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# Smart Cities and Security: A Quantitative Narrative Analysis of Urban Security Strategies in Italy and the UK<sup>1</sup>

Adam Edwards<sup>2</sup> and Marco Calaresu<sup>3</sup>

## **Abstract**

Criticism of the idea of «smart cities», enabled by Web2.0+, has gathered pace in the wake of the global ransomware attack of May 2017, which amongst its targets disabled the operation of many hospitals in the UK. Concern over the vulnerability of such critical infrastructure has also been signaled by those arguing that dependence on digital technologies for the organisation of social and economic life has now gone past the point of inflexion in North America and in many European countries. This paper considers the evolving controversy over smart cities and their security implications through a Quantitative Narrative Analysis of urban security strategies in Italy and the UK. It relates this Quantitative Narrative Analysis to broader arguments about the significance of city-regions as objects of security that cannot be sufficiently understood through reference to conventional concepts of territorial governance. How, in the twenty-first century, are public authorities making sense of the new architectures and territories of security generated by smart cities and their emergent technologies?

**Keywords:** *crime and disorder; urban security strategies; smart cities; emergent technologies; quantitative narrative analysis*

## **1. Introduction: The «Smart City» as a Criminological Subject?**

In their bibliometric analysis of «The First Two Decades of Smart-City Research», Mora, Bolici and Deakin (2017) argue that research has followed two paths of development: peer-reviewed studies arising from European universities that offer a holistic perspective and grey literature emanating from North American businesses offering a «techno-centric

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understanding of the subject». Notwithstanding these differences of emphasis, the bibliometric analysis suggests knowledge about smart cities is «singularly technological in nature» and, therefore, «lacks the social intelligence, cultural artifacts and environmental attributes that are needed for [the] ICT-related urban innovation that such research champions to be ‘smart’» (2017, 20).

Like many constructs emanating from commerce and the public policy process, the «smart city» is a floating signifier with a multiplicity of referents, reflecting a range of interests in urban governance, and no one signified. Even so, the technological orientation of the research literature reflects a common interest in using innovations in digital technologies, including the hyperconnectivity of the interactive Web2.0 and the emergent Internet of Things (IoT thereafter), for a more efficient coordination of commerce and public administration in cities experiencing increased pressures on critical infrastructure, such as energy, transport, food, water, sewage, housing and healthcare systems, especially as a consequence of rapid population growth.<sup>4</sup> In concluding their bibliometric review of smart city research, Mora, Bolici and Deakin (2017, 21) argue for greater collaboration and inter-disciplinary dialogue amongst smart-city researchers, «that is necessary to generate a possible agreement concerning the way of thinking about, conceptualizing, and defining the smart city».

In this broader context, this paper explores the current and prospective significance of the «smart city» as a criminological subject, given that much of the literature reviewed by Mora, Bolici and Deakin (2017) and the proselytising from public authorities, commercial tech companies and NGOs, portray smart cities as an unalloyed good that promises greater security and prosperity.<sup>5</sup> By contrast, criminological perspectives provide an important source

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<sup>4</sup> One of the principal NGO’s promoting the smart city concept, *Leading Cities: Improving the Quality of Life in Cities Through Smart City Solutions*, argues that «The 21<sup>st</sup> century has arrived and with it came continuing urban challenges facing cities around the world. These cities are facing exponential growth not just in population, but in the intensity of complex urban issues threatening the existence of safe, affordable, and supportive neighborhoods. The 21<sup>st</sup> century has also brought exponential advancements in technology that effectively eliminate the challenges that physical distance once posed and replaces them with opportunities for connectivity and sharing in the digital age. With this burgeoning confluence of technology and commitment to addressing urban issues, *Leading Cities* seeks to unite university faculty and students, policy innovators, city officials, startups, and business leaders in the common cause of solving urban challenges. This is achieved through sharing, improving and adapting best practices as well as facilitating economic and business development opportunities. The virtual world has dismantled borders and has made possible this unification and development of partnerships and policy innovations, thus realizing our mantra to create global impact on the local level» (<https://leadingcities.org/about/>, accessed 1<sup>st</sup> November 2019).

<sup>5</sup> Exemplars include *Smart City Dive*, a US based blog for commercial tech companies and municipal authorities (see: <https://www.smartcitiesdive.com/>, accessed 1<sup>st</sup> November 2019), the European Commission’s *European Innovation Partnership on Smart Cities and Communities (EIC-SCC)* (see: [https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities\\_en](https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en), accessed 1<sup>st</sup>

for organised scepticism about such proselytising, most obviously in helping us to anticipate the vulnerabilities of the smart cities movement to criminal exploitation and other security threats (Hayward 2020). By return, however, the concept of the smart city also disrupts the territorial understanding of crime and the city that has preoccupied modern thought, from Henry Mayhew's (1852-62/1996) and Friedrich Engels' (1877/1934) studies of the «rookeries» or criminal denizens in the slum neighbourhoods of Victorian London through the Chicago School's concern with the neighbourhood ecology of crime in mid-twentieth century inner-city «zones of transition» (Park, Burgess and MacKenzie 1925; Shaw and McKay 1942), to Mike Davis' (1998) identification of an «ecology of fear» in late-twentieth century cities such as Los Angeles. If the vulnerabilities of the smart city are not adequately captured in the offline territorial preoccupations of these modern criminological perspectives, how is security in smart cities better understood? If it is also the case that public authorities, commercial tech companies and NGOs are providing limited insight into these vulnerabilities, then a crucial gap exists in any social intelligence about smart cities and their (un)intended consequences. It is this gap, which this paper seeks to corroborate and begin addressing by posing the question: How are public authorities making sense of the new architectures and territories of security generated by smart cities and their emergent, digitally disruptive, technologies?

In posing this question, however, and *contra* Mora, Bolici and Deakin's (2017) optimism, the proposed shift toward social intelligence about the smart city is likely to challenge the possibility, and arguably the desirability, of agreement over what this concept has signified and could signify in future, both as a field of research and as a commercial and public policy construct. This, of course, extends research on smart cities from its origins in the STEM research programmes revealed in Mora, Bolici and Deakin's (2017) bibliometric analysis and into the realms of the social and political science advocated in this article. The lens on the social adopted here is a focus on crime and insecurity and the implications of this for thinking about the smart city. Within this purview, we consider the governmental response or, in Mora, Bolici and Deakin's (2017) terms, the social intelligence of official narratives about the threats to urban security that are posed by emergent technologies. To investigate this response, we have undertaken a Quantitative Narrative Analysis (QNA hereafter) of the

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November 2019) and the *UK Smart City Summit and Urban Mobility Expo*, December 2019 (see: <https://smartcitysummit.co.uk/home>, accessed 1<sup>st</sup> November 2019).

programmatic statements on crime and insecurity produced by elected officials in the three largest city-regions of Italy (Milan, Naples, and Rome) and the UK (Greater London, Greater Manchester, and the West Midlands) between 2007 and 2021. The thinking behind the purposive sampling of these programmatic statements, the Security Pacts in the Italian city-regions and the Police and Crime Plans in the UK, is that it is in these localities, themselves in two countries that are in the *avant-garde* of the smart cities' movement, that one would expect to find the clearest and most self-conscious accounts of threats generated by the emergent technologies of this movement.

