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Between formality and informality: A critical study of the integration of drones within the Neuchâtel police force[1,2]

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Abstract. The use of police drones in Switzerland has significantly increased since the early 2000s. However, Swiss citizens remain largely uninformed about the multifold uses of drones by the police. Whilst many public institutions today advocate more transparent decision-making processes in security matters, this paper demonstrates that the acquisition of police drone systems results from a set of interdependent socio-technical mediations that are inherently opaque, and that bring together both formal and informal mechanisms. Drawing upon qualitative interviews and observational research conducted with Neuchâtel police (Switzerland), this analysis highlights the importance of the practical and relational mechanisms that interlink various public and private actors with the objects in question. This raises a series of informality issues surrounding the acquisition of police technologies more generally.

Keywords: Police drones, (In)formality, transparency, bricolage, switzerland, socio-technical systems, mediation, acquisition, integration

Key points for practitioners:

- The integration of drones into the police requires both formal and informal processes. Informal aspects are often downplayed by the police, which runs against the possibility of a proper democratic debate, because the population cannot be aware of all the issues involved.
- The integration and use of drones should be carefully prepared and thought-through by the concerned authorities. Otherwise, the technology risks to remain misunderstood and unused.
- A new security solution, such as drones, is not simply a form of knowledge, or a mere technology, but rather a dynamic assemblage of individuals, ideas and objects which are assimilated and reproduced through multiple and varied channels.

1. Introduction

The police are one of the public services that are most affected by the development of digital technologies (Dupont, 2004). Drone systems are a participant in this development, which is taking place on an international scale. In fact, in Canada, the United States and the UK, these flying devices have gradually been integrated into police institutions and have supplemented the existing security arsenal (Byman,

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2013: Bracken-Roche, 2016; Salter, 2014). In Switzerland too, more than ten police forces have made use of them since the early 2000s (Neuchâtel Police, 2015).

Fundamentally mobile (Graham & Hewitt, 2013) and flexible (Blackmore, 2005; Crandall, 2015), this new tool nevertheless raises many important issues around the appropriateness of the financial choices and investments it requires, and also around its social acceptability. As demonstrated elsewhere (Klauser et al., 2017), the use of drones can serve many and varied purposes, ranging from aerial observation and surveillance to searching for missing persons and tracking down vehicles. It is therefore a question of defining, in social, legal and political terms, how and for what purposes the technology can be used, and ensuring a certain control over the specific police practices which result from it, in order to limit the power it wields. This requires a certain transparency and formalization of the acquisition procedures and practices for using the technologies deployed (Weaver & Boissier, 2017).

The publication of official reports by police institutions tends to imply that new digital technologies are introduced within a framework of precise formal protocols, ensuring administrative and democratic control (Vitali-Rosati, 2014). The video protection programme, published by the French Ministry of the Interior[1], and the Geneva Police *Blockchain* system[2] (Geneva Police, 2018) are good examples of this. Both present detailed action plans and attempt to meet societal demands for transparency in the use of digital technology. However, from the point of view of the specific mechanisms and processes that facilitate the installation and use of such devices, are such action plans met? Are police practices in this regard sufficiently transparent to citizens?

This paper addresses this issue. By empirically studying the mechanisms involved in the acquisition of a new drone system within the Neuchâtel Police (PONE), it demonstrates the interactions which underpin the integration of new police technologies. This study covers three major aspects, relating to (1) formal and informal practices, (2) public and private interests and (3) practical and technical expertise, which mediate current developments in the field of digitized policing.

Beyond these three main aspects, our study considers more general issues linked in particular to transparency and to the legislative framework surrounding the use of police drones. In Switzerland, the police remains somewhat discreet with regard to their acquisition of drones, and there is a lack of transparency with regard to the legal bases on which drones are used. Thus as these devices grow in number and take their place alongside fixed video surveillance systems, the public is demanding better information about the increasingly frequent use of aerial surveillance by the security forces (Pedrozo & Klauser, 2018; Pedrozo & Klauser, 2019).

