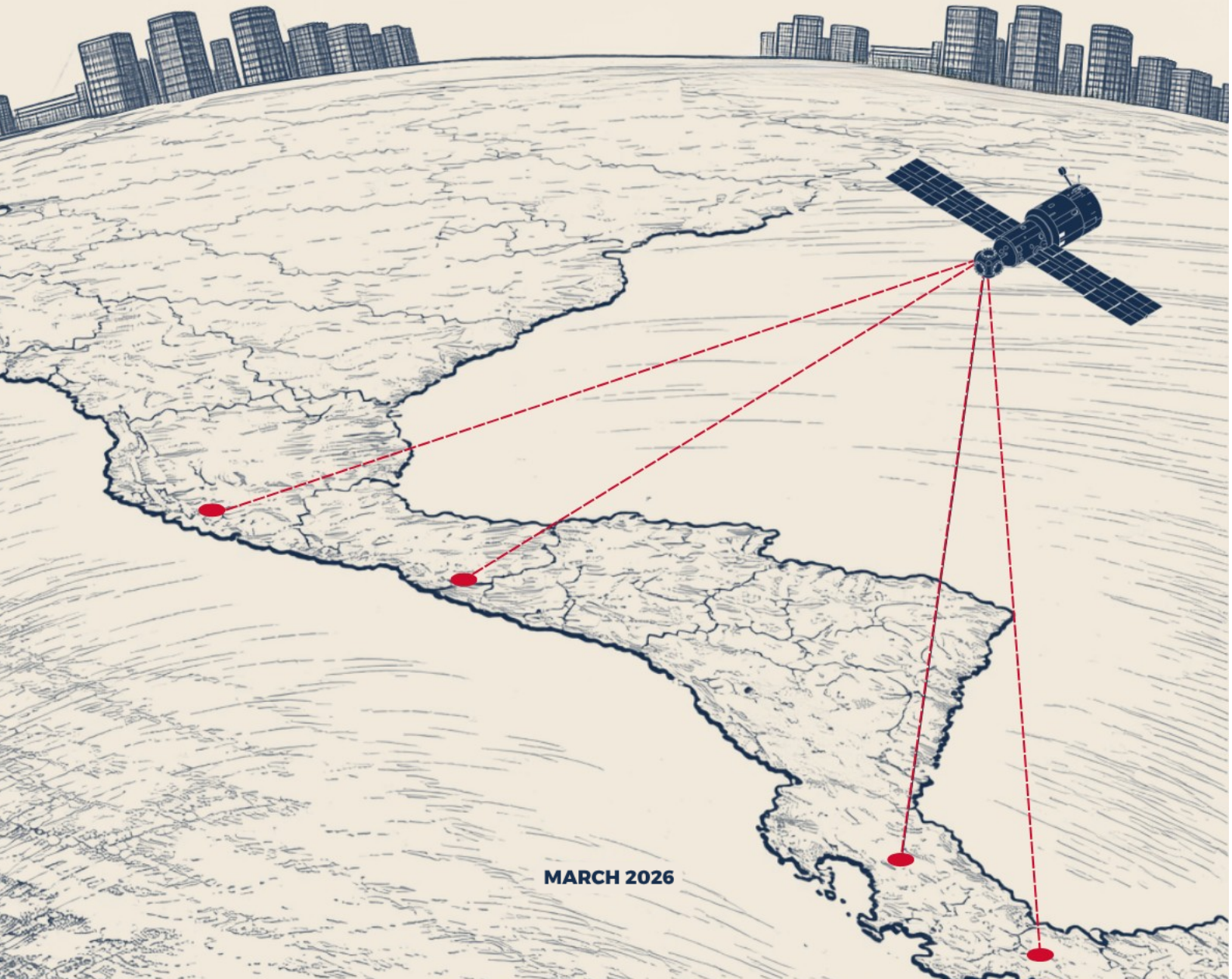
EXPEDIENTE ABIERTO

HUAWEI
AS A GEOPOLITICAL VECTOR:
THE DISPUTE FOR DIGITAL SOVEREIGNTY IN CENTRAL AMERICA



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Expediente Abierto mission is to produce and disseminate high-quality research and journalistic content that strengthens critical analysis, civic engagement, and the defense of democracy in Central America.

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HUAWEI AS AN INSTRUMENT OF CHINA'S GLOBAL PROJECTION

Huawei's international expansion cannot be understood solely as the outcome of a successful corporate strategy in highly competitive technology markets. Its global trajectory is more deeply rooted in the structural transformation of the relationship between technology, state power, and national security that characterizes the rise of the People's Republic of China as a systemic actor. In this context, Huawei operates as one of the main vectors for projecting the Chinese model of technological development abroad, a model in which the distinction between private enterprise, State, and Party is legally blurred and politically functional.