The headline finding of this analysis is that, notwithstanding over two decades of STEM-driven research into smart cities, the very construct of the smart city is conspicuous by its absence from programmatic statements about crime and insecurity. Rather, there is a preference for the language of «online safety», «cybercrime» and «cybersecurity» or references to specific technologies, notably social media, internet commerce and digital surveillance. In relation to these problems, a common theme is the preoccupation with the individualised offending and victimisation enabled by such technologies, such as the grooming of vulnerable populations for sexual exploitation or the defrauding of online consumers, rather than a focus on the critical infrastructure of smart cities themselves and the vulnerabilities these could generate for the secure administration of major public services, such as healthcare, energy and transport. An exemplar of this vulnerability is the WannaCry ransomware attack of May 2017 which disabled a third of English National Health Service (NHS) information systems over a 72-hour period, resulting in the cancellation of 20,000 appointments and operations (Boiten and Wall 2017). Subsequent investigation attributed this to the vulnerability of those healthcare authorities who had not upgraded their obsolete IT operating systems, such as Windows XP, which Microsoft had withdrawn support from three years prior to the attack (Dwyer 2018). This and countless other human decisions left unpatched operating systems vulnerable to a relatively unsophisticated virus, indicating the brittle security of critical infrastructure in smart cities.

Another, more recent, global event that has emphasised this brittle critical infrastructure is the experience of the COVID-19 pandemic that commenced in Spring 2020. Central to public health strategies for containing the spread of this potentially lethal airborne virus were a series of home curfews or «lockdowns» in which citizens were legally obliged to remain at home with severe restrictions on their freedom of movement and association with others

outside of their immediate family. In turn, this produced a rapid migration of work, education and leisure online, enabled by the interactive World Wide Web 2.0 and its read/write functions that permit users to interact with, and not just to passively observe, online content (Housley 2021, 75-76; Housley *et al.* 2023, 9). Research into the consequences of this rapid online migration has already identified the acceleration of tendencies towards rumour, misinformation and disinformation, including anti-vaccine campaigns, and the deleterious impact of these on public health (Ahmed *et al.* 2020; Depoux *et al.* 2020; Innes *et al.* 2023), as well as various fraud scams and protection rackets taking advantage of the huge expansion of online commerce fuelled by the pandemic (Levi and Smith 2021) and a breadth of other online victimisation (Naidoo 2020).

Although at an embryonic stage of development, the Internet of Things (IoT) provides a further and major frontier for criminal exploitation, in which mundane household appliances such as central heating systems, door locks, refrigerators, television sets and so forth, are connected to the internet enabling remote control and, by implication, involuntary access from «hackers». Given the vulnerability to criminal predation of major public services that have migrated online, such healthcare services, let alone the mass of private householders whose adherence to basic online security is infamously variable, it is surely plausible to regard smart cities as hugely significant sites of prospective crime and insecurity and, therefore, as a priority for «social intelligence» about emergent technologies and their unintended consequences. The limited presence of such intelligence in programmatic statements on security in city-regions suggests a further priority for research: the emerging tension between the commercial imperatives of the smart-city movement and anticipatory action on the opportunities these create for criminal enterprise (Edwards 2018; Edwards and Calaresu, 2018).

In these terms and in addition to the unfolding story of captive cities in a ransom economy, recent work also suggests the diversification of illicit enterprise into hitherto unanticipated markets, such as the vice, gambling and narcotics trade in «virtual nightclubs» (Berry 2018). This, in turn, has the potential to expand opportunities for romance scams and other high-volume frauds along with debt-bondage arising from gambling addictions (Levi 2023). Such opportunities are further enabled by the «stupefaction» of urban populations whose capacity for self-regulation and individuated risk management is, ironically, undermined by «smart» technologies (McGuire 2018). If such foresight reminds us that smart cities are better

understood as complex and dynamic sociotechnical systems, rather than simple ensembles of STEM instruments<sup>6</sup>, then it behoves social science to understand their unintended and contradictory qualities. Understood as sociotechnical systems, the emergent technologies constituting smart cities both shape and are shaped by social relations between the users and abusers of these technologies. It should be acknowledged that other work in the embryonic criminology of the smart city provides a counterpoint to more dystopian visions, noting the use of emergent technologies in «positive security» strategies aimed at the «pastoral care» of populations, as in the case of automated audio-visual sensors used to de-escalate crowd violence in Eindhoven's night-time economy through alterations in ambient music and lighting (Schuilenburg and Peeters 2018). Other authors acknowledge the agonistic qualities of smart cities in which mass social media communications can fuel offline social conflicts but also counter the ways in which they are represented by elites and open them up for more deliberative democratic debate (Edwards *et al.* 2023; Housley *et al.* 2018; Poletti and Michieli 2018).

If, in this nascent social intelligence, it is already possible to discern alternative visions of smart cities – as captive, stupefied, caring and agonistic – this implies a need for less teleological and more dialectical accounts of their governance that can recognise the strategic dilemmas confronting public administration. An obvious starting point for this dialectical understanding is an account of whether and how the security implications of smart cities are acknowledged and interpreted in the programmatic statements of those responsible for the strategic governance of urban crime and security. To this end, and as a precursor to the comparative discussion of our findings on programmatic statements in Italian and UK city-regions, it is useful to outline our conceptual approach.

## **2. Conceptualising the Politics of Security in City-Regions: Multi-Centred Governance (MCG)**

As elaborated elsewhere (Edwards 2016; Devroe, Edwards and Ponsaers 2017), the «multi-centred governance» (MCG) of security in cities needs to be understood as occurring at the «intersection of multiple fields of internal security», beneath and above the nation

