

CLARIFYING (WICKED) SAFETY PROBLEMS WITH A NETWORK ANALYSIS TOOL

Priit Suve, Ph.D.

Tallinn University

School of Governance, Law and Society

Associate professor of public management

Estonian Academy of Security Sciences

Professor of police theory

Keywords: policing, safety, network analysis, wicked problems

ABSTRACT

In safety issues, the police often deal with a normative side of knowledge. They describe an appropriate way of behaviour. However, many studies analysing safety problems emphasize the importance of contextual behaviour.

This article uses the study of safety in Estonia as an example to test a framework that helps clarify discovered problems and enhance the quality of information needed for decision making in policing, in the context of complexity and uncertainty. The analytical framework used, which was rooted in policy network theory clarified a problem, opened a context, and revealed a lot of hidden data. The revealed games, arenas, and networks from the Estonian study are the specific results of this study, and proof of the value of the used framework in this analysis. Improved quality of the information in using an appropriate tool from outside the field of police is the most important and forward-looking outcome of this study.

INTRODUCTION

The police are struggling with various dimensions of complexity starting from safety issues (see, e.g., Rittel & Webber, 1973) and policing regarding tasks, public demands, strategies, technology, accountability, and resources (see, e.g., Bayley, 2016; Devroe & Terpstra, 2015). Complexity as one fundamental characteristic of the social world (see, e.g., Rittel & Webber, 1974; Coclin, 2006; Head, 2008) is also one of the main challenges of contemporary police education (Rogers & Frevel, 2018). In terms of complexity, Rittel and Webber (1973) defined wicked problems as the most challenging problems facing decision-makers. (Ney & Verweij, 2015, p. 1679) In order to advance possibilities for understanding a particular safety problem in all its complexity, various analytical tools should be tested.

Since the police are expected to be precise and clearly express their vision of safety arrangements, the initial condition and perspective should be clarified. For adequate policing, it is unavoidable to be more precise, look behind cognition-based data, and (at least) structure discovered problems concerning complexity. The reason for that is clarified by Robert Hoppe (2018, p. 20): “Rather an approximate solution to the right problem, than a fully elaborated solution to the wrong problem.” Even if some precise problem seems to be similar in different places, the level of complexity (the nature of a problem) can be different (e.g., see the comparison of gun policies on gun violence in the US, Canada, and Australia (Newman & Head, 2017)).

The nature of a problem (simple, complex, or wicked) constrains choices for solutions or possibilities for mitigation of a problem. At the same time, the understanding of structural dimensions of a problem makes further action easier and, more importantly, decreases the chances of failure. If the nature of a problem is clarified, the possibility of failure will decrease. Although safety is often viewed as a wicked problem (Rittel & Webber, 1973; Head, 2008), all the issues of safety may not be wicked. Wicked problems cannot be solved but mitigated, which is a critical difference compared to problems like simple or complex that are solvable.

This article asserts that knowledge from studies offering a general view or list of safety problems can provide more precise information after further analysis. There are possibilities to reveal additional data from these analyses to improve the quality of decision making in policing, and, in this way, decrease the chance of failure.

The primary purpose of this research is to test the concept of the policy network approach (van Bueren, Klijin, & Koppenjan, 2003) as an analytical tool to reveal possible hidden information from the study of “*Estonian’s understanding on safety issues*” (Suve, 2016). However, this research is not a critique of the examined study or understandings of safety issues. Also, an attempt to structure safety issues in the social world is a simplification of the latter. For this reason, the concept of the policy network approach is only one possible tool for analysis.

Revealed hidden games, arenas, and networks from the Estonian study, are the specific results of this study, and proof of the value of the used framework in this analysis. The possibility to improve the quality of data available in using an appropriate tool is the most important and forward-looking outcome of this study.

This article consists of five main parts. In the introduction, the research problem, argument, and general overview of the research are presented. The second part clarifies the background of the study in more detail. In the third part, the methods of the study will be presented, and the last two parts are dedicated to discussion and conclusions.

BACKGROUND

THE COMPLEXITY OF SAFETY PROBLEMS.

Why is the question of complexity crucial for policing? There are many reasons for that, but defining the right problem and understanding the nature of the problem (simple, complex, wicked) are crucial factors that decrease the possibility of failure.

Police leaders dealing with contemporary safety issues face at least two different kinds of uncertainties: about the content (what is the actual problem?) and a process (how to deal with the problem?) (see, e.g., Koppenjan & Klijn, 2004). Without a context, it is worthless to try to align these uncertainties according to importance, but structuring a problem clarifies the context. In this article, the structure of a problem is in focus. Trying to solve an unsolvable problem, is not only ineffective, but possibly a stimulus for other problems. Wickedness (see Rittel & Webber, 1973) can be recognised as one of many characteristics of the contemporary world.

