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Measures for police performance in Spain and Finland

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1. Introduction

Measures for police performance, i.e. performance measurement (PM) tools for police work are analyzed in this entry chapter. This entry suggests practical performance measures for analyzing police work quality, cost-effectiveness and risks, and is based on a comparative case study using both qualitative and quantitative data from Spain and Finland. Performance measurement (PM) within the public administration has grown in both number and importance, even if measuring for example police performance is not easy because of the intangible nature of safety and some other outputs (see Lapsley, 2009; Rautiainen et al., 2017). Performance measures (or indicators) are currently an integral part of police work, focusing on the quantifiable elements of performance, such as services or operations performed or on the public perceptions on police (Rautiainen et al. 2017). However, there are differences between countries in the ways of public service production, and thus the applicable key performance indicators (KPIs) may also differ. The service field and country-specific differences offer an interesting field for comparative public administration (CPA, see Jreisat, 2018) analysis.

In official police reporting, there are typically relatively few KPIs about police work quality and risks, even if police work may be different in different countries and regions (Rautiainen et al., 2017). Exact all-round indicators of police performance are difficult to find because in different contexts and circumstances also different performance management is needed. Therefore, comparative case research into KPI development and risk issues at different analysis levels (local police, national police and society) may reveal new insights for improving police work management. Generally, police functions include defending public security and maintaining order and law compliance. Yet there are several focus areas of police service provision. It is not clear how performance in these areas (e.g., in citizen security or traffic security) can be measured and what KPIs are emphasized in police work. Further, the measures needed and the perceived value created for the public may differ depending on the focus of operations, such as number of arrests etc. or achieving of social impact (Davies, 2017; Trochmann and Gover, 2016).

This entry chapter analyses the risks and applicable PM indicators of police work, comparing Finland and Spain, targeting to develop value-added risk-and-quality balanced measures for managing police work performance, taking into account the country-specific differences. This entry therefore analyses the similarities and differences among Police PM in Finland (a Northern European country with about 5 million inhabitants only) and in Spain (a Southern European country with 46 million inhabitants). The comparison of police work in two European countries with different sizes and traditions allowed us to understand the complexity of police performance management and to further develop and design new performance indicators to measure police work quality and risks in a balanced way.

There is much research on performance indicator design in the public sector. Typically the research has emphasized key performance indicators (KPI) in balancing financial and operative perspectives of public sector operations (Batac and Carassus, 2009; Muñoz et al., 2006). There is also a lot of accounting and PM research into health services but the risks in public sector operations have received relatively little attention (Lapsley, 2009). Further, several political and other stakeholders are present in the public sector may affect managerial decision-making and complicate the use of KPIs. Therefore, police work stakeholders may benefit from assessing performance in a balanced way, i.e. taking into account multiple performance aspects, such as risks, cost-effectiveness and the citizens' perception of the quality of service.

There are a few accounting studies on police services and police PM (e.g., Carmona and Grönlund, 2003; Collier, 2006; Rautiainen et al., 2017). These studies have noted the complexity of police work PM and the difficulty of creating KPIs that foster cost-effectiveness. Further, there is literature on police strategic and risk management, where it has been noted that the risks of police work relate for example to community unrest, use of force (Davies, 2017; Trochmann and Gover, 2016), or perceived stress (Hart et al., 1993). Stress and community unrest may also be visible at the organizational level financially because of, for example, absences or in overtime pay (De la Fuente et al., 2013; Niemi, 2012; Vuorensyrjä, 2012). In risk-management focused police research the focus often tends to be either on financial or personal aspects (e.g. Kohan and Mazmanian, 2003),

though these are not necessarily disconnected issues, and there may also be political risks related to financial budget negotiations (Rautiainen et al., 2017). The diversity of police work complicates the design of balanced indicators so that overall cost-effectiveness and the risks of services are difficult to measure (Diez-Ticio and Mancebon, 2002). Thus, there is a need for analysis of KPIs, risk management and managerial decision-making in security services among European countries with differing sizes and cultural backgrounds (see Carmona and Grönlund, 2003; Collier, 2006). Here an aim is to combine aspects of PM, quality and risk management by creating comparable police cost-effectiveness indicators for police managers and for future PM research. In order to understand the differences and similarities in the police work, a comparative approach is used, i.e. police organizations from differing European countries with potential differences in operating culture and risk management, are observed. The research questions (RQs) are as follows:

RQ1: What KPIs on quality and risks of Police work are used in Spain and in Finland?