In order to address the above issues, we first present the field under study, the methodology chosen, and the theoretical position adopted. Our analysis is then divided into six sections, which allows us to follow the journey of these devices from early initiatives in the field right up to the acquisition of a new high performance drone system in December 2018.The first stage relates to the first informal uses of drones by the PONE. The second stage concerns the formalization of the use of drones and the new acquisition project through the establishment of a cross-functional working group made up of several police sub-entities. The third stage focuses on the predominantly informal mechanisms through which the police have connected with public and private actors in to acquire new knowledge about the technology, and the fourth stage examines the mechanisms related to the discovery and practical appropriation of the technology, leading to the fifth stage, the working group's final report, and the sixth, the acquisition of a new device. These different stages invite discussion of the role and place granted to informality, as a practice and a form of negotiation that is essential, but problematic, for carrying out police projects. This paper will demonstrate that this informality develops in particular spaces and produces particular spaces (such as meeting places, experimentation grounds, etc.) (McFarlane, 2016).

It should also be noted that, in reality, the stages we are analysing overlap and do not follow each other linearly. They are distinguished and addressed successively here purely for analytical reasons and to give structure to the paper.

2. Methodology

Our analysis is based on qualitative empirical material from an in-depth field study with the Neuchâtel police (PONE), carried out between 2015 and 2018. The choice of this case study is founded on multiple arguments. Firstly, it should be noted that the PONE is the first French-speaking police force to have acquired a drone system, which underlines the importance of the technology in this police force, and means the field is particularly rich for detailed study.

Furthermore, the interest of this case study stems from both the importance and the particularly marked level of officiality granted by the PONE to the process of reflection around drones. This is represented in particular by the establishment of a working group (GT-Drones). The authors of this paper were able to join this working group (through participatory observation) during its meetings and on field visits. The group was established with the objective of reporting on the PONE's drone needs and is composed of six members from different departments: the judicial police, traffic police, accident police, the security detail for clock-making companies, forensics service, and the Intervention Group.

Finally, our interest in this field of study is justified by the emergence of a more global reflection on police use of drones in Switzerland, which currently persists within the Conference of Cantonal Police Commanders of Switzerland (CCPCS). While in Switzerland, the acquisition of new technological systems falls within the jurisdiction of the cantonal police forces, we can see, for the first time, a real attempt at coordination between various cantonal police forces in this matter. Our field study was therefore carried out at a key moment in the use of police drones in Switzerland.

In short, we seized the unique opportunity to follow the police in reflecting fully on the use of a new digital technology with significant security, political and administrative issues. The PONE gave us access to all police meetings through which we combined three complementary qualitative methods: semi-structured interviews, field observation and document analysis.

In total, around ten semi-structured interviews were carried out with GT-Drones members in 2016–2017. They were recorded and transcribed in their entirety. Additional information was requested from GT-Drones members via email in 2018 to update certain information.

We also carried out field observations during GT-Drones sessions and police meals, as well as on site visits for demonstrations, training and police engagements. The aim of this method was to study in detail and depth the formal and informal exchanges between the various public and private actors – including other cantonal police forces in French-speaking Switzerland, and many other Neuchâtel public services, such as the archaeology and fire service, as well as private drone vendors – involved in the process of deciding on and acquiring the new drone system.

Finally, an analysis of documents and police reports was also carried out. Overall, these documents summarize the main decisions taken during GT-Drones sessions. They thus constitute a rich body of material, often intended fr upper management within the police force.

3. Theoretical framework

Similarly to the works by Akrich and Méadel (1999) and Latour (1987), our paper takes a research position which approaches drones as a socio-technical system, combining both social (pilots, specific

forms of work organization, etc.) and technical aspects (the machine itself, remote control, image analysis programmes, etc.). This amounts to considering drones not as amorphous and inert objects but rather as a dynamic organization resulting from multiple and complex processes and media coverage (November et al., 2003). In other words, a drone does not work and does not produce anything *per se*. The potential offered by the technology must be actualized in the practices and knowledge of its users. Taking these observations as a base and linking them with the issue of transparency, it is therefore necessary to study the role of the multiple "actors" (Latour, 1993, p. 33) which intervene in the introduction and development of a socio-technical system, such as drones, to understand how it works and its effects. This is precisely the aim of this paper.