In social science, the term “wicked problem” gets increasing attention in many fields like public policy (e.g., Ferlie, Fitzgerald, McGivern, Dopson, & Bennett, 2011; Head & Alford, 2015); management (e.g., Camillus, 2008; Grint, 2010), and network governance (e.g., Van Bueren, Klijn, & Koppenjan, 2003; Weber & Khademian, 2008) to mention only some samples. Safety (with its derivatives) is one often-cited example of wicked problems. (See, e.g. Rittel & Webber, 1973; Conklin, 2001; Head, 2008; Camillus, 2008)

Although safety problems are often used as an example of wicked problems, the concept is underestimated and rarely discussed in the literature of policing (see table 1 below). Filling this gap performs many advantages. Clarity of a problem and the context are crucial factors in decision making. For that reason, it is useful to introduce possibilities and approaches from outside the regular field of policing like criminology or police science.

In order to understand the field of overlapping and mixed problems, a problem itself should be spread out as clearly as possible. It could be useful to nail the practice of looking for lenses from other disciplines.

Even if the rhetoric about safety issues may present something else, it is common to take crime statistics as a starting point to value the police. For the police, the crime statistic often appears as a primary source for planning daily work. Since the quantitative data seems simpler to read compared to more abstract and vague understandings of citizens, it may appear as an explanation for this action. However, it does not have to be like this. Presenting citizens' understandings more analytically makes the information more readable and understandable.

POLITICAL SCIENCE MEETS POLICING.

Different views on safety problems, as well as solutions, is a well-known fact. The question is, how these different views can lead to a more comprehensive understanding of a particular problem? This question leads to disciplines like political science and governance, which have long traditions in dealing with complex and wicked issues in society. People are the essential source of knowledge in safety arrangements, and therefore it is vital to know their position and understanding about an issue. It is necessary to use various analytical lenses to “read” data more comprehensively and discover potentially hidden fields and layers that may have valuable knowledge to enhance the quality of policing.

From the point of epistemology, in dealing with wicked problems, the positivist approach is not sufficient. Approaches like interpretivism or constructivism offer extra possibilities in describing and explaining problems in the social world. For these reasons, it is useful to be informed about discussions on wickedness, include the knowledge into conversations about safety in the field of policing, as well as to police vocabulary. The concept of wicked problems in social sciences is known already for more than forty years and has a direct link to policing. Problems of safety are never the same and should be carefully studied before solving them. It is difficult even to imagine a problem of safety that could be solved solely by a single actor (like the police), and - like Loader and

Walker (2007, p. 2) famously stated -, “writing about contemporary security requires one to come to terms with much more than the nation-state and its police, military and cognate security operatives”. In police studies, this kind of research design is seldom-used.

For the reasons described above and having an ambitious purpose for more comprehensive knowledge of safety for the sake of the development of policing, it is useful to look at some other fields that have advanced knowledge in these issues. Political science has long traditions in dealing with complex and multidimensional problems that penetrate all of society. Since safety problems are often linked to various disciplines (e.g., education, planning, law, psychology) at various levels (e.g., individual, group, society), the networked nature of the topic is a vital characteristic to keep in mind. The dubious and networked context is also the reason to look towards the more experienced field in dealing with wicked problems from a network perspective. In this article, the analytical framework offered by van Bueren, Klijn, and Koppenjan (Van Bueren et al., 2003) will be presented as one possible tool and will be tested on the Estonian case. In 2016 the Estonian Police and Border Guard Board carried out the study (Suve, 2016) with a purpose to identify how the questions of safety are understood by different domains (education, safety, local municipality, public service, third sector, media) and regions (five of fifteen counties were examined). In this article, the results of this qualitative study will be analysed by using the above stated analytical framework, which is specially designed to analyse complex and uncertain problems. The framework offers the concept to identify policy games (series of interactions between actors), arenas (places where specific groups of actors interact on an issue), and networks (collection of stable relations among mutually dependent actors). (Van Bueren et al., 2003, p. 195)

LITERATURE REVIEW

Extensive use of the idea of wicked problems within various disciplines is presented above, and there is no need to repeat it here. In this section, the appearance of the term “wicked problem” in police literature is under closer examination. The frequency of using the term “wicked problem” does not characterise the actual approaching of wicked problems in a particular field. However, it may characterise the embeddedness of some knowledge from fields related to the term. For example, if the term is rarely used in the field of the police, it does not mean that the police literature is covering only simple or complex (or tame) problems and not dealing with wicked problems. Still, it does indicate the lack of use of the terminology that is familiar to some other field that has a broader audience and better potential, capabilities, or traditions in developing this particular topic. The field of police is narrow and holds less “man-power” (i.e., capabilities) compared to many other fields like political science, management, or even criminology. For these reasons, learning and using knowledge from other disciplines is crucial for the police. Since the police are only one of many players in the field of safety, it is an excellent example to characterise the interdisciplinary ethos enclosing the police. However, this particular ethos refers to the mindset necessary in policing (e.g., focus on cooperation and networks).

The wicked problem as a concept has been developed in a variety of studies starting from the 1970s across several scholarly disciplines (e.g., public management and governance, climate change response policy, health care policy and programs, urban and regional planning, business management (see Head & Alford, 2015, pp. 715-716). Although the problems of general safety, as well as any particular problem of safety, are widely recognised as wicked problems, the topic is rarely used in police literature. For example, a search for the term wicked problem in police journals indexed on Web of Science (WoS) and Scopus, is represented

in Table 1¹. The results presented, quite explicitly visualise the use of the term in the field of policing.

TABLE 1. The search results for the term wicked problem from Google Scholar and police journals.

