 2019) .

To analyse the type of activity in their account, we downloaded 3,200 tweets equivalent to 8 months of activity. As we can see, most of the tweets of the account were launched between May and October, which is consistent with the summer season in Barcelona. The average tweets per day are 10, and from November to January the number of tweets decreased drastically. It seems it is increasing in February 2002.

Figure 21. Engagement timeline of @BCNHelpers Twitter account
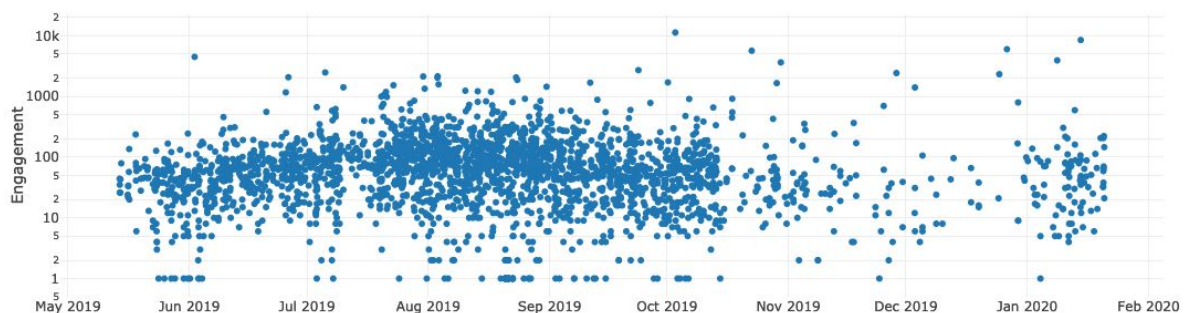
Source: Vicinitas.

The main words repeated on Helpers BCN tweet feed are "Barcelona", "conflictive", "safe", "police" and "robbed", "stole", "criminal" and "security".

Figure 22. Word cloud of @BCNHelpers Twitter account

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Source: Vicinitas.

Throughout these 8 months, the reach of Helpers BCN account reached 316,000 of total engagement, which means that it accumulated a significant number of likes, comments and retweets. Their engagement was 123.1, which means that each tweet is liked or retweet an average of 123 times.

BCN Helpers use a data analysis program based on the 'socmint' system that allows monitoring keywords or hashtags and also feed their account with complaints that come to them through private messages

Another interesting fact of their Twitter account is that almost half of their publications were original tweets, while more than 1/3 were retweets. That means that they curate original content, but also share content from other users that tag them.

Figure 23. Types of Twitter posts by @BCNHelpers

Source: Vicinitas.

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As for types of enriched media shared, 84.1 % were pictures and just 15% videos. This is interesting because they share a vast amount of photos of alleged pickpockets or uncivil citizens as well as geolocalization of incidents.

Figure 24. Types of rich media by @HelpersBCN
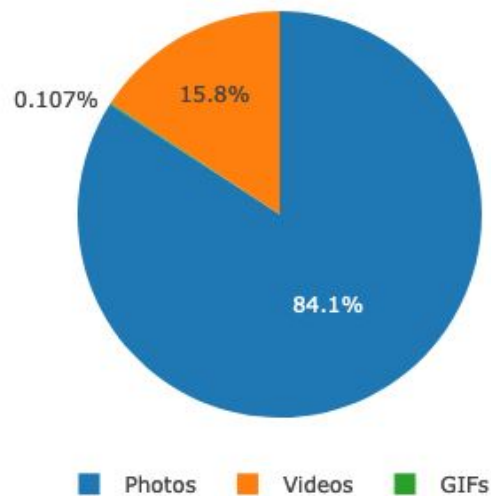
Source: Vicinitas.

As we can see in the tweet shown in figure 25, they don't usually show the faces of the suspects, so we can deduce that they have knowledge of either Spanish or European data protection regulations. However, when they share videos they are not so careful with the faces of the people that are shown in the video.

Figure 25. Screen shot taken @BCNHelpers Twitter account

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Source: Helpers Twitter account.

The main hashtags used by Helpers BCN are the following:

Table 12. Hashtags and number of tweets in Helpers (@BCNhelpers)

Hashtag	Number of tweets
#alertahelpers	718
#alerta	133
#puntcalent	129
#barcelona	39
#urgent	17
#carteristas	13
#raval	10
#ciutatvella	7
#puntscalents	7
#carterista	7

Source: own elaboration.