By addressing this issue, our study forges links with two major bodies of literature. First, our interest in the mechanisms that mediate police thinking around drones is inspired by, and contributes to, the growing literature on mobility and learnings on new public policies, particularly in urban areas ("urban policy mobilities"; see McCann, 2011; McFarlane, 2016). This trend highlights how ways of doing things circulate from one place/institution to another, focusing on mechanisms and locations (events, conferences, site visits, seminars, etc.) through which actors meet, exchange, bond and learn (Larner & Le Heron, 2002, p. 765; McCann, 2011).

Second, our analysis dialogues with studies around the concept of "institutional bricolage" (Cleaver, 2002; Cleaver, 2017). Inspired by the work of Douglas (1987) and Giddens (1987), this notion forms part of a theoretical approach that regenerates our way of thinking about informality and its role in institutional contexts. Institutional bricolage is defined as a process in which individuals – both consciously and unconsciously – build their own mechanisms and resources (social, cultural, political, emotional) based on the normative framework, as well as existing relationships with authority. Thus, this approach highlights institutional contexts in which individuals are driven to "improvise" (Cleaver, 2002) and develop practices that go beyond, and complement, the forms of authority and cooperation already in use (McFarlane, 2016, p. 67), resulting in new collective norms. Finally, this approach proposes thinking of informality as a fundamentally inevitable practice, which can not only be exercised in particular spaces, but which produces spaces in which the boundaries between the formal and the informal vary and become blurred (Cleaver, 2002). The result is a singular intermingling between the informal and formal practices that make up the very essence of this institutional bricolage.

By contributing to these two major thematic and conceptual bodies of literature, we therefore aim to analyse the integration of a new technology (drones) within the institutional context of the PONE as a process of institutional bricolage, in which formal and informal mechanisms combine and overlap, giving rise to many learning and innovation practices, involving significant challenges around transparency, administrative protocols and democratic control over police power.

4. Analysis

4.1. First police drones, first institutional bricolage

The first drones used by Neuchâtel police owe their presence to three police officers who – fully independently – became interested in developing the use of this technology within their respective services.

The first PONE drone was acquired in 2012 within the Intervention Group (GI) and was mainly used for resolving offences relating to narcotics, as well as hostage-taking (interview with GI police officer, 20/06/2016). This drone was introduced under the leadership of an officer with an interest in technological

advances in the police domain (Pedrozo & Klauser, 2019). The particularity of this initiative therefore lies in its personal and individual nature. As it was a purchase that did not have major budgetary consequences, the acquisition of the drone bypassed official procedures, which accelerated procurement. This is reflected in the way the following police officer talks about the acquisition of a drone:

> "We bought it on a bit of an informal basis because there was money left over, but it was not effective for the intended missions. The drone stayed in the cupboard" (Police Officer, Intervention Group, 20/06/2016).

The second Neuchâtel police force drone was introduced by an inspector within the judicial police. This inspector was interested in drones because of their potential to produce aerial images of inaccessible sites, and gradually acquired solid audiovisual and photography skills, which led him to build his own device. Based on his personal knowledge, he then deployed his drone for PONE purposes.

> One Sunday we had a body recovery operation in Lake Neuchâtel [...]. The duty officer, who I know well, called me and I said over the phone, "Listen, if you like, I've got my drone in the car." [...] so I joined the body recovery by the lake, and I launched my machine (Inspector, Judicial Police, 06/07/2016).

The above quote demonstrates a particularly notable scenario: transferring the use of a technology from the private sphere to the professional sphere, as the drone was purchased for personal reasons and then, at the decision of the police officer in question, used in the context of a professional activity. By thus bypassing the formalization of the technology within not only the police themselves, but also civil society as a whole, this practice did not allow for transparent use of the technology, or any possible democratic control.

The third PONE drone owes its arrival to the Head of the Technical Accident Group. A keen builder of model aircraft, the latter flew drones for fun with his family. However, his technical and practical skills went beyond mere sporadic domestic use. In 2013, when the annual budget allowed for the purchase of a drone, he took more formal steps to acquire a new device, one which was specifically adapted to the activities of his service:

> Yes, I do it privately, which helped to push it, for work, because I was the only one in the group who knew anything. [...] I was the one who took responsibility for training the group as well, because I had some knowledge (Head of the Technical Accident Group, 28/06/2016).

