Kriminalističke teme
Časopis za kriminalistiku, kriminologiju i sigurnosne studije
Godina XXV, Br. 1-2, 2025. str. 39-57
ISSN 1512-5505
DOI: 10.51235/kt.2025.25.1-2.39

UDK: 351.74:159.955

FAST THINKING, BAD DECISIONS: COGNITIVE BIASES IN INTELLIGENCE-LED POLICING

Review Scientific Paper

Primljeno/Recieved: 1. 6. 2025.
Prihvaćeno/Accepted: 11. 7. 2025.

Adnan FAZLIĆ

Sažetak

Intelligence-led policing (ILP) is a strategic approach that uses data to improve decision-making and resource allocation within law enforcement. However, cognitive biases that influence analysis, judgement, and planning can compromise its effectiveness. Although ILP is based on systematic methodologies, there is a lack of research on the psychological factors that hinder its success. This study addresses this gap by using dual-process theory to explore how fast, instinctive thinking (System 1) and careful, logical thinking (System 2) work together in important policing situations. A literature review identifies common biases, such as confirmation bias, anchoring, overconfidence, and the availability heuristic, and illustrates their impact on intelligence analysis, operational decisions, resource allocation, and relations between the police and community. To mitigate these biases, this study suggests employing structured analytic techniques, decision-support tools, and specialised training to promote reflective thinking. This study particularly examines the challenges of implementing these strategies in resource-limited countries such as Bosnia and Herzegovina, as well as in the Western Balkan region. By incorporating cognitive insights into ILP frameworks, law enforcement agencies can develop robust, equitable, and effective practices. This research contributes to evidence-based policing by highlighting the importance of addressing human judgement errors within intelligence systems.

Ključne riječi

intelligence-led policing, cognitive biases, decision-making, dual-process theory, bias mitigation

1. INTRODUCTION

Effective crime control fundamentally relies on informed decision-making within proactive policing frameworks. Recently, law enforcement agencies have increasingly turned to intelligence to prioritise investigations and allocate resources more effectively (Ratcliffe, 2016). This shift has facilitated the adoption of evidence-based strategies, such as intelligence-led

policing (ILP) and predictive analytics, across a growing number of jurisdictions (Brayne, 2017). Essentially, ILP is a strategic approach to crime reduction that focuses on identifying, analysing, and managing both ongoing and emerging threats (Maguire & John, 2006). The intelligence part of this model includes collecting information from various legal sources and turning it into useful knowledge about criminals and their groups, which helps agencies improve their ability to prevent crime and enforce laws (Peterson, 2005).

The success of ILP depends on several critical factors, including the quality and relevance of data, the ability for timely and secure information sharing, and the contextual application of intelligence products (Ratcliffe, 2003). By systematically collecting and analysing crime-related information and addressing underlying criminogenic conditions, ILP generates actionable intelligence that informs both immediate operational responses and long-term strategic planning (Carter & Carter, 2009).

A coherent intelligence framework, along with effective collaboration with external partners, is vital for successful application of intelligence products (Ratcliffe, 2002). The ILP model comprises three key structures and three core processes: analysing the criminal environment, identifying and influencing decision-makers, and formulating strategies to reduce crime while positively shaping that environment (Ratcliffe, 2003). Sometimes, scholars and practitioners represent the traditional intelligence cycle as a simple linear process, but in reality, it is dynamic and nonlinear. The issue with the traditional model is that it does not fully capture the complexity of human cognition, wherein intelligence analysts may need to flexibly shift between multiple aspects of a problem in pursuit of solutions. Nevertheless, the traditional cycle remains widely used, largely because of its utility in organising and managing large-scale intelligence operations (Clark, 2017). ILP's biggest problem right now is that it makes officers and analysts more likely to make mistakes because they have excessive information and insufficient time to make quick, judgement-based decisions.

Police departments commonly use routines and rituals to make sense of their surroundings and deal with uncertainty in the field. In this case, the "self-fulfilling prophecy" concept is quite important: collective expectations concerning an operational target may disproportionately focus attention on it, ultimately confirming the assumptions held (Dror et al., 2021). This process could turn individuals into stereotypical profiles and keep discriminatory practices going, which would undermine the objectives of ILP (Cope, 2004).

Cognitive and social factors have significant effects on ILP outcomes, in addition to procedural and structural ones. In prejudiced situations, stereotyping, which is often supported by appearances, could render it more difficult to make thoughtful and careful decisions, which keeps negative views of certain groups alive. Although police discretion is considered an essential component of professional judgement, it is sometimes swayed by subjective, value-laden assumptions, resulting in observable differences in treatment based on ethnicity, socioeconomic background, or other social characteristics (Caldero & Crank, 2011). Personal biases and stereotypes can distort discretionary decisions, resulting in unequal treatment in marginalised communities. Despite the implementation of various control mechanisms such as training, policy guidelines, and oversight structures, their success remains inconsistent (Gaines & Kappeler, 2014).

Moreover, the expansion of surveillance and intelligence-gathering technologies has raised significant concerns regarding civil liberties' protection, particularly regarding the disproportionate targeting of vulnerable groups (Vitale, 2017). Consequently, the output

of police intelligence systems must be used cautiously and supplemented with diverse, independent information sources to ensure balanced and informed decision-making in the context of serious and organised crime (Sheptycki, 2004).

Despite the widespread adoption of ILP, there is limited research on the mechanisms through which cognitive biases affect decision-making processes and outcomes within this policing model. In that sense, cognitive biases, or systematic errors in judgement arising from mental shortcuts, are of major importance. These biases can distort data interpretation, operational decisions, resource allocation, and community interactions, potentially exacerbating issues such as racial disparities and unjust enforcement. So, this paper aims to deepen understanding of how cognitive biases make ILP less effective in real-world situations and plans to (1) find out which cognitive biases are most common in ILP decision-making, (2) evaluate how these biases affect operational effectiveness, and (3) suggest ways to reduce the identified biases.

As ILP heavily relies on interpreting intelligence, prioritising threats, and allocating limited resources, understanding the cognitive mechanisms underlying these decisions is crucial. Hence, this paper is organised the following way: (1) It starts by explaining the dual-process theory to help understand cognitive biases; (2) it looks at specific biases and how they affect ILP decisions; (3) it offers practical strategies to reduce these biases; and (4) it talks about wider effects and suggests areas for future research.