Title of journal	Search from Google Scholar published in the journal with all of the words: wicked problem	Search from the homepage of the journal from “anywhere”
Policing & Society	12	13
Police Quarterly	4	4
Policing: An International Journal of Police Strategies & Management	5	4
Police Practice and Research	5	6
Policing: a Journal of Policy and Practice	9	10
Journal of Police and Criminal Psychology	2	2
Journal of Policing, Intelligence and Counter Terrorism	0	1

Source: Google Scholar; the homepages of police journals: Policing and Society. An International Journal of Research and Policy; Police Quarterly; Policing: An International Journal of Police Strategies & Management; Police Practice and Research; Policing: a Journal of Policy and Practice; Journal of Police and Criminal Psychology; Journal of Policing, Intelligence and Counter Terrorism.

Although the concept of a wicked problem - as it is mostly known today - was introduced more than forty years ago (see Rittel & Webber, 1973), its importance in dealing with complex social issues is still rising and continually gets attention in various fields (see Head, 2018). This article contributes to boosting the discussion related to wicked problems in the field of policing.

Rittel and Webber (1973) coined the term “wicked” as a label for the most challenging problems facing decision-makers. (Ney & Verweij, 2015, p. 1679) In the seminal article (Rittel & Webber, 1973), the authors characterised wicked problems as follows:

¹ The reason for using WoS and Scopus as sources for data is simple: these databases cover an influential and extensive number of sources from academic journals. The indexing system is important since the data selected for an academic study should be comparable at least at some level, and WoS and Scopus satisfy these conditions. (See e.g. Meho & Yang, 2007; Aghaei Chadegani et al., 2013)

- There is no definitive formulation of a wicked problem.
- Wicked problems have no stopping rule.
- Solutions to wicked problems are not true-or-false, but good-or-bad.
- There is no immediate and no ultimate test of a solution to a wicked problem.
- Every solution to a wicked problem is a ‘one-shot operation’; because there is no opportunity to learn by trial-and-error, every attempt counts significantly.
- Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.
- Every wicked problem is essentially unique.
- Every wicked problem can be considered to be a symptom of another problem.
- The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem’s resolution.
- The planner has no right to be wrong.

Since the idea about wicked problems developed in the literature of planning (Peters, 2017, p. 387), it is from that point closely related to the police as one of the most experienced and professional planners and decision-makers on safety issues.

The way how police are organised has a remarkable impact on police behavior (see, e.g., Corder, 2016). For this reason, the following organisational aspects are emphasized. From an organisational perspective, the term wicked problem has got much attention. The ideas elaborated by Keith Grint (2005) are widely known and complementary to the ideas of this article. Grint conceptualised a hierarchy of problems in

organisational settings and developed a typology of problems, power, and authority. Increasing uncertainty about a solution to a problem (the level of wickedness) is related to the requirement for collaborative resolutions. (Grint, 2005, p. 1477) The latter is useful knowledge in managing every organisation, but certainly has excellent value for the police who are always dealing with various kinds of problems with different complexity. “Successful problem solving requires finding the right solution to the right problem. We fail more often because we solve the wrong problem than because we get the wrong solution to the right problem.” (Ackoff, 1974)

METHODS

Networks are a part of our everyday life, but not only. Together with hierarchy and market, the networks can be seen as a particular mental frame of seeing the world. (See, e.g., Meuleman, 2008) Hence, tools designed to analyse networks could be an adequate choice. It does not mean that in a networked society, all problems should be handled through the lenses of the network mindset. However, there are many of these which are worth a try.

Safety is a concept penetrating all (networked) society, and often it is difficult to recognise a particular problem and even associates. These are interrelated concepts, which makes all the situations even more complicated. Thus, defining a problem as well as associates, are both critical concerning the solution. It would be useless to collect or focus on more extensive knowledge without knowing what the problem is. For deciding or choosing what the problem is - since often there are several possibilities to frame the problem -, available information should be elaborated as much as possible. The latter is the challenge of this article.

In dealing with wicked problems, we first should admit the relational nature of social reality. (See e.g., Emirbayer, 1997) Without falling into details regarding relational sociology, it is an overall consensus that social facts are socially constructed. Aaro Toomela (2016, p. 519) stated: “We know that the very same element has a different quality in different structures, and with combining diverse elements into the whole, the qualities of the whole will change.” So, the new or changing relations are the causes of change, not entities or facts per se. And from the perspective of safety as a wicked problem, we should keep in mind that “a chaotic social system may appear completely random, but there is always an underlying and generative (real) unplanned order, deeper mechanisms, and hidden figurations (patterns, rules, or norms), which are patiently waiting to be discovered and uncovered [...]”. (Tsekeris, 2013, p. 102)

Erik Hans Klijn’s and Joop Koppenjan’s contribution to the research of policy network governance is an acknowledged fact. Together with Ellen van Bueren, they published (2003) an article dealing with wicked

problems in networks and elaborated on the idea that offers one possible solution to the previously stated problem: how to reveal “hidden figurations.” Regarding this article, the proposed framework will be tested with the purpose of finding out what are these hidden patterns or structures attendant to particular safety problems (see the case of Estonia below).