Formally, Huawei presents itself as a private company, whose ownership is structured through an internal shareholding scheme managed by a labor union representing more than 160,000 employees and retired beneficiaries (García, 2025). However, various analyses agree that this corporate architecture lacks independent auditing and transparency mechanisms comparable to Western standards, effectively concentrating strategic control in its founder, Ren Zhengfei, a former member of the People's Liberation Army and a figure historically linked to the Chinese Communist Party (CCP) (Marquis & Qiao, 2022). This formal ambiguity is a structural feature of the Chinese system, in which the notion of private enterprise coexists with dense political, ideological, and functional intertwining with the Party-State (Berman, Maizland & Chatzky 2023).

This relationship is embedded in the Chinese legal framework, particularly through the 2017 National Intelligence Law. This legislation establishes a general and unconditional obligation for all Chinese organizations and citizens

to “support, assist, and cooperate” with state intelligence activities. The law does not provide explicit exceptions for private companies or overseas subsidiaries, and it lacks effective mechanisms for independent judicial oversight, and further imposes strict secrecy obligations regarding such cooperation (China Law Translate, 2017). From a comparative perspective, this regulatory framework effectively eliminates the distinction between corporate actors and the state apparatus in intelligence matters, constituting the central legal basis for Western concerns about the participation of Chinese technology companies in critical infrastructure.

Beyond the legal dimension, empirical evidence also points to organizational links between Huawei and the Chinese security apparatus. Research analyzing the leaked résumés from Chinese recruitment databases has identified overlapping career paths between Huawei technical personnel and institutions such as the People’s Liberation Army and the Ministry of State Security, including roles related to the development of communications interception capabilities and remote network management (Balding, 2019). Such findings reinforce the interpretation of Huawei beyond its formal corporate status, and as a dual civil–military asset, functionally integrated into the Chinese state’s technological and security strategy.

State support for Huawei is also evident in the economic and financial sphere. Since its founding, the company has benefitted from direct subsidies, preferential loans, and lines of credit from Chinese state-owned banks; various estimates place the value of this support between USD 75 billion and US D100 billion, including annual assistance exceeding USD 200 million during key years of Huawei’s global expansion (Moore, 2023). This financial backing has enabled Huawei to compete aggressively in international markets, absorb risks, offer comprehensive solutions at lower costs, and establish its presence in countries with a high need for digital modernization and limited regulatory capacity, generating long-term operational dependencies.

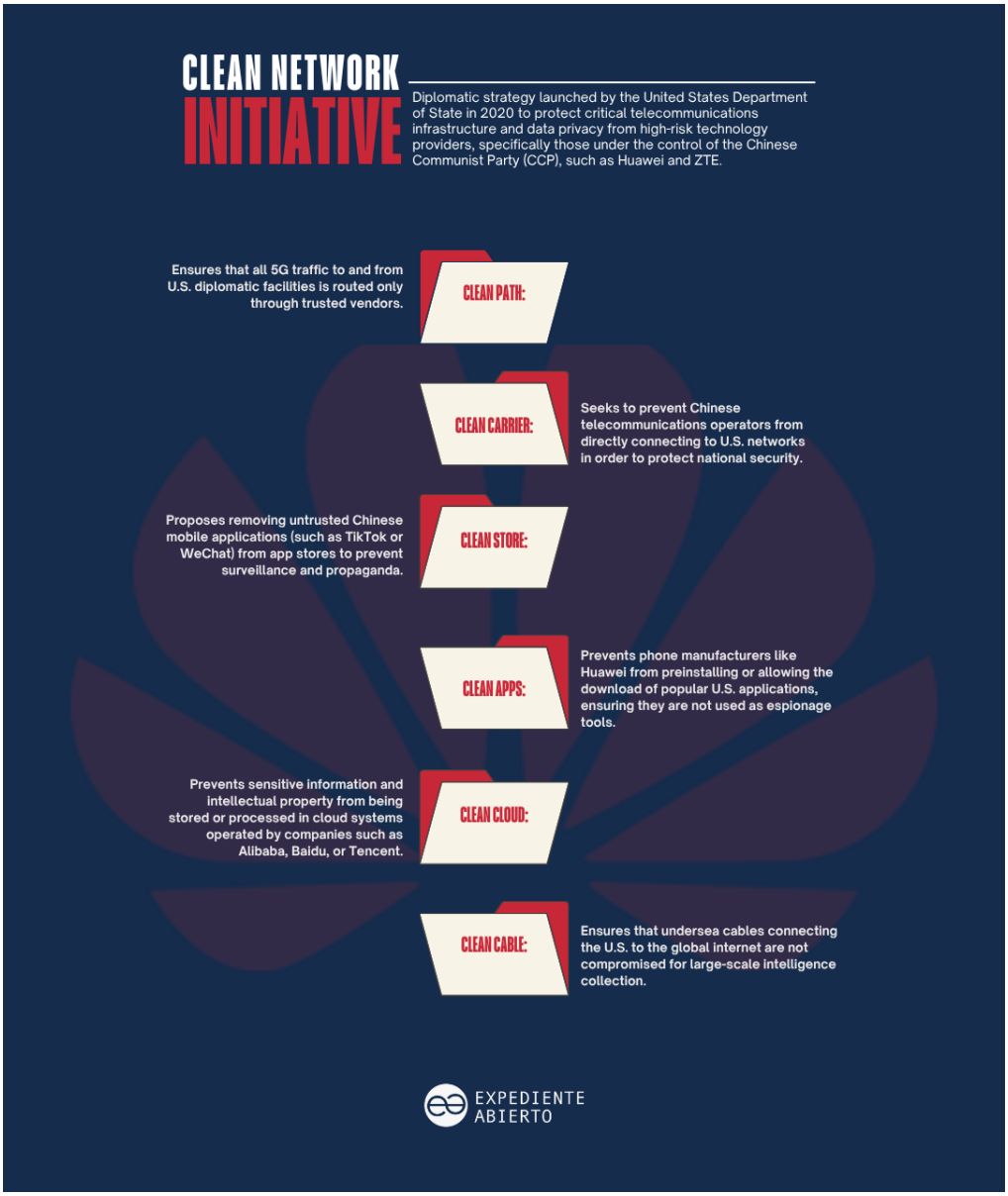
Within this context, the risk associated with Huawei has increasingly been framed by the United States and a growing number of Western democracies as systemic legal and political risks. The architecture of 5G networks, characterized by the elimination of a clear distinction between the core and periphery of the network and by the proliferation of intelligent nodes, exponentially amplifies the attack surface and makes trust in the vendor as important as its technological capability (Kaska, Beckvard, y Minárik, 2019). The central concern lies not in the proven existence of active "backdoors," but rather the structural impossibility of guaranteeing that such vulnerabilities do not exist or could not be activated in the future, given long-term supplier dependence and the legal environment to which that supplier is subject.

