

Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026

## Investing in a Rush or Thinking Strategically? Red Queen Syndrome and Intelligence in Confronting Organized Crime in the Amazon

*Investing In A Rush Or Thinking Strategically? Red Queen Syndrome And Intelligence In Confronting Organized Crime In The Amazon*

**Kairo Rodolfo de Carvalho**, Technologist in Public Security (ANHAGUERA), Campos do Jordão – SP. Postgraduate in Public Security (FOCUS), Cascavel – PR. Email: kairocarvalhoceara@gmail.com Lattes: <http://lattes.cnpq.br/1698398134712804>

**João Gabriel Trindade Gonçalves**, Bachelor of Laws (FARO) - Porto Velho/RO. Email: [joaogtgoncalves@gmail.com](mailto:joaogtgoncalves@gmail.com)

**Luiz Carlos Teles da Silva Júnior** holds a Bachelor's degree in Law from Faculdade Martha Falcão. He has a specialization in Criminal Law from Uniasselvi and is currently pursuing a degree in Public and Citizen Security at the State University of Amazonas (UEA). Email: [lc.teles\\_jr@hotmail.com](mailto:lc.teles_jr@hotmail.com) Lattes: <http://lattes.cnpq.br/1160241902893682>

**José Adelson da Silva Miranda** holds a postgraduate degree in Public Security from Cândido Mendes University (UCAM) and a Bachelor's degree in Law from the Federal University of Amazonas (UFAM). He is currently pursuing a degree in Public and Citizen Security at the State University of Amazonas (UEA). Email: [joseadelsonsm@gmail.com](mailto:joseadelsonsm@gmail.com)

**Flávio Carvalho Cavalcante** is a PhD candidate in the Postgraduate Program in Environmental Sciences and Sustainability in the Amazon (PPGCASA) at the Federal University of Amazonas. He holds a Master's degree in Public Security, Citizenship, and Human Rights from the Postgraduate Program in Public Security (PPGSP) at the State University of Amazonas (UEA). He is a specialist in Strategic Management in Public Security and a specialist in Public Intelligence. Contact him at [flavio.cavalcante@ufam.edu.br](mailto:flavio.cavalcante@ufam.edu.br).

Lattes Security: <http://lattes.cnpq.br/5858031454643356>

MJSP/ANP-PF.

E-mail: \_\_\_\_\_

### Summary

This article analyzes the fight against organized crime in the state of Amazonas using the metaphor of the Red Queen Syndrome, formulated by Marcos Rolim, according to which public security "runs as fast as it can to stay in the same place." It begins with the diagnosis that Amazonas acts as a logistical hub for drug trafficking in the Amazon, connecting Andean cocaine production to national and international markets via the Solimões River, while the Amazonas Military Police operates with personnel below the ideal level projected for the state's territorial and criminal reality. A qualitative, exploratory, and descriptive approach is adopted, based on bibliographic and documentary research on organized crime, factions, police intelligence, financial intelligence, and decapitalization, aligned with the precepts of the National Doctrine of Public Security Intelligence (DNISP), as well as the analysis of institutional documents and the case study of Operation Collapsus in Tocantins. It is argued that, in this context of logistical advantage for the factions and structural personnel deficit, the simple intensification of overt operations tends to reproduce the dynamics of the Red Queen, with high cost and low structural impact. It is concluded that prioritizing investments in intelligence, especially in its financial dimension guided by the logic of "follow the money," constitutes a strategic condition to shift the focus of confrontation, weaken the business model of criminal organizations, and create real asymmetries in favor of the State in the Amazonian context.

**Keywords:** Organized crime; police intelligence; financial intelligence; decapitalization; Amazon.

### Abstract

This article analyzes the fight against organized crime in the State of Amazonas through the metaphor of Marcos Rolim's Red Queen Syndrome, according to which public security "runs as fast as it can just to stay in the same place." It starts from the diagnosis that Amazonas operates as a logistical hub for drug trafficking in the Amazon, connecting Andean cocaine production to national and international markets along the Solimões river corridor, while the Military Police of Amazonas works with staffing levels below the ideal threshold projected for the state's territorial and criminal reality.



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

The study adopts a qualitative, exploratory and descriptive approach, based on bibliographical and documentary research on organized crime, criminal factions, police intelligence, financial intelligence and decapitalization, aligned with the guidelines of the National Doctrine of Public Security Intelligence (DNISP), as well as on the analysis of institutional documents and the case study of Operation Collapse in the state of Tocantins. It argues that, in this context of logistical advantage for criminal factions and structural personnel deficit, merely intensifying overt police operations tends to reproduce the Red Queen dynamics, generating high costs and limited structural impact. It concludes that prioritizing investments in intelligence, especially in its financial dimension guided by the follow the money logic, is a strategic condition to shift the axis of confrontation, weaken the business model of criminal organizations and create real asymmetries in favor of the State in the Amazonian context.

**Keywords:** Organized crime; police intelligence; financial intelligence; decapitalization; Amazon.

## 1. INTRODUCTION

The State of Amazonas occupies a strategic position in the geopolitics of organized crime. to integrate the main river route that connects Andean countries that produce cocaine, such as Colombia, Peru and Bolivia, to the rest of Brazil and to international markets, via the Solimões River. and its ramifications. Recent studies on illegal mining and trafficking in the Amazon indicate that this The hydrographic network, combined with a low state presence in extensive riverside areas, favors the formation of logistical corridors used for the flow of drugs, weapons, illegal gold and other goods. Illicit products. An international report from 2025, widely reported in the press, described them. Manaus as the "epicenter of organized crime in the Amazon," highlighting the capital's role as a hub. central to the cocaine trafficking routes along the Solimões River and the Amazon River towards to national and international markets. In this context, recent journalistic studies indicate that,

Manaus has become one of the main corridors through which cocaine produced in [the United States] is smuggled. South America, with drugs arriving in the Amazon via the Solimões River and continuing along the... The Amazon River is heading towards national and international distribution. The Amazonian capital is... Considered a strategic logistical link, connecting Amazonian production to markets in Europe, Africa, and Asia through its ports. (G1, Amazon Underworld, 2025)

This situation characterizes a "real or potential threat in the sphere of Public Security" which, In light of the National Doctrine of Public Security Intelligence, the action of Intelligence is required. Public Security (ISP), whose purpose is to "support decision-makers" (Brazil, 2016, p. 15).