The relation of hashtags shows perfectly the type of events that they share through their account. Interestingly, they have positioned #alertahelpers as a hashtag for everyone that

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wishes to grab their attention or ask for a retweet. Another interesting data is that on 549 of their tweets, they tag the official account of the PG-ME and on 243 times, they tag the twitter account of the Urban Guard. From Helpers BCN they assure that they receive around fifty alerts every day and that, the most serious, they always check them with the Autonomous Police before publishing them (The Teller Report, 2019). When we asked in the focus groups that if they knew the account, almost all the police officers answered positively.

> "I know the account, it is very propagandistic and scaremonger. However, I do know that the investigative area of the Mossos follow closely the account"[56]

As we can see in figure 25, Helpers BCN used to tag several official accounts such as @mossos, @barcelona_010. @barcelona_cat and @bcn_ajuntament to get their attention. Besides those, they mention the users that tag them and some media accounts.

Figure 26. Accounts mentioned by @BCNHelpers in their last 200 tweets

 Source: Mentionmapp.

Finally, the most-liked tweets show that users are interested in real time events such as an alert of confrontation between a thief and his victims in La Barceloneta neighborhood or the

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[56] "Conozco la cuenta, es propagandística y alarmista. Sin embargo, sé que el áre de investigación sigue de cerca los movimientos de la cuenta" [original quote in Spanish].

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sighting of "mob" of adolescents organized to rob near the Maquinista mall. The second most-liked tweet is about a video on the Catalan TV where they mention their activities online.

Figure 27. Screenshot taken @BCNHelpers Twitter account

Source: @BCNHelpers Twitter account.

As for the use of social network sites by the Catalan police, several police officers considered that it has an enormous potential but that authorities have not taken the risks of using them as other police departments in Europe. One of the officers referred to the importance of Twitter:

> "It's very important to have a good Twitter profile because people are relating in the cyberspace beside interacting face to face. It would be interesting to have a good profile that can get over the fear of interacting with citizens."[57]

According to Mergel (2013), there are three different ways police could use social network sites:
- To share information
- To interact with citizens
- To promote collaboration among citizens and with the police

The PG-ME uses its Twitter account just to share information with the citizens. PG-ME official account @mossos has 543,100 followers and an influencer score of 10/10. The dispersion of their tweets in the last year is as follows:

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[57] "El perfil de Twitter es sumamente importante porque la gente se está relacionando, además de físicamente, por el ciberespacio. Tener un buen perfil que rompa con el miedo interactuar con los ciudadanos es interesante." [original quote in Spanish]

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Figure 28. Engagement timeline of @mossos Twitter account
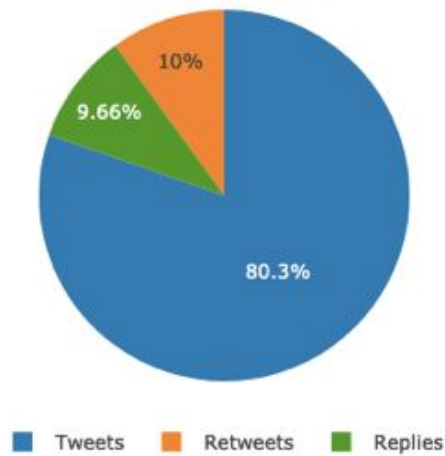

Source: Vicinitas

As we can see, the distribution of tweets is more even than Helpers BCN account. PG-ME tweets around 7 times a day in a hard schedule (between 4:00 and 15:00).

The words that are more repeated on their tweets are:

Figure 29. Word cloud of @mossos Twitter account

Source: Vicinitas

If we highlight the principal words: "public", "aware," "watch," "people", "security", we will find that there are terms that feel closer to community policing vocabulary. This fact could mean that the tweets that are disseminated through the @mossos account are intended to inform or prevent rather than alarm.

As we can see in figure 29, the ratio of tweets from the PG-ME is higher than Helpers BCN, which means the PG-ME curate almost all their SNS copies.

Figure 30. Types of Twitter posts by @mossos

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Source: Vicinitas

As for the types of rich media shared, the majority of files are pictures, but it is innovative that nearly 2% of those tweets contain a GIF. While GIFs are standard on Twitter, they are not usually used by police departments. In this case, we think it should be interpreted as a way to engage with younger stakeholders.