RQ2: What kind of complementary indicators might be developed based on existing PM and risk data?

In case studies the use of both numerical and qualitative data (mixed data) may be useful, although often qualitative interpretive case research tradition is mainly followed. This means looking for meanings in the case events and data in order to understand how performance indicators might be used in a more motivating way, redesigned or new measures constructed (Kasanen et al., 1993). The research questions will be answered based on analysis of Police work KPIs in Finland and in Spain available on the internet, using archival data and published reports, and data from interviews and discussions with police managers and other personnel. Further, additional qualitative data was gathered in 2013 with 11 recorded follow-up interviews with police officers in both Spain and Finland (Appendix 1). These interviews provide a perspective on the trends of police work.

Contributions to public sector PM literature are sought for by comparing police PM in two European countries with quality, efficiency and risk measurement focus (Lapsley, 2009; Kohan and Mazmanian, 2003). This increases accounting knowledge of risk-based indicators suitable for police work performance measurement. Next, the Spanish and Finnish cases are introduced, including analysis of the disclosure, usefulness and comparability of KPIs. Finally, new measures for risk-based performance both in terms of financial and professional risks, may facilitate balanced police work performance measurement, including quality, cost-effectiveness and risk issues.

2. Spanish Case Study

The aims of the Spanish Police are to protect citizens, to foster compliance with the law and to control the traffic in the country. The Spanish Police comprise three institutions: the National Police, the Guardia Civil and the Local Police. The National Police and the Guardia Civil are positioned under the Ministry of Interior while the Local Police depend

on the local councils. In Spain, there are 52 provinces and 8,116 municipalities. The Spanish police defends the security of 46.7 million inhabitants, 10% of whom are immigrants (INE, 2013), and has over 60.6 million tourists annually.

Spanish Police work is divided into several areas as Coordination, Traffic, Citizen Security and Harmony, and Administrative and Judicial areas. These functions are divided among the three police bodies. For example, the Local Police and the Guardia Civil have their traffic control competences divided into urban or rural areas. Further, the National Police and the Guardia Civil are more focused on counter-terrorism, cybercrime and environmental crimes, while the Local Police are more focused on citizen security, domestic violence and traffic offences. Currently the three bodies prioritize the measurement of the risks, quality and cost-effectiveness of the services offered to the citizens. Data about each police institution are published on the internet including its aims, services, KPIs and other statistics. The currently published indicators do not provide much information about quality, risks or cost-effectiveness. The statistical information disclosed by each Police Institution may have some differences of focus but the general KPI categories are relatively similar (see Appendix 2). The researchers were involved in the development of police performance reporting practices and the comparability of the KPIs among Spanish regions in a longitudinal municipality project during four years.

In order to examine the qualitative aspects of the research data from 5 follow-up interviews in the Central Spain Police District (Appendix 1) are also used. Regarding the use of KPIs in decision-making, some of the interviewees informed us about a cultural change towards measuring results, instead of inputs, as Appendix 2 shows.

Our main focus is on the citizen perception and satisfaction; therefore, the most important indicators are outcome indicators such as the amount of crime offences solved or the delinquency rate (Interviewee 1).

Absence from work is measured also because high police visibility is seen as preventive activity, even though it is difficult to measure. From the economic point of view the Police are trying to maximize results with the minimum of resources. Gradually cost consciousness is spreading, even though some police officers still consider operative decisions to be separate from finances. These opposite views may, however, frustrate police officers and reduce their job satisfaction.

For some years now rationalization of the services has spread: cost is prioritized when before it never was. Cost indicators were not relevant when we had to make interventions (Interviewee 2).

When the police have to act against crime ... they will not look at the cost of the activity, but reductions in the budget are currently made by reducing investments drastically, so that we have no more new vehicles, offices etc. (Interviewee 3).

Police must achieve the maximum cost efficiency in parallel with citizen satisfaction (Interviewee 1).

Regarding risk and quality analysis, interviewees 1 and 4 saw the development of new crime types and the cutting of resources as risks in police work.

The biggest threat currently to achieving good quality police work, from the operational point of view, is the use of new technologies by delinquents (cybercrime) and by international terrorists. From the financial point of view the budget is decreasing and there are fewer human resources, and from the administrative point of view there is the increase in regulations to comply with and the number of reports to fill in before any intervention (Interviewee 1).

