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ANALYSIS:

Intelligence cycle: Human cognitive bias in the digital age of policing

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Despite the rapidly increasing use of technology in law enforcement intelligence gathering, humans continue to play a vital role in assessing, rationalising and contextualising data sources, based on their experience and expertise; and while officers may be susceptible to a degree of cognitive bias, digital methods can amplify those biases or trigger new ones, explains Policing Insight's Andrew Staniforth.

Despite the dependence on automated and increasingly artificial approaches to intelligence analyses in the digital age of policing, humans remain necessary for intelligence collection and calculation.

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They are the most valuable because they interrogate, rationalise, and contextualise sources of data based on experience and expertise. Yet they remain the most vulnerable to cognitive biases which can have severe detrimental impacts upon the efficacy of investigations and operations.

Pattern seeking

Psychology plays an important role in understanding the strengths and weaknesses of human involvement in intelligence analyses. The human mind is not without its flaws, since psychological mechanisms exist – such as cognitive biases – that can lead to unexpected errors and unintended consequences.

Cognitive biases are defined as patterns of deviation in judgement that occur in particular situations, leading to perceptual distortion, inaccurate judgement, illogical interpretation, or what is broadly called irrationality.

Such biases do not result from any emotional or intellectual predisposition toward a certain judgement, but rather from subconscious mental procedures for processing information.

Indeed, when dealing with complex choices and uncertainty, individuals rely on a limited number of simple but efficient rules – the Heuristic Principles – that reduce the complex tasks of assessing probabilities and predicting values in order to form judgements and make decisions.

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Many features of the human brain have evolved in order to allow fast and energy-saving reactions to external stimulations; it's a very useful and important capability, which allows us to promptly react to dangerous situations.

Neuroscientists explain the physiological mechanism for this fast reactivity in terms of differentiated processing of information within the brain. For the primitive human species, this mental shortcut was vital in dangerous situations.

For the modern police officer – whether first at the scene of a major traffic collision, a firearms officer approaching a suspected armed criminal, or a counter-terrorist

commander activating the executive action phase of an operation – differentiated processing of information can still be a useful mechanism for making fast decisions. But it can also lead to mistakes when exploited in the wrong context.

Intelligence analysis

Implicit biases concern social judgement and socially significant behaviours, but they also seem to share a common mechanism.

In cognitive terms, implicit biases arise from our tendency towards associative thoughts – we pick up on things which co-occur and have the tendency to make judgements relying on these associations, even if strict logic does not justify it. Thus, cognitive biases can skew judgement and have some particularly pernicious effects on intelligence analysis.

Dr Tom Stafford, senior lecturer in psychology and cognitive science at the University of Sheffield, Department of Psychology explains: "Cognitive biases exist for very good evolutionary reasons. They are not rogue processes which contaminate what would be otherwise intelligent thought: they are the foundation of intelligent thought.

"Human beings must make decisions with limited time, information and intellectual energy, and useful shortcuts may be based on cognitive biases."

By way of an example, Dr Stafford explores 'confirmation bias' – the tendency to search for or interpret information in a way that confirms one's preconceptions – and reveals that: "Although there are risks to preferring to seek information that confirms whatever you already believe, the strategy does provide a way of dealing with complex information, and a starting point (ie, what you already suspect) which is as good as any other starting point.

"It doesn't require that you speculate endlessly about what might be true, and in many situations the world (or other people) is more than likely to put contradictory evidence in front of you without you having to expend effort in seeking it out.

"Confirmation bias exists because it is an efficient information seeking strategy – certainly more efficient than constantly trying to disprove every aspect of what you believe."

Reflecting reality

European research has been active in the field of counteracting cognitive biases in the intelligence analysis, funding two major innovation projects.

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The first project was LEILA (Law Enforcement Intelligence Learning Applications), conducted between 2012-2015, which provided law enforcement organisations with an innovative learning methodology to address the improvement of capabilities useful for intelligence analysis.

These included critical thinking, improved capabilities in filtering and analysing large data sets, decision making under social and time pressures, collaboration skills, creative intelligence, and communication skills.

The second project was RECOBIA (REduction of COgnitive Biases in Intelligence Analysis), also conducted between 2012-2015, which sought to improve the quality of intelligence analysis by reducing the negative impact of cognitive biases through the use of software tools, training of analysts and organisational issues.

Both the LEILA and RECOBIA projects studied the relationship between the five phases of the intelligence cycle (planning and direction, collection, processing, analysis, dissemination) and cognitive biases, reporting that some biases tended to be experienced by analysts horizontally throughout all phases of the intelligence cycle.

The EU research also revealed that although the use of IT tools to organise, process, make sense of and determine the potential significance of available data has led to great advantages, it has amplified the effects of cognitive biases and triggered new types of biases.

For instance, by using search and filtering technologies (such as internet search engines), a dangerous bias potentially taking place is caused by the assumption that the collected data genuinely reflects the reality.

Similarly, the wrong perception of a data set as complete and logical may induce the intelligence analyst to stop searching for omissions. Again, the way in which data is graphically arranged by software visualisation tools may reduce the analyst's ability to take into account all the relevant data and/or make him/her wrongly judge its relevance.

Mitigation measures

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Cognitive biases can affect the intelligence cycle at different levels and can lead to misinterpretation of the significance of data or misattribution of causal relationships between data. They can also produce too much trust and confidence in IT tools, and they can impact on the analysts' capability to make estimations.

To mitigate the impacts of cognitive biases within intelligence analyses, a suite of tools and strategies must be deployed and should include the use of structured analytical techniques, alongside the investment in software and technological solutions to reduce the impact of cognitive biases on the analysts' activities.

As a direct result of the increased digitalisation of the intelligence discipline in policing, there are serious concerns among some national security policymakers of the extended use of new automated tools and artificial approaches; but traditional forms of intelligence analysis have always had their vulnerabilities.

As the acquisition of intelligence to create a richer picture of new and emerging threats remains relentless, security operations must continue to be intelligence-led, which includes the effective fusion of both traditional and cutting-edge methods in order to keep citizens safe.

Link to online article at Policing Insight: https://policinginsight.com/features/analysis/intelligence-cycle-human-cognitive-bias-in-the-digital-age-of-policing/

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