There are three central concepts of policy network analysis (van Bueren, Klijn, & Koppenjan, 2003):

1. Games (a series of interactions between actors that focus on influencing problem formulations, solutions, and procedures regarding an approach to a particular policy issue).
2. Arenas (places where specific groups of actors interact on a matter and make choices on specific aspects of the issue).
3. Networks (connection of stable relations among mutually dependent actors).

Networks and arenas are not separated, and policy games can occur in a single arena, but often, it is more complicated. In a policy game, four clusters can be distinguished. (1) Social causes are about the nature of an interaction; is it sufficient for tackling the problem, or new linkages are needed. (2) Cognitive causes are about perceptions and knowledge; what are the possible threats that may result from ‘dialogues of the deaf’. (3) Institutional causes are about supportive and facilitative institutions that actors can share (e.g., rules, values, relations, shared languages). (4) Network management concerns strategies or techniques to ensure a working network (e.g., how to reach agreements between parties involved in a policy game). (Van Bueren, Klijn, & Koppenjan, 2003: 195-197)

From that point, the next part will focus mainly on two general tasks:

1. What is known:
 - What are the three main games (=safety issues) revealed in the Estonian case?
 - What arenas were identified in every ‘game’?

- What evidence about possible networks revealed?
2. What is unknown: what is unstated (hidden), but useful knowledge that was revealed in exercising the framework.

Before turning to the discussion of the Estonian case, two particular factors should be highlighted. First, one characteristic of wickedness is person-dependence. It means that even if there is an agreement about a problem, views for solutions may still differ to a great extent. For that reason, the opinion of citizens is essential and should be as precise as possible. Second, problems that initially look similar may have different levels of complexity (see, e.g., the example of gun violence in the US, Canada, and Australia (Newman & Head, 2017)).

DISCUSSION

Testing the network analysis tool on the Estonian case.

The Estonian police from the perspective of the organisation and its tasks is a poorly studied matter. Only lately, have studies been carried out and published in scientific journals. (See e.g., Suve, 2014; Suve, Selg, & Sootla, 2015; Suve, Selg, & Sootla, 2016; Suve, 2017)

An example for this article is the latest analysis (Suve, 2016) and one that tries to engage important players from various domains and regions in the Estonian field of safety to find out their perceptions of safety problems.

Estonia has 15 counties, and five of them were selected for analysis. The counties are divided into municipalities that have significant autonomy to organise the life of its inhabitants. The purpose of the selection, was to encompass knowledge and experiences from perspectives that have a significant impact on social life: size of the district (big (e.g. Harju county) and (small e.g., Saare county); seasonal effects (e.g., Pärnu county as the 'summer capital' and Tartu county as a university town); and cultural factors (e.g. Ida-Viru county as a mainly Russian speaking community, and Saare county as an island separated from possibilities that are natural for citizens on the mainland).

Since there is no existing list of domains that influence safety, and to focus on safety in Estonia at the municipal level, the following domains were selected into the analysis:

- The business sector: four representatives of companies from every county. Two of them from service and two from the production industry.
- The non-profit-making sector: one representative from a youth organisation, one from an elderly organisation and one from a free time organisation from every county.

- The educational sector: from every county one representative from a high-school, one from a vocational school and one from a university (since in Pärnu, Saare, and Ida-Viru county there are no universities, but colleges, the latter was selected for the analysis).
- The criminal justice system: one lawyer, one representative of a prosecutor's office, chief of police, and one judge were selected.
- The public sector: two representatives from public sector organisations in every county were selected.
- The media: from every county one representative from the 'written media' and one from visual media were selected;
- Local government: a county governor and two municipalities (the biggest and a small) from every county were selected.

Document analysis and semi-structured interviews were the methods used in the study. One hundred and one interviews were conducted in total, and qualitative analysis methods were used. Since the interviewees were the leaders of organisations selected for the analysis, the study can be understood as an elite study (in a sense that it grasps people from positions of high responsibility who have a significant influence on social life). The purpose of the latter was to embrace highly influential people from various fields to understand opinions and needs that have a substantial impact on safety arrangements. (Suve, 2016: 6) This sample may also be one of the implications since it grasps people mainly with higher education, and neglects "ordinary" people. However, the latter does not have any impact on this research.

FINDING GAMES, ARENAS, AND NETWORKS.

For a better comprehension of the discussion below, some additional descriptive remarks are vital to emphasize. The question about safety was formulated as follows: What is the most outstanding problem of safety (in 2016)? The following three general safety issues (=games) were identified. The first and most important safety issue for interviewees can

be defined as “an external enemy.” The latter had two distinct characteristics: (1) fear about the independence of the state, and (2) vague anxiety regarding immigration and terrorism. The concern related to national security is biased more towards the sphere of security (i.e., has a more state-level character). In Estonian, there are words “turvalisus” and “julgeolek”. The former is used most often and in a broader sense, and frequently includes both, safety (e.g., crimes, well-being) and security (e.g., independence of the country). The latter (julgeolek) is mainly used in the context of violent threats to the country (e.g., war). Although the line between safety and security is blurred in many disciplines, in the Estonian term “safety” is mostly used to describe topics related to the police, while “security” is where the military is under discussion.