In this context, research on factions operating in the region, such as the Revolutionaries of The Amazonas (RDA) and Comando Vermelho groups demonstrate that these groups combine control of routes. and urban territories with a strong capacity for producing violence and parallel governance in vulnerable communities. In municipalities within the metropolitan region of Manaus, the consolidation of these Organizations have been associated with significant increases in homicide rates and... socio-territorial reconfigurations that continually challenge the performance of the Military Police of The Amazonas Military Police (PMAM) and other security institutions. In this scenario, the PMAM is called upon to... to operate in an environment that many managers describe as a "permanent war" against



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

Armed and highly adaptable factions in urban, riverside, and border areas.

At the same time, the corporation operates with a workforce below the ideal level projected for this purpose. reality. A recent study on the restructuring of the PMAM (Military Police of Amazonas) force proposed a formula that considering population, crime rates, and "key city" status, it concludes that Municipalities such as Manaus, Tabatinga, Parintins, and Manacapuru require contingents significantly higher than the current figures. The projection indicates a range of 10,400 to 15,000 police officers. Military personnel as the ideal state force, a number higher than the actual number projected in the Planning. Strategic Plan 2023–2032 (Junior et al. 2025). In other words, the Amazon region brings together, Simultaneously, conditions of a logistical hub for trafficking and a structural deficit of personnel, which limits the The effectiveness of responses based solely on expanding overt operations.

Given this scenario, Public Security Intelligence assumes a central role in implementing the characteristic of "economy of means," since it allows for "optimizing the use of resources." available through the production of objective, precise and timely knowledge" (Brazil, 2016, p. 16). Instead of simply "rushing to invest" in more deals, it's about directing efforts in a more focused way. strategically guided by intelligence.

From this perspective, the critique formulated by Marcos Rolim gains centrality, starting from... The metaphor of the Red Queen Syndrome, according to which police and crime "run as fast as they can." They can remain in the same place." The literature indicates that the increase in operations, arrests, weaponry and ostentatious presence, when not accompanied by strategies directed at the core. The economic dynamics of criminal organizations tend to produce costly and ineffective cycles of reaction. fueling the institutional feeling that a lot of work is done and little is achieved (Rolim, 2006 and Teixeira, 2020). In complex environments such as the Amazon, this dynamic reinforces a The "investing on the run" model, in which resources are consumed predominantly in stocks. reactive, without permanently altering the balance of power with the factions.

On the other hand, contemporary literature on organized crime, money laundering and Public security policies highlight the decapitalization of criminal organizations, via Financial intelligence, asset seizure and confiscation, account freezing, and flow tracking, such as an indispensable axis for weakening the "business model" of the factions (Mendroni, 2020; Nucci, 2019; (Comploier, 2019; Suxberger, 2018). Factions such as PCC and Comando Vermelho operate as Complex criminal enterprises, with hierarchical structures, division of tasks, and their own mechanisms. of collecting and laundering illicit capital, including from within the prison system. Attack only executors and drug stockpiles, without compromising financial flows and assets, tend to to preserve the ability of these organizations to recover.

The implementation of divestment strategies presupposes the strengthening of intelligence. police and financial intelligence. Mingardi (2007) emphasizes that intelligence work in



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

Controlling organized crime should focus on identifying structures, flows, and...

vulnerabilities of criminal networks, producing systematic knowledge about criminal networks.

"Criminal intelligence work is not limited to accumulating data. [...] The first

The first phase is the collection of the report, or raw data. The second is the analysis of the material [...] From the

"With information, the analyst produces an assessment, which is already a form of knowledge."

(MINGARDI, 2007).

In the specific field of financial intelligence, research shows that reports

produced by units such as the Council for the Control of Financial Activities (COAF) allow

to map atypical movements, shell companies, and networks for recycling illicit funds.

serving as a basis for blockades, seizures and confiscations (Complouier, 2019; Suxberger, 2018; Andrade, 2019).

From this perspective, and in light of the National Doctrine of Public Security Intelligence, the Financial intelligence aims to produce "information," "assessments," and "estimates" about the economy.

illicit, that is, knowledge that describes facts, interprets scenarios, and anticipates possible outcomes.

developments, allowing the decision-maker to exercise the function of in a qualified manner.

advisory services (Brazil, 2016, pp. 24-25). In this process, the following stand out as tools directly...

The Link Analysis and Risk Analysis techniques, as outlined in the DNISP, are applicable to financial intelligence.

as ancillary techniques capable of tracking flows, structural connections, and vulnerabilities of networks.

criminals (Brazil, 2016, p. 32).

Experiences such as Operation Collapsus, conducted by GAECO of the Public Prosecutor's Office of Tocantins illustrates this potential: through coordinated intelligence and investigation work.

In criminal matters, it was possible to map the structure of the PCC in the state, identify central financial functions,

To track internal flows and freeze approximately three million reais in accounts linked to

faction, directly affecting its financing capacity (Pereira, 2023).

For a state like Amazonas, which is simultaneously a logistical hub for crime and a holder of...

With police personnel falling short of the ideal level, the central question becomes whether they will continue "investing hastily" in predominantly reactive responses or will it be possible to "think strategically," redirecting

Investments in police intelligence, especially financial intelligence, as a way to break the...

The dynamics of Red Queen Syndrome. Thus, the article aims to analyze to what extent

prioritizing investments in intelligence, with an emphasis on financial intelligence driven by

The " *follow the money*" logic could shift the focus of the fight against organized crime in

Amazonas, weakening the business model of the factions and creating real asymmetries in favor of

The State. In doing so, the aim is to highlight how this prioritization of financial intelligence aligns with...

General and Specific Objectives of Public Security Intelligence as defined in the National Doctrine

Public Security Intelligence (Brazil, 2016, pp. 43-44).