The process of acquiring this drone followed a more formal path than that of the two previous ones. In this third scenario, the purchase of the drone, as well as the implementation of pilot training, therefore followed a series of visible, institutionalized procedures, at least internally.

In short, the three examples reflect the transfer of knowledge between the private and professional spheres, and therefore the first institutional bricolage relating to the integration of drones within the PONE. In fact, this first phase of institutional bricolage creates a complex network of varying degrees of formal and informal practices that underpin certain police missions, as well as training courses associated with the use of drones.

However, we observe that the importation of private materials and knowledge into the professional sphere also has limitations and difficulties in terms of appropriation by users, security, and even legal and administrative issues, both for the institution concerned and for the importer himself. The result is new technological solutions developed partially outside of the more cumbersome official procedures often established in public security environments. These observations thus echo the comments of McFarlane

(2016) and Cleaver (2002) who demonstrate how formal and informal practices combine and are sometimes necessary within established professional structures to make it possible to implement projects. Let us now look at how these first knowledge transfers were communicated and formalized in the acquisition of a new drone system, thus generating a more institutional reflection within the PONE.

4.2. Establishment of a drones working group

The first signs announcing a shift towards the officialization of the use of drones at the PONE were observed during the establishment of a drones working group (GT-Drones) in 2015. This was the result of a mandate given to the deputy director of the judicial police to set up a working group with the objective of "guaranteeing strategic and academic monitoring in relation to drones as a technical means of investigation, ensuring coordination with other cantons, to centralize and evaluate requests for new devices and software as well as to propose the acquisition of new devices" (Police Neuchâteloise, 2016, p. 2). Five police officers were therefore recruited internally to define the need for police drones (taking into account the advantages and risks resulting from their use), reflect on possible partnerships, and verify the legal framework (ibid. 3).

After it had been working for more than two years, having given the matter full consideration, GT-Drones came to the decision to acquire a new device. The chosen device had to meet very specific criteria: it had to be able to be engaged very quickly, and in difficult weather conditions, day and night. It had to be technically reliable, easily manoeuvrable, capable of carrying appropriate equipment for the mission, and have a long battery life (over fifty minutes). Also, it had to be able to carry out reconnaissance missions, people searches, observation missions, crisis management, communication, and provide back-up to other Neuchâtel state services (Fire Service, Civil Engineering Service, Energy and Environment Services, etc.) (PONE report, 30/11/2016, p. 14).

As we demonstrate below, the processes of reflecting upon, acquiring, and commissioning a new PONE drone in December 2018 were mediated by three main types of mechanisms. We analyse these in the remainder of this paper by focusing first on the mechanisms for establishing relationships between the public and private actors concerned by the technology. We then examine the practical learning mechanisms that arose during times of observation, training and piloting of drones. Finally, we focus on the final stage, that of the final report, which led to the acquisition of a new device. Structuring our analysis in this way makes it possible to closely observe a series of practices and informal exchanges that become increasingly formal and official.

4.3. Establishment of relationships with external actors

Following the first GT-Drones session on 2 June 2015, a series of steps allowed the members of the group to move forward in their reflections and to become familiar with the drone systems available on the market. These steps involved various tasks, distributed among group members according to their skills and interests. Initially, they were mainly informal and involved developing and drawing upon staff networks.

Based on their knowledge and expertise, members of GT-Drones contacted key players about their personal use of technology (colleagues and other personal and professional contacts), in addition to the drone market (salespeople, trainers, associations, etc.). This fundamental step mainly involved making contact through telephone calls, which is considered here to represent contact at an informal level, insofar as it deviates from more official sources of information such as databases, and police reports: "Yes, the phone calls are informal. It's what is then transmitted back to GT-Drones that matters. Contacts to make,

knowing where they are [. . .]. It's easily doable, but it's often quite informal" (Police officer, Operation Group, 13/06/2016).

This first source of information is joined by a second source, which is just as informal. It concerns conversations conducted by members of GT-Drones with their family and friends: "We discussed this drone project during dinner with friends" (Inspector, Judicial Police, 06/07/2016).

