Law, order and information technology: Crime report system at the Peruvian National Police Corps

by

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ABSTRACT

In this research-in-progress, we provide the theoretical underpinnings of a sociotechnical perspective for the analysis of a crime report system to be deployed across a number of police stations in Peru. The conceptual elements of actor-network theory inform our research. The tenets of grounded theory will guide our methodological procedures.

Keywords:

Socoiotechnical systems, actor-network theory, human agency, crime report system

INTRODUCTION

Technology cannot be detached from society as much as society cannot be detached from technology. They both need to be analysed in a systemic, holistic fashion to render a plausible explanation of the world. The implementation and use of technology by individuals and social groups set in motion a complex set of transformations that redefine routine activities and create new possibilities, sometimes in a rather unpredictable way.

The intricate nature of the relationship between the technical and the social has been implicitly, yet vigorously, articulated by Heidegger [1]: "the essence of technology is by no means anything technological" [1]. This statement reflects the underlying non-technologically deterministic assumption that guides this study. This study presents a theoretical discussion that will inform the subsequent empirical work on a recently deployed information system in a number of police stations in Peru.

The goal of this research project is to analyse the role of human agency in the presence of information technology in a rather vertical organisation. Instead of following a hypothetic-deductivistic approach, we adopt an inductive thinking one in order to understand and reveal

hidden patterns of a complex process of interaction between humans and information technology. The research questions we want to answer are worded in the following terms:

– *How human agency is manifested through computer-mediated work practices in a hierarchical organisation?*

– *How and to what extent can existing structures subsume human agency in the work place?*

This paper is organised as follows. In the next section, we discuss the notion of sociotechnical systems and the role of human agency from the perspective of actor-network theory, which provides the theoretical foundations for this research. In the third section, we describe the unit of analysis for this research. An overview of the Peruvian National Police Corps, including its Telematics Directorate, is presented, based on publicly available information. In the fourth section, we outline the methodological procedures we plan to apply for collecting and analysing data in this study. Finally, we describe the expected contributions and next steps in completing this research-in-progress.

THEORETICAL UNDERPINNINGS

In this section we present the two building blocks that will inform our subsequent analysis. First, we disclose and explain our sociotechnical approach in the study of the interplay between technology and society. Second, we discuss the agency attributes of human actors when using information technology in the workplace.

A sociotechnical system

"We are sociotechnical animals", declares Latour [2]. This vigorous statement explicitly acknowledges and emphasises that every instance of human interaction is neither purely social nor purely technical. Social practices entail interactions between humans and technology [3]. Symmetry between humans and nonhumans is the fundamental assumption of actor-network theory, a school of thought initiated by Callon [4] and Latour [5]. Adopting a symmetrical approach when studying humans and nonhumans requires observing them as a unit and at the same time scrutinising the complex system of interactions that make them a unit [6].

Actor-network theory's emphasis on the sociotechnical middle ground makes possible the examination of the dynamic set of interactions between human and nonhuman actors [7, 8]. It allows the opening up of the sociotechnical "black box", making visible its constitutive parts

[2]. Furthermore, actor-network theory solves the incommensurability of agency and structure [9] and generates opportunities to observe the minute details of the human-nonhuman interplay [10]. But this sociotechnical arrangement is neither stable nor predictable [11].

The heuristic nature of actor-network theory allows the researcher to gain insights on the process of constructing or not the network [6] as has been evidenced in a number of studies on the sociology of technology [cf. 3, 12, 13]. Similarly, since the early call by Walsham [14], actor-network theory has been widely used in the field of information systems. On the one hand, actor-network theory studies have revealed how, in some instances, the network of both humans and information technology can be stabilised [15-19]. On the other hand, they also illustrated cases where the network could not have been stabilised [20-22].

The focus of actor-network theory is on the negotiation process that takes place between humans and nonhumans when technical artefacts are introduced. Unlike theory of innovation diffusion [23], which does not question how well the technical artefact to be implemented fits into the sociotechnical system, actor-network theory makes explicit the contingency whether or not the innovation would be able to generate interest among the intended users by understanding both the human and nonhuman actors [24, 25]. This characteristic makes actor-network theory a good theoretical lens for the analysis of the arrangement of humans and nonhumans around the proposed innovation.

The salience of human agency in the use of information technology

The ability of individuals to make decisions and take actions embodies the agency properties of human beings. However, individuals do not act in a vacuum. Although their decisions and actions modify the state of affairs of the existing structures, the later impose constraints on the agency attributes of the individual. This mutually shaping interaction describes the nature of the relationship between agency and structures, as explained by structuration theory [26].

Using information technology entails the interplay of humans and computers in a representational environment, where face-to-face encounters are no longer a requisite for an interaction to take place. This interplay takes place in slices of time and space where humans and technology meet each other resulting in a reconfiguration of their interaction [27]. The interaction relies now on a system of symbolic representations – e.g., letters, numbers, images, etc. – that makes possible the communication by conveying information.