Figure 31. Types of rich media by @mossos

Source: Vicinitas

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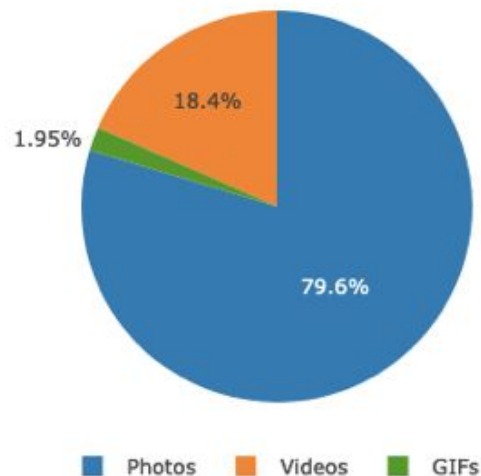
The main hashtags used by PG- ME are the following:

Table 13. Hashtags and number of tweets in the PG-ME account (@Mossos)

Hashtag	Number of tweets
#protecciocivil	104
#volemquetornis	85
#ensfaltestu	71
#vetllempelsnostres	56
#inuncat	42
#nadalsegur	37
#quizmossos	37
#stopbullying	35
#stopfurts	34
#noenpassemniuna	34

Source: Own elaboration.

We can see that the main hashtags in the PG-ME account have to do with civil protection and community policing. As we can see in the following figure, @mossos usually tag other Catalan institutions accounts such as @bomberscat, @transit, @112, @gencat and @emergeciescat.

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Figure 32. Accounts mentioned by @mossos in their last 200 tweets
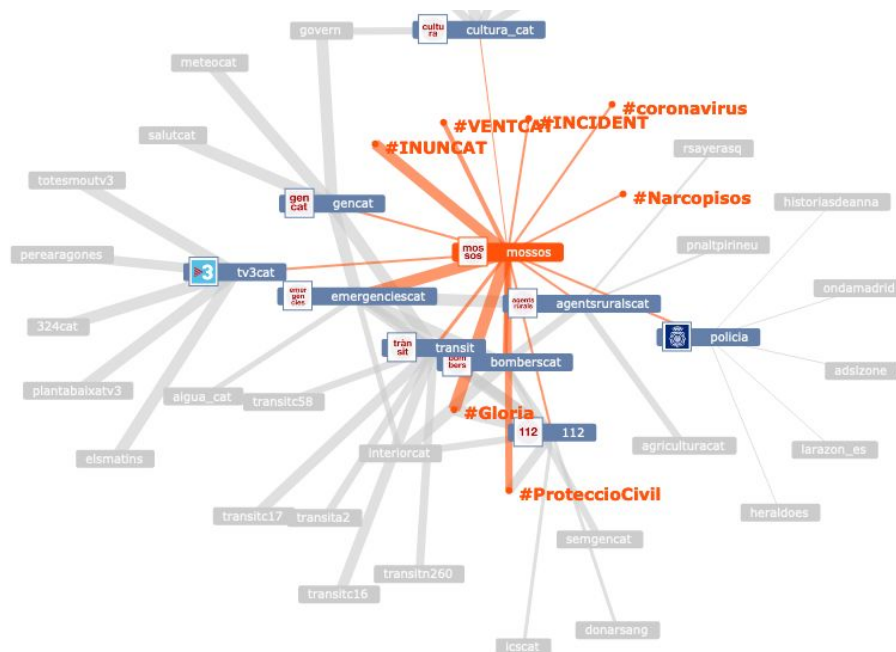
Source: Own elaboration.

The 3 most liked tweets during last year were merely informative. The most liked was a tweet that infomet on an investigation of espionage against the PG-ME, while the second one informs on the arrest of two men that were found with cannabis in Alt Empordà, Finally, they inform on the retirement of Marley, a dog who served in the PG-ME searching for explosives.

Figure 33. Three most liked tweets in @mossos account

Source: @mossos.

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As the comparison has shown, some ICT are being used by different actors without consideration of specific cultural groups involved in security events, without a preventive approach and focusing on suspects' identification based on biased assumptions. Even if PG-ME use of SNS can be improved, there is a considerable difference between the level of engagement they get in comparison to the digilante accounts.