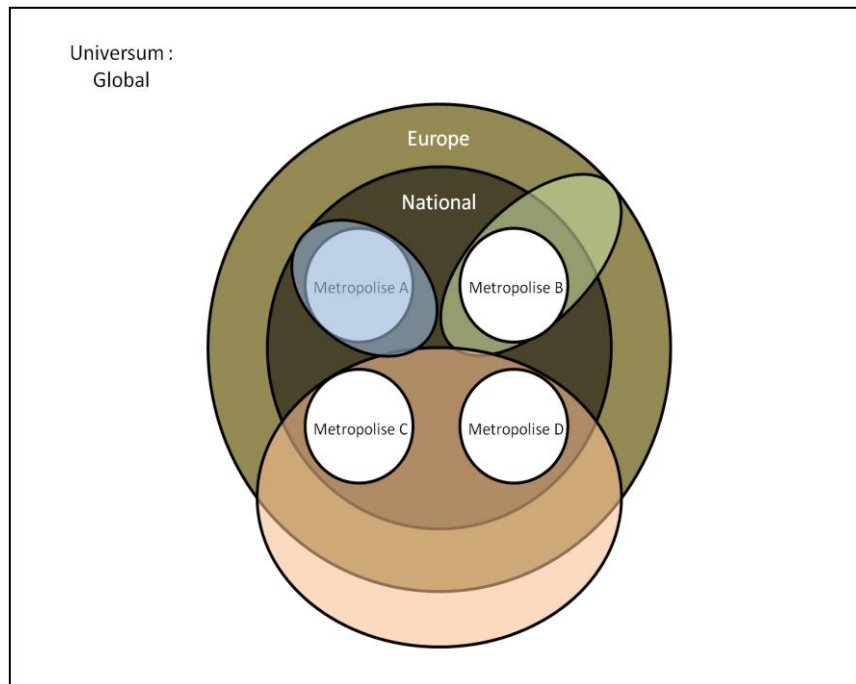
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<sup>6</sup> «Put simply, the sociotechnical system perspective contends that organisations are made up of people that produce products or services using some technology, and that each affects the operation and appropriateness of the technology as well as the actions of the people who operate it» (Pasmore *et al.* 1982, 1182). As such, technologies and human relations are interrelated in shaping one another. More profoundly technology is a social relation.



state (see Figure 1). This is especially the case in relation to smart cities given the opening-out of cities to the global hyperconnectivity of the internet and the vulnerabilities that come with this.

**Figure 1: Multiple intersecting internal security fields in Europe.**



*Source: Devroe, Edwards and Ponsaers (2017, 13).*

As the heuristic of multiple intersecting internal security fields suggests, cities are increasingly open to regional, national, supra-national and trans-national spheres of influence but governing arrangements and regimes within different cities still retain an important agency and power to cause things, either through acts of commission or omission. It will be recalled, for example, that the impact of the WannaCry virus on the English NHS was highly uneven, affecting those third of managers who had chosen not to invest in upgrading their ICT infrastructure. A further useful distinction is made, in the MCG thesis, between the *causal* agency of such key decision-makers, the institutional conditions that *facilitate* their agency (such as the migration of the administration of healthcare services online, the advent of Web2.0 and the proliferation of the IoT), and, of particular interest to our purposes in this article, the *dispositions*, the rules of meaning and membership, that structure the exercise of



agency and can be either enabled or disrupted by changes in institutional conditions (Edwards 2016, 249-255).

In the MCG thesis, it is argued that the concept of dispositional power informs an understanding of how political actors are bound together through certain commitments, certain rules of meaning and membership, that enable but also delimit how they can act and what causes they can advance (without appearing completely opportunistic, untrustworthy and thus illegitimate). In these terms, programmatic statements about security can be understood as exercises in dispositional power that structure how subjects of governance, such as «smart cities», can be recognised, articulated and acted upon. Crucially, as exercises in dispositional power, such statements also obviate how else subjects of governance can be understood and acted upon. As the rules of meaning and membership in particular dispositions are domain-specific, understanding them requires some affinity with predominant policy trends and their intellectual interlocutors in the domain in question, such as the politics of security.

In this regard, and in a preliminary attempt to map dispositional power in the politics of security, Hughes and Edwards (2012, 446-448) make a basic distinction between the policy agendas of criminal justice, restorative justice, social justice and risk management. These categories are, in turn, drawn from an account of political analysis in contemporary criminological thought which acknowledges longer-standing conflicts around rival concepts of retrospective justice and the more recent preoccupation with anticipating «risks» for the purposes of pre-emptive intervention and management:

- *Criminal justice*: is about the enforcement of criminal law by supporting the prosecution and sanctioning of offences against this law. As such, policy is essentially reactive (Nagin 1998; Pogarski 2002).
- *Restorative justice*: is accomplished through the negotiation of reparations between offenders and victims and through a deliberate attempt to circumvent the criminal justice process and can be considered as a means of diversion away from this process. It is also concerned with the role of non-state actors, such as churches and other faith organisations, in the reintegration and resettlement of offenders (Van Ness *et al.* 2022; Zehr 2014).

- *Social justice*: is accomplished through the use of social and economic policies to address problems of the social and political exclusion of citizens that are, in turn, believed to cause criminal victimisation and civil unrest. A social justice agenda seeks to extend the entitlements of citizens to improved education, training, employment, housing, health, leisure and family support, and to address inequalities in access to these entitlements by means of wealth redistribution. Such a disposition is, in essence, aetiological in its concern with the root, social, causes of crime and insecurity (Reiner 2021).
- *Managing the risks of opportunities for crime and disorder*: anticipates risks through such measures as reducing the situational opportunities for crime and prudential advice and inducements enabling citizens to take responsibility for reducing their own risk. It is, in essence, an anti-aetiological and proactive disposition (Clarke 2004).
- *Managing the risks of criminal careers*: entails early intervention with groups «at risk» of embarking on offending careers and desistance programmes for prolific and priority offenders. It is a proactive disposition but one premised on aetiological thinking and informed by the insights of innovations in longitudinal studies of pathways into, and out of, criminal careers (Ashton and Bussu 2020; 2022; Mazerolle and McGee 2020).

Edwards, Devroe and Ponsaers (2017, 307-308) further developed this categorisation through reference to the orientations, populations and objectives of different dispositions about the security of city-regions.

- *Orientations*: the classical and positivist traditions of criminological thought orientate policy towards offenders or those deviating from social norms, whereas the victimology movement, which has gathered pace in North America and Western Europe since the 1970s, privileges a focus on victims and their vulnerability to further victimisation. A longer-standing tradition, epitomised in the work of the Chicago School of Sociology, privileges a research and policy focus on the environments,

especially within cities, which are thought to generate problems of offending and victimisation.

- *Populations*: another way of conceptualising competing priorities for internal security agendas is to consider the different kinds of population that can be prioritised by alternative agendas. Here, criminological thought draws upon a distinction found in epidemiology and public health policy between primary populations of interest, that is to say the entire population, secondary populations or particular social groups who are thought to be particularly «at risk» of being victimised or of engaging in offending behaviour, and finally, tertiary populations of actual victims and offenders known to the authorities, especially as a consequence of their multiple and repeated victimisation and/or their prolific offending.
- *Objectives*: a final set of concepts for diagnosing the dispositional power of programmatic security statements draws upon the well-established literature on the alternative objectives of reducing crime, maintaining public order and providing various social services.

**Table 1: Urban security dispositions.**

Disposition	Rules of Meaning and Membership								
	Orientations			Populations			Objectives		
	Offender	Victim	Environment	Primary	Secondary	Tertiary	Social service	Public order	Crime reduction
CRIMINAL JUSTICE	X					X		X	X
RESTORATIVE JUSTICE	X	X	X			X		X	X
SOCIAL JUSTICE			X	X	X		X	X	X
MANAGING THE RISKS OF OPPORTUNITIES FOR CRIME AND DISORDER		X	X	X	X	X		X	X
MANAGING THE RISKS OF OFFENDING CAREERS	X		X		X	X		X	X

Source: Adapted from Edwards, Devroe and Ponsaers (2017, 307).