Some qualitative (e.g. political or personal) PM aspects on individual level risks, such as stress, health issues or experiencing physical harm (e.g. by certain demographic groups), can be considered confidential or difficult to measure. This decreases the amount of such KPI information being disclosed, so the risks to different local police organizations cannot be properly compared, with the consequence that local area performance cannot yet be judged based on risk and quality data. Increased disclosure of information might facilitate the development of more comparable indicators of performance.

3. Finnish Case Study

In Finland, there are only 5.35 million inhabitants in total, and far fewer immigrants than in Spain. The Finnish Police are organized as a national unit under the Ministry of the Interior. There are central national sub-units, for example for financial crimes and for national security, and then there are 11 local police areas. The local police areas are not organized under local government organizations, but belong to the one national Finnish Police. Finnish police performance statistics are gathered routinely and systematically in a Crime Reporting System by the local Police areas. Further, the Emergency Response Center (where citizens call for emergency help) keeps statistics on the response times and the number of emergency calls. Lately attention has been paid to the accuracy of statistics, because statistics on costs and effects are an essential part of the funding negotiations with the Ministry of the Interior. Further, when scarce resources have to be faced, the response times are prioritized: crime investigation times do not always need to be fast, but response times need to be. The most important performance information (see Appendix 3) is given to the media and is publicly disclosed on the internet, mostly at the national (aggregate) level.

Some police work KPIs may need to be analyzed together. For example, if the overall funding of the police increases but the number of crimes investigated remains relatively similar, poor cost-effectiveness might be indicated. But an increase in the percentage of severe crimes or drug crimes being solved might give a more in-depth view of the situation. Because the effects of different types of crimes are not known the long-term cost-effectiveness of police work cannot really be stated, but simple indicators potentially representing police work cost-effectiveness can be constructed.

In the sparsely populated areas of Finland, there are automatic traffic surveillance cameras, which are cheaper than police patrols. However, this also indicates a choice towards

preventive controlling and assigning the scarce resources to more strategic crime fighting duties in the urban areas. For example, the average response times for important emergency calls in Finland have decreased in general (especially in the Helsinki capital city area during recent years). Thus, the *average* efficiency may have increased, even though regional differences (variation) in service levels have grown.

Relatively little data is available regarding police work risk factors and the well-being of police officers in Finland. In a medical study, Niemi (2012) noted that police officers often spend a lot of time in a car or in the office and this kind of work increases the risk of diabetes and cardiovascular diseases that are associated with being overweight. Vuorensyrjä (2012) noted that the risk of physical harm towards the police officer or his/her family was considered small in Finland, but police work was considered very hectic. Further, an insufficient flow of information and unwanted leadership styles were seen as possible causes of work-related stress (*ibid.*). Moreover, repetitive administrative duties and complaint management tend to be disliked and, obviously, the perceived fitness level required for field activities deteriorates with aging (*ibid.*).

In the 6 Finnish follow-up interviews (Appendix 1) it was found that without clear rules the employees cannot know what is expected from them, a situation which may lead to lack of focus, frustration and subsequently to low job satisfaction. Further, there is a risk of non-equal practices and costly errors if clear rules for operations are missing.

Now [after a fusion of 5 small police units] ...formal bureaucracy or administration has increased... . Some feel it is frustrating but ... it is necessary. [Interviewee 3]

Under the recent tight economic situation, there has been a clear focus on financial issues and budgetary discipline in police work planning. By prioritizing their operations (e.g. having police officers present at known problem times, such as Friday nights) the police department have managed both to reduce costs and to improve their average response time KPI. With emphasis on a certain KPI (the average response time) and with careful risk-based work planning the cost-effectiveness of the police has improved.

We can't be waiting in scarcely populated areas if there is a call... There is little traffic and few missions... We need to shape our operations according to case density (or crime risk) in order to focus our operations on places where there is the greatest call pressure. [Interviewee 3]

In a way the maximum sentence of certain crime indicates its severity, or weight but... we don't weigh our cases ...Our recent organization changes are financially based but recently... severe crimes have become more prominent, such as organized crime, financial crime and drug crime, and they are not issues just for the local village [Interviewee 1]

This shaping of operations based on crime risks suggests that cost-effectiveness can be improved with risk analysis. However, optimizing of resources may lead to risk of physical harm if suddenly there is a need for more force and back-up units are unavailable.