6. Results

Technology-based community policing experiences are still in its initial phase of development. This report focuses on the identification of the current scenario in this field, addressing different aspects of the adoption, implementation, and social impact of these technologies. We also examine the possible social externalities of these processes and conduct a prospection of the future application of ICT in community policing, as well as its logistical and contextual limitations. To address these phenomena in depth, we examine the case of the Catalan community police and study the main stakeholders involved, through various research methods, including surveys, interviews and focus groups. This case study provides very useful information concerning the relations between community police and ICT. In this context, we take into consideration four levels of analysis:

I.   **Descriptive**: technological adoption in (community) policing. It includes the type of technologies used, their goals and forms of implementation.
II. **Institutional**: impact of technological adoption in the policing model. It addresses the role of ICT in orientation policing towards more proactive/reactive, collaborative/unilateral, prevention/social control rationales and goals.
III. **Relational**: the social conditions that favour and are shaped by the integration of ICT within community policing. This domain focuses on the relationships between stakeholders.
IV. **Social impact**: this dimension considers how the integration of ICT into community policing can affect human rights.

Following this conceptual scheme, which reflects the research questions described in the introduction of this report, this section discusses the results of the study.

6.1 The adoption and implementation of ICT in Catalan community policing

New technologies are growingly being adopted and implemented by the police in Catalonia. Beyond the technologies used by the Catalan police forces for their general services, such as databases or integrated platforms, a set of technologies have been identified at the community policing level. Within the domain of the local police in the region, the most used

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technologies are databases, identification systems based on biometrics, mobile phones, social networks, and CCTV. In particular, our survey focused on community police shows that mobile phones (92%), CCTV (60%) and social networks (50%) are the most used technologies. Except for mobile phones, which have been employed over the last 15 years (59,38%), most of the technological solutions have been implemented during the last ten years. Differently, apps, webs, cameras, and drones have been mostly introduced over the previous five years and in a very asymmetrical way, in both geographical and operational terms. Beyond the mobile phone, CCTV and interactions online, new technologies introduced in community policing are not highly developed yet. Besides, no collaborative technological projects based on technology were reported by the interviewed social organizations which reflects that these projects are thought from a top-down perspective.

According to our research results, the main objectives for using these technologies are crime prevention, the coordination of police activity and surveillance. In this context, it should be stressed that communication with the community is considered as highly necessary. Instead, crime investigation and deterrence were the least mentioned objectives. Police officers underline the usefulness of new technologies for their duties but focusing on their convenience for investigation -for instance, in the case of social networks- or their fitness for the identification of suspects or reaction to crime events.

However, the data obtained about the adoption and implementation of these systems show a weak strategic approach, which may hinder to reach these goals in a secure and effective way. Poor planning, lack of impact assessments and inadequate training of human resources are the three most notorious elements derived from the survey:

A. Firstly, strategic plans are missing for most technologies, which are put in place only in 47,2% of cases overall. Only in the case of CCTV, a strategic approach has been taken, including the development of a strategic plan (85,5%). A program consisting of territorial planning and training has been identified in this case, and this fact may be explained by the existence of a unit within the regional government, whose specific aim is to develop this plan and training. Even though these differences in the results about planning across technologies are in line with the most and longer used solutions, the general situation shows a lack of control concerning the analysis of efficiency and security of these systems. Moreover, we detect a contradiction in terms of the actual use and deployment of these technologies. Generally, the surveyed police have a positive view about the quality of their implementation, which was defined as good in more than 50% of all technologies, and assessed as very bad in no cases.

B. Secondly, 60% of the respondents reported that no impact evaluation had been conducted for these technologies after their deployment. Impact Assessments are only frequent in the cases of CCTV and mobile phones (44%). Instead, the

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development of these audits is below 33% for the rest of the technological systems. As discussed in previous literature, developing impact assessments is crucial for the desirability of the systems at stake, but they are not highly frequent. In fact, surveyed police officers stressed multiple problems for each of these technologies, including the following: inadequate training, lack of citizen comprehension, the resistance of the community, inadequate management of the systems, lack of preparation, or resistance of the police forces to the integration.

C. Lastly, half of the surveyed officers (47,2%) indicated not having received any specific education concerning the technologies adopted by their respective units.