Table 1 combines the distinction between dispositions of justice and risk and their concomitant rules of meaning and membership, to more concretely specify how criminal justice differs from alternative dispositions in its orientation, populations of interest and objectives. Initially developed in Edwards, Devroe and Ponsaers (2017, 307), as a means of diagnosing dispositions in metropolitan policing agendas, these rules can also be used to distinguish dispositions in the more capacious politics of urban security (Edwards, Hughes and Lord, 2013; Kubler and de Maillard, 2020). Programmatic statements within this politics are, however, rarely reducible to neat distinctions between criminal justice or social justice, restorative justice or risk management etc., not least because actually existing programmes of government are invariably the complex and contradictory outcomes of bargaining and exchange relationships found in «governing assemblages» (Bevir 2013). Assemblages exist, especially in liberal democracies, because mandates do not equip elected authorities with the organisational, financial and informational resources necessary to translate their agendas into action. Authorities cannot simply rule by command but have to continually bargain with those on whom they are dependent to implement their agendas (Rhodes 1997). As a consequence of the bargaining and exchange relationships that elected authorities necessarily have to engage in, there is always the possibility, indeed the likelihood in highly fragmented polities, that a governing assemblage will fail or «drift» as it cannot stabilise and hold its rivals in abeyance long enough to deliver on its core policy agenda. In such situations, there remains a governing assemblage in the sense that public administrations stumble on, keeping the machinery of everyday administration going, but fail to advance their core policy objectives. Where governing assemblages are stabilised long enough to advance their objectives, it is possible to identify the existence of a governing «regime» (Stone 2005; Edwards and Hughes 2012). In turn, regime theorists distinguish between those which seek to *maintain* a well-established agenda, even in the face of its apparent exhaustion, to *develop* it, for fear of losing control of the agenda altogether or to *reform* it, in the belief that new priorities must be acknowledged but not so much as to fundamentally undermine or threaten established interests, or, finally, to *transform* it, in the belief that only root and branch overhaul of the

policy agenda will suffice (Stone 2005). Transposing these more abstract concepts of urban regimes into the specific policy field of urban security, it is possible to categorise:

- *Maintenance regimes*: in which the criminal justice disposition, the oldest and most familiar, ever-present, disposition is maintained, even in the face of severe criticism about the limits to this form of «punitive display» (Garland 1996), in which a policy agenda is stabilised around the following rules: an orientation around offenders rather than victims or environments, that are already known to the authorities for predicate offences against criminal and public order laws.
- *Developmental regimes*: in which a criminal justice agenda is augmented by forms of risk management that are oriented around those known or suspected by the authorities of embarking upon offending careers and/or reducing the opportunities for victimisation that can include particular criminogenic environments and be targeted at whole populations as well as «at-risk» groups of repeat victims and prolific offenders.
- *Reformist regimes*: in which a criminal justice agenda is reformed to place a greater emphasis on the diversion of offenders and victims away from the criminal justice and penal process towards civil remedies such as reparation schemes and other forms of restorative justice.
- *Transformative regimes*: in which a criminal justice agenda is transformed from a core to a peripheral concern and replaced by a focus on social as well as restorative justice objectives. These regimes entail reducing crime and reordering public safety through policies oriented towards the environmental conditions that produce offending, victimisation and civil unrest, in particular, gross social and economic inequalities and the exclusion of social groups from effective political participation. Such agendas are also beginning to acknowledge «crimes against the environment» and security agendas that acknowledge the sustainability of relationships between humans, other species and the environmental conditions of the Anthropocene (Shearing 2015). Of

particular relevance to the security of smart cities are relations between humans and other kinds of actors, including Artificial Intelligence and the automation of justice and risk management in «algorithmic societies» (Schuilenburg and Peeters 2021).

- *Failed regimes*: in which rival agendas cancel each other out and effectively preclude the stabilisation of a governing regime.

In these terms, the MCG conceptual framework provides a means of diagnosing the policy agendas that bind actors into urban security regimes and distinguish them from their political competitors. In turn, this provides a means of diagnosing the prominence, marginality or negligibility of particular orientations, populations and objectives in programmatic statements for urban security. Consequently, the MCG framework provides a means of cultivating a greater «social intelligence» about the contexts of governance for smart cities and their vulnerabilities to criminal exploitation and other security threats. The following section discusses how concepts of urban security dispositions have been used in a systematic QNA of the Security Pacts in Milan, Naples and Rome and the Police and Crime Plans in London, Greater Manchester and the West Midlands and how concepts of regime stability and drift can be used to characterise these programmatic statements and thus the relative marginality of smart city concerns therein.

### **3. Researching the Politics of Security in City-Regions: A Quantitative Narrative Analysis**

In this paper, which empirically analyses the politics of security in city-regions, we performed a QNA (Franzosi 2004; 2010; 2012), considering as the unit of analysis *and* the source of data Police and Crime Plans in the UK (adopted in London in 2017, in the West Midlands in 2016, and in Greater Manchester in 2017)<sup>7</sup> and the Security Pacts in Italy (signed

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<sup>7</sup> London Mayor's Office for Policing and Crime (MOPAC). (2017). *A Safer City for Londoners: Police and Crime Plan 2017-2021*, at: <https://www.london.gov.uk/mopac-publications/police-and-crime-plan-2017-2021> (accessed 26<sup>th</sup> April 2023); Greater Manchester Combined Authority. (2017). *Standing Together: Our plan for police, community safety, criminal justice services and citizens in Greater Manchester, 2017-2022*, at: <https://greatermanchester-ca.gov.uk/media/1268/police-and-crime-plan-standing-together.pdf> (accessed 26<sup>th</sup> April 2023); West Midlands Police and Crime Commissioner. (2016). *Your Police, Your Priorities: The West Midlands Police and Crime Plan, 2016-2020*, at: <https://www.westmidlands-pcc.gov.uk/your-commissioner/police-crime-plan/police-and-crime-plan-2016-20/> (accessed 26<sup>th</sup> April 2023).

in Milan in 2007, in Naples in 2012, and Rome in 2011).<sup>8</sup> Thus, the time-period taken into consideration extended from 2007 to 2022. In Italy, Security Pacts are written contracts with public content issued by local governments with the prefectures, based on an input by the Ministry of Interior (Calaresu 2017). They are considered one of the most important tools to set local agendas for policing in Italian cities (Selmini 2013; Calaresu and Triventi 2019; 2021). In England and Wales, the nearest equivalent of the Italian Security Pacts are the Police and Crime Plans of Police and Crime Commissioners who are elected for four-yearly terms of office to set the strategic objectives for local policing (Loveday 2018).