4. Quality, cost-effectiveness and risk performance measures: some proposals

4.1 Police work quality: the Comparative Quality Factor (CQF)

At the organizational level, next, the use of the *Comparative Quality Factor (CQF)* is proposed as a practical complement to the KPIs already disclosed. The Comparative Quality Factor (CQF) is a weighted average based performance measure that considers the improvements in the operational quality of work, and applies the improvement percentage to the actual amount of output produced, in order to get a comparable figure for the output between separate years, countries or areas. For example if the quality of service has improved by 1 %, the output now is comparable to 1.01 times the output before (assuming some linearity and complementarity in small changes). The quality of police work is difficult to measure, but the crime solving percent and the timeliness of operations (measured according to response times), may be considered proxies for quality. The solving percent might be weighed with the severity of crimes (judging from the average or maximum sentences), if considered necessary. However, the respondents were relatively reluctant to prioritize solving crimes but thought that the police should try to solve everything in order to give a reliable signal to the public. Therefore the first part of the CQF formula below (with 50 % or ½ weight) is calculated based on the *solving percent of the equivalent number of crimes* and the second part (also 50 % weight) is calculated based on the *average response time*.

$$CQF = \frac{\text{Solving \% in year X}}{\text{Solving \% in year X-1}} * \frac{1}{2} * \frac{\text{Crimes in year X}}{\text{Crimes in year X-1}} + \frac{1}{2} * \frac{\text{Response time in year X-1}}{\text{Response time in year X}}$$

The CQF formula is designed so that continuous improvement is striven for. It is considered that improving the solving percent (solving more crimes) is a good thing, especially if the workload (number of reported crimes) has increased. It is assumed that the number of crimes and the distribution of different crime types are relatively comparable among years. Finally, getting to the crime scene faster is considered a good thing, and a shorter average response time in minutes compared to the previous year improves the CQF (because the response time of the previous year is over the division line). The interpretation of the CQF formula is that if the CQF is above one, the effectiveness (also a proxy for quality) of police work has improved.

4.2 Illustration of the Police work cost-effectiveness index

The case analyses show that police work cost-effectiveness is not easily captured. However, in order to have research results that aim at practical developments (Kasanen et al., 1993), next the *Police Work Cost-Effectiveness* index (PWCE) for aggregate level police work analysis (the organizational or even societal level) is proposed. The basic idea of the PWCE index is to calculate the cost of comparable (equivalent) services. For example the value for

the ratio of ‘Funding/number of crimes’ can be multiplied by the Comparative Quality Factor (CQF): see PWCE formula below.

$$\text{PWCE} = \frac{\text{Total Police Funding Year X}}{\text{Total crimes in year X} * \text{CQF}} = \text{Equivalent police cost-effectiveness}$$

The CQF adjustment facilitates better (albeit not perfect) comparability among years and countries. This kind of simplified measure might be useful in decision-making as a proxy measure of progress. The costs per solved (equivalent) crime might be of use in assessing how economical the police work is, but the PWCE type approach (e.g. the CQF) reacts to improvements in multiple areas of service, for example in crime solving and in the timelines of services, thus also potentially revealing trends in police work cost-effectiveness.

4.3. Risk adjusted measurement

Davies (2017) mentions assessment of threat level and other risks in use-of-force-situations. However, threat levels or the importance of assignments are difficult to decide either personally or at an organizational level. For organizational level analyses, preliminary risk analysis approaches are next presented, e.g. for prioritizing different crime cases in police work. First, the risk categorization is presented in Table 1. The different duties are graded using several categories of importance. However, in Table 1, the different columns are not related but represent independent categories so that for example the probability of the crime to recur is not related to the monetary value of the crime. The probability to recur means whether the criminal if not caught is likely to continue committing crimes that cause significant harm to others. Monetary value is involved, for example in burglaries and in financial crimes. Small monetary amounts might be given little weight (low grading). Crimes with a high maximum sentence have already been considered more severe and more important by the legislative bodies. High societal interest may be involved in crimes made against political or business leaders or against nationality or religious groups, where the press may be very interested and even the image of police is in question. However, if it is (almost) certain that the criminal cannot be caught at all the police should not prioritize that kind of investigation. The average grades of the different categories are then added up in order to form an *overall total expected risk score*. The more the total expected risk score of a crime is, the more priority is given to the duty or investigation in question.