2. DUAL-PROCESS THEORY

For more than fifty years, the dual-process theory (DPT) has been a cornerstone in cognitive psychology, offering insights into human reasoning and decision-making (Brosnan & Ashwin, 2023). Originally developed to account for judgement errors and cognitive biases, DPT has been adopted in various fields, including social and moral psychology and behavioural economics (Smith & DeCoster, 2000; Evans, 2010; Conway & Gawronski, 2013). Well-known researchers like Daniel Kahneman (2011) and Jonathan Evans (2008) have been key in improving these models, making DPT a top explanation for how fast, instinctive responses work alongside slower, more thoughtful thinking. Fundamentally, this theory distinguishes between two systems: System 1, an ancient, largely automatic processing mode shared with other species, and System 2, a more recent, effortful, rule-based mechanism unique to humans (Evans, 2003; see Table 1). According to the dual-process idea, these systems rely on different cognitive and neural resources, resulting in fast and instinctive thinking for one system and careful and logical thinking for the other (Smith & DeCoster, 2000; Evans & Stanovich, 2013).

Table 1. *The Main Features of System 1 and System 2*

Defining feature	*System 1 (intuitive, heuristic)*	*System 2 (deliberative, analytic)*
Working memory requirement	Does not require	Requires
Autonomy	Autonomous	Not autonomous
Cognitive decoupling and mental simulation	Not applicable	Applicable

Note. Adapted from "Dual-Process Theories of Higher Cognition: Advancing the Debate" by J. St. B. T. Evans and K. E. Stanovich, 2013, Perspectives on Psychological Science, 8(3), p. 224. Copyright 2013 by Sage Publications.

Building on this broad distinction, scholars have divided the DPT into two categories. Default interventionist models suggest that fast, automatic judgements (System 1) are the usual way we think, while careful, deliberate thinking (System 2) only happens when we need to analyse something in more detail (Evans & Stanovich, 2013). By contrast, parallel competitive theories suggest that both systems operate simultaneously, with each competing for ultimate control over decisions (Hodgkinson & Sadler Smith, 2018; Akinci & Sadler Smith, 2019). Understanding this theoretical divide is crucial, because perception of the interaction between intuition and analysis shapes expectations of when and why certain biases occur.

Intuitive judgements often take precedence in a practical context. System 1 can quickly provide usable solutions under pressure, enabling prompt responses in rapidly changing environments (Evans, 2010). However, this reliance on intuition also exposes individuals to well-documented cognitive biases, which System 2 engagement seeks to correct. Thus, the DPT shows that making decisions is a changing process, where fast, gut feelings can be followed by deeper thinking when new information comes in or there is time to think (Derous et al., 2016). In complex and unpredictable organisational contexts, a flexible combination of intuition and analysis can enhance both effective decision-making and optimal performance (Akinci & Sadler Smith, 2019, p. 13).

Empirical evidence for the DPT comes from classic reasoning paradigms, such as the belief bias effect. In syllogistic tasks, individuals often accept conclusions that seem believable even when they are logically flawed, illustrating the influence of System 1 intuition (Evans, 2003, 2010). Further studies identify two types of belief bias: 1) the tendency to accept plausible statements and reject implausible ones and 2) the tendency to use deliberate reasoning selectively to confirm believable conclusions or disprove unbelievable ones (Evans, 2010). Notably, Evans and Stanovich (2013) also showed that analytic System 2 processing can lead to biased outcomes under certain conditions, highlighting that neither mode is inherently superior.

Ultimately, biases arising from intuition or reflection have real effects on both evaluative judgements and behavioural choices (Ajzen & Sexton, 1999). By situating these phenomena within the DPT, it is possible to deepen one's comprehension of how intelligence products are shaped by the interaction of fast and slow thinking and why fast thinking is more often correlated with bad decisions. Understanding the nuances of the DPT enriches our comprehension of cognitive biases and sets a foundational stage for exploring its direct implications in ILP.

2.1. System 1 and System 2

To understand how cognitive biases affect ILP, it is crucial to differentiate between the two processing modes outlined by the DPT. System 1 functions automatically and fast and requires minimal effort. It depends on learnt associations, pattern recognition, and heuristic shortcuts to produce intuitive judgements and "gut feel" decisions (Kahneman, 2011; Moravec et al., 2020). By matching new information with familiar examples, System 1 is adept at spotting patterns and what seems normal, easily creating believable stories even when the full context is not clear. However, its reliance on cognitive ease and similarity makes it prone to various systematic errors that often substitute complex questions with simpler ones, fail to recognise its own unreliability, and dismiss alternative perspectives (De Neys, 2006; Kahneman, 2011). Despite its remarkable capabilities, such as maintaining a rich associative model of the world

and automatically inferring causal links, System 1 is "naive" because it suppresses doubt, reduces ambiguity and accepts the first coherent story it constructs (Kahneman, 2011). Research has shown that even tasks meant to encourage careful thinking can be influenced by System 1's intuitions, showing how fast simple responses can take over more complex thinking (Evans, 2010).

By contrast, System 2 represents deliberate and effortful thoughts. It uses working memory resources to create decontextualised representations, test hypotheses, and apply formal rules or statistical reasoning (Evans, 2003). This analytical way of thinking helps people consider possibilities and make better decisions, allowing them to stop, question, and fix mistakes in their gut feelings when they are motivated or notice problems (Bago et al., 2022; Kahneman, 2011). Consequently, System 2 can reshape System 1 over time by directing attention and encoding new strategies into long-term memory. However, System 2 is inherently "lazy" because unless a decision is deemed important or an intuition is difficult to justify, it often accepts System 1's suggestions without further examination (Kahneman, 2011). Research closely links System 2 engagement to cognitive ability and working memory capacity, while System 1 performance is more strongly associated with prior knowledge and beliefs. Moreover, ageing appears to affect System 2 more significantly than it does System 1. Thus, experiential intuition remains relatively intact even as analytic capacity declines (Evans, 2003). Table 2 lists the typical correlates of Systems 1 and 2.

The dynamic interaction between these systems typically results in efficient decision-making (Kahneman, 2011). Rapid experience-based intuition handles routine judgements, and reflective analysis intervenes when novelty or complexity is necessary. Recent studies on "logical intuition" also support this claim and advise caution against equating speed with bias. Right answers can come up quickly because of well-practiced shortcuts in thinking, not just careful thought, and noticing disagreements between gut feelings doesn't show which thinking process leads to the final answer (Evans, 2019). During more elaborate processing, peripheral cues may still exert influence, although they are moderated by conscious evaluation of their relevance (Smith & DeCoster, 2000). However, a widespread scientific perspective is that System 1 can lead to predictable biases in judgement, whereas System 2 can override them (Neal et al., 2022).

Table 2. *Typical Correlates of System 1 and System 2*

Typical Correlate	*System 1 (intuitive, heuristic)*	*System 2 (reflective, analytic)*
Speed	Fast	Slow
Capacity	High	Limited
Processing	Parallel	Serial
Consciousness	Unconscious	Conscious
Responses	Biased	Normative
Contextualisation	Contextualised	Abstract
Control	Automatic	Controlled
Basis	Associative	Rule-based
Decision-making	Experience-based	Consequential
Cognitive ability correlation	Independent	Correlated

Note. Adapted from "Dual-Process Theories of Higher Cognition: Advancing the Debate" by J. St. B. T. Evans and K. E. Stanovich, 2013, Perspectives on Psychological Science, 8(3), p. 224. Copyright 2013 by Sage Publications.