The choice of Plans and Pacts has various advantages for empirical research. In both contexts, the above-mentioned documents can be considered as narrative texts characterized by a fundamental Subject-Verb-Object (SVO) structure: the institutional actors (institutional bodies such as, in Italy, the office of the prefect and the mayor, and in the UK, the Police and Crime Commissioners) who mutually commit (or engage other operators, such as the police forces) to achieve objectives (e.g., justice and risk management), through specific actions, mostly of a relational nature (communication, funding, working in partnership etc.). Narrative is a text genre with distinct, and perhaps invariant, structural features: it is characterized by chronologically ordered sequences of events which are actors doing «things» for the benefit or detriment of other actors, as rendered linguistically by the SVO structure, also known as the «story grammar». The number of steps in these sequences is limited and invariant within specific narrative types (Franzosi 2004; 2010; 2012). A story grammar can be as simple as the basic «semantic triplet» SVO, or very complex, with the addition of a number of modifiers for each element of the SVO triplet (such as type, number, organization, first name and last name of the Subject and Object and time, space, reason, outcome, instrument of the Verb). Thus, a

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<sup>8</sup> Comune di Milano and Prefettura di Milano. (2007). *Patto per Milano Sicura (Pact for the Safety of Milan)*, at: [http://www.prefettura.it/milano/contenuti/18\\_05\\_2007\\_patto\\_per\\_milano\\_sicura-9811.htm](http://www.prefettura.it/milano/contenuti/18_05_2007_patto_per_milano_sicura-9811.htm) (accessed 26<sup>th</sup> April 2023); Comune di Napoli, Provincia di Napoli, Regione Campania and Prefettura di Napoli. (2012). *Patto per Napoli Sicura (Pact for the Safety of Naples)*, at: [http://ssaistorico.interno.gov.it/download/allegati1/patto\\_napoli\\_sicura\\_3\\_ottobre\\_2012.pdf](http://ssaistorico.interno.gov.it/download/allegati1/patto_napoli_sicura_3_ottobre_2012.pdf) (accessed 26<sup>th</sup> April 2023); Comune di Roma, Prefettura di Roma, Provincia di Roma and Regione Lazio. (2011). *Terzo Patto per Roma Sicura (Third Pact for the Safety of Rome)*, at: [https://www.comune.roma.it/PCR/resources/cms/documents/III\\_PATTO\\_ROMA\\_SICURA\\_TESTO.pdf](https://www.comune.roma.it/PCR/resources/cms/documents/III_PATTO_ROMA_SICURA_TESTO.pdf) (accessed 26<sup>th</sup> April 2023).



story grammar broadly corresponds to the 5W's of journalism – Who, What, When, Where, Why – with the potential addition of several more elements. Unlike traditional content analysis coding schemes, the categories of a story grammar are formally and explicitly related to one another throughout the coding scheme via a set of rewrite rules (e.g., subjects are linked to actions, actions to objects, and subjects, actions, and objects are linked to their modifiers) (Franzosi 2010, 35).

Through a rewrite rule, we can express the simple SVO structure (or semantic triplet) by means of its basic components:

<semantic triplet> → {<subject>}, {<verb>}, [{<object>}]

Where the symbol → refers to a rewrite rule (or production), whereby an element to the left of the rule can be rewritten in terms of the elements to its right. Each element of the triplet can then be further rewritten, down to its terminal symbols (those found in the language itself). For example:

<subject> → {<actor>} {<actor characteristics>}

<actor> → crowd | fascists | socialists | police | ...

<actor characteristics> → <type> <number> <organization> <space> ...

...

<verb> → <phrasal verb> <circumstances>

< phrasal verb> → arrive | burn | shoot | kill | wound | ...

< circumstances > → <time> <space> <reason> <instrument> outcome>

...

<object> → {<subject>}

The relational properties of a story grammar (with Subjects/actors related to Verbs/actions, in their turn related to Objects/actors and where all these relationships are rigorously

expressed through rewrite rules) lend themselves to the implementation of such complex linguistic schemes in a computer environment within relational database systems.

We propose in the following Figure (Fig. 2) a hierarchical structure able to capture the relationship we are interested in, taking as a theoretical model the categorisation of justice and risk discussed in section 2, above, through reference to the orientations, populations and objectives of different dispositions about the security of city-regions, as previously illustrated in Table 1. The factors listed in Table 1 have indeed a clear hierarchical structure, which were exploited for the QNA analysis framework transformed as follows:

**Figure 2: The story grammar of urban security dispositions.**

(Disposition:  
 Other: *statement*,  
 (Rules of Meaning and Membership:  
 (Orientations:  
 (Offender:  
 (Criminal justice: *statement*, Restorative justice: *statement*, Managing the risks of offending careers: *statement*)),  
 (Victim:  
 (Restorative justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*)),  
 (Environment:  
 (Restorative justice, Social justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*, Managing the risks of offending careers: *statement*)),  
 ),  
 (Populations:  
 (Primary:  
 (Social justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*)),  
 (Secondary:  
 (Social justice, Managing the risks of opportunities for crime and disorder: *statement*, Managing the risks of offending careers: *statement*)),  
 (Tertiary:  
 (Criminal justice, Restorative justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*, Managing the risks of offending careers: *statement*)),  
 ),  
 (Objectives:  
 (Social Service:  
 (Social justice: *statement*)),  
 (Public Order:  
 (Criminal justice: *statement*, Restorative justice: *statement*, Social justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*, Managing the risks of offending careers: *statement*)),  
 (Crime Reduction:  
 (Criminal justice: *statement*, Restorative justice: *statement*, Social justice: *statement*, Managing the risks of opportunities for crime and disorder: *statement*, Managing the risks of offending careers: *statement*))  
 )  
 )  
 ).

Without computer software there can be no application of a story grammar approach to narrative forms for large-scale projects like ours (Franzosi 2010, 96). The sheer complexity and sophistication of such schemes as story grammars would limit their use to trivial, illustrative examples. Consequently, PC-ACE software<sup>9</sup> was used (Franzosi 2010), which allows us to organise information in a relational data format, with different text elements stored in

<sup>9</sup> Freely available at [www.pc-ace.com](http://www.pc-ace.com) (accessed 10<sup>th</sup> November 2021).

different computer tables in the same database. Nevertheless, PC-ACE does not do the work of automatically parsing text within the categories of a story grammar. All PC-ACE does is to provide a computerised tool that makes the task of sorting information within the categories of a story grammar easier and more reliable for human coders. Thus, in the first phase of the research, 1) the coding of every single sentence in the six programmatic statements – with a total of 306 pages of documents – has been manually added to PC-ACE (via a Microsoft Excel file) by two human coders with natural language expertise about urban security in English and in Italian.