In line with the above point, the fieldwork reveals certain confusion in the definitions of community policing. Something similar happens with regard to its forms of intersection with ICT. This ambiguity is particularly notorious from the side of local police themselves. On the one hand, they use to conceive and inscribe technologies traditionally aimed at surveillance, such as CCTV, within community police or categorized as particularly proactive policing methods. This association may be the consequence of a particular understanding of proactive policing framed as prevention outside the conceptual frame of community policing. On the other hand, they see the development of identification and investigation systems based on ICT as an expected and very positive aspect of technological adoption, without paying much attention to its data protection implications. While the police did not mention these issues during the focus groups, they were firmly reported by the interviewed NGOs.

This situation must be analysed in accordance with the causes of technological implementation. Both the survey conducted for this investigation and the qualitative interviews/focus groups reveal a discretional adoption of technology at the local level, which either responds to political instrumentalization or concrete (often isolated) projects. The type of technologies developed by each municipality and their forms of adoption does not seem to follow a systematic approach. This fact can be illustrated in the isomorphic dynamic produced around the [policing app](#), initially implemented by the Hospitalet district, which has been adopted in the following years by 11 municipalities. The "bright and shiny object syndrome" has been stressed in this framework. Reasons behind technological adoption might, therefore, be consistent with the findings of the literature about political instrumentalization in this field. Flexibility and attention to the specifics of each municipality/neighbourhood, which are positive aspects of the current policing model in the region, might have as counterpart discretionality a poor technological police strategy.

6.2 Effects of ICT-based policing in the policing model

The Catalan police model is the result of complex governance-including the PG-ME regional police, the 203 local units distributed across the territory and the State forces, Policía Nacional and Guardia Civil. The PG-ME model consists of territorial and general services. Both types of services demand a certain degree and variety of technologies. For example, territorial services, where community policing is mainly inscribed, require communicational technologies with more intensity than general services do. On the contrary, specialized tech is surely more demanded within general services which include technical and operational support for the police regions as well as specific instruments for various operational purposes. The PG-ME and the Local Police use technologies for a myriad of goals and perspectives, including community police. The same technology (CCTV) can be used for various objectives (crime investigation, public space control) and decisions.

In comparison with other European regions, Catalonia is characterized by a relatively low victimization rate. Furthermore, minor offences have an evident prevalence, and the highest crime rates are highly concentrated in big cities, particularly in Barcelona. By contrast, there is a growing feeling of insecurity among the Catalan population and, particularly, the population of Barcelona. In this regard, as reported through this document, this perception seems not to fit crime variations and the types of crimes committed. Still, a combination of factors such as the political situation in Catalonia, the focus of drug-dealing and offences in some centre neighbourhoods or recent terrorist attacks occurred in the city may play a role in this situation. The above-described complex and very decentralized policing system, as well as its proximity developments, should facilitate tackling this crime scenario and capturing the asymmetries that arise. The territorial deployment and its governance model are expected to offer different mechanisms for ensuring efficient technological implementation as well.

Among how police could use ICT, including intelligence, enforcement, investigation and engagement, the community policing adopted in Catalonia should mainly foster the engagement with citizens (Mossos d'Esquadra, 2019). The PG-ME strategic commanders have historically promoted the use of digital tools in this context (EcoDiario, 2011).

However, community policing is still weak in the region, and its technological-based projects are fragmentary. This research reveals a distance between the programmatic importance given to this approach -and the legal requirements behind it- and its diffuse implementation. While Mossos d'Esquadra and the Local Police integrate community policing principles into their legal and strategic basis, such an approach seems not to be supported by logistics, human and economic resources. Furthermore, while most of the surveyed officers do not observe a clear cut distinction between community and other police duties, the ones focusing on its specifics see limitations in its actual implementation.

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Along these lines, social organizations interviewed for this project have claimed for essential policing services, including those related to "proximity police".

The use of technology in this framework follows the same trend:

A. We have identified only a few experiences that may be placed within the context of tech-based community policing. These experiences are based on the active participation of neighbours online, whose platforms (Twitter or Facebook accounts) are frequently used as an information source by the police. In line with the literature, these experiences are often based on tools aimed at alerting the police about incidents, having prevention mechanisms and functionalities as secondary elements. In general, two-ways communication does not support a more collaborative approach to policing, and it is not embedded either in technological design nor police deployment.

B. Nevertheless, most of the respondents to the survey pointed out that apps and social networks had made them closer to the community, including 66% for apps and 82% for SNS. They also define apps, mobiles, and SNS as proactive tools (53%, 72%, and 70%, respectively). At the same time, many officials stressed the importance of the human factor in community policing. Therefore, the tech-based community policing is seen as an added value, since while police officers consider the direct relationships with the citizens as essential for community policing, most of them also trust ICT to facilitate communication with the citizens.