< INSERT TABLE 1 HERE >

For example, if probability of recurrence is high, monetary value is medium, maximum sentence 4 to 10 years, and societal interest is low, an overall expected risk score of 10 (i.e. 4+2+3+1=10) is formed. Additional risk categorizations might include using risk data for

the time of day, or for the area (e.g. crimes performed in certain city areas). This information might be used in planning patrol routes and work hours for police officers.

At the personal level of risk measurement, personnel surveys and interviews might be most feasible assessment methods. However, considering the expected impacts of different aspects of police work on well-being, might be made using the *expected (or perceived) risk impact* (ERI) measurement, presented in Table 2.

< INSERT TABLE 2 HERE >

In the example in Table 2, the variables include examples mentioned in earlier research (e.g. Hart et al., 1993). The probability estimations are subjective examples used for weighing the effect of different types of risks on the citizens' perceptions (used for example in Spain). The expected effect on police well-being is estimated here using only four categories 1–4. The effect grades in this example are: 1 (mild positive), 2 (strong positive), 3 (mild negative) and 4 (strong negative). They suggest that negative effects on perceived police work well-being may be more important to avoid than positive effects are to obtain, especially regarding motivation. Further, the impacts of events and personal responses to stress factors (personal danger in use of force situations, repetitive work etc.) may differ among persons, positions, and police organizations (Davies, 2017). Further, even with a low probability, a very high-impact event, such as a police officer being killed on duty, may affect the working capacity of several fellow officers. Overall, the motivational and personal aspects of police work do not seem to be much considered both in Finnish and in Spanish police work reports. Some information may be confidential but there may be a lack of focus on these issues by the central police managers.

5. Discussion and conclusions

This entry chapter compared KPIs and PM practices in police services in Finland and Spain. The current Police PM indicators in both countries seemed insufficient for improving quality, cost-effectiveness and risk measures. As the KPIs may gradually affect behavior and motivation, the focus of control should be carefully considered in each organization, even among differing police work activities, where the focus may be on outcomes or on processes. Further, relatively little information about police work risks and well-being was disclosed, either at the personal or organizational level. As a limitation, but also as a result of this study, a notion can be made that the publicly disclosed police KPI data lacks comparable risk and quality data and measures, which may hamper the possibilities to motivate police officers. Consequently, new indicators for both academic researchers and practitioners may facilitate developments in operations, in risk management and in PM in police work – and possibly in the changing public sector more generally.

Police work is affected by multiple requirements and risks, both at individual and societal levels, which can blur the focus of work but also serve as ways of prioritizing operations

and building new KPIs. The multiple risks also complicate police work, and thereby affect the pressures and stress felt by police officers, in turn affecting the level of job satisfaction of police officers. Besides personal risk or threat level assessments (Davies, 2017), different risk-adjusted measures for the various levels of police organizations can be constructed. Typically the operational (or practical) issues are emphasized in local police work but financial aspects are more and more emphasized at upper organizational levels (Rautiainen et al., 2017). However, causal links between overall results, spending or the time allocated to various policing tasks are not clear and require further research. By improving and prioritizing processes, some (administrative etc.) duties may be made faster, thereby allowing more time for strategic and operative tasks. This would diminish the amount of repetitive administrative duties and PM, which may affect both cost-effectiveness and officer well-being (Vuorensyrjä, 2012).

The comparability of KPIs between years, countries and organizations is not always clear and some of the disclosed police KPIs do not reveal much about police work cost-effectiveness, for example in preventive work (e.g. Carmona and Grönlund, 2003; Navarro-Galera et al., 2008). A lower amount of investigated crimes may be a sign of the efficiency of preventive work but also a sign of inefficiency, apathy or lack of resources. Without knowledge of the risks and effects (or perceived severity), i.e. long-term impacts of crimes, it is not clear whether it is better to control traffic or sports events, or focus on financial crimes. Therefore, in this entry chapter, ways to prioritize and measure police work were presented and the adoption of balanced KPIs considering the risks were promoted. Police performance cannot be assessed by financial terms only, but also by citizen safety and other measures. With risk-informed decisions, there are possibilities for having risk-adjusted processes that improve the cost-effectiveness of police work (even if it is still difficult to measure, see Batac and Carassus, 2009). Moreover, developments in police work should not be arbitrary, but based on risk analysis and political consensus, allowing for long-term developments (Collier, 2006).