**Figure 3: Initial human coding of all sentences in the Police and Crime Plan in London.**

Statements	Offender	Victim	Environment	Primary	Secondary	Tertiary	Social Service	Public Order	Crime Reduction	Disposition	Smart city
<b>PAG.5</b>											
Safety is my highest priority as Mayor of London and the foundation of London's success as a great place to live, work, visit and do business.			X	X				X		Other	
Thanks to the skill, dedication and hard work of our police service, our Criminal Justice Service and other partner organisations, London is one of the safest cities in the world.			X	X				X		Other	
But for too many Londoners, safety remains a real concern.			X	X				X		Other	
The first priority in this Plan is to improve the basis of policing in London – and that means improving real neighbourhood policing, with dedicated officers who know and are known by the communities they police.			X		X			X		Managing the risks of opportunities for crime and disorder	
For me, community policing is the bedrock of all our efforts to protect our city, and there is no substitute for visible officers out on the beat in neighbourhoods.			X		X			X		Managing the risks of opportunities for crime and disorder	
We are putting an extra dedicated Constable back in every ward in the capital to help tackle people's very real concerns about crime and antisocial behaviour in their communities.			X	X				X		Managing the risks of opportunities for crime and disorder	
The extra officer will be in place in every ward by the end of 2017.			X	X			X			Managing the risks of opportunities for crime and disorder	
We also have to improve the vital – but often less visible – parts of policing that protect the most vulnerable people.			X		X		X			Managing the risks of opportunities for crime and disorder	
There have been increases in some of the most harmful and horrific types of crime, such as domestic abuse, child sexual exploitation and rape.			X			X			X	Managing the risks of opportunities for crime and disorder	
These crimes need specialist police officers who are able to identify and protect the most vulnerable people, and who have the skills to investigate complex offences and to support victims.			X			X			X	Managing the risks of opportunities for crime and disorder	
As the reports of these offences increase, we have to make sure we have the right resources in place to respond.	X			X				X		Other	
That means increasing the number of detectives, improved training for officers and staff, better partnership work with agencies such as the health service and local councils, and better IT systems to help manage the workload.			X		X		X			Other	
We must also continue to support the police in tackling the most serious criminal threats.			X		X			X		Criminal justice	

The characteristics of the relational database thus generated (ITA\_UK\_CITY\_REGIONS) allowed in the second phase of the research, 2) for the extraction of information through the use of SQL (Structured Query Language), and for further analysing the same information under different levels of aggregation.

This resulted in the collection of all the smart-city related statements, namely «smart city-relevant» in a single document, with the following sub-categorization: 1) cyber-dependent:

that couldn't exist without the internet (such as ransomware attacks); 2) cyber-enabled: whose global scope and impact are facilitated by the internet (as in efrauds); 3) cyber-augmented: whose local scope is intensified (as in local drug markets). To be more explicit, on what counts as «smart city-relevant» in this research, we think about smart cities in terms of emergent technologies, and the problems they are generating (new threats, cyber-enabled crime, etc.) and the security objectives they are facilitating (crime reduction, public order, social service) (Edwards and Calaresu 2018). These coding rules clarify what isn't obviously a reference to security in smart cities, such as sharing of information (as contrasted with the use of emergent technologies to share and analyse information, as in predictive policing or forecasting security problems) or networking and collaboration (unless, again, explicitly using emergent technologies to do so).

In the third phase of the research, 3) all the collected information underwent two different types of human verification (and cleaning): semantic coherence verification and input versus output verification (I/O) (Franzosi 2004, 76-79). As for the semantic coherence, it leverages a central feature of QNA: the fact that the encoded output must necessarily retain most of the narrative form of the source text, and that the encoding result itself must make sense to any user of the language (in our case, English and Italian). To facilitate the reading of the output (and thus its semantic coherence), the chosen software organizes the encoded material in narrative form (Narrative Display of Coded Output), so that an external verifier (who may also add comments to the encoded material and re-code each sentence) can check the semantic coherence of the story and verify the inter-coder reliability, finding any problems of conceptual as well as linguistic translation (in English and in Italian) undertaken by the human coders in the first phase of the research (i.e., problems in recognising what constitutes a «social justice» as opposed to a «criminal justice» or other kind of statement in the selected documents). Semantic verification provides an important tool for testing the accuracy of encoded information, but it only succeeds in ensuring the maintenance of meaning in the encoding result, while it does not guarantee the correspondence between the source and the encoding result. Differences in the human application of this only demonstrate the importance of hybrid human-machine learning in that a machine, like PC-ACE, is only as good as the initial human training of it to classify statements in different ways. For this reason, the encoded material was also subjected to a second type of verification: direct comparison between encoding result and data source (Input vs. Output verification). This type of

verification can eventually check both the omission of relevant information and the accuracy of the encoded information.

#### **4. Findings: the conspicuous absence of smart cities from urban security agendas**

As noted above, the headline finding of this QNA of the Security Pacts and Police and Crime Plans is the conspicuous absence of smart cities as a referent in urban security agendas and a continued preoccupation with offline street crime and disorder in neighbourhoods. This major disjuncture between increased online victimisation, in particular as a consequence of various fraud scams (Levi 2023), and the focus of public policy on conventional offline volume crime and disorder, arguably reflects the historical concern of officialdom with the threat posed by urban street populations to public order (Pearson 1983; Fraser and Hobbs 2017). A concern that is reinforced by the «demand for order from civil society»: the preoccupation of citizens themselves with the threats of street violence and volume property crime in urban neighbourhoods and the related pressure electorates exert on authorities to prioritise action on these threats in liberal democracies (Garland 2001; Silver 2011). Results of the QNA in support of this headline finding are discussed here, first in terms of the marginality of smart city-related threats to urban security agendas (see Table 2), and secondly in terms of the finer-grained differences in the dispositions of the agendas in Milan, Naples and Rome, London, Greater Manchester and the West Midlands.

##### **4.1. Absence of the smart city construct**

Table 2 indicates the total number of codified statements, the total number of smart city-relevant statements, and the percentage of smart city-relevant statements per document. With two major findings: first, comparing the quotient of references to security in smart cities across the six documents there are significant variations between city-regions in the same country (a subtle insight that would have been lost aggregating references and comparing them between the two countries). Second, identifying the proportion of sentences in which smart city-relevant references (e.g. to «cybercrime» and «cybersecurity» etc.) are made, relative to all the other sentences in these documents, allow us to contrast how much those percentages vary across the six Plans and Pacts and between the Italian and UK city-regions, and to make the point that these concerns are a marginal rather than principal focus

of urban security strategies at present (relative to the other preoccupations of these statements).