Drawing on personal networks proved to be crucial to the process of reflection and decision making. In particular, it made it possible to obtain information quickly and spontaneously, thus building a reservoir of information which the majority of our interviewees call upon. However, in parallel to these informal occasions, semi-formalized occasions also occurred in the form of quasi official drone demonstrations, which the police sometimes attended by chance: "I was there by chance [. . .], I benefited from seeing it but really it was just another demonstration" (Police officer, Intervention Group, 06.20.2016).

This excerpt illustrates a particular case, that of an unofficial demonstration by a drone manufacturer to which the GT-Drones members were not initially invited. Our interviewee participated in this demonstration because he happened to be passing by the PONE building at the time, and this opportunity allowed him to acquire important new knowledge for his working group. While in the previous examples, our interviewees had to reach out to their networks and actively seek information, the reverse happened here. In this case, the information came directly to our interviewee. Today, we see this type of situation becoming increasingly common given the wave of builders and manufacturers of security technology systems, who canvass their potential customers and therefore influence the way in which new security technologies are diffused and standardized on a global scale (Klauser, 2009). Here, this phenomenon takes the form of a spontaneously organized demonstration within the police itself, but it is not uncommon for information to be disseminated through other more formal mechanisms, such as large international fairs, conferences or even publications dedicated specifically to the police domain.

Private companies are not the only players that the PONE calls upon. Public actors in other fields such as archaeology, the fire service and hospitals were also approached. These potential partners can become sources of information with complementary interests, skills and resources (human, financial and digital) from which GT-Drones members can benefit. In this case, the idea was to bring together public entities interested in the acquisition of a new drone, in order to facilitate economies of scale, and benefit from new knowledge channels, as well as to exchange expertise.

While the relationships with private actors are often based on informal practices, emanating from personal contacts, contact with public actors generally goes through more formalized channels, following standardized written procedures. This way of proceeding makes the exchanges more transparent, insofar as all collaborators linked to the GT-Drones project followed the developments in the potential partnerships. While this strategy of bringing in other actors can be fruitful, no partnership was able to be achieved.

By analysing the linking mechanisms, we thus see the emergence of certain facets of institutional bricolage (Cleaver, 2002; McFarlane, 2016) illustrated by the emergence of new relationships between our interviewers and other public and private actors. It is therefore interesting to analyse the form and content of the discussions and negotiations that take place. They suggest the interweaving of practices (e.g. presentations, requests), networks (e.g. personal) and more or less formal procedures which play an important role in the GT-Drones decision-making process.

4.4. Practical appropriation

After getting in touch with other public and private actors, the members of GT-Drones moved on to practical learning about drones, through observation, piloting or training. This phase consists of a series

of key mechanisms, channelled towards an end goal, that of preparing the final report formally requesting the acquisition of a new drone for the PONE.

The initial stage consists mainly of informal meetings with private actors and relatively unplanned demonstrations in order to see and test drone systems acquired by friends: "My colleague [GTA police officer] or I, we would phone friends, 'Can I come and look?' We didn't formalize it, but there you go." (Police officer, Operation Group, 13/06/2016).

Here we can see the importance of personal networks, as well as those built with colleagues from other cantonal police forces, which not only allow GT-Drones members to obtain information, but also to take greater ownership of the technology. The advantage of these informal meetings is that they offer a flexible framework outside police premises, and thus promote free discussions, exchanges and concrete links between the actors concerned. Once these links have been forged, informal meetings give rise to more formal occasions, such as drone demonstrations offered to GT-Drones members: "I hereby inform you of a demonstration of the latest version of the Skyranger drone, which will take place on 22 April. This demonstration is organized by the Vaud cantonal police" (Email from the Head of GT-Drones, Neuchâtel Police, 20/04/2015).

This quote refers to a key moment that we were able to observe: the official demonstration of a new drone system, organized for the Vaud police force. Beyond the interest of discovering new offers within the market, the aim was to set up a face-to-face meeting to promote a certain social proximity through which relationships could be forged, as well as exchanging technical and practical knowledge.

In addition to this type of demonstration, there are official meetings with other public actors responsible for territorial security. These take the form of cross-border missions with the Swiss army, as well as Swiss and French customs officials. During these events, the Swiss Air Force drone systems (ADS 95) are deployed, allowing the PONE to discover how other public authorities use their security systems.