It is on this basis that the United States reconfigured its approach toward Huawei and, more broadly, toward the governance of global digital infrastructure. Beginning in 2019, Washington shifted from targeted sanctions and restrictions (such as Huawei's inclusion on the "Entity List[1]" and its designation as a "covered company" by the Federal Communications Commission) toward a comprehensive strategy for securitizing the digital ecosystem. This approach solidified in 2020 with the launch of the Clean Network Initiative, conceived as a global regulatory framework designed to redefine digital infrastructure as an extension of the national security perimeter (U.S. Department of State, 2020).

The Clean Network initiative articulated six lines of effort (Clean Carrier, Clean Store, Clean Apps, Clean Cloud, Clean Cable, and Clean Path) aimed at excluding providers deemed untrustworthy from telecommunications networks, cloud services, applications, submarine cables, and sensitive data routes. Beyond its operational scope, the initiative served a central strategic function: introducing the political criterion of "trust" into global digital

[1] The official term used by the U.S. government (Department of Commerce) is "Entity List." However, in colloquial language or in the news, it is often referred to as a "blacklist" due to its restrictions. From this point on, the two terms are used interchangeably.

governance and building a voluntary coalition of states and companies aligned with liberal standards of security, transparency, and data protection (Dąbrowski, 2021). By 2021, nearly fifty countries had expressed explicit support for the Clean Network principles, solidifying the United States as the regulatory architect of an emerging competitive digital order.



However, the credibility of this strategy did not rest solely on discourse or reputational construction. The recognition that technological dependence was already embedded within the United States itself led to the adoption of an

unprecedented corrective instrument: the Secure and Trusted Communications Networks program, widely known as “Rip and Replace.” Through this mechanism, the federal government assumed the fiscal responsibility of removing and replacing Huawei and ZTE equipment installed prior to regulatory clarification, primarily in rural networks and among smaller operators. The program, fully integrated into the national defense budget through the National Defense Authorization Act of 2025, mobilized close to USD 5 billion to dismantle approximately 24,000 pieces of equipment across more than 8,400 locations, benefiting roughly 126 operators (Federal Communications Commission, 2020; Hill, 2024).

The fiscal and operational implementation of Rip and Replace constitutes an important strategic lesson. Even for a state with ample institutional and financial capabilities, exiting an embedded technological dependency is costly, slow, and politically complex. By internalizing these costs, the United States acknowledged that technological securitization cannot be sustained solely through prohibitions or sanctions; it also requires structural corrective measures that preserve service continuity and institutional resilience.

This framework is particularly relevant for the analysis of third-party States, and especially developing states. The U.S. case demonstrates that technological decisions made based on efficiency and cost considerations generate irreversible effects that severely limit