**Table 2: Smart City-relevant statements in programmatic accounts of urban security in UK and Italian city-regions, 2007-2021.**

	Principal City-Regions in the United Kingdom			Principal City-Regions in Italy		
	London	Manchester	West Midlands	Milan	Naples	Rome
<b>No. of smart city-relevant statements</b>	65	28	57	3	4	12
<b>No. of codified statements</b>	1342	531	641	76	83	121
<b>% of smart city-relevant statements</b>	4.83	5.27	8.89	3.95	4.82	9.92

Insofar as references are made to security issues that are relevant to the unfolding, predominantly commercial, discourse around the smart city, these refer to highly individualised experiences of victimisation as a consequence of efrauds, romance scams and the like, rather than to the vulnerabilities of critical infrastructure that is increasingly migrated online and thus open to being hacked. Even here, though, and notwithstanding official records indicating the predominance of online fraud as now the principal volume crime that is self-reported by urban populations in the UK (Levi 2023), the concern is marginal, with programmatic statements accounting for between four and 10 per cent of the narrative on urban security in the six city-regions studied.

The analysis could have been left at this point, as a simple refutation of the idea that smart cities and their security implications are a priority for urban governance. To fully appreciate the marginal status of the smart city construct, however, and the implications of this for the insecurity of urban populations, it is important to appreciate the concomitant question of what else is preoccupying urban authorities if not the increasing prevalence of threats to the

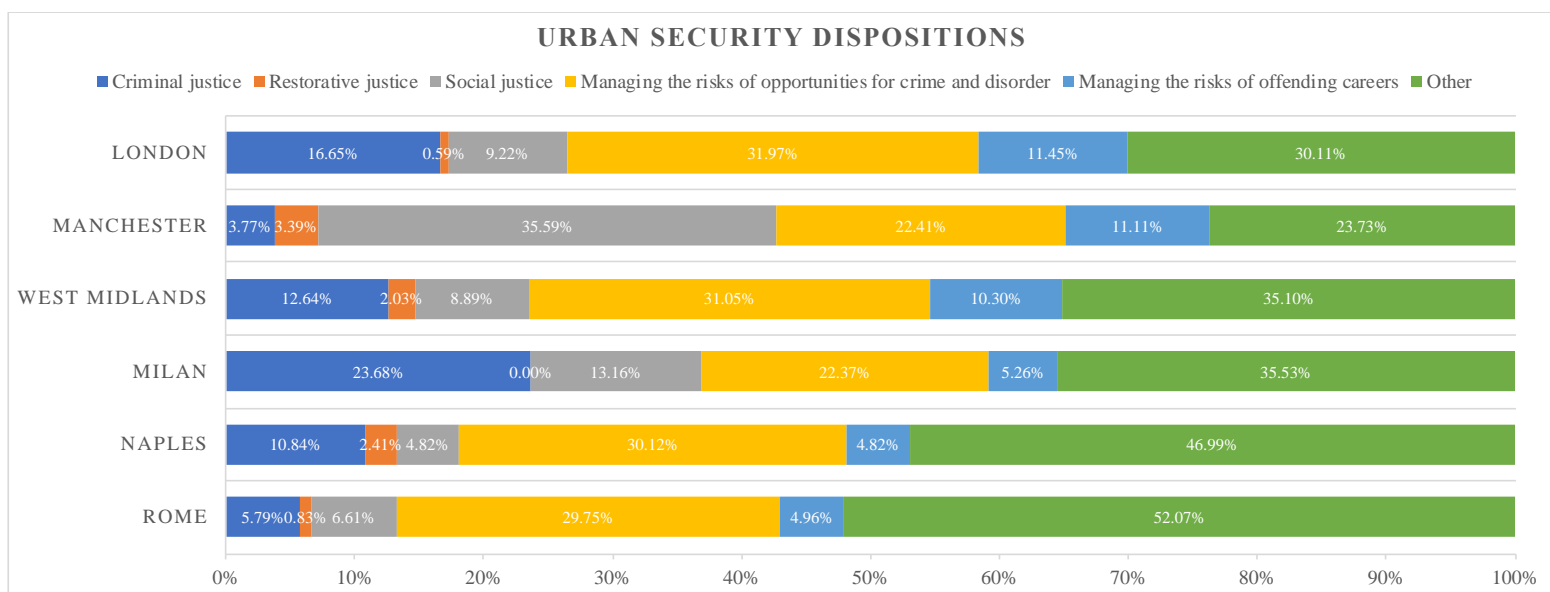


online safety of their populations? Thence, by implication, how resilient are the predominant dispositions of urban security to «disruptive digital technologies» like the IoT and the impact of social media (Edwards 2016; Dominguez Hernandez 2023)?

#### 4.2. Urban security dispositions: the continued predominance of offline crime and disorder

Figure 4 presents a stacked bar chart that indicates the kinds of urban security dispositions found in each of the six programmatic statements considered and, importantly, their variable distribution within and between these statements. As a major result, we identify what are the principal foci of different urban security strategies and their proportionate concerns with criminal justice, restorative justice, social justice and forms of risk management (of crime opportunities and of criminal careers).

**Figure 4: Justice and risk in programmatic accounts of urban security in UK and Italian city-regions, 2007-2021.**



Across the six documents the category of «other» ranges from just under a quarter of all sentences analysed in the Police and Crime Plan for Manchester to just over a half of those analysed in the Security Pact for Rome. In this broad category, we have included statements other than those expressly concerning different kinds of justice and risk management, such as those discussing budgeting, administrative arrangements, staffing and so forth. Beyond

this, what is immediately striking about the distribution of the dispositions identified by the QNA is the admixture of commitments to different kinds of justice and risk management response which is an important counterpoint to the over-homogenised imagery of grand theories of social control. Rather, this QNA reveals the plethora of often inconsistent commitments arising out of the exchange relationships that constitute urban governance: the need to compromise and barter amongst competing professional interests as well as different sections of the electorate in liberal democracies in order build and stabilise governing regimes (Stone, 2005).

In addition, the QNA reveals the balance of preoccupations with different justice and risk management responses to problems of urban security found across these six programmatic statements. Whilst these are only indications of major differences in orientation, they nonetheless challenge reductive thinking about the politics of risk and justice in urban governance and provide a stimulus for further qualitative analysis. For example, the much greater focus on restorative and social justice found in the Police and Crime Plan for Manchester, under the Labour Party regime of Mayor Andy Burnham, than in any of the other narratives, including that of the Police and Crime Plan for London under Mayor Siddiq Khan, who is also a member of the Labour Party. This stimulates questions about how Mayor Burnham managed to consolidate such a decidedly left-wing agenda on crime and disorder, notwithstanding the electoral «hostages to fortune» in the post-war politics of law and order in Britain of not appearing «tougher» on crime and offenders (Downes and Morgan 1997). Other significant patterns revealed by this QNA are the predominance of risk management approaches such as the situational reduction of crime opportunities, which, contrary to familiar depictions of this disposition by its advocates, as a marginal concern in the response of authorities to crime and disorder (Clarke 2004), appears to have acquired a major prominence in the six policy agendas considered. This analysis does, however, appear to corroborate some grand theoretical statements, such as the continued peripheral status of restorative justice in European and North American policy responses to urban crime and disorder (Garland 2001). Notably, the Pact for the Safety of Milan, signed by Letizia Moratti, leader of the *Casa delle Libertà* coalition, which controlled the city during the national government's predominantly centre-right coalition led by Silvio Berlusconi (2008-2011), does not contain any provisions concerning restorative justice. Also, the city of Milan exhibits a lower emphasis on risk management approaches relative to other cases while showing a