Specifically, the aim is to: (a) characterize the role of the state as the logistical epicenter of



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

drug trafficking; (b) discuss the structural limitations of the PMAM, including the issue of ideal staffing levels; and (c) examine intelligence-based divestment experiences, such as Operation Collapsus, drawing lessons for the Amazonian context. The study adopts a qualitative approach, of exploratory and descriptive in nature, based on bibliographic and documentary research, mobilizing literature on organized crime, police intelligence and financial intelligence, as well as Institutional documents and recent research on the Amazonian reality.

## 2. METHODOLOGY

This study adopts a qualitative approach, of an exploratory and descriptive nature, based exclusively on bibliographic and documentary research. It starts from the understanding of that the complexity of organized crime in the Amazon, especially in the state of Amazonas, requires the articulation of theoretical frameworks from criminology, police sciences, and law, as well as analysis of institutional documents produced by public security and prosecution agencies criminal.

In analyzing these institutional documents, the aim was to identify the alignment of practices. intelligence aligned with the National Public Security Intelligence Doctrine and its fundamental principles of the Knowledge Production Methodology (MPC), as established in the DNISP (Brazil, 2016, p. 26). In this direction, the methodological option is similar to other works in security. public institutions that investigate sensitive topics, such as terrorism, weapons, and criminal organizations, starting from critical review of literature and official documents, without conducting fieldwork or primary data collection.

The bibliographic research comprised the collection, selection, and reading of books and articles. scientific papers, dissertations, theses and technical reports on: (a) Theory of Red Queen Syndrome and its application to public security; (b) organized crime and criminal factions in Brazil, with emphasis in the Amazon region; (c) police intelligence and financial intelligence; and (d) strategies of Decapitalization of criminal organizations. Recent national publications were prioritized. available in databases such as Scielo, journals specializing in public safety and science. police, academic repositories, and institutional journals from bodies such as the Ministry of Justice and Public Security, State Public Prosecutor's Offices and Security Secretariats.

The documentary research focused on the analysis of regulations, reports, and case studies. produced by institutions that work to combat organized crime. In this set, Key highlights include: internal documents from the Amazonas Military Police related to staffing structure. and to intelligence activity; federal and state regulations on security intelligence. public relations and the fight against criminal organizations; and official reports of operations that made use of this method.



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

intensive intelligence and decapitalization mechanisms, with special attention to Operation Collapsus, conducted by GAECO of the Public Prosecutor's Office of Tocantins. The analysis of the collected material was through critical reading and comparison between theoretical frameworks and documentary evidence, seeking to identify convergences, gaps, and implications for the Amazonian context.

Since this study is based exclusively on publicly accessible secondary sources, Based on bibliographic and documentary research, without interviews, field observation, or the use of personally identifiable data, submission of the project to a Research Ethics Committee was not necessary. in accordance with Resolution No. 510/2016 of the National Health Council. Even so, they were observing the principles of scientific integrity, reliability of consulted sources and respect for institutional confidentiality norms when mentioning official security documents. public.

### **3. THEORETICAL FRAMEWORK**

#### **3.1. Organized crime, factions, and the illicit economy in the Amazon.**

Recent literature on crime in the Amazon indicates that the region has become established as central axis of trafficking routes connecting Andean countries that produce cocaine, in particular Colombia, Peru, and Bolivia, to Brazil's main consumer centers and international markets. (Costa, 2025). According to Costa (2025), the Solimões River channel and its network of tributaries function as "A privileged logistics corridor" for the flow of illicit cargo, due to its extensive network. Hydrographic region and low density of state presence in vast riverside areas. Studies on the The convergence between drug trafficking and illegal mining reinforces the idea that these same routes are used for... Transportation of gold, weapons, and other illicit goods, creating an environment of multiple criminal activities. articulated (Costa, 2025; Franco et al., 2025).

The scenario of coordinated multi-criminality and parallel governance imposed by the factions. It can be framed, in light of the National Doctrine of Public Security Intelligence, as a "Target" of Public Security Intelligence (PSI), that is, an object whose systematic understanding requires specialized actions for the search and production of specific knowledge (Brazil, 2016, p. 16, 23, 37). This is a dynamic that demands, on the part of the State, the generation of intelligence capable to map the structures, flows, and vulnerabilities of these criminal networks, thus supporting responses. more effective preventive and repressive measures in the Amazonian context.

In this specific context, the state of Amazonas assumes the role of a logistical hub for crime. organized. Costa (2025) describes the state as a point of concentration, storage and redistribution of drugs to the rest of the country and to export ports, highlighting the

Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026

The centrality of the Solimões River basin and the infrastructure of Manaus. Report analyzed by Lima et al.

(2025) describes the Amazonian capital as the “epicenter of organized crime in the Amazon”, in

The function of the convergence, in the same urban space, of trafficking routes and money laundering networks.

and illicit markets associated with national factions and transnational groups. This position is reinforced

through a combination of extensive waterways, road connections, and an air network linking Manaus to

other regional and national centers, as well as the role of Manaus in the security dynamics of

borders described by Alencar Netto et al. (2025). As summarized in a report by g1, when commenting

this international report:

"Manaus has become one of the main corridors through which cocaine produced in [the United States] flows."

South America, with drugs arriving in the Amazon via the Solimões River and continuing along the...

The Amazon River is destined for national and international distribution. The Amazonian capital is...

Considered a strategic logistical link, connecting Amazonian production to markets in Europe, Africa and Asia through its ports." (G1, 2025)

The criminal factions operating in the region incorporate these geographical advantages into their strategy.

organizational logic. Sales et al. (2025) analyze the emergence of the Revolutionaries faction.

Amazonas (RDA) and demonstrate that its consolidation, in dispute with groups of national scope.

Like the Comando Vermelho, it has been associated with a significant increase in violence rates.

lethal in municipalities like Iranduba, between 2017 and 2024. The authors highlight that the RDA operates with

Hierarchical structure, division of tasks, and a strong focus on controlling routes and points of sale.

of drugs, approaching the “criminal enterprise” model described by Mendroni (2020) and Nucci

(2019) when dealing with criminal organizations.