As in policing in general, technology is expected to be a crucial element in the community policing equation. Prevention, proactiveness, solutions targeted to particular cultural groups and communication with the community might be fostered by adopting digital tools. From a theoretical standpoint, the strategies and methods of local police based on this philosophy may be further developed by integrating digital tools and street prevention technological systems. However, the Catalan model of community policing seems not to have been profoundly transformed by technological adoption. Instead, we identified a gap between calls to introduce technology as a mechanism for building trust among police officers and local actors and its actual forms and degrees of implementation. This poor materialization of community policing principles into the studied tech-mediated policing activities confirms the above-discussed literature.

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6.3 ICT and the relationship between the proximity police and civil society in Catalonia

In terms of collaboration and conflict between stakeholders as well as concerning technological mediation, this research shows:

A. A certain technological optimism from the side of the police, which sees technology as a decisive factor for fostering the relationships within their own organizations and with the social groups at stake.
   a. However, it also shows that dynamism in the technological interaction with local groups has only been achieved in a few cases.
B. A lack of on-going technological or in-person interaction between vulnerable groups or collectives subjected to stigma and the police under a community policing basis. Such relation is not sought in the current state of affairs.
   a. Current policing practices are rejected by many of these groups. This points out to the need of promoting transformations in police practices beyond technological implementation.
C. A demand for further involvement of the police in the street and online policing activity by some collectives, mainly gathering business and neighbours.
   a. Some of these groups develop their digital tools under a punitive and surveillance paradigm, by reporting crimes (mainly street robberies) to the police online. The police check these solutions.
   b. Other groups, but, consider that technologies like apps could be useful for rebuilding their relationships with the police.

At large, this research reveals that technology does not play an essential role in the current relations between the police and civil society. Usual forms of interaction between these actors do not go beyond the frequent use of telephone or web services only to make complaints and inform the police about crime events. On the one hand, this is consistent with the poor development of community policing strategies, actions and activities in many of the big cities in Catalonia. While the Catalan police has a program in this domain and some projects concerning specific towns, most of the cities in the region do not have resources or logistics for moving this orientation forward. On the other hand, the technological dimension represents a poorly addressed aspect of proximity police, although the routine use of ICT in policing is somehow interpreted as potentially useful with community policing purposes. In this section, we discuss how the different stakeholders relate to each other as part of community-police interactions and how they perceive this phenomenon. Among these standpoints, three perspectives should be stressed:

A. Most police officers consider that the use of ICT can make their work closer to the community and more proactive in the prevention of crime. However, they also recognize that links and channels of communication with society could hardly exist

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on the technological level if they do not exist on the face-to-face level. Moreover, they consider that adopting these systems does not necessarily lead to some negative externalities already identified by the literature concerning vulnerable groups, such as discrimination or exclusion of concrete collectives. It all depends on how to adapt these technologies to the community policing model, and not the other way around.

B. However, most NGOs working with vulnerable groups do not understand community policing dynamics as more horizontal and bidirectional. Moreover, many NGOs stakeholders define the use of technology in this context as a risk. This perception is particularly evident for those NGOs gathering vulnerable collectives. They not only point out the inexistence of ICT projects connecting these social groups with the police but consider this possibility as something to be avoided, reflecting the sense of mistrust in the police by collectives traditionally exposed by stigma. The most critical arguments presented in this context are data protection problems, criminalization of irregular migrants or the systematization/ automatization of current punitive practices.

C. On the contrary, some neighbours groups and business organizations consider that integrating new technologies into their relationship with the police could boost its efficiency and facilitate the attention to the diversity of security threats and incidents they face. They also consider that the implementation of specific technologies or apps could foster awareness about the victimization of certain vulnerable groups, who prefer not to interact directly with the police as a result of a risk perception. Under these coordinates, some social groups have promoted alert tools online or systems to tackle crime in their neighbourhoods. Still, when making these proposals, they also stress some risks to be considered, which include the digital divide and differential treatment in the case of the elderly. These specific limitations of technological adoption have also been pointed out by the police. Having more street police is also vital for them.

These three views of technology as mediation within community policing stress the elements brought by technology to the current state of affairs in terms of the perceived policing models. Groups in favour and against technological adoption recognize that for technology to modify community-police dynamics, changes in the current police model should occur. They point out a series of problems concerning the current policing model, such as the lack of trust and officers in the street, which are -or might be- reproduced during technological adoption.