TABLE 2. The wickedness of the safety issues (games) in Estonia 2016

	Terrorism and the problems related to refugees	Social problems related to urbanisation, poverty, unemployment, and education	Crimes and safety in traffic
A definitive formulation	No single definition	No single definition	No single definition
An adequate stopping rule	No	No	No
Solution: true-or-false or good-or-bad	Good-or-bad	Good-or-bad	Good-or-bad
Immediate or ultimate test of a solution	No	No	No
Possibility for trial-and-error	No	No	No
An enumerable (or an exhaustively describable) set of potential solutions	No	No	No
The uniqueness	Always unique, and renewing	Constantly renewing	Ever-changing
Possible symptoms of another problem	Segregation, excluded groups	Problems of economic and/or social policy	Distrust, inequality
A discrepancy representing a problem	E.g. local/global	E.g. liberal / conservative perspective	E.g. responsibility of the state or citizens
The implications of a mistake in planning	May be catastrophic for a nation	Huge impact on a state's development	Distrust in society

Source: the author, based on the principles of Rittel & Webber (1973).

Terrorism and the questions related to migration constitute the first group. Problems related to international relations were kept out of the analysis (e.g., Brexit, the war in Ukraine). Social problems related to urbanisation, poverty, unemployment, and education constitute the second group of safety issues affecting the interviewees. The third group consists of criminality and safety in traffic, are these concerns that traditionally belong to the sphere of safety (regarding the police and law enforcement), and were also denoted as an outstanding problem of safety.

Also, the wickedness of the safety issues (games) should be identified since the framework proposed is designed primarily to analyse wicked problems. Without going into detail, the wickedness of the “games” seems to be beyond doubt (see Table 2 below). Because of the limits and the purpose of this article, the detailed assessment of wickedness is not possible or necessary.

The next step for further analysis is to specify the safety issues in order to reveal what was said. The study of safety in Estonia had a specific aim related to safety issues: discover the main problems of safety from the perspective of people whose opinions have a significant impact on social life. It was not designed because of the analytical framework used in this article. For that reason, the study is suitable for this analysis.

The topics of semi-structured interviews were the following: has safety in Estonia changed (since 1991) or how has it changed, and what might be the reasons for that?; What may be the most significant problems related to safety in 3-5 years?; How has the function of the police changed (since 1991)?; And, from the perspective of safety, what expectations do you have of police leaders and/or politicians? It is appropriate to emphasize the general opinion concerning the situation of safety in Estonia in 2016: Estonia is a safe place to live, was the general assumption of interviewees. (Suve, 2016, p. 15)

TABLE 3. The three main problems of safety through the eyes of interviewees

	THE THREE MAIN SAFETY ISSUES (GAMES) IN ESTONIA 2016		
	Terrorism and the problems related to refugees.	Social problems related to urbanisation, poverty, unemployment, and education.	Crimes and safety in traffic.
Social causes (the nature of interaction)	A branch and organisation based rigid budgeting system together with public-private separation were highlighted as the main sources supporting fragmented governance, and were identified as an obstacle to closer cooperation.		
	The fear related to immigration, was put into highest place only by respondents from the field of municipalities. Representatives from other fields did not see the question as the most important.	Urbanisation leads the way to a widening gap between people due to unequal availability in various domains. An unfortunate integration policy amplifies communication problems between different national groups.	Media and the people - in the case of traffic safety, there is dissatisfaction with the amount of negative information provided by the media.
Cognitive causes (perceptions and knowledge)	People have a need for an expert opinion which would help to orient a huge amount of information and avoid 'dialogues of the deaf'.	Respondents from different age groups and with different educational backgrounds rate the importance of social problems differently by emphasizing different aspects of social problems (e.g. people having a lower secondary education or secondary education did not put the social problems in a high position within safety problems).	People from different educational as well as age groups are often in different positions about the penal policy - the question is about the harsh or soft penal policy.
Institutional causes (supportive and facilitative institutions that actors can share)	A fear and being in the dark concerning the effects of the forthcoming municipal reform in Estonia, but also with the impact of Brexit, were factors that influenced people's opinion about the uncertain institutional environment through the interviews.		

	<p>Traditional actors (from the Estonian point of view) in the field of safety like the police, municipalities, and private security companies were mainly seen as separate and fragmented. The monopoly of the knowledge of safety was often associated with the police, and for this reason, other actors were not seen as trustful.</p>		
	<p>A low level of professionalism in (safety) governance on different levels (e.g. ministries, boards) with low ambitions and ambiguous or unstated purposes causes distrust and complications in knowledge sharing.</p>		
		<p>Diverse language groups (e.g. Russians) with poor knowledge of Estonian reduce (1) possibilities for cooperation and (2) for actual participation in the (market) competition.</p>	
<p>Network management factors (strategies or techniques)</p>	<p>The changing role of the police from a police force to a strategic and equal partner in the field of safety raised a question and emphasized the importance of an ability of local municipalities and other actors in managing and participating in safety networks.</p>		
	<p>The increasing gap between the state and the people, and the lack of using techniques of deliberative democracy were often the pronounced aspects from the perspective of the coherent management of safety issues.</p>		

Source: the author, based on the principles of van Bueren, Klijn, & Koppenjan (2003).