Similarly, Franco et al. (2025) demonstrate that the actions of Comando Vermelho

in Icoaraci, a district of Belém (PA), it is structured based on territorial control and the imposition of

norms, configuring a form of parallel governance that reorganizes the relationships between

Community and State, although the author presents a study that is not from the state of Amazonas, it reflects much.

well within the context of the entire Amazon region. In this context, the faction begins to redefine perceptions of

security, everyday behaviors, and the very presence of the state in the Amazonian urban territory.

"78.02% of the district's residents stated that merchants are required to pay

Regarding fees or monthly payments to criminal factions, 59.19% of respondents acknowledged this.

Comando Vermelho is an active faction in Icoaraci, thus gaining territorial control.

It represents the main axis of power and income for the faction, allowing it to act as a

"A parallel form of governance that redefines social relations and the presence of the State."

(FRANCO et al., 2025, p. 2).

The Amazonian specificity is also evident in the intertwining of environmental crime and

organized crime. Costa (2025) describes the phenomenon of “narco-mining” as a symbiosis between

Illegal mining on indigenous lands and drug trafficking routes, where gold begins to operate.

simultaneously serving as a source of funding and a money laundering tool for criminal factions and



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

criminal networks. Franco et al. (2025) reinforce that, in several areas of the Amazon, groups Those involved in trafficking, illegal mining, and smuggling share logistical infrastructure and networks. armed protection and corruption schemes, which increases the resilience of these organizations in the face of state repression. This association between illicit environmental and traditional economies (drugs, weapons, (smuggling) contributes to consolidating the Amazon as a high-value asset in the criminal economy. transnational (Costa, 2025; Franco et al., 2025).

The performance of public security institutions in this environment faces challenges that They go beyond the classic model of urban policing. Abreu (2026), when studying the operations Interagency cooperation within the Amazonas Military Police demonstrates that actions developed in partnership with Federal Police, Federal Highway Police, and Armed Forces in the Solimões River basin demand high coordination capacity, river logistics, and intensive use of intelligence for identification. of routes, vessels and support points used by criminal organizations.

In parallel, Júnior et al. (2025) demonstrate that the PMAM's effective strength remains below... The ideal figure is calculated for a territory of continental dimensions, given that the current contingent is around... around 9,000 police officers, although projections indicate a need for a force of between 10,400 and 15,000 police officers to adequately meet state demand (Júnior et al., 2025). Taken together, these elements reinforce the interpretation that organized crime in Amazonas should be... understood not only as a local phenomenon, but as part of an illicit economy. transnational entity that uses the state as a logistical, territorial and financial platform (Costa, 2025; Sales et al., 2025; Abreu, 2026).

In this sense, the authors explicitly demonstrate, in quantitative terms, the structural mismatch between the available personnel and the contingent considered technically adequate for the reality. Amazonian:

The projections obtained indicate that the ideal number of state personnel is between 10,400 and 15,000. police officers, a value aligned with current legal provisions and the guidelines established by the corporation's Strategic Plan 2023-2032." (JÚNIOR et al., 2025, p. 1921).

### **3.2. Police intelligence and financial intelligence in combating criminal organizations**

Public security intelligence activity is described, in specialized doctrine, as structural element of the modern fight against organized crime.

According to Mingardi (2007), criminal intelligence work follows a structured cycle of knowledge production:

"In reality, there is a basic model for processing data that doesn't differ much across the various [models]. Western countries. The first phase is the collection of the report, or raw data. The second is the analysis of the material, separating the wheat from the chaff and adding relevant data, which, to Few people transform raw data into information. Starting from the information, or from a

Taking this set together, the analyst enters the third phase, the synthesis, and produces an assessment, which is already...  
a form of knowledge. The fourth and final phase is that of estimation, developed from  
a consolidated body of knowledge." (MINGARDI, 2007, p. 54).

This view aligns directly with the complete intelligence activity cycle described in DNISP, in which planning, collection, processing, analysis, and dissemination culminate in the transition of Raw data for assessments and estimates that constitute the essence of knowledge production. public security (Brazil, 2016, pp. 25-26).

Similarly, Silva (2013) adopts the legal definition of intelligence as an activity.

Continuous production of knowledge to guide government decisions:

"That law defines, for the purposes of that rule, Intelligence as the activity that aims to..."  
The acquisition, analysis, and dissemination of knowledge within and outside the national territory.  
regarding facts and situations that have an immediate or potential influence on the decision-making process and action.  
governmental and concerning the safeguarding and security of society and the State." (SILVA, 2013, p. 293).

Police intelligence operates on three complementary levels, strategic for planning. long-term, tactical for coordinating operations, and operational for targeted execution. as classified in the National Doctrine of Public Security Intelligence (Brazil, 2016, p. 18-19). In confronting criminal organizations, financial intelligence positions itself as This tool is transversal to these three levels, as it allows for a broader understanding of illicit economies at the strategic level, all the way to the specific blocking of financial flows at the level. operational.

In the specific field of public security, Martins (2021) highlights that intelligence Security must be linked to a clear institutional policy, with dedicated structures and a defined framework. Priorities and mechanisms of democratic control. Studies on the importance of intelligence. Public safety in the fight against criminal organizations indicates that the production of Qualified knowledge is a prerequisite for overcoming the informational asymmetry that, historically, It favors illicit groups (Martins, 2021; Silva, 2013).

Within the PMAM (Military Police of Amazonas), controlling intelligence activity becomes a central issue for... to reconcile the use of specialized data collection and analysis techniques with compliance of fundamental rights and guarantees, especially in an institution of a military nature, hierarchical and disciplined. From this perspective, Pinheiro, Aguiar and Zogahib (2025) analyze the The role of the Central Intelligence Advisory Office, training processes, and ethical-legal parameters. which should guide the actions of intelligence operators, highlighting the effectiveness of the ISP It depends both on well-designed internal routines and on the existence of control mechanisms. external, upon concluding that:

"The results demonstrate that internal control is primarily ensured by the Advisory Board."  
Central Intelligence Agency (ACIPMAM) and through a rigorous professional training process.