In order to serve both practical and academic interests (Kasanen et al., 1993), new PM tools, namely the Comparative Quality Factor (CQF) and the Police Work Cost-Effectiveness index (PWCE index), were presented. Further, risk-adjusted performance measures, such as individual perception based ERI (Expected Risk Impact), were presented. These may facilitate analysis of cost-effectiveness and finding relevant leading indicators of police performance locally, nationally and internationally. Further, by developing PM, some of the interests of creating client satisfaction, fair treatment of individuals, achievement of social outcomes and creating just social relationships may be balanced. Finally, if there is crime density related data, the most probable crime scenes might be estimated based on experience or using computer simulation. Thus, there are several future research lines, such as modelling and analyzing service work in public administration among countries, and analyzing the effects of different risks in police work as well as the practical usefulness of the suggested new tools.

Cross-references: performance indicators, tools for analyzing police performance and risks, comparative public administration performance analysis, public sector accounting, public administration.

REFERENCES

- Annual Report of the Finnish Police. [Poliisi. Vuosikertomus]. (2013).
- Batac, J. & Carassus, D., Interactions between control and organizational learning in the case of a municipality: A comparative study with Kloot (1997). *Management Accounting Research*, 20, 2, 102-116 (2009).
- Carmona, S. & Grönlund, A., Measures vs. Actions: the balanced scorecard in Swedish Law Enforcement. *International Journal of Operations & Production Management*, 23, 12, 1475-1496 (2003).
- Collier, P., In Search of Purpose and Priorities: Police Performance Indicators in England and Wales, *Public Money & Management*, 26, 3, 165-172 (2006).
- Davies, A., Shoot/do not shoot – what are the influences? The police recruit perspective. *Policing and Society: An International Journal of Research and Policy*, 27, 5, 494–507 (2017).
- De la Fuente, E.I., Aguayo-Extremera, R., Vargas-Pecino, C. & Cañadas de la Fuente, G.R., Prevalence and risk factors of burnout syndrome among Spanish Police officers, *Psicothema*, 25, 4, 488-493 (2013).
- DGT, Dirección General de Tráfico, (2014). Indicadores. <http://www.dgt.es/es/seguridad-vial/estadisticas-e-indicadores/>. Assessed April 2019.
- Diez-Ticio, A. & Mancebon, M., The efficiency of the Spanish police service: an application of the multiactivity DEA model, *Applied Economics*, 34, 3, 351-362 (2002).
- Gobierno del Interior de España. (2015). <http://www.interior.gob.es/prensa/balances-e-informes/2015>. Assessed April 2019.
- Hart, P., Wearing, A. & Headey, B., Assessing police work experiences: development of the police daily hassles and uplifts scales. *Journal of Criminal Justice*, 21, 6, 553-572 (1993).
- Jreisat J., Comparative Public Administration and Globalization. In: Farazmand A. (ed.) *Global Encyclopedia of Public Administration, Public Policy, and Governance*. (Springer, 2018).
- Kasanen, E., Lukka, K. & Siitonen, A., The constructive approach in management accounting. *Journal of Management Accounting Research*, 5, 243-264 (1993).
- Kohan, A. & Mazmanian, D., Police work, burnout, and pro-organizational behaviour. A consideration of daily work experiences, *Criminal Justice and Behavior*, 30, 5, 559-583 (2003).
- Lapsley, I., New public management: the cruellest invention of the human spirit? *ABACUS*, 45, 1, 1-21 (2009).
- Muñoz, C.I.; Campos, M.; Urquía, E. & Cano E., Hacia la convergencia de la información publicada por los entes locales. *Revista Presupuesto y Gasto Público*, 44, 145-176 (2006).

- Navarro-Galera, A., Rodriguez, D.O. & Hernández, A., Identifying barriers to the application of standardized performance indicators in local government. *Public Management Review*, 10, 2, 241-262 (2008).
- Niemi, J. (2012). Poliisityön kuormittavuus ja fyysisen toimintakyvyn edellytykset työstä selviytymiseen. [The work strain in police work and the physical preconditions for managing in work]. Candidate thesis. (Faculty of Medicine. University of Eastern Finland).
- Rautiainen, A., Urquía-Grande, E. & Muñoz-Colomina, C., Institutional logics in police performance indicator Development: a comparative case study of Spain and Finland. *European Accounting Review*, 26, 2, 165-191 (2017).
- Trochmann, M. & Gover, A., Measuring the impact of police representativeness on communities. *Policing: An International Journal of Police Strategies & Management*, 39, 4, 773-790 (2016).
- Vuorensyrjä, M. (2012). Poliisihenkilöstön työkyky ja työssä jaksaminen [The work ability of police personnel and coping in police work]. Police College Finland, report 98. Tampere.