The issues described in Table 3 above indicate that the question of safety is not defined through criminality, but has a broader character, and from that point supports the term used in this article. The results affirm the general understanding that criminality is not the case for most people in Estonia. In autumn 2016, only 3% of Estonian people stated that criminality is the most critical issue for the state. The most important topics were health- and social policy (41%), the economy (33%), and unemployment (24%). From the perspective of this article, it is also important to mention that problems related to immigration also have a significant influence on people (19%). (Ahven et al., 2017, p. 16) For a better understanding of the Estonian context, and particularly from the point of the most crucial safety issue (terrorism and problems related to refugees) it is fruitful to notice that at the time of writing this article, Estonia has not witnessed any terrorist attack in a sense we know from the USA,

London, or Paris. A similar situation may be identified related to the question of refugees - between 1997-2016, Estonia gave a status of refugee to 175 people. (MTÜ Eesti Pagulasabi / Estonian Refugee Council, 2017) Although the total number does not appear to be a problem from the perspective of many other countries (e.g., Italy, Germany, France, or Greece), in Estonia, it is a debatable matter of public opinion. It is complicated to mark the only reason for the latter, but the close history of (occupied) Estonia hides probably some causes for that.

TABLE 4. Identified arenas and networks.

	THE THREE MAIN SAFETY ISSUES (GAMES) IN ESTONIA 2016		
	Terrorism and the problems related to refugees.	Social problems related to urbanisation, poverty, unemployment, and education.	Crimes and safety in traffic.
Identified arenas	Nation states and international alliances (e.g. EU, Interpol)	EU, the Estonian government (incl. the Parliament), county-level municipal governance.	International level (e.g. organised crime and drug problems, political decisions like Merkel's welcome policy); the Estonian government and governmental agencies (e.g. the police) and other organisations (incl. public as well private, but also local government agencies).
Mentioned networks	Networks related to safety (e.g. the police) and economy (e.g. international organisations like the IMF or EU, and decisions of the State on a liberal or conservative scale)	Networks (mainly international) related to the economy, but also state level social policy and economic decisions related to the budgeting of local governments	Networks related to legal systems (e.g. the police, prosecutors office, and courts) and particular environmental aspects (e.g. road services, security companies, drug- and alcohol policy)

Source: the author, based on the principles of van Bueren, Klijn, & Koppenjan (2003).

In order to test and demonstrate the framework, a comprehensive analysis of a particular game, arena, and network is not necessary. However, in order to clarify the context, some remarks about the arenas and networks

described in table 4 above will still be presented. One, and probably the most crucial comment concerns the levels of arenas. The interviewees gave little or no importance to the micro (a person) level in describing safety problems. A similar trend appeared in analysing the network perspective: the attribute-based perspective dominated over an individual-based perspective. The latter means that causes of problems were often seen as rooted in some institutions (e.g., economy) or organisation (e.g., EU) instead of having a relational nature (especially from the individual perspective). (See e.g., Marin & Wellman, 2011)

It can be summarised that the problems, sources of the problems, as well as solutions, are mainly related to “others” than oneself. Discussions often stop at the level of group or organisation or in some other fields or domains.

CONCLUSIONS

Even with all of these challenges, quality policing is crucial. The concept of a policy network approach has been proved in other fields, and now it's great potential in policing has been revealed. It is vital to have a tool with the capacity to get more from the data already gathered. The benefit of this research is not related only to the particular results of the analysis. The research lays out the strength of interdisciplinary thinking and in this way, encourages people from the field of safety to look at and test tools from other disciplines.

However, the results of this research are impressive. The used framework clarified problems as well as opened a context, which could be reported as an instrumental result of this study. The possibility to improve the quality of information dramatically in using an appropriate tool from outside the field of police is the most important and forward-looking outcome of this study. From that point, it may raise a question for police education as well as management. Quality of information for decision making in the context of overall complexity is crucial. The idea and habit of looking for tools outside of a particular field is the necessary precondition for successful policing. Interdisciplinarity is not a buzzword, but has a profound idea behind it. For these reasons, it is useful to be aware of discussions in related fields.

The police are a crucial player in the field of safety and are often expected to say how things should be. The use of the analytical framework presented by van Bueren, Klijn, and Koppenjan (Van Bueren et al., 2003) offers an inspiring example and valuable knowledge for the future.

Although three main safety problems in Estonia were highlighted, terrorism is the one that is the most significant. It is useful to stress that until this study, not a single terrorist act has been carried out in Estonia. Despite that, terrorism was the most critical problem of safety, according to the study. It is an excellent example to illustrate the potential of the proposed framework of analysis. Moreover, terrorism as a concept is often recognised as a wicked problem. (See e.g. Horn & Weber, 2007; Camillus, 2008; Weber & Khademian, 2008; Ranstorp, 2009) In

this article, terrorism was handled as a criminal threat, not as a military act. Although in the literature on terrorism there is not a consensus between the two, the former is more understandable for the police audience. However, terrorism and the case of Estonia are only examples of the introduced framework.