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

(such as the CBI), aiming at doctrinal and ethical standardization. However, the article emphasizes that the Ethical-legal control requires strict adherence to the principles of adequacy and... Proportionality in the choice and use of data collection techniques, as a defense against misuse. and abuses of power. It is concluded that strengthening the ISP in the PMAM, as an instrument Strategic, it requires continuous inter-institutional integration and the implementation of mechanisms. more transparent and effective external control." (PINHEIRO; AGUIAR; ZOGAHIB, 2025, pp. 6114–6115)

In the specific context of the Military Police of Amazonas, Freitas et al. (2025) analyze the Intelligence-led policing (ILP) as a strategy to optimize the use of resources. scarce resources and to qualify operational decision-making, based on the structure of the Intelligence System. Military Police (SIPOM). The authors conclude that the POI, by supporting evidence-based decisions By directing policing towards priority targets and areas, it contributes to modernizing practices. crime prevention and suppression in the state, especially in scenarios of reduced personnel. and an increased demand for qualified responses. This conclusion aligns with the thesis of this article, by indicating that strengthening intelligence, and models like POI, is a condition for increasing The efficiency of the PMAM (Military Police of Amazonas) in a highly complex criminal environment.

From the 1990s onwards, the financial dimension of intelligence gained centrality in international debate on organized crime and money laundering. Compolier (2019) examines the The role of financial intelligence activity in preventing and suppressing crimes committed by criminal organizations, highlighting the importance of financial intelligence units, such as the Council for the Control of Financial Activities (COAF), in the production of reports on unusual transactions, use of shell companies and money laundering schemes illicit activities. Suxberger (2018) complements this analysis by discussing the use of reports of Financial intelligence in the prosecution of money laundering and related crimes. criminal organizations, arguing that such instruments allow them to follow the money and reach criminal organizations. higher levels of the criminal hierarchy (Suxberger, 2018).

Andrade (2019), when studying financial intelligence from the perspective of "follow the money", It highlights the cooperation between COAF, Public Prosecutors' Offices, police and oversight bodies. Tax law is fundamental to transforming financial information into concrete blocking measures. seizure and confiscation of assets. Nicoloso (2020), in turn, shows how financial intelligence Applied to the prison system, it can reveal illicit flows originating from within prisons. highlighting that factions use the prison system as a logistical and financial base for External operations. These studies converge on the idea that decapitalization, that is, the attack on... The assets and economic flows of criminal organizations depend directly on their structures. Consolidated and integrated financial intelligence.

In the context of Brazilian public policies, articles such as "From punishment to decapitalization"



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

They argue that the fight against organized crime should shift its focus from simply increasing penalties. for the adoption of systematic strategies of economic asphyxiation, with intensive use of intelligence. financial, interagency cooperation and procedural instruments of a patrimonial nature. Texts Analytics published on platforms specializing in public safety reinforce this agenda. presenting decapitalization as a central strategy to contain parallel power structures and reduce the capacity for factional recomposition (Bueno, 2025; Wermuth, 2024). In summary, the literature This indicates that police intelligence and financial intelligence, when combined, have the potential to... to displace the adaptive advantage historically held by criminal organizations and create asymmetries in favor of the State.

### **3.3. Red Queen Syndrome and public security in the Amazonian context**

The metaphor of the Red Queen Syndrome, introduced by Marcos Rolim in the work The namesake has become an essential reference in the debate on public safety in Brazil. Inspired by In Lewis Carroll, Rolim (2006) describes a scenario in which police and crime "run as far as possible." They can remain in the same place," that is, they increase their efforts in operations, arrests, investments, without producing structural changes in the balance of power (Rolim, 2006). In terms In terms of public policy, this image reflects a predominantly reactive model of action, based in immediate responses to the escalation of violence, without a thorough review of strategies and priorities.

Teixeira (2020), when discussing the Red Queen Syndrome in police sciences, argues that this dynamic manifests itself when there is an increase in the use of force, police lethality, and Incarceration does not result in a sustainable reduction in crime, especially in certain contexts. marked by the presence of complex criminal organizations. In an article in the Institute's Journal In the Brazilian Public Security Department, the author suggests that administrative police power and the use Intelligent preventative measures can help break this cycle, provided that... linked to structural reforms and the strengthening of intelligence (Teixeira, 2020). Texts Recent analytical studies, such as the essay "The Red Queen," published on the Fonte Segura platform, They update the concept by associating it with the institutional feeling of "working hard and reaping little." especially in areas where factions exert strong territorial control.

In the Amazonian context, Red Queen Syndrome takes on specific characteristics. Costa (2025) and Sales et al. (2025) show that, despite the increase in police operations, seizures Despite prisons in the region, the Amazon remains a strategic corridor for international trafficking. Drugs, with local and national factions continually adapting routes and methods of operation. Abreu (2026) shows that interagency operations in the Solimões river basin, although important, face Logistical and staffing limitations hinder the consolidation of lasting gains. At the same time



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

Time, Júnior et al. (2025) demonstrate that the PMAM's effective strength remains below the range considered ideal for the state, which reinforces the difficulty of sustaining responses in the long term based primarily on patrolling and overt occupations.

From this perspective, Red Queen Syndrome can be interpreted, in the Amazon, as a combination of three factors: (a) highly favorable geographic and logistical environment for organizations criminal; (b) presence of structured factions, with strong economic power and capacity to adaptation; and (c) structural limitations of security institutions, including staff shortages and resource constraints. The literature that links this concept to coping strategies indicates Breaking the cycle of "running without progress" requires shifting the focus of investments away from stocks. merely reactive to policies based on intelligence, interagency coordination and systematic decapitalization of factions (Rolim, 2006; Teixeira, 2020; COMPLOIER, 2019).

In this sense, the decapitalization and analysis of economic flows of organized crime are important. These can be understood as results of applying the Production Methodology of Knowledge of financial data, transforming protected and denied data into insights. evaluated, significant, useful, timely and safe (BRAZIL, 2016, p. 23). This is an action of intelligence that advises, in particular, the political and strategic levels of the activity of public safety, by weakening the structure and power of factions with long-term impacts. (BRAZIL, 2016, pp. 18-19).

By altering the balance of power between the State and criminal organizations through In the context of capital reduction, financial intelligence also aligns with the purpose of Security Intelligence. The public role of predicting, preventing, neutralizing, and suppressing criminal acts, as defined in the National Doctrine of Public Security Intelligence (BRAZIL, 2016, p. 15). It is from this understanding that the This article proposes to analyze the prioritization of intelligence, especially financial intelligence. as an alternative to overcome, in the Amazonian context, the typical dynamics of the Queen Syndrome Red.