The value of information depends on its novelty, which by definition is ephemeral. It is about bringing some new knowledge to what is already known; otherwise it is of no value [28]. Thus, information is situated in a specific temporal and spatial context and recognises that information needs an actor that can interpret it and act upon it [29, 30]. The subsequent actions will simultaneously shape and be shaped by the interaction between social and technical resources [31], where both form an entangled unit [32].

It is at this juncture that the power of information technology makes apparent information. In the past, information could only be uttered in bulk in a rather undistinguishable fashion. Information technology makes possible now to literally 'see information' on a computer screen and 'count information' by bits and bytes [10]. The flexible characteristics of information systems make them unique in terms of both the negotiation processes and transformations they generate. Indeed, information systems users are continuously accommodating social practices in relation to the logic inscribed in the former and simultaneously adjusting the technology to their particular needs [33]. We assume that human actions make the sociotechnical entanglement unpredictable, which is subject to verification in a subsequent stage of this research project.

This negotiation process between human and nonhuman actors highlights the agency properties of the individual. Rather than coordinating and synchronising activities in a Tayloristic way, where rigid structures predetermine the course of action in a rather deterministic fashion, even in a hierarchical organisation, we recognise the temporal nature of human experience, where past experiences together with an assessment of possible future outcomes define the actions taken by the agents in the present [34]. It is at this juncture that we want to explore how the tensions between agency and structure are negotiated.

The previous discussion makes unavoidable a discussion on the differences between agency properties and intentionality. While actor-network theory recognises agency attributes on technical artefacts, these are not granted with intentionality; the former are subordinated to human intentionality. It is human intentionality what delineates organisational norms, power structures and individual choices. And these shape work practices that are supported, modified and created by technology to the same extent that technology is supported, modified and created by work practices [35].

PERUVIAN NATIONAL POLICE CORPS

In this section, we present a brief historical account of the Peruvian National Police Corps and describe its mission. In addition, we describe the crime report system, which is the unit of analysis of this study.

Historical background

The history of a professional police force in independent post-colonial Peru stems from when the keeping of public safety starts to be differentiated from the roles of the military. In 1845, President Ramón Castilla reorganised the National Guard to perform some of these functions and the later administration of General José Rufino Echenique began in 1851 to establish the Gendarmerie, a division of the military to have a policing role.

As Peru began to experience significant economic development as a result of the exploitation of guano, police activity began to focus on civil order through combating crime and, at first, forming fire departments. The government of President Manuel Pardo y Lavalle, starting from 1872 began the reorganisation of the police, creating the Civil Guard, a civilian organisation that sought to distinguish itself clearly from the Gendarmerie, an organisation more tied to military order and rules.

In 1879, when Peru was involved in the Pacific War against the neighbouring Chile, police forces were incorporated in military campaigns. In response to the void left by this situation, local patrol bodies – formed by groups of neighbours, firefighters and foreign expatriates – were created with the responsibility of ensuring public safety. In 1880, police stations and policing forces were established across the Peruvian territory.

The government of President Augusto B. Leguía began a process of institutional reform of the Peruvian police, creating in 1919 a structure that enabled the formation of a Police Academy and an organisational structure that contained specialised units: a Crime Investigation unit, a Civil Guard, a unit of Security and the Republican Guard. In 1921 a cooperation agreement was signed with the Spanish Guardia Civil who helped to establish the police academy.

With this structure, the Peruvian police incorporated a sense of professional and scientific methods in their actions. The institutions that made up the national police became more specialised with the Investigative Police of Peru focused on technical aspects of and offences and solving crime, the Republican Guard designed to ensure safety and security for prisons and the border, and the Civil Guard – a result of the unification of the former Civil Guard and

the Security Corps responsible for ensuring public safety. This divisional structure, which initially allowed the professionalism and technical expertise of police work to develop, also created an element of competition between these bodies, causing some problems in the operation of a national force.

In 1986 as a result of these problems, the government decided to unify the police forces into one organisation called the National Police Corps. Although some of the then existing problems were solved, the competition among the different divisions continued for a long time. Even today, there is still some remaining rivalry until the last group of today's high rank officers retires. The division and rivalry somehow interfered during the last part of the 1980s and early 1990s in fighting terrorism. The unification of police forces also brought some problems to merge information technologies and created some problems for the new National Police Corps. This problem, along with the uncertainty and poor economy slowed down the development of the new organisation.