More profound studies from several cases and using different data is needed. In this article, the example is limited to arenas and networks. However, from the perspective of crime prevention, terrorism has its roots in a community - the terrorists are humans, not some abstract entities. The analysis revealed a trend to think that there are 'others' like institutions or policies that have a close and responsible connection to safety. The micro-level (individual) got almost no attention. From the point of safety arrangements and policing, this is probably the most valuable knowledge of this article: it is easy to stick to the inappropriate level of a problem or wrong (visible) problem, which was the apparent threat that arises from the Estonian case. The problem of terrorism was handled only at the international or state level. Both are important in the sense of cooperation, information sharing, or setting the normative and moral context. However, the international and state-level mechanisms can be applied only by and to the people. Concerning networks, a similar gap can be recognised. Terrorism remained handled mainly as problem-related domain like safety and the economy (as attributes!). Both mentioned are essential, but not nearly all that influence terrorism. Domains like social policy (e.g., subsidy, job market), inequality (e.g., tolerance), city planning (e.g., segregation), local policy (e.g., inclusion-exclusion dilemma) also have influence on how local people or immigrants may feel themselves.

Since the article was limited to only one case study and a single type of data, further studies are needed to test and advance the framework of network analysis in the field of policing. It would also be useful to test some combinations of tools for more detailed results for policing, police education, or organisational design.

Contacts:

Priit Suve

E-mail: priitsu@tlu.ee

Phone: +372 502 4585

REFERENCES AND SOURCES

- Ackoff, R. L. (1974). Redesigning the future. *New York*, 29.
- Aghaei Chadegani, A., Salehi, H., Yunus, M. M., Farhadi, H., Fooladi, M., Farhadi, M., & Ale Ebrahim, N. (2013). A comparison between two main academic literature collections: Web of Science and Scopus databases. *Journal of Informetrics*, 2(4), 304–316.
- Ahven, A., Kruusmaa, K.-C., Leps, A., Tamm, K., Tammiste, B., Tüllinen, K., Sööt, M.-L. (2017). *Kuritegevus Eestis 2016*. Tallinn: Justiitsministeerium.
- Bayley, D. H. (2016). The complexities of 21st century policing. *Policing: A Journal of Policy and Practice*, 10(3), 163–170.
- Camillus, J. C. (2008). Strategy as a wicked problem. *Harvard Business Review*, 86(5), 98.
- Conklin, J. (2001). Wicked problems and social complexity. *CogNexus Institute*.
- Conklin, J. (2006). *Wicked problems & social complexity* (p. 11). San Francisco, CA: CogNexus Institute.
- Cordner, G. W. (2016). *Police administration*. Routledge.
- Das, D. K., & Verma, A. (2003). *Police mission: Challenges and responses*. Scarecrow Press.
- Devroe, E., & Terpstra, J. (2015). Plural policing in Western Europe: a comparison. *European Journal on Policing Studies*, 2, 11.
- Donnermeyer, J. F. (2002). Local preparedness for terrorism: A view from law enforcement. *Police Practice and Research*, 3(4), 347–360.
- Dunn, W. N. (1988). Methods of the second type: Coping with the wilderness of conventional policy analysis. *Review of Policy Research*, 7(4), 720–737.
- Emirbayer, M. (1997). Manifesto for a relational sociology. *American Journal of Sociology*, 103(2), 281–317.
- Ferlie, E., Fitzgerald, L., McGivern, G., Dopson, S., & Bennett, C. (2011). Public policy networks and ‘wicked problems’: a nascent solution? *Public Administration*, 89(2), 307–324.
- Ganor, B. (2002). Defining terrorism: Is one man’s terrorist another man’s freedom fighter? *Police Practice and Research*, 3(4), 287–304.
- Greene, J. R. (2007). *Encyclopedia of Police Science: 1-volume set*. Routledge.
- Grint, K. (2005). Problems, problems, problems: The social construction of ‘leadership.’ *Human Relations*, 58(11), 1467–1494.

- Grint, K. (2010). Wicked Problems and Clumsy Solutions: The Role of Leadership. In S. Brookes & K. Grint (Eds.), *The New Public Leadership Challenge* (pp. 169–186). Palgrave Macmillan UK.
- Head, B. W. (2008). Wicked problems in public policy. *Public Policy*, 3(2), 101–118.
- Head, B. W. (2018). Forty years of wicked problems literature: forging closer links to policy studies. *Policy and Society*, 1–18.
- Head, B. W., & Alford, J. (2015). Wicked problems: Implications for public policy and management. *Administration & Society*, 47(6), 711–739.
- Hisschemöller, M., & Hoppe, R. (1995). Coping with intractable controversies: The case for problem structuring in policy design and analysis.
- Hoppe, R. (2011). *The governance of problems: Puzzling, powering and participation*. Policy Press.
- Hoppe, R. (2018). Rules-of-thumb for problem-structuring policy design. *Policy Design and Practice*, 1(1), 12–29.
- Horn, R. E., & Weber, R. P. (2007). New tools for resolving wicked problems: Mess mapping and resolution mapping processes. *Watertown, MA: Strategy Kinetics LLC*.
- Journal of Police and Criminal Psychology. (2017). Springer Link. [Online Source] Available from <https://link.springer.com/journal/11896>.
- Journal of Policing, Intelligence and Counter Terrorism. (2017). Taylor & Francis. [Online Source] Available from <http://www.tandfonline.com/loi/rpic20>.
- Koppenjan, J., & Klijn, E.-H. (2004). *Managing uncertainties in networks: A network approach to problem solving and decision making*. Routledge.
- Lagerspetz, M. (2017). *Ühiskonna uurimise meetodid. Sissejuhatus ja väljajuhatus*. Tallinna Ülikooli kirjastus.
- Marin, A., & Wellman, B. (2011). Social network analysis: An introduction. *The SAGE Handbook of Social Network Analysis*, 11.
- Meho, L. I., & Yang, K. (2007). Impact of data sources on citation counts and rankings of LIS faculty: Web of Science versus Scopus and Google Scholar. *Journal of the Association for Information Science and Technology*, 58(13), 2105–2125.
- Meuleman, L. (2008). *Public management and the metagovernance of hierarchies, networks and markets: The feasibility of designing and managing governance style combinations*. Springer Science & Business Media.
- MTÜ Eesti Pagulasabi /, & Estonian Refugee Council. (2017). Pagulased Eestis. [Online Source] Available from <http://www.pagulasabi.ee/pagulased-eestis>. (Accessed 08.07.2017).