Finally, both systems 1 and 2 have essential, yet imperfect, roles in ILP. The DPT, which distinguishes between intuitive (System 1) and analytical (System 2) thinking processes, provides a useful framework for examining how cognitive biases may emerge and influence decision-making in ILP settings.

2.2. Relevance to Intelligence-Led Policing

Understanding the decision-making processes of police officers and analysts, particularly those under pressure, is crucial to advancing ILP. Given the high stakes and urgent nature of police work, the DPT provides helpful information regarding the cognitive mechanisms that underpin both effective and flawed decision-making in ILP contexts. Policing environments are characterised by uncertainty, complexity, and rapidly evolving situations, necessitating quick decisions based on incomplete or ambiguous information. In such scenarios, intuitive expertise, cultivated through training, experience, and institutional knowledge, plays a pivotal role in decision-making. This intuitive judgement is not only employed by individuals but also emerges collectively within teams, facilitating organisational learning and adaptation. The dual-process perspective underscores that both intuitive and deliberative thinking collaboratively influence behaviour and guide decision outcomes (Akinci & Sadler-Smith, 2018).

However, the reliance on intuitive processing in high-pressure situations has cognitive limitations. Conditions marked by information overload, limited time, or fatigue can impede the activation of System 2 reasoning, increasing susceptibility to bias. Although ILP ideally depends on thorough analytical judgement, it often relies on heuristics and mental shortcuts, which can affect the accuracy and fairness of decision-making. Research by Fazio and Olson (2014) indicates that when individuals are cognitively depleted or under time constraints, they are more inclined to rely on automatically activated beliefs rather than engage in systematic evaluation.

The dual-process model is particularly relevant for identifying the development of certain biases in policing. Officers' preliminary threat or suspect evaluations are frequently influenced by intuitive judgements (System 1), which may be affected by observable or stigmatising traits such as appearance, demeanour, or group affiliation, that are elements commonly linked to implicit bias or the "usual suspect" stereotype. Although System 2 can override these initial impressions and apply corrective reasoning, it requires sufficient cognitive resources, time, and motivation, which are not always available in real-time operational settings.

Structured analytic methods that promote System 2 thinking have proven effective in mitigating such biases and enhancing the reliability of intelligence assessments. Techniques such as brainstorming, analysing competing hypotheses, and argument mapping foster more deliberate, reflective analysis and help minimise cognitive tunnel vision (Clark, 2017). These methods encourage analysts and investigators to critically evaluate assumptions, consider alternative explanations, and challenge dominant narratives, thereby enhancing the rigour and objectivity of intelligence work. In alignment with this, Clark (2017) emphasised that

intelligence analysis must adhere to an objective, methodical process. Analysts are expected to define core intelligence problems, identify and prioritise knowledge gaps, and employ evidence-based methods to address these gaps. Analytical rigour necessitates both oral and written clarity, a willingness to question assumptions, and adherence to a scientific approach that prioritises evidence over intuition.

Experimental studies have shown that reasoning is susceptible to cognitive strain. Evans and Stanovich (2013) argued that when individuals face time constraints or an overload in working memory, they are more likely to exhibit belief bias and less likely to produce logically sound responses. These findings support the idea that, while ILP relies on rapid situational awareness, it should also incorporate deliberation whenever possible, especially when decisions have significant consequences. Moreover, the DPT offers a valuable framework for understanding and enhancing decision-making in ILP. By acknowledging the strengths and limitations of both intuitive and analytical reasoning, ILP practitioners and organisations can develop procedures, training, and analytical frameworks that balance prompt action with cognitive precision, thereby improving decision quality and reducing the likelihood of errors.

3. COGNITIVE BIASES IN INTELLIGENCE-LED POLICING

Intelligence-led policing (ILP) aspires to ground law enforcement decisions through objective, evidence-based analysis. However, human cognition relies invariably on heuristic shortcuts that can introduce systematic distortion or cognitive biases, especially under conditions of uncertainty, time pressure, or emotional stress (Haselton & Nettle, 2006; Battaglio Jr. et al., 2019). This section explains the nature of the principal biases: confirmation bias, availability heuristic[1], anchoring[2], overconfidence, framing effects, implicit bias, and base-rate neglect[3]. Also, it illustrates how these biases impact four core ILP functions: intelligence analysis, operational decision-making, resource allocation, and community relations. Tracing the pathways through which these biases pervade ILP operations can enhance understanding of the human susceptibilities that any bias prevention system must confront.

3.1. Intelligence Analysis

Intelligence analysis is at the heart of ILP, turning raw incident reports, surveillance data, and field observations into coherent threat assessments and actionable insights (Clark, 2017). However, from the very outset, confirmation bias can skew the analytic process. Once intelligence analysts form an initial hypothesis, they may prioritise gathering or interpreting evidence that supports this narrative while discounting or omitting contradictory data

---

1 The availability heuristic is the process of assessing frequency based on the ease with which examples are recalled (Kahneman, 2011).

2 Anchoring occurs when individuals reference a specific value for an unknown variable prior to estimating that variable. One of the most dependable and resilient findings in experimental psychology is that estimations remain proximate to the values individuals contemplate, thereby illustrating the concept of an anchor (Kahneman, 2011).

3 Base-rate neglect refers to people's tendency to focus on the readily available data while disregarding the base-rate or prior probability of an event (Stengård et al., 2022).

(Nickerson, 1998; Battaglio Jr. et al., 2019). This selective attention becomes more dangerous when initial intelligence products attain "creeping validity," gaining the status of truth despite the absence of new confirmation (Clark, 2017).

The availability heuristic distorts analyses by making vivid, recent, or emotionally charged events appear disproportionately significant in analysts' perceptions (Tversky & Kahneman, 1982; Slovic et al., 1981). Under tight deadlines, teams may rely on these readily recalled examples as proxies for broader crime patterns, thereby overstating the prevalence of dramatic incidents at the expense of more common but less sensational offences (Taylor, 2020). This bias combines with organisational factors such as performance measurements linked to attention-grabbing successes, creating a feedback loop where the most notable occurrences dictate analytic priorities.

Anchoring adds another layer of distortion: the first map of crime "hotspots," an initial set of crime-type frequencies, or even a prominent victim statement can serve as an anchor, biasing all subsequent adjustments (Epley & Gilovich, 2006; Jacowitz & Kahneman, 1995). Even when robust new data challenge the anchor, analysts often shift only incrementally, allowing early estimates to exert an outsized and persistent influence on the final assessments. As this effect operates largely outside conscious awareness, teams may remain oblivious to the cumulative error introduced by inadequate adjustments.