In this regard, when we inscribe this situation in a broader social setting, we observe a certain disruption of social ties that may act as a basis for preventive policing. In fact, social practices and dynamics opposed to the actual enhancement of policing models based on proximity are identified. In this regard, the digital ethnography about current parapolicing activities in Barcelona by "digilance" groups, and the information provided by the

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stakeholders suggest that the feeling of insecurity in Catalonia and Barcelona does not correlate with victimization and crime rates. It also reveals that vigilante groups and citizenry are using their activity online from a punitive approach. The interaction of these groups with the police is therefore carried out mainly online. It should be noted that some officers recognize using these social networks accounts to be informed about incidents.

However, PG-ME and the local police have rejected parapolicing practices and the studied activity of Mossos d'Esquadra on Twitter is in line with the community policing principles. It addresses the interests of local communities from a more interactive, preventive, and targeted approach. These elements suggest that the gap between the programmatic and operational level pointed out above could be reflected in the communication model of the police.

6.4 Social impact of ICT used in Catalan community policing

There is enough evidence on the discriminatory effects of several technologies used by the police, such as algorithmic driven tools, face recognition software or CCTV. Community policing may help to counteract some of these effects by building public trust and enhancing police legitimacy among the citizens. However, other forms of social impact related to the integration of digital tools to police proximity strategies have been pointed out in this context, such as discrimination, hidden surveillance or investigation purposes.

The lack of tech-based community policing programs and systems explains the limited information that we have obtained on their social impact. Our study has examined the perception of the police and the community about these issues. Our results show that, on the one hand, the stakeholders tend to make assumptions based on a biased categorization of technological systems that may be inscribed in community policing. On the other hand, opinions are not always based on previous experiences but in hypotheses about potential developments in this field. However, this research reveals many social barriers for tech-based community police. According to the interviewees, the relation between the police and some social groups, such as homeless people and unaccompanied children, is currently limited or problematic. Issues such as language or cultural barriers as well as previous experiences with specific ethnic groups have been presented as barriers for community policing.

In terms of the actual effects of technologies in the communities involved in proximity actions, the differential impact of ICT in policing activities have been repeatedly pointed out by social organizations working with vulnerable groups. This fact includes current systems implemented to identify and guard these collectives as well as the understanding of further technological developments as a tool potentially aimed at stigmatizing and repressing them. Moreover, NGOs such as SOS Racisme have reported an inadequate use of these systems or

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lack of accountability in their management. The potential problems derived from technological integration include the following: potential automation of current policing practices and the use of collected data for purposes beyond the framework of community policing.

Conversely, from the perspective of police officers, the results of this research show that they are optimistic about the use of technology. Results in both the survey and the interviews with police officers are consistent with the belief that technologies are 'race' neutral, free from bias, and objective in its endeavour to prevent crime and offending behaviours. The survey shows that most police members do not believe that ICT can favour racial, gender, commercial, or religious discrimination. For most officers implementing technologies does not necessarily lead to biases automatically or to assert that there is a trade-off between efficiency and liberties. The most likely mentioned form of discrimination is due to financial motives (14.7% of police members thought so, and 5.8% were uncertain). Surveyed police also do not recognize that ICT can lead to certain biases against vulnerable groups, and none of the surveyed officers considers that ICT can have adverse or very negative effects on vulnerable collectives. As for socially excluded people, 56% remain indifferent. Concerning people with mental or physical disabilities, 55.5% consider there are positive effects. As regards children, 50% believe there are positive effects. Concerning the elderly, 63% think there are positive effects. In this regard, some officers indicate the need to not "embedding" racism in the use of databases or other technologies at hand. For one of the interviewees, technologies can facilitate contact without imposing a burden on liberties or biasing police activities. Conversely, other officers believe that digital tools could put their work in danger.

In this way, the survey suggests that there is a widespread perception that technologies have a positive and very positive impact on communities. A negative effect was only reported for mobiles and CCTV, which are the technologies more frequently used and have been deployed for a more extended period than the others. This fact might reflect that undesirable experiences have happened and, as a result, have changed the internal appreciation of those techs. The survey depicts that social networks are the only technology whose impact is exclusively thought to be positive and very positive for the community. There is no mention of negative impact nor was indifference reported from the sample, which suggests that these solutions are seen as neutral and useful communication mechanisms and may point out to the reduction of community policing to communication. Still, some interviewees have nuanced this approach pointing out that using digital communication still creates fear among the officers.