This type of meeting responds, in particular, to the context of contemporary globalization, marked by an increase in mobilities which encourages the development of this type of collaboration to manage human and non-human flows using new technological resources. Despite the formal nature of this meeting, it is clear that the security system deployed has not been disclosed to the general public. However, the Swiss population would like to be better informed about the use of drones for security purposes (Pedrozo & Klauser, 2018).

There are three main takeaways from the above. First, it is worth reiterating the leading role of private and public actors in the reflection process of GT-Drones. Second, we note the implementation of military demonstrations and engagements allowing GT-Drones members to acquire essential technical and practical knowledge for their project. Third, it should be noted that the practical mechanisms analysed are part of the continuity of the process of appropriation of the technical object itself. In this sense, it was practising with the tool itself that enabled the GT-Drones members to acquire essential familiarization with the object before drafting the final report.

subFinal report

The relational and practical mechanisms analysed above make it possible to consider the last step of GT-Drones' reflection process, which involves making decisions that form the heart of the final report sent to their superiors, as well as to the politician responsible for validating (or not) the annual budget for police security equipment. To achieve this fundamental step, the document writer summarized the more than two years of work on which the request for a new drone system was based: "The drone is an essential operational resource for the police. [. . .]. The working group therefore considers the acquisition of the equipment to be appropriate" (Excerpt from the GT-Drones final report, Neuchâtel police, 09/07/2017).

Although we cannot include the entire report in this paper, our interest in this document is founded on its particularly formal nature. Its format is characterized by a thoughtful argumentative structure,

standardized writing, as well as a neutral and impersonal tone. Similarly, the content of the report focuses mainly on the official steps taken previously, which reflect the formal meetings with private and public actors, possible uses of police drones, as well as the legislative framework in force. To this end, we note that the issue of the legal framework had been mentioned very little within GT-Drones. It was never discussed collectively, and is only mentioned in the final report, and then in a succinct manner:

> The Neuchâtel police force is legitimized in the use of drones by the provisions of theLPol (Loi sur la police [Swiss Police Act]) (Art. 101) with regard to public security in general, and of the CPP (Code de procédure pénale [Swiss Criminal Procedure Code]) (Art. 282) with regard to investigations carried out in the context of criminal investigations. These provisions do not exempt the police from observing the rules imposed on citizens, but they do allow them, depending on the circumstances, to reduce constraints such as, for example, flying over prohibited spaces (Police Neuchâteloise, 2016).

The legal framework is, in fact, given little focus or visibility either internally or among the Swiss population. While these aerial surveillance devices redefine security governance and require provisions adapted to these different uses and the data that they collect, we ask ourselves to what extent greater transparency by public authorities would be beneficial, or even desirable, for public institutions, as well as for the citizens themselves.

While the focus on *formal* practices in the final report in question is to be expected, it is the place given to *informality* that merits discussion. Indeed, the absence of identified informal practices throughout this document is surprising. By way of example, we note that this document refers neither to the informal uses by the inspector from the judicial police nor to the use of the GTA officer's private drone for training purposes. However, these practices (McFarlane, 2016) were of great importance in the introduction of drones to the PONE. It would therefore be more fitting to acknowledge that police officers' interests, knowledge and personal networks had a significant influence on early uses of these devices by the PONE.

In addition, discussions and informal demonstrations associated with some GT-Drones members have been left out of the report. However, these are fundamental information channels representing spaces of exchange through which the GT-Drones members acquired practical and technical knowledge justifying the acquisition of a new police drone. Therefore, although the report is the result of formal and informal practices, the opportunities arising from informal practices are not reflected in this final document. They were, however, fundamental in the process of acquiring the new drone system in December 2018.

4.5. Purchase of a new drone system

In order to fill the gaps of its three predecessors – presented at the beginning of this paper – a new drone system costing more than 50,000 CHF was acquired for the PONE in December 2018. According to our interviewees, from a technical point of view, this device was chosen for its battery life (approx. one hour), its ability to carry a load (e.g., a gun or a first aid kit) and its resistance to certain "difficult" weather conditions.