In the end, base-rate neglect leads analysts to pay less attention to important statistical information, like how often a certain modus operandi is used, while giving too much importance to new or unusual details about a case (Evans, 2010). Even well-trained analysts may overlook general crime-rate data unless explicitly prompted, opting instead to focus on anecdotal or diagnostic cues. This can produce false positives in suspect identification models and predictive tools that overstate risk in areas where anomalous incidents deviate from the norm by definition. As a result, the analytic outputs risk reflecting sensational outliers rather than the underlying dynamics of crime in a jurisdiction.

3.2. Operational Decision-Making

Operational decision-making converts analytic conclusions into field actions, such as patrol deployments, investigation strategies, and crisis responses. Here, overconfidence bias can erode the prudent scepticism needed to adapt tactics as events unfold (Slovic et al., 2000; Fahsing, 2016). Commanders confident in their own judgement or in the infallibility of analytic products may neglect to solicit disconfirming perspectives or update plans in light of new information. Overconfidence can also be transmitted through teams, amplifying groupthink and suppressing dissent (Cheng et al., 2021).

In the context of quickly evolving events, confirmation bias compels police to structure their on-site investigations in manners that reinforce their preconceived notions (Ask & Granhag, 2005; O'Brien, 2009). An investigator who believes a suspect's involvement in a crime may inadvertently frame questions or interpret nonverbal signs to validate that belief, overlooking exculpatory evidence. Dispatch priming[4], a type of mental shortcut, demonstrates how the first

[4] Dispatch priming, within law enforcement, denotes the manner in which information relayed by dispatchers to officers may unconsciously shape their perceptions and decision-making, potentially re-

bits of information given to officers, which are often incomplete or from others, influence what they notice later, making it more likely to wrongly identify someone as guilty when the initial reports are wrong (Taylor, 2020).

Framing effects within briefing documents and radio communications further shape operational choices. The same set of statistics can trigger divergent responses, depending on whether crime trends are described in terms of percentage increases, absolute counts, or comparative rankings (Nelson et al., 1997; Druckman, 2001). A frame emphasising "a 15% rise in assaults" may prompt aggressive tactics, while "an additional 30 incidents this month" could lead to interpretive caution. These subtle changes in wording help save mental effort: officers stick to the given information without questioning the actual evidence (Kahneman, 2011).

Collectively, these biases can fracture the alignment between strategic intelligence and tactical actions. Decisions shaped by overconfidence, confirmation bias, dispatch priming, and framing effects tend to be quick, short-sighted, or out of sync with the current situation, which undermines both effectiveness and responsibility. Individual biases, such as overconfidence and anchoring, can separately affect operational decisions. Nevertheless, their combined effect can considerably distort resource allocation, demonstrating the intricate interaction among many cognitive errors in ILP.

3.3. Resource Allocation

Resource allocation in ILP involves assigning personnel, technology, and funding to areas in which they can have maximal impact. However, cognitive biases frequently distort these priorities. The availability heuristic can lead agencies to concentrate assets in neighbourhoods recently spotlighted by media coverage or political attention, neglecting less visible areas where crime is more chronic and predictable (Slovic et al., 1981; Taylor, 2020). Anchoring to historical deployment footprints entrenches such imbalances: once a resource pattern is established, deviations tend to be negligible despite fluctuations in crime data (Epley & Gilovich, 2006).

Confirmation bias reinforces this inertia, as decision-makers interpret new intelligence through the lens of existing plans, seeking out data that rationalises current allocations rather than challenging them (Battaglio Jr. et al., 2019). Too much trust in prediction algorithms, especially those that include past police biases, can make them seem more accurate than they really are, leading agencies to rely excessively on results that repeat past unfairness (Nur Aini & Lutfi, 2019; Mayson, 2019). Also, implicit biases can cause more surveillance of minority communities because unintentional associations between demographic characteristics and crime affect decisions about where to send police officers (Hall et al., 2016; Braga et al., 2019).

These cognitive distortions produce feedback loops for resource allocation: areas that receive intense scrutiny generate more incident reports, which in turn justify continued or increased resource commitment. Over time, such loops exacerbate community tensions and perpetuate cycles of over-policing and under-service in different neighbourhoods.

---

sulting in errors, particularly in high-stress scenarios such as interactions with potentially armed individuals (Taylor, 2020).

3.4. Community Relations

Establishing legitimacy and trust with the public serves as both an objective and a force multiplier for ILP. Cognitive biases can unfortunately undermine these relationships. Implicit biases are automatic and unconscious links that officers make between race, ethnicity, or social status and criminal behaviour, which can affect decisions like stopping someone, searching them, or judging the use of force, often without the officers even realising it (Hall et al., 2016; Braga et al., 2019). These biases fuel perceptions of unfair treatment, undermining the voluntary cooperation that ILP relies on for human-source intelligence (Tyler & Meares, 2019).

When officers interpret neighbourhood cues, such as broken windows, graffiti, or loitering, as signs of disorder, confirmation bias can lead them to see threats where none objectively exist, justifying more aggressive tactics in marginalised communities (Fagan & Campbell, 2020; Hagan et al., 2018). Framing effects in police communication significantly shape public attitudes; characterising patrols as "crime suppression operations" as opposed to "community partnership initiatives" can influence whether residents feel protected or victimised (Greene, 2019).

Resource allocation distortions exacerbate the relational strains. Communities that experience heavy surveillance driven by availability and anchoring biases often report greater distrust and reduced willingness to share information (Richardson et al., 2019). This, in turn, diminishes the flow of community-sourced intelligence, depriving ILP of vital human insights and reinforcing a cycle of mutual suspicion.

In sum, cognitive biases pervade every segment of ILP, from data analysis, through tactical decision-making and resource deployment, to the critical interface with citizens. Only by mapping these vulnerabilities can law enforcement agencies recognise human factors that distort ostensibly objective processes. The following section builds on this foundation by detailing structured, evidence-based strategies to counteract biases and strengthen ILP's analytical and relational integrity.

4. STRATEGIES FOR MITIGATING COGNITIVE BIASES IN INTELLIGENCE-LED POLICING

Cognitive biases are widespread in human judgement and decision-making, affecting even those with advanced cognitive abilities. Although a high intelligence quotient (IQ) is linked to numerous positive outcomes, it does not protect against cognitive errors such as confirmation bias, availability heuristic, or anchoring (Halpern & Dunn, 2021). Extensive research has shown that biases in social judgement occur automatically and require conscious cognitive effort for correction (Krieger, 1995). Crucially, the first step in mitigating bias is acknowledging its existence, an action that professionals, including police officers and intelligence analysts, often resist (Berthet, 2022). Recognising this vulnerability lays the groundwork for implementing specific debias strategies within ILP.