TABLES

<i>Grade</i> (given independently for categories A to D)	<i>A) Probability of recurrence if not caught</i>	<i>B) Monetary value involved</i>	<i>C) Maximum sentence (years)</i>	<i>D) Societal interest/ image importance</i>
1	Very small	Low	Less than 1	Low
2	Small	Medium	1 to 4 years	Medium
3	Medium	Large	4 to 10 years	Large
4	High	Very large	More than 10	Very large

Table 1. Example risk categories (A-D) and grading for prioritization.

<i>Variable</i>	<i>Probability to occur/ accentuate (during a year)</i>	<i>Expected effect on police well-being and work quality</i>	<i>Expected Risk Impact (ERI grade)</i>
Police salary increase	40 %	Strong positive (2)	0.8
Less manual reporting	10 %	Mild positive (1)	0.1
Personal health issues, e.g. overweight	10 %	Mild negative (3)	0.3
High stress or burnout %	20 %	Mild negative (3)	0.6
Danger or physical harm (e.g. police being shot at)	10 %	Strong negative (4)	0.4

Table 2. Examples of the Expected Risk Impact (ERI) grade at the personal level.

Appendix 1: List of the main interviews

Finland: 6 interviews in Autumn 2012; average interview time: 42 minutes.

- 1) Chief police officer, Central Finland police department , 54 minutes
- 2) Crime investigator, Central Finland police department, 26 minutes
- 3) Police officer, Central Finland police department, 45 minutes
- 4) Administrative officer, Central Finland police department, 53 minutes
- 5) Administrative officer, Eastern Finland police department, 52 minutes
- 6) Administrative secretary, Eastern Finland police department, 22 minutes.

Spain: 5 interviews in Autumn 2012; average interview time: 55 minutes.

- 1) Chief Manager of Police, Central Spain police department, 70 minutes
- 2) Administrative officer, Central Spain police department, 50 minutes
- 3) Police officer, Central Spain police department, 65 minutes
- 4) Chief police officer, Central Spain police department, 40 minutes
- 5) Administrative police, Central Spain police department, 50 minutes.

Appendix 2: Examples of Spanish KPIs

Examples of KPI categories in the Spanish local police (DGT 2014; Gobierno del Interior, 2015; Policías Municipales de Madrid, País Vasco, Cataluña, Valencia,..)

Spanish SFMP police statistics (sample councils)
<i>Traffic area</i>
1. Average traffic accidents with victims per 100 people
2. Average traffic offences per 100 people
3. Average breathalyzer coverage per 100 people
4. Alcohol offences per 100 people
<i>Citizen security area</i>
5. Crimes against property per 100 people
6. Crime offences coverage
7. Delinquency rate
8. Citizen security perception
<i>Judiciary police area</i>
7. Judiciary reports attended per 100 people
8.Total project funding (€ per 100 people)
<i>Human resources</i>
9. Percentage of police effective presence in the street per police officer per year
10. Number of police officers per 1,000 inhabitants
11. Percentage of extraordinary hours (overtime) worked per police officer per year
12. Percentage of hours dedicated to training per police officer
13. Percentage of absent hours due to accidents per police officer
14. Percentage of administrative personnel per police officer

Appendix 3: Police KPI examples in Finland

Examples of Finnish crime statistics categories (Annual Report of the Finnish Police, Poliisi, 2013).

<i>Surveillance of traffic and security</i>
1. Number of crimes against property
2. Severe drug offences
3. Drink-and-drive crimes
4. Traffic offences
5. Financial fraud and other financial crimes
6. Breaking and entries
7. Total number of crimes reported
<i>Crime Investigation</i>
8. Solving % of all crimes
9. Solving % of assaults and body harm
10. Solving % of crimes against property
11. Average response time (minutes)
<i>Licence services</i>
12. Total No. of Licences and permits given
<i>Administration & other</i>
13. Total police officers in duty
14. Man years worked in licence services
15. Number of office workers