greater focus on criminal justice (with a significantly larger proportion of statements concerning criminal justice than other programs in Italy and the UK). Paradoxically, however, Milan, more than other Italian cities considered here, demonstrates a city-region mentality, concentrating also on social justice (second only to Manchester in our overall comparison) and showing a capacity of resistance to the punitive and exclusionary rationalities that seem to characterize national tendencies, due to its role as the country's financial capital and its political stability (Selmini 2017; Calaresu and Selmini 2017). Political affiliation instead does not seem to play an important role in regards of the politics of security in Italian city-regions: despite the fact that the Pact for the Safety of Rome was signed by a right-wing mayor – Gianni Alemanno (2008-2013) – leading like in Milan a center-right coalition called *Popolo della Libertà*, Rome is characterized by a more ambiguous and fragmented agenda (see the aforesaid «other» category), apparently more influenced by the national government programs.

##### **5. Conclusions: Prospects for disrupting the politics of security in city-regions?**

During composition of this article, a further round of Police and Crime Plans and several Security Pacts have been published, following in the UK the Police and Crime Commissioner elections and the mayoral election rounds in Italy (Naples and Rome) in 2021. Whilst the commercial construct of the smart city remains absent from these, there is a greater awareness and consideration of threats to «online safety». This is especially the case – partly reflecting the progress through the UK parliament of the Online Safety Bill – in the Police and Crime Plan for London (2022-2025)<sup>10</sup>, which expresses concerns over online offending and victimisation and the spread of misinformation that can threaten public safety. Even so, the vulnerabilities of critical infrastructure in smart cities remain conspicuous by their absence from these programmatic statements in the principal city-regions of Italy and the UK. In this regard, the prospects for smart cities disrupting the conventional politics of security in city-regions remains partial and uncertain. A plausible scenario is that individualised online victimisation, especially of vulnerable groups such as teenage girls, becomes a more central

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<sup>10</sup> London Mayor's Office for Policing and Crime (MOPAC). (2017). *A Safer City for Londoners: Police and Crime Plan 2017-2021*, at: <https://www.london.gov.uk/mopac-publications/police-and-crime-plan-2017-2021> (accessed 26<sup>th</sup> April 2023).

preoccupation on urban security agendas but characterised by «punitive display» rather than realistic strategies for volume crime reduction, as in current arguments about the regulation of malicious social media communications (Edwards *et al.* 2023). Even so, profound uncertainty remains over who ought to take responsibility for online safety whilst, even in the latest, more avant-garde, Police and Crime Plan for London, the overwhelming focus remains on offline crime and violence in urban neighbourhoods.

It must also be acknowledged that smart cities are becoming an increasing concern of social science, including urban criminology (Hayward 2020) and broader concerns with the prospective unintended consequences of the IoT (Dominguez Hernandez 2023). How resilient the conventional constructs of urban security, signalling problems of offline neighbourhood crime and disorder, are to the disruptive impact of emergent technologies in digital society remains to be seen. It seems implausible, however, that public authorities can continue to privilege their fears of threats to territorial public order in cities over the increasing predation encountered by vulnerable social groups online or the increasing inter-relationships between online communications and offline behaviours. The methodological approach we have outlined in this paper provides the basis for an empirical programme of research capable of tracing the evolving politics of risk and security in urban security agendas, predicating debate less on selective, often reductive, conceptual insights and more on systematic narrative analysis.

Regarding the implications of this paper for further research in this field, public policy research reminds us, in understanding convergence and divergence in governing programmes, that it is critical to distinguish between policy «talk», «decisions», «actions» and «results» (Pollitt 2001, 938-940). The work discussed in this paper is restricted to that of talk and decisions, the narratives urban authorities espouse about the priorities of urban security, and future research would benefit from studies of security strategies in action and with what results. For example, for all the predominant talk of social justice in Mayor Burnham's Police and Crime Plan for Manchester, is the policy action on crime and insecurity in this city really any different from that found in other European city-regions? If so, with what results and over what time horizons? Might, in this regard, Manchester offer a critical case study of the renowned spirit-level thesis (Wilkinson and Pickett 2009), that reductions in problems such as violence and per capita imprisonment rates follow from reductions in social and economic

inequalities presaged by programmes of social justice? How did Mayor Burnham manage to advance such a transformative policy agenda on crime and insecurity, navigating a route around the tendency of the urban policy process to preclude such «large purpose» priorities (Stone 2005)? What renowned «implementation gaps» are liable to frustrate the translation of Burnham's agenda into action? What might any gaps between social justice talk and decisions, on the one hand, and policy actions and results, on the other, tell us about the limits to the powers of urban security regimes that exist at the intersection of local, national, transnational and global fields of internal security? Is socially just security in one city-region possible, especially in an era of hyperconnected «smart» cities? What, in turn, might a case study of the substantial but inchoate commitments to both criminal and social justice in the security pact for Milan, tell us about the political-economic struggles to consolidate urban security regimes existing at the intersection of multiple fields of internal security? What might the, consistently significant, talk about managing the risks of opportunities for crime and disorder across all the programmatic statements compared in this study tell us about processes of convergence in these struggles?

Even so, as Pollitt (2001) notes, policy talk has a life of its own and is a category of analysis, concerned with understanding the parameters placed on the problems of governance by official constructions and how these can obviate or at least marginalise other ways of thinking. Establishing continuities in official constructions of urban security, notably the historical preoccupation with criminal justice responses to the usual suspects of street crime and disorder, matters in the context of the disruptive digital technologies of the smart city. If these continuities persist in the face of this disruption, they are liable to leave vulnerable populations unprotected by authorities, as epitomised in emerging findings on the predation that has accompanied the mass migration to online life during the COVID-19 pandemic. Alternatively, there will have to be a significant development, if not reformation or even transformation, of urban security regimes to better anticipate and pre-empt that offending and victimisation that is being enabled by the rapid evolution of online-offline social relations. The end of regimes maintaining the preoccupation with criminal justice responses to problems of offline crime and insecurity comes, however, with significant political risks as it is a courageous leader who eschews the punitive populism, associated with the criminal justice disposition, that has proved so attractive to electorates (Garland 2001). Such strategic dilemmas are poised to structure prospective research into urban security regimes, providing

a rationale for comparative analysis of their negotiation within the local politics of risk and justice, reprising the longer-standing tradition of multiple-embedded case studies of local governance (Stoker 2011; Edwards and Hughes 2013) but revised to investigate «democratic cities» in the digital age (Tebaldi and Calaresu 2015; Edwards and Calaresu 2018).

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