- Newman, J., & Head, B. (2017). The national context of wicked problems: comparing policies on gun violence in the US, Canada, and Australia. *Journal of Comparative Policy Analysis: Research and Practice*, 19(1), 40–53.
- Ney, S., & Verweij, M. (2015). Messy institutions for wicked problems: How to generate clumsy solutions? *Environment and Planning C: Government and Policy*, 33(6), 1679–1696.
- O'Malley, P., & Hutchinson, S. (2007). Converging corporatization? Police management, police unionism, and the transfer of business principles. *Police Practice and Research*, 8(2), 159–174.
- Paterson, C. (2011). Adding value? A review of the international literature on the role of higher education in police training and education. *Police Practice and Research*, 12(4), 286–297.
- Peters, B. G. (2017). What is so wicked about wicked problems? A conceptual analysis and a research program. *Policy and Society*, 36(3), 385–396.
- Police Practice and Research. (2017). Taylor & Francis. [Online Source] Available from <http://www.tandfonline.com/loi/gppr20>.
- Police Quarterly. (2017). SAGE Journals. [Online Source] Available from <http://journals.sagepub.com/home/pqx>.
- Policing: a Journal of Policy and Practice. (2017). Oxford Academic Journals. [Online Source] Available from <https://academic.oup.com/policing>.
- Policing: An International Journal of Police Strategies & Management. (2017). Emerald Insight. [Online Source] Available from <http://www.emeraldinsight.com/journal/pijpsm>.
- Policing and Society. An International Journal of Research and Policy. (2017). Taylor & Francis. [Online Source] Available from <http://www.tandfonline.com/toc/gpas20/current>.
- Powell, C., & Dépelteau, F. (2013). *Conceptualizing relational sociology: Ontological and theoretical issues*. Springer.
- Ranstorp, M. (2009). Mapping terrorism studies after 9/11: an academic field of old problems and new prospects. In *Critical terrorism studies* (pp. 27–47). Routledge.
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169.
- Rittel, H. W., & Webber, M. M. (1974). Wicked problems. *Man-made Futures*, 26(1), 272–280.
- Rogers, C., & Frevel, B. (Eds.). (2018). *Higher Education and Police: An International View* (1st ed. 2018 edition). S.l.: Springer.
- Suve, P. (2014). Kogukonnakeskse politsei roll politsei kujunemisel: arengud Eestis 1991–2013. *Acta Politica Estica*, (5), 42–62.

- Suve, P. (2016). Eesti elanike kujutlused turvalisusest ja politseist 1991-2021. Analüütiline raport. Politsei- ja Piirivalveamet.
- Suve, P. (2017). Do police strategies help promote creative policing? *European Journal of Policing Studies*, 4, 349–371.
- Suve, P., Selg, P., & Sootla, G. (2015). Designing Multidimensional Policing Strategy And Organization: Towards A Synthesis Of Professional And Community Police Models. *Baltic Journal of Law & Politics*, 8(1), 28–54.
- Suve, P., Selg, P., & Sootla, G. (2016). Two Decades of Estonian Police and the (Ir) Relevance of Police Models for the Development of Safety Policy. *Studies of Transition States and Societies*, 8(1), 36–52.
- Toomela, A. (2016). *Kultuur, kõne ja Minu Ise*. Eesti Keele Sihtasutus.
- Trifonoff, A., Nicholas, R., Roche, A. M., Steenson, T., & Andrew, R. (2014). What police want from liquor licensing legislation: the Australian perspective. *Police Practice and Research*, 15(4), 293–306.
- Tsekeris, C. (2013). Norbert Elias on relations: Insights and perspectives. In *Conceptualizing Relational Sociology* (pp. 87–104). Springer.
- Van Bueren, E. M., Klijn, E.-H., & Koppenjan, J. F. (2003). Dealing with wicked problems in networks: Analyzing an environmental debate from a network perspective. *Journal of Public Administration Research and Theory*, 13(2), 193–212.
- Weber, E. P., & Khademian, A. M. (2008). Wicked problems, knowledge challenges, and collaborative capacity builders in network settings. *Public Administration Review*, 68(2), 334–349.