#### **4. ANALYSIS AND DISCUSSION**

The Amazon's status as a logistical hub for drug trafficking creates an environment structurally favorable to criminal organizations and structurally unfavorable to law enforcement agencies. security. As Costa (2025) and Franco et al. (2025) point out, the combination of an extensive network hydrographic, low state presence in riverside areas and capacity for simultaneous use of routes Formal and informal arrangements allow large illicit shipments to cross the state with relative ease. security. In this logic, the Amazon functions less as a simple transit corridor and more as a hub for the concentration, storage, and redistribution of drugs and valuables, a situation summarized by



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

Lima et al. (2025) when describing Manaus as the "epicenter of organized crime in the Amazon". For factions like RDA, Comando Vermelho, and PCC, this position provides a logistical advantage and significant economic impact.

From a police perspective, this structure means that a significant portion of the effort... PMAM and other institutions should focus on reactive responses to events that have already occurred. sporadic seizures, armed confrontations, and episodic operations in specific sections of the riverbed. Solimões (Abreu, 2026). At the same time, the study by Júnior et al. (2025) shows that the effective The PMAM (Military Police of Amazonas) is below the estimated ideal range of between 10,400 and 15,000 police officers, which limits the ability to maintain a continuous presence across multiple critical axes and in high-traffic urban areas complexity. This combination, logistical advantage of crime and structural personnel deficit, reproduces, with clarity, the scenario described by Rolim (2006) as Red Queen Syndrome, in which means the police "run as fast as they can to stay in the same place."

In this scenario of insufficient personnel, Freitas et al. (2025) argue that Policing Guided by Intelligence (POI) offers the PMAM a way to "multiply" the effectiveness of available contingent, by prioritizing the use of patrols and operations based on analyses of Risk, crime patterns, and information produced by SIPOM. In terms of the Queen metaphor. Vermelha, the POI represents an institutional attempt to stop "blindly chasing" after the events and move towards running with direction and purpose, reallocating efforts to areas of greater impact. strategic.

In light of this theory, the pattern observed in the Amazon can be interpreted as a race. Unequal adaptive behavior: as the State intensifies overt and interagency operations, the Criminal organizations adjust routes, schedules, modes of transport, and the use of intermediaries. preserving, to a large extent, its capacity to move drugs and resources. Teixeira (2020) He notes that when the focus of security policies remains centered on prisons and confrontations, Without attacking the economic core of the factions, the tendency is to reproduce cycles of high operational costs. with low structural impact. In the case of Amazonas, this criticism is reinforced by the expansion data. and the recomposition of regional factions such as the RDA, even after successive police operations (Sales et al., 2025).

At the same time, the literature on police and financial intelligence offers concrete clues. on how this dynamic can be strained. Compolier (2019), Suxberger (2018) and Andrade (2019) They demonstrate that the systematic use of financial intelligence reports, cross-referenced with Criminal investigations and public safety intelligence data allow for the identification of accounts. Shell companies, "general cash flow" accounts, and resource flows that support the operations of criminal factions. When this knowledge is converted into measures such as blocking, seizing, and confiscating assets, the The result is the decapitalization of criminal organizations, reducing their ability to recover.



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

weaponizing, corrupting agents, and financing new illicit routes (Mendroni, 2020; Nicoloso, 2020).

Operation Collapsus in Tocantins emblematically illustrates this potential. In the study of the case analyzed by Pereira (2023), GAECO, in cooperation with the judicial police and others. The agencies used intelligence and investigative techniques to map the structure of the PCC in the state. identify internal financial functions, track payments and deposits, and ultimately block approximately Three million reais in accounts linked to the faction. Unlike operations focused solely on In addition to arrests and seizures, Operation Collapsus directly attacked the organization's "cash flow," affecting its... capacity to maintain transfers, pay for lawyers, finance weapons and support illicit activities in medium term. In terms of Rolim's metaphor, it is a strategy that not only "runs" Along with the crime, but it alters the terrain of the race, shifting the focus of the confrontation to the dimension economic.

Translated to the context of the Amazon, this example reinforces the thesis that, in a state which is the logistical epicenter of trafficking and has a less-than-ideal number of officers, the main focus is not It may simply be "more of the same" in terms of overt operations. The literature reviewed suggests that the only realistic way to break, even partially, the dynamics of the Syndrome of Red Queen is about increasing the relative weight of intelligence, especially financial intelligence, in the distribution of power. of investments and strategic priorities (Rolim, 2006; Teixeira, 2020; Compolier, 2019). This This implies strengthening the intelligence units of the PMAM (Military Police of Amazonas), expanding integration with other units. financial intelligence and Public Prosecutors' Offices, and incorporate, as routine in large operations in In the Solimões River basin and in Manaus, the logic of "follow the money" guides actions not only for not just the seizure of cargo, but the identification and attack on the economic flows that sustain the criminal organizations.

## FINAL CONSIDERATIONS

The analysis indicates that the State of Amazonas brings together, in a particularly significant way... acute, the central elements of the Red Queen Syndrome described by Rolim: the police "run the "The maximum it can do to remain in the same place." The status of a logistics hub for trafficking. drugs, connecting Andean cocaine production to national and international markets, ensures criminal organizations have a significant structural advantage (Costa, 2025). This advantage is expanded by the convergence of other illicit economies, such as illegal mining and smuggling, which They share routes, structures, and protection schemes (Franco et al., 2025). In this scenario, factions Like RDA, Comando Vermelho and PCC combine favorable geography and low state presence in vast areas and involvement in transnational illicit markets, which makes a response insufficient. focused solely on patrolling and visible operations.



**Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026**

At the same time, the study on the ideal number of personnel for the Amazonas Military Police shows a significant structural deficit exists between the existing staffing levels and the target range of 10,400 to 15,000 police officers. designed as necessary for the reality of the state (Júnior, 2025). This mismatch limits the capacity to continuously cover multiple critical urban, riverside and border axes, and reduces the room for maneuver for strategies based solely on territorial occupation and presence. physics. In other words, in the Amazonian context, "investing quickly" in more operations, vehicles. And overtime, without altering the strategic focus of security policy, tends to reproduce the feeling. high effort with low return described by Rolim and Teixeira.