While this purchase clearly marks the transition to a new high-performance aerial surveillance system, since 2018, there have been no press releases about the acquisition of the new drone system, nor about the testing and commissioning thereof since 2019. The new drone has therefore entered the PONE, as well as the airspace over the Neuchâtel territory, with discretion. The press, for its part, has focused on the anti-drone devices owned by several Swiss police forces with the aim, for example, of intercepting illegal drone flights or monitoring demonstrations. In fact, the citizens of Neuchâtel, and more generally of Switzerland, are better informed about the fight against the illicit use of drones (especially private ones) than about drone use by law enforcement agencies. However, police drones are redefining aviation

security practices resulting in the collection and storage of thousands of pieces of digital data on Swiss territory and citizens. New observation, surveillance and people search missions, for example, are being tested and carried out. The acquisition of new police drones also catalyses new partnerships with public (hospitals, archaeological and regional planning departments) and private actors (suppliers, vendors, servers, etc.). But, again, no information is made available to the general public.

Our analysis first reveals that informality is a common practice, one that is often recognized, and is possibly necessary, since it plays a considerable role in the advancement of projects, such as during the purchase of a new drone system. However, informal practices and their usefulness are rarely mentioned and valued in the official project stages. If we consider informality to be a positive factor in project development (McFarlane, 2016), we can ask ourselves whether it should be encouraged and formalized in institutional strategies and among the general public. Although the uses of the new device are formalized internally, it seems obvious that the PONE is not being transparent towards citizens. Questions therefore remain unanswered: how can we publicly debate the relevance and social acceptability of a new aerial observation technology if it is introduced informally and without a desire for transparency? How, specifically, can we ensure that the resulting police practices are socially desirable? How is citizen (lack of) confidence in the police likely to evolve in the future in such a context?

5. Conclusion

Mobilizing an approach rooted in network actor theory and oriented around the concept of institutional bricolage, our analysis revealed a series of mechanisms – ranging from (1) personal initiatives, to (2) connection mechanisms and (3) practical situations – which explain, through their interactions and interweaving, the journey to the Neuchâtel Police drone. Throughout this process, as demonstrated, formal and informal practices complemented each other, paving the way for the acquisition and police integration of new security technology. Of course, this study presents only a preliminary sketch of some of the mediation mechanisms relating to the acquisition of new digital technology in the police field. Other mechanisms – such as debriefing sessions or innovation fairs – could be considered to enrich the panorama presented here. Nevertheless, in view of the existing literature on the issue, there are three major learnings to highlight.

First, our study shows that the acquisition of a new socio-technical system in the service of the police, such as a drone, does not arise from a mechanical succession of linear processes and distinct stages, but must be understood as a set of interdependent processes and pathways organized in meanders, which overlap and complement each other. For example, the practical mechanisms shaping the integration of the technology were initiated long before any kind of formal recognition was given to the drone issue through the establishment of the official working group. This finding is of major importance with regard to the possibilities for public debate around the acquisition and use of digital police technologies. In short: how can we publicly debate the integration of a new security tool which has, in fact, already been in use (more or less informally and sporadically) for a very long time?

Secondly, our analysis shows that the process of integrating drone technology within the PONE is the result of a significant number of socio-technical mediations that combine both formal and informal aspects. Conversely, formal aspects implicitly involve informal exchanges that help to shape the system's capacity such that it can respond to the specific needs of the police officers in question. While this may be inevitable in the police environment under study, in causing a series of key mechanisms go "under the radar", it considerably complicates the possibility of democratic debate, because it is not possible for the wider population, and even the regulatory authorities, to be aware of all the issues involved.

Thirdly, from a more conceptual point of view, this study reaffirms that the integration of a new technological solution relies on a wide range of relational mechanisms with multiple private and public actors, as well as practical relations with the socio-technical object in question. In this light, a new security solution, such as drones, is not simply a form of knowledge, or even a sophisticated technology, but rather a dynamic arrangement of individuals, ideas and objects (repositories, directives, legal documents, plans, etc.) which are assimilated and reproduced through multiple and varied channels. Some of these are identified and studied as part of our analysis, which thus paints an exploratory and composite portrait of the transparency challenges that result from them.

How then can the increasing digitization of the police environment be made more transparent for public debate? Current research is lacking with regard to these types of questions, as cautioned by many societal actors. It therefore seems opportune to request, in future, a more in-depth examination of the potential of different modes of democratic regulation and control, which will make it possible to specify the framework conditions under which the increasing digitization of the police can develop.

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