The development of the structure and scope of the Peruvian National Police Corps was accompanied by the events that were affecting the country, especially the social unrest that generated violent protests in the 1980s and early 1990s. Economic growth tended to be concentrated in major cities and, from the 1960s, immigration from rural areas to the major cities began – a phenomenon that continues until today. In the 1980s the Peruvian state was faced with the rise of terror movements emerging from the social crisis as a result of the rapid urbanisation and economic stagnation in the cities of the Peruvian Andes, centred in Ayacucho. Terrorist movements – Tupac Amaru and Shining Path, the latter being particularly violent – posed a major threat to public order and tested the professionalism of the National Police Corps.

Nowadays, the mission of the National Police Corps is to secure, maintain and restore internal order, provide protection and assistance to individuals and the community, ensuring compliance with laws and safety of public and private property, prevent, investigate and combat crime, monitor and control the borders in order to protect society and individuals, to enable their full development as part of a culture of peace and respect for human rights. Its vision aims at portray a police force that is modern, efficient and of cohesive service to the society and the State, committed to a culture of peace, dedicated to service and renowned for its full respect for the individual, human rights, the Constitution and laws, for its integration with community, for its honesty, discipline and leadership of its members.

The unit responsible for providing information technology support to the National Police Corps is the Telematics Directorate. Its assigned mission is to provide scientific and technological support to the police force through computer and telecommunication systems (including databases, software and website). In order to attain this goal, the unit is responsible for the design, development and maintenance of systems and networks across the different departments of the National Police Corps.

The Informatics Division is a sub-unit of the Telematics Directorate. The Informatics Division is responsible for coordinating all matters relating to the operation of computerisation of national police operations and to facilitate them to perform their duties, including the implementation and maintenance of software systems. Among the different applications under the responsibility of this division is the crime report system, which is the unit of analysis of this research.

The crime report system: an initiative at improving efficiency and quality service

The crime report system allows police officers to receive and eventually admit a crime report at the police stations. In addition, this system allows any individual to file a crime report online. In this case, due to legal requirements by national laws, the online report is considered as a draft report only until the person filing the report gets to the police station to validate and sign the report. If the individual reporting a crime online does not come in person to the police station, the crime report is considered anonymous and follows a special procedure. In addition to the capabilities related to filing reports, given that all crime reports are stored in a central database, the system allows centralised access to them.

The crime report system has been recently implemented. So far, it has been installed in the police stations in the Lima metropolitan area, an urban conglomerate of approximately 10 million people, including the neighbouring port of Callao. The system has also been implemented as a pilot project in two police stations in Cajamarca, a city in the northern highlands of Peru, with a population of 280,000 inhabitants. The plan is to interconnect and have the system deployed in every police station across the country.

The crime report system is expected to be one of the main tools for police stations to handle citizens' complaints or accusations. These reports will invariably derive into police actions such as investigations, operations and/or arrests. This system becomes even more important as it serves the citizens in providing copies of the reports for them to continue with legal paper work.

RESEARCH DESIGN AND METHODOLOGICAL PROCEDURES

At the time of writing this document, negotiation to the research site has been successfully negotiated. An introductory conversation has been held with the head of the Informatics Division.

We will begin the study by doing an environment assessment through the identification of the actors involved in the sociotechnical system under investigation: the crime report system described in "The crime report system" section. This environment assessment includes both the technical actors and social actors. In-depth face-to-face interviews and non-participant observations are the primary sources of data for this research. The former will be conducted with front line police officers, IT specialists and commanding officers. Observations of the work practices will take place in the police stations. IT policy documents, crime report system manuals and standard operation procedures will constitute the secondary sources of data. We expect to initiate the data collection in August 2012 and estimate a six-month fieldwork.

Although a sociotechnical perspective informs the overarching theoretical foundation of this research, we are not committed to any particular theory. We strive to avoid imposing pre-conceived concepts to data we will find in the field. We adopt an inductive approach aiming at building theory according to the tenets of grounded theory [36]. Thus, data collection and analysis will occur in tandem until reaching theoretical saturation – the point where new data does not provide new theoretical insights. As regards the stream of grounded theory, we favour the Glaserian version [37] over the Straussian one [38]; the former allows theory to emerge from the data.

In the course of our investigation, we will pay special attention to the context where the crime report system is operating in order to capture the nuances of the phenomenon under investigation [39]. We will include in our analysis the organisational culture, team dynamics, resource allocation and dominant practices in order to obtain a holistic understanding of this sociotechnical system.

EXPECTED THEORETICAL AND PRACTICAL CONTRIBUTION

From a theoretical perspective, this study should shed light on how the tensions between human agency and structures are negotiated. It will explain how the agency attributes of human actors are manifested through computer-mediated work practices and how the role played by the structures constraints these agency properties.

The major practical contribution of this research-in-progress is expected to be the understanding of how information technology is shaping the working practices – and maybe creating new ones – of the Peruvian National Police Corps. The objective is to be able to pinpoint the technologies and areas where the impact can be maximised with the lowest investment.

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