On the other hand, the theoretical framework and recent Brazilian experience point to a path. distinct. The literature on criminal intelligence highlights the ability to map structures, flows and the vulnerabilities of criminal networks are crucial in shifting the adaptive advantage historically held by factions (Mingardi, 2007; Silva, 2013). Studies on intelligence Financial reports show that information from units like COAF allows for the identification of accounts and companies. facade and movement patterns that underpin the "business model" of organizations criminal, providing a basis for blockades, seizures and confiscations (Compolier, 2019; Suxberger, 2018; Andrade, 2019). From this perspective, confronting organized crime also means attacking its economic heart, and not just its visible executors.

Operation Collapsus in Tocantins concretely illustrates this potential. Starting from a Through coordinated intelligence and investigative work, GAECO managed to map the structure of the PCC. In the state, identify the "general of the boxes," track internal resource flows, and block approximately Three million reais in accounts linked to the faction. Unlike operations focused solely on Despite arrests and drug seizures, Operation Collapsus directly impacted the organization's finances, affecting its... capacity to finance illicit activities, pay for lawyers, and maintain internal transfers. In terms From the metaphor of the Red Queen, it is a strategy that not only keeps pace with the It is a crime, but it alters the terrain of the dispute, shifting the confrontation to the economic dimension.

For Amazonas, which occupies an even more strategic position in the criminal economy, the lessons They are clear. First, it is necessary to prioritize investments in intelligence centers. PMAM, focusing on analytical capabilities, database integration, and stable articulation with COAF, Public Prosecutor's Offices, Federal Police, and Federal Revenue Service. Secondly, large operations. In the Solimões River basin and in Manaus, it is necessary to systematically incorporate the logic of "follow-up". the money", coupled with overt actions, measures to identify accounts, companies and assets. linked to factions, with a view to decapitalization. Thirdly, strategic planning. Public security in the state must explicitly recognize that, in a territory of such dimensions Continental cities with less-than-ideal personnel require intelligence, especially financial intelligence, not a luxury, but condition for institutional survival.



Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026

This study has limitations due to its exclusively bibliographical nature and documentary, without the use of classified intelligence data or complete statistical series of operations. financial institutions in Amazonas. Even so, there is a convergence between academic literature and documents. The institutional context and the case study analyzed support the central thesis: in a state that is As a logistical epicenter of trafficking with limited human resources, the mere intensification... Reactive actions tend to keep public safety stuck in the wake of the Red Queen. Conversely, the decision to think strategically and redirect investments towards intelligence, with an emphasis on tracking, analyzing, and disrupting illicit financial flows, it offers Amazonas the A chance to turn the tables: to stop running alongside crime and finally put crime in its place. chasing after a State that has begun to choose where, how, and why it fights.

## REFERENCES

ABREU, Paulo José Barbosa Martins de; AGUIAR FILHO, Rouget Brito de. **Interagency operations in the Military Police of Amazonas: a profile study of operations against criminal factions.** Revista Aracê, São José dos Pinhais, v. 8, n. 1, p. 124, 2026. DOI: 10.56238/arev8n1-062 Available at: <https://periodicos.newsciencepubl.com/arace/article/view/11715>. Accessed on: January 15, 2026.

ALENCAR NETTO, Edilson Martins de; AGUIAR, Denison Melo de; ALBUQUERQUE, Leandro. **Specialized Border Policing in Amazonas: integrated strategies against drug trafficking in the triple border of Brazil, Peru, and Colombia.** IOSR Journal of Humanities and Social Science, [SI], v. 30, no. 12, ser. 3, p. 8997, Dec. 2025. Available at: <https://www.iosrjournals.org/iosr-jhss/papers/Vol.30-Issue12/Ser-3/L3012038997.pdf>. Accessed on: January 20, 2026.

ANDRADE, Bárbara Williane Moreira de. **“Follow the money”: an analysis of financial intelligence in the fight against money laundering and criminal organizations.** 2019. Monograph (Undergraduate in Law) – Federal University of Ceará, Fortaleza, Available at: <https://repositorio.ufc.br/handle/riufc/49297>. Accessed on: January 12, 2026.

BRAZIL. Ministry of Justice. National Secretariat of Public Security. **National Doctrine of Public Security Intelligence – DNISP.** 4th ed. rev. and updated. Brasília, DF: Ministry of Justice, 2015. Available at: <https://dspace.mj.gov.br/handle/1/12918>. Accessed on: February 5, 2026.

COMPOLIER, Mylene. **The role of financial intelligence activity in the prevention and repression of crimes committed by criminal organizations.** 2019. Thesis (Doctorate in Political and Economic Law) – Mackenzie Presbyterian University, São Paulo, 2019. Available at: <https://dspace.mackenzie.br/handle/10899/23154>. Accessed on: January 18, 2026.

COSTA, EF da. **Narco-illegal mining in the Brazilian Amazon: an analysis of the evolution of illegal mining into transnational organized crime.** Revista [New Science], [sl], v. X, n. Y, 2025. Available at: <https://periodicos.newsciencepubl.com/LEV/article/view/5957>. Accessed on: January 2, 2026.



Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026

FRANCO, JLS et al. **The impacts of Comando Vermelho's actions on the socio-territorial dynamics of Icoaraci – Belém (PA).** *Revista Geopolítica Transfronteiriça*, Manaus, v. 9, n. 4, 2025.

Available at:

<https://periodicos.uea.edu.br/index.php/revistageotransfronteirica/article/view/4926>. Accessed on: January 6, 2026.

FREITAS, Jorge Christian da Silva et al. **Intelligence-led policing in the Military Police of Amazonas.** *Ibero-American Journal of Humanities, Sciences and Education – REASE*, São Paulo, v. 11, n. 12, p. 5977-5984, Dec. 2025. ISSN 26753375. doi:10.51891/rease.v11i12.23376.