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7. Briefing of the research conclusions and recommendations

The following four boxes summarize the main findings of this research focused on our case study. They correspond to the implementation of ICT in Catalan community-police, the effects of this technological adoption in this policing model, the transformations favoured by technological adoption concerning police-community relations and the main identified social impacts of this process.

Implementation of technology in Catalan community police

➜ Most used technologies are mobile phones (92%), CCTV (60%) and social networks (50%).
  ◆ Apps are gaining space and are welcomed by neighbours.
➜ Most of these systems have been implemented within the last 15 years.
➜ Main goals behind ICTs implementation are: crime prevention, the coordination of police activity and surveillance.
  ◆ Community policing is also defined as an important goal in this context.
➜ There is a lack of planning (developed in 47.2% of cases overall) in the implementation of these technologies.
➜ There is also a lack of impact assessments (conducted in 40% of cases overall).
➜ Inadequate training of human resources has been identified (53% of cases overall).
➜ Limited achievements of tech-based community policing.

Effects of technology in the Catalan police model

➜ There is a much decentralized policing system in Catalonia (PG-ME and Local Police).
➜ Its legal and policy framework integrates community policing principles and goals.
➜ Still, the implementation of this approach does not show neither autonomy nor clarity.
➜ The use of technology in this context is growing.
  ◆ Police see it as an added value and a way to get closer to the community. They consider apps (53%), mobiles (72%), and SNS (70%) as proactive tools.
  ◆ However, existing technological projects and experiences mostly reveal a reactive approach to crime.

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→ Technology does not play an essential role in the current relations between the police and civil society.
→ Police officers tend to have a favourable view of further technological adoption and development.
    ◆ They consider that it can be useful in community police.
    ◆ Some social collectives are also in line with this view.
→ Tech-mediated relations between police and communities have been achieved in some cases, including the reported Seguretat Ciutadana- L'H, Topo and Santa Coloma es Smart.
→ However, these tech-based relations rarely exist between vulnerable groups or collectives subjected to stigma and the police under a community policing basis.
→ Moreover, punitive and stigmatizing approaches to policing based on technologies are gaining space among citizens.

Social impact of ICT used in Catalan community policing

→ Limited technological relation with local communities, which might minimize both negative externalities and positive aspects of implementation.
→ Discrimination and differential treatment based on ICT as part of police action are reported or problematized by social organizations working with vulnerable groups.
→ Instead, technological optimism is the predominant view of the police, who do not identify negative impacts over vulnerable groups nor data protection issues.
    ● By way of example, 56% do not see specific negative impacts on socially excluded people.
    ● Only mobiles and CCTV are seen as problematic from this standpoint, which is consistent with the most deployed technologies.

The following table lists the policy recommendations derived from this research. They are oriented towards further aligning regional community policing using technologies with both the purposes of this policing orientation and ethical implementation of ICT. Recommendations are organized according to three of the relevant levels of problematization established above.

Dimensions	Recommendations
Implementation of ICT in Catalan community police	- Establish a preliminary assessment of **local needs**, evaluate the need for technological adoption and **develop implementation plans** for each technology based on community policing goals. - Conduct **training** aimed at preparing officers managing each of these new technologies before implementation. - Extend the use of apps under these coordinates and taking into consideration **successful experiences** such as the App of citizen security "Seguretat Ciutadana- L'H". - Conduct **social impact assessments** of each technological project establishing a list of indicators based on community policing goals, including further interaction with the community, most preventive actions achieved number of users, frequency, type of interaction and false negatives.
Effects of technology in the Catalan police model	Establish **clear guidelines** for the use of technology within community policing, including references on its normative boundaries, specific goals and strategies.
ICT and the relationship between the proximity police and civil society in Catalonia	- Develop a **public campaign** to show the **advantages** of establishing a more horizontal relationship with local communities through ICT. - Develop a **public campaign against para-policing** practices and stigmatization online in Catalonia. **Inform the community** about the aims and achievements of technological implementation and its rights in regards to it. - Take **existing experiences** as a platform for further developments in the field address to socially excluded groups. **Monitor compliance** with community policing goals and community expectations. Such a task should be conducted jointly with the involved organizations and local communities.

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