Effective debiasing begins with strategies that encourage individuals to consider alternative perspectives. For example, instructing officers or analysts to generate counterfactuals, question their initial beliefs, or contemplate why a preferred hypothesis might be incorrect can significantly reduce confirmation bias (Nickerson, 1998; O'Brien, 2009). Cognitive techniques, such as perspective-taking, challenging the status quo, and structured brainstorming, can

stimulate System 2 processing and disrupt intuitive yet flawed judgements (Munro, 1999). Tools such as SWOT analysis and other structured analytic techniques (e.g., analysis of competing hypotheses) have been shown to mitigate cognitive pitfalls, such as anchoring, premature closure, and groupthink (Pherson & Heuer Jr., 2021).

Motivational and cognitive debiasing methods can further enhance analytical rigour. When individuals are motivated to prioritise accuracy through incentives, accountability structures, or bias warnings, they are more likely to resist anchoring effects and adjust their judgements accordingly (Epley & Gilovich, 2006; Cantarelli et al., 2018). Additional measures include training in logic and probability, teaching analytical frameworks, and employing cognitive forcing strategies, all of which aim to strengthen deliberative reasoning. However, methods such as empathy training or intergroup contact, although well-intentioned, have shown limited success in reducing implicit bias (Kovera, 2019).

At the organisational level, agencies must adopt systematic approaches to minimise bias. This involves not only individual-level training but also institutional policies, such as banning racial profiling, collecting disaggregated data, standardising decision procedures, and enhancing oversight (Spencer et al., 2016). ILP requires a broader cultural shift within police organisations, one that incorporates community-orientated principles and acknowledges the need for cognitive control and critical thinking at all stages of intelligence gathering and decision-making (Carter & Carter, 2009; Peterson, 2005). In practice, officers must be trained to override intuitive errors and apply reflective reasoning (Evans & Stanovich, 2013).

Technological tools are increasingly used to support this shift, particularly in algorithmic policing. Predictive models and artificial intelligence (AI) systems offer greater efficiency and objectivity but also risk perpetuating historical biases embedded in the data (Brayne & Christin, 2021; Meijer, 2021). Biases can arise from flawed data-collection processes, systemic inaccuracies, or uneven data coverage (Ferguson, 2012; Perry et al., 2013). To fix these problems, researchers have suggested ways to reduce bias at all stages of system development: preparing datasets beforehand, training algorithms during the process, and adjusting outputs afterward to improve fairness and accountability (Kordzadeh & Ghasemaghaei, 2021; Ferrara, 2024).

To effectively address this bias in ILP, a blend of human and technological interventions is essential. It is vital to focus on training, oversight, and organisational accountability to reduce the impact of intuitive errors. However, algorithmic systems must be transparent, subject to audits, and aligned with ethical standards. A comprehensive strategy that combines motivational, cognitive, institutional, and technological elements offers a promising path for developing equitable, thoughtful, and efficient ILP.

5. DISCUSSION

Bringing together what we already know with new findings helps us recognise the cognitive biases affecting ILP, understand how they arise from two different processes, and create ways to reduce their effects. In ILP settings, intuitive System 1 often generates coherent narratives that distort officers' judgements, whereas more deliberate System 2 processes may not engage effectively under stress (Kahneman, 2011). For instance, Ask and Granhag (2005) showed that investigators often ask questions that confirm their preconceived notions and ignore evidence contradicting them. To address this issue, Clark (2017) highlighted that structured analytical

methods, such as brainstorming and analysing competing hypotheses, encourage deliberate and reflective evaluation and reduce errors such as anchoring. Similarly, prompting analysts to explore alternative scenarios or critically assess their initial hypotheses can activate System 2 scrutiny (Nickerson, 1998; O'Brien, 2009). Akinci and Sadler-Smith (2019) found that when expert intuitions are collectively developed and shared, they become valuable knowledge sources that enhance the quality of decisions. In practice, debiasing strategies should promote both individual and team knowledge sharing. For example, accountability mechanisms or accuracy incentives can prompt officers to reconsider quick judgements (Epley & Gilovich, 2006), whereas training in probabilistic and logical reasoning can strengthen analytical reasoning. Evidence suggests a comprehensive approach in which ILP analysts and officers should be trained to recognise and articulate their intuition, intentionally pause to check for biases, and use structured tools (such as SWOT analyses, cognitive forcing techniques, or peer review protocols) that incorporate System 2 checks into routine intelligence processes. By synthesising insights on bias and established debiasing strategies, ILP can explicitly integrate "cognitive control" into its procedures to reduce System 1 errors while retaining the benefits of intuition.

Utilising DPT as a framework for decision-making in ILP has both theoretical and practical implications. Theoretically, it places ILP within a broader cognitive context, shedding light on the origins of errors and development of expertise. The DPT emphasises the limitations of relying solely on intuition or analysis. Kahneman's theory of fast and slow thinking demonstrates that even highly analytical individuals can make mistakes if they lack motivation and capacity to do so. Similarly, Evans and Stanovich (2013) pointed out that an unregulated System 2 can lead to incorrect conclusions under cognitive pressure. Practically, this perspective advocates for more balanced policing strategies. For example, recognising that officers who are highly "maximising" need more time to make difficult decisions (Shortland et al., 2020) suggests that training should be tailored to accommodate different decision-making styles. It also highlights the importance of accountability in situations where intelligence analysts expect to justify their reasoning to colleagues or supervisors and are more likely to thoroughly evaluate the evidence. At the organisational level, insights from the DPT advocate for policies that incorporate verification steps and red team reviews into ILP processes. From a community viewpoint, these ideas promote openness, as Hobson et al. (2023) show that depending only on algorithms can weaken public trust and that "making decisions solely based on algorithms might damage trust" (p. 165), while explaining how officers use both data and their intuition could build more trust. The DPT also makes ethical issues with prediction algorithms more important. Selbst (2017) suggests that only considering how accurate predictions are could contribute to unfair results, where "the most 'accurate' decision may not lead to the fairest result" (p. 137). This suggests that ILP technologies should be designed with fairness criteria, in addition to efficiency. In sum, the DPT framework enriches ILP by identifying cognitive risk factors and providing a foundation for more prudent, accountable practices that are rooted in evidence and critical reflection, rather than mere "gut feel."

Although the DPT offers numerous advancements, its implementation faces significant challenges. At the individual level, officers and intelligence analysts may lack the time, training, or awareness required to apply these concepts under operational stress. In addition, systemic challenges are prevalent because many police departments have limited analytical resources

and entrenched organisational cultures that are resistant to change. For instance, ILP reforms in Bosnia and Herzegovina required substantial international support and investment. An Organisation for Security and Co-operation (OSCE) project noted that since 2022, the Bosnian police have participated in numerous ILP workshops and received new analytical software to standardise procedures (Organisation for Security and Co-operation in Europe, 2025). Nevertheless, the fact that external delegations visit Bosnia and Herzegovina to examine its "challenges and practical solutions" in police reform (Organisation for Security and Co-operation in Europe, 2025) underscores the ongoing difficulties. In the broader Western Balkans, fragmented jurisdictions, incompatible data systems, and political sensitivities further complicated ILP. Training deficiencies are significant, and officers may only have traditional law enforcement training with limited exposure to data analysis or bias awareness. Organisational resistance can also occur when senior leaders or unions fear that critical thinking initiatives might slow their response times or reveal errors. Additionally, as Brayne and Christin (2021) note, ILP's reliance on data introduces its biases because algorithmic tools can unintentionally perpetuate the historical biases embedded in the data. In regions such as Bosnia and Herzegovina, where criminal justice data collection may be inconsistent, such biases may be even more pronounced. Overcoming these challenges requires sustained policy commitment, including securing funding for analytics, developing common interagency procedures, and fostering regional cooperation to share intelligence. It also involves integrating data safeguards, such as auditing predictive models for equity and creating incentive structures that reward the police for accuracy and not merely for arrests. Finally, the DPT-informed ILP must contend with entrenched practical obstacles in resource-limited settings.

6. CONCLUSION

This study explored how cognitive biases affect decision-making in intelligence-led policing (ILP) to better understand how human thinking influences operational outcomes. The primary aim was to identify the cognitive biases that most significantly influenced ILP, assess their effects on operational performance and decision quality, and propose practical strategies to alleviate their impact. This study's findings highlight the importance of tackling cognitive biases to improve the accuracy, effectiveness, and flexibility of police decisions in complex situations.

The results show that ILP decision-making is affected by a number of well-known cognitive biases, such as the availability heuristic, confirmation bias, overconfidence bias, and anchoring bias. Decision-makers affected by confirmation bias tend to prioritise information that supports their preexisting beliefs while often neglecting contrary perspectives or data. Individuals affected by overconfidence bias typically overrate their predictive abilities and operational control, hence increasing the likelihood of inadequate planning and insufficiently funded responses. The availability heuristic can skew how police officers see things by making them focus too much on recent, memorable, or easily remembered events, regardless of how important or common they really are, while anchoring bias limits their flexibility by causing them to rely excessively on initial guesses or first impressions.

These biases significantly impact operational efficacy. Confirmation bias obstructs strategic insights and impartial analysis, leading to inaccurate assessments and diminished adaptability. Insufficient contingency planning resulting from overconfidence bias adversely affects crisis management and resource allocation. Anchoring bias distorts predictions and limits the ability

to modify initial decisions, potentially causing delays or inefficiencies. The availability heuristic can distract from more statistically valid priorities by evoking anecdotal or dramatic instances. The amalgamation of these biases diminishes ILP's resilience and adaptability, increasing the likelihood of suboptimal outcomes.

This paper presents several evidence-based strategies to alleviate these consequences. Checklists, decision matrices, and red teaming exemplify structured decision-making methods that can reduce dependence on intuition and promote systematic analysis. Training programs that focus on bias awareness can improve the ability of officers and analysts to identify and correct flawed reasoning. Fostering diversity among decision-making teams and nurturing an environment of constructive dissent can mitigate groupthink and enhance critical evaluations. Continuous feedback and performance reviews allow businesses to learn from previous mistakes, while data-driven methodologies and predictive analytics can augment human judgement with objective insights. Additionally, a beneficial way to enhance decision-making in ILP functions is to use decision-support systems together with methods to reduce bias.

Enhancing decision-making and enhancing operational efficiency in ILP necessitates the mitigation of cognitive biases. ILP can improve analytical integrity, bolster resilience, and mitigate risk by systematically identifying these biases, understanding their causes, and implementing targeted treatments. Future research should focus on developing and evaluating context-specific debiasing techniques, particularly those that integrate technology and cognitive strategies. These projects will be essential for formulating evidence-based and locally adaptive policing tactics in Bosnia and Herzegovina and the Western Balkans, where ILP is still evolving.

REFERENCES

- Ajzen, I., & Sexton, J. (1999). Depth of processing, belief congruence, and attitude-behavior correspondence. In S. Chaiken & Y. Trope (Eds.), Dual-process theories in social psychology (pp. 117–138). Guilford Press.
- Akinci, C., & Sadler-Smith, E. (2019). Collective intuition: Implications for improved decision making and organizational learning. British Journal of Management, 30(3), 558–577. https://doi.org/10.1111/1467-8551.12269
- Ask, K., & Granhag, P. A. (2005). Motivational Sources of Confirmation Bias in Criminal Investigations: The Need for Cognitive Closure. Journal of Investigative Psychology and Offender Profiling, 2(1), 43–63. https://doi.org/10.1002/jip.19
- Bago, B., Rand, D. G., & Pennycook, G. (2022). Does deliberation decrease belief in conspiracies? Journal of Experimental Social Psychology, 103, 104395. https://doi.org/10.1016/j.jesp.2022.104395
- Battaglio, R. P., Jr., Belardinelli, P., Bellé, N., & Cantarelli, P. (2019). Behavioral public administration ad fontes: A synthesis of research on bounded rationality, cognitive biases, and nudging in public organizations. Public Administration Review, 79(3), 304–320. https://doi.org/10.1111/puar.12994

- Berthet, V. (2022). The impact of cognitive biases on professionals' decision-making: A review of four occupational areas. Frontiers in Psychology, 12, Article 802439. https://doi.org/10.3389/fpsyg.2021.802439
- Braga, A. A., Brunson, R. K., & Drakulich, K. M. (2019). Race, place, and effective policing. Annual Review of Sociology, 45(1), 535–555. https://doi.org/10.1146/annurev-soc-073018-022541
- Brayne, S. (2017). Big data surveillance: The case of policing. American Sociological Review, 82(5), 977–1008. https://doi.org/10.1177/0003122417725865
- Brayne, S., & Christin, A. (2021). Technologies of crime prediction: The reception of algorithms in policing and criminal courts. Social Problems, 68(3), 608–624. https://doi.org/10.1093/socpro/spaa004
- Brosnan, M., & Ashwin, C. (2023). Thinking, fast and slow on the autism spectrum. Autism: the international journal of research and practice, 27(5), 1245–1255. https://doi.org/10.1177/13623613221132437
- Caldero, M. A., & Crank, J. P. (2011). Police ethics: The corruption of noble cause (Rev. 3rd ed.). Routledge.
- Cantarelli, P., Belle, N., & Belardinelli, P. (2018). Behavioral Public HR: Experimental Evidence on Cognitive Biases and Debiasing Interventions. Review of Public Personnel Administration, 40(1), 56-81. https://doi.org/10.1177/0734371X18778090
- Carter, D. L., & Carter, J. G. (2009). Intelligence-led policing: Conceptual and functional considerations for public policy. Criminal Justice Policy Review, 20(3), 310–325. https://doi.org/10.1177/0887403408327381
- Cheng, J. T., Anderson, C., Tenney, E. R., Brion, S., Moore, D. A., & Logg, J. M. (2021). The social transmission of overconfidence. Journal of experimental psychology. General, 150(1), 157–186. https://doi.org/10.1037/xge0000787
- Clark, R. M. (2017). Intelligence analysis: A target-centric approach. Sage Publications/CQ Press
- Conway, P., & Gawronski, B. (2013). Deontological and utilitarian inclinations in moral decision making: A process dissociation approach. Journal of Personality and Social Psychology, 104(2), 216–235. https://doi.org/10.1037/a0031021
- Cope, N. (2004). Intelligence led policing or policing led intelligence? Integrating volume crime analysis into policing. British Journal of Criminology, 44(2), 188–203. https://doi.org/10.1093/bjc/44.2.188
- De Neys, W. (2006). Automatic-heuristic and executive-analytic processing during reasoning: Chronometric and dual-task considerations. The Quarterly Journal of Experimental Psychology, 59(6), 1070–1100. https://doi.org/10.1080/02724980543000123
- Derous, E., Buijsrogge, A., Roulin, N., & Duyck, W. (2016). Why your stigma isn't hired: A dual-process framework of interview bias. Human Resource Management Review, 26(2), 90–111. https://doi.org/10.1016/j.hrmr.2015.09.006
- Dror, I., Melinek, J., Arden, J. L., Kukucka, J., Hawkins, S., Carter, J., & Atherton, D. S. (2021). Cognitive bias in forensic pathology decisions. Journal of Forensic Sciences, 66(5), 1751–1757. https://doi.org/10.1111/1556-4029.14697

- Druckman, J. N. (2001). On the Limits of Framing Effects: Who Can Frame? The Journal of Politics, 63(4), 1041–1066. https://doi.org/10.1111/0022-3816.00100
- Epley, N., & Gilovich, T. (2006). The anchoring-and-adjustment heuristic: Why the adjustments are insufficient. Psychological Science, 17(4), 311–318. https://doi.org/10.1111/j.1467-9280.2006.01704.x
- Evans, J. S. B. (2003). In two minds: Dual-process accounts of reasoning. Trends in Cognitive Sciences, 7(10), 454–459. https://doi.org/10.1016/j.tics.2003.08.012
- Evans, J. S. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. Annual review of psychology, 59, 255–278. https://doi.org/10.1146/annurev.psych.59.103006.093629
- Evans, J. S. B. (2010). Intuition and reasoning: A dual-process perspective. Psychological Inquiry, 21(4), 313–326. https://doi.org/10.1080/1047840X.2010.521057
- Evans, J. St. B. T. (2019). Reflections on reflection: the nature and function of type 2 processes in dual-process theories of reasoning. Thinking & Reasoning, 25(4), 383–415. https://doi.org/10.1080/13546783.2019.1623071
- Evans, J. S. B., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. Perspectives on Psychological Science, 8(3), 223–241. https://doi.org/10.1177/1745691612460685
- Fagan, J., & Campbell, A. D. (2020). Race and reasonableness in police killings. Boston University Law Review, 100, 951–1042. https://www.bu.edu/bulawreview/files/2020/05/07-FAGAN-CAMPBELL.pdf
- Fahsing, I. A. (2016). The making of an expert detective: Thinking and deciding in criminal investigations (Doctoral dissertation, University of Gothenburg). University of Gothenburg Institutional Repository. http://hdl.handle.net/11250/2428006
- Fazio, R. H., & Olson, M. A. (2014). The mode model. In J. A. Bargh (Ed.), Dual-process theories of the social mind (pp. 155–176). Guilford Press.
- Ferguson, A. G. (2012). Predictive policing and reasonable suspicion. Emory Law Journal, 62, 259–310. https://scholarlycommons.law.emory.edu/elj/vol62/iss2/1
- Ferrara, E. (2024). Fairness and Bias in Artificial Intelligence: A Brief Survey of Sources, Impacts, and Mitigation Strategies. Sci, 6(1), 3. https://doi.org/10.3390/sci6010003
- Gaines, L. K., & Kappeler, V. E. (2015). Policing in America (8th ed.). Routledge.
- Greene, J. R. (2019). Which evidence? What knowledge? Broadening information about the police and their interventions. In D. Weisburd & A. A. Braga (Eds.), Police innovation: Contrasting perspectives (2nd ed., pp. 457-481). Cambridge University Press.
- Greenwald, A. G., & Krieger, L. H. (2006). Implicit bias: Scientific foundations. California Law Review, 94(4), 945–967. https://doi.org/10.2307/20439056
- Hagan, J., McCarthy, B., Herda, D., & Cann Chandrasekher, A. (2018). Dual-process theory of racial isolation, legal cynicism, and reported crime. Proceedings of the National Academy of Sciences of the United States of America, 115(28), 7190–7199. https://doi.org/10.1073/pnas.1722210115

- Hall, A. V., Hall, E. V., & Perry, J. L. (2016). Black and blue: Exploring racial bias and law enforcement in the killings of unarmed black male civilians. American Psychologist, 71(3), 175–186. https://doi.org/10.1037/a0040109
- Halpern, D. F., & Dunn, D. S. (2021). Critical Thinking: A Model of Intelligence for Solving Real-World Problems. Journal of Intelligence, 9(2), 22. https://doi.org/10.3390/jintelligence9020022
- Haselton, M. G., & Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. Personality and Social Psychology Review, 10(1), 47–66. https://doi.org/10.1207/s15327957pspr1001_3
- Hobson, Z., Yesberg, J. A., Bradford, B., & Jackson, J. (2023). Artificial fairness? Trust in algorithmic police decision-making. Journal of experimental criminology, 19(1), 165–189. https://doi.org/10.1007/s11292-021-09484-9
- Hodgkinson, G. P., & Sadler-Smith, E. (2018). The dynamics of intuition and analysis in managerial and organizational decision making. Academy of Management Perspectives, 32(4), 473–492. https://doi.org/10.5465/amp.2016.0140
- Jacowitz, K. E., & Kahneman, D. (1995). Measures of anchoring in estimation tasks. Personality and Social Psychology Bulletin, 21(11), 1161–1166. https://doi.org/10.1177/01461672952111004
- Kahneman, D. (2011). Thinking, fast and slow. Macmillan.
- Kordzadeh, N., & Ghasemaghaei, M. (2021). Algorithmic bias: review, synthesis, and future research directions. European Journal of Information Systems, 31(3), 388–409. https://doi.org/10.1080/0960085X.2021.192721
- Kovera, M. B. (2019). Racial disparities in the criminal justice system: Prevalence, causes, and a search for solutions. Journal of Social Issues, 75(4), 1139–1164. https://doi.org/10.1111/josi.12355
- Krieger, L. H. (1995). The content of our categories: A cognitive bias approach to discrimination and equal employment opportunity. Stanford Law Review, 47(5), 1161–1248. https://doi.org/10.2307/1229191
- Maguire, M., & John, T. (2006). Intelligence-led policing, managerialism and community engagement: Competing priorities and the role of the National Intelligence Model in the UK. Policing & Society, 16(1), 67–85. https://doi.org/10.1080/10439460500399791
- Mayson, S. G. (2019). Bias in, bias out. Yale Law Journal, 128, 2218–2300. https://www.yalelawjournal.org/article/bias-in-bias-out
- Meijer, A., Lorenz, L., & Wessels, M. (2021). Algorithmization of bureaucratic organizations: Using a practice lens to study how context shapes predictive policing systems. Public Administration Review, 81(5), 837–846. https://doi.org/10.1111/puar.13391
- Moravec, P. L., Minas, R. K., & Dennis, A. R. (2019). Fake news on social media. MIS Quarterly, 43(4), 1343–1360. https://dx.doi.org/10.2139/ssrn.3269541
- Munro E. (1999). Common errors of reasoning in child protection work. Child abuse & neglect, 23(8), 745–758. https://doi.org/10.1016/s0145-2134(99)00053-8
- Neal, T. M. S., Lienert, P., Denne, E., & Singh, J. P. (2022). A general model of cognitive bias in human judgment and systematic review specific to forensic mental health. Law and human behavior, 46(2), 99–120. https://doi.org/10.1037/lhb0000482

- Nelson, T. E., Clawson, R. A., & Oxley, Z. M. (1997). Media framing of a civil liberties conflict and its effect on tolerance. American Political Science Review, 91(3), 567–583. https://doi.org/10.2307/2952075
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. Review of General Psychology, 2(2), 175–220. https://doi.org/10.1037/1089-2680.2.2.175
- Nur Aini, N. S., & Lutfi, L. (2019). The influence of risk perception, risk tolerance, overconfidence, and loss aversion towards investment decision making. Journal of Economics, Business, and Accountancy Ventura, 21(3), 401–413. https://doi.org/10.14414/jebav.v21i3.1663
- O'Brien, B. (2009). Prime suspect: An examination of factors that aggravate and counteract confirmation bias in criminal investigations. Psychology, Public Policy, and Law, 15(4), 315–334. https://doi.org/10.1037/a0017881
- Organization for Security and Co-operation in Europe (2025, April 16). Enhancing Security in BiH: OSCE ILP Project Delivers Tangible Results. https://www.osce.org/mission-to-bosnia-and-herzegovina/589481
- Perry, W. L., McInnis, B., Price, C. C., Smith, S., & Hollywood, J. S. (2013). Predictive policing: The role of crime forecasting in law enforcement operations (RR-233). RAND Corporation. https://www.rand.org/pubs/research_reports/RR233.html
- Peterson, M. (2005). Intelligence-led policing: The new intelligence architecture. Bureau of Justice Assistance.
- Pherson, R. H., & Heuer Jr., R. J. (2021). Structured analytic techniques for intelligence analysis (3rd ed.). Sage Publications/CQ Press.
- Ratcliffe, J. (2002). Intelligence-led policing and the problems of turning rhetoric into practice. Policing and Society, 12(1), 53–66. https://doi.org/10.1080/10439460290006673
- Ratcliffe, J. H. (2003). Intelligence-led policing. Trends and Issues in Crime and Criminal Justice, 248, 1–6. https://www.aic.gov.au/publications/tandi/tandi248
- Ratcliffe, J. H. (2016). Intelligence-led policing (2nd ed.). Routledge.
- Richardson, R., Schultz, J. M., & Crawford, K. (2019). Dirty data, bad predictions: How civil rights violations impact police data, predictive policing systems, and justice. NYU Law Review Online, 94, 15–55. https://www.nyulawreview.org/issues/volume-94/online-feature/dirty-data-bad-predictions/
- Selbst, A. D. (2017). Disparate impact in big data policing. Georgia Law Review, 52, 109–195. https://dx.doi.org/10.2139/ssrn.2819182
- Sheptycki, J. (2004). Organizational Pathologies in Police Intelligence Systems: Some Contributions to the Lexicon of Intelligence-Led Policing. European Journal of Criminology, 1(3), 307-332. https://doi.org/10.1177/1477370804044005
- Shortland, N., Thompson, L., & Alison, L. (2020). Police Perfection: Examining the Effect of Trait Maximization on Police Decision-Making. Frontiers in psychology, 11, 1817. https://doi.org/10.3389/fpsyg.2020.01817
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1981). Perceived risk: Psychological factors and social implications. Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences, 376(1764), 17–34. https://doi.org/10.1098/rspa.1981.0073

- Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. Personality and Social Psychology Review, 4(2), 108–131. https://doi.org/10.1207/S15327957PSPR0402_01
- Spencer, K. B., Charbonneau, A. K., & Glaser, J. (2016). Implicit bias and policing. Social and Personality Psychology Compass, 10(1), 50–63. https://doi.org/10.1111/spc3.12210
- Stengård, E., Juslin, P., Hahn, U., & Van den Berg, R. (2022). On the generality and cognitive basis of base-rate neglect. Cognition, 226, 105160. https://doi.org/10.1016/j.cognition.2022.105160
- Taylor, P. L. (2020). Dispatch priming and the police decision to use deadly force. Police Quarterly, 23(3), 311–332. https://doi.org/10.1177/1098611119896653
- Tversky, A., & Kahneman, D. (1982). Availability: A heuristic for judging frequency and probability. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), Judgment under uncertainty: Heuristics and biases (pp. 163–178). Cambridge University Press.
- Tyler, T. R., & Meares, T. L. (2019). Procedural justice policing. In D. Weisburd & A. A. Braga (Eds.), Police innovation: Contrasting perspectives (2nd ed., pp. 71-94). Cambridge University Press.
- Vitale, A. S. (2017). The end of policing. Verso Books.

About the Author

Adnan Fazlić, PhD, assistant professor at University of Sarajevo - Faculty of Criminal Justice and Security Studies, ORCiD: 0000-0002-4419-1828, E-mail: afazlic@fkn.unsa.ba