Available at: <https://doi.org/10.51891/rease.v11i12.23376>. Accessed on: January 21, 2026.

G1, AMAZON UNDERWORLD. **The Amazon under attack – mapping crime in the world's largest rainforest.** [SI]: Amazon Underworld, 2025. Referenced in: "Manaus becomes the epicenter of organized crime in the Amazon, says international report". g1, Rio de Janeiro, October 28, 2025. Available at: <https://g1.globo.com/am/amazonas/noticia/2025/10/28/manaus-vira-epicentro-do-crime-organizado-na-amazonia-aponta-relatorio-internacional.ghtml>. Accessed on: January 27, 2026.

JÚNIOR, Luiz Carlos Teles da Silva; GOMES, Adriana Sales; AGUIAR, Denison Melo de; RÊGO, Kristorferon Almeida do; DAMASCENO, Willian Falcão. **The restructuring of the Amazonas Military Police force: proposing a formula for the ideal force size.** RCMOS – Revista Científica Multidisciplinar O Saber, São Paulo, year V, v. 2, p. 123, 2025. Available at: <https://submissoesrevistarcmos.com.br/rcmos/article/view/1834>. Accessed on: January 19, 2026.

MENDRONI, Marcelo Batlouni. **Criminal organizations: the lack of conceptualization and Law No. 12.850/2013.**

4.

ed.

They are

Paulo:

Available at:

2020.

[https://www.fepmp.br/documents/20184/2835124/Marcelo\\_Batlouni\\_Mendroni.pdf](https://www.fepmp.br/documents/20184/2835124/Marcelo_Batlouni_Mendroni.pdf). Accessed on: January 26, 2026.

MINGARDI, Guaracy. **The role of intelligence in controlling organized crime.** *Estudos Avançados*, São Paulo, 85–104, 2007. v. 21, n. 61, p. Available at: <https://www.scielo.br/ea/a/ygZtbk53FgrM4ZfjMLnf74h/?lang=pt>. Accessed on: January 20, 2026.

NICOLOSO, Carlo Pegoraro. **Financial intelligence in the prison system.** *Brazilian Journal of Penal Law*, Y, Available at: <https://www.depen.gov.br/index.php/BRASILIA/article/view/10834>. Accessed on: January 16, 2026.

NUCCI, Guilherme de Souza. **Annotated Criminal and Criminal Procedure Laws.** 18th ed. Rio de Janeiro: Forense, 2019.

PEREIRA, Thiago Alves. **Intelligence and criminal investigation conducted by the Public Prosecutor's Office of Tocantins in confronting criminal organizations: a case study of Operation Collapsus.** In: [COLLECTIVE WORK]. *Intelligence and criminal investigation in the Brazilian Public Prosecutor's Office.* [s.l]: [sn], 2023. p. 1–25. Available at: <file "Inteligencia-e-Investigacao-Criminal-Conduzida-Pelo-MPTO-no-Enfrentamento-as-Organizacoes-Crimin.pdf">. Accessed on: January 5, 2026.

PINHEIRO, Johnattan Martins; AGUIAR, Denison Melo de; ZOGAHIB, André Luiz Nunes. **The**

Year VI, v.1 2026 | Submission: 23/02/2026 | Accepted: 25/02/2026 | Publication: 27/02/2026

**Control of intelligence activity in the PMAM (Military Police of Amazonas).** Ibero-American Journal of Humanities, Sciences and Education – REASE, São Paulo, v. 11, n. 12, p. 61146136, 2025.

DOI: 10.51891/rease.v11i12.23375.

Available

Available at: <https://periodicorease.pro.br/rease/article/view/23375>. Accessed on: January 25, 2026.

ROLIM, Marcos. **The Red Queen Syndrome: Policing and Public Security in the 21st Century.** Rio de Janeiro: Zahar, 2006.

ROLIM, Marcos. **The Red Queen.** *Fonte Segura – Brazilian Forum on Public Security*, São Paulo, September 13, 2023.

Available at: <https://fontesegura.forumseguranca.org.br/a-rainha-vermelha/>. Accessed on: January 6, 2026.

---

SALES, Paulo Victor Andrade et al. **The impact of the creation of the Revolucionários do Amazonas (RDA) faction on lethal violence rates in Iranduba, AM, from 2017 to 2024.** *Revista Geopolítica Transfronteiriça*, Manaus, v. 9, n. 4, 2025.

Available at: <https://periodicos.uea.edu.br/index.php/revistageotransfronteiriça/article/view/4907>. Accessed on: January 8, 2026.

---

SILVA, Vinícius de Oliveira. **Criminal intelligence: conceptual aspects and application in the context of organized crime in Brazil.** *Revista do Ministério Público do Estado de Goiás*, Goiânia, v. X, n. Y, 2013. Available at: [https://www.mpggo.mp.br/revista/pdfs\\_6/Artigo16\\_final\\_Layout1.pdf](https://www.mpggo.mp.br/revista/pdfs_6/Artigo16_final_Layout1.pdf).

---

Accessed on: January 9, 2026.

SUXBERGER, Antonio Henrique Graciano. **The role of financial intelligence in the prosecution of money laundering and criminal organizations.** *Brazilian Journal of Public Policy*, Brasília, X, 2018.

v.

n.

Yes,

Available at:

<https://www.publicacoes.uniceub.br/RBPP/article/view/4618>. Accessed on: January 11, 2026.

TEIXEIRA, Márcio Aleandro Correia. **Police science and the Red Queen Syndrome.** *Revista do Instituto Brasileiro de Segurança Pública*, Brasília, year 1, no. 1, 2020. Available at: <https://revista.ibsp.org.br/index.php/RIBSP/article/view/79>.

Accessed on: January 2, 2026.

---

WERMUTH, Maiquel Ângelo Dezordi; CALLEGARI, André Luís. **From punishment to decapitalization: confronting organized crime in contemporary times.** *Revista SUSP*, Brasília, v. 3, n. 1, p. 219-234, Jul./Dec. 2024. ISSN 26758482 (print); ISSN 27639940 (digital). Available at:

<https://revistasusp.mj.gov.br/susp/index.php/revistasusp/article/view/619>. Accessed on: January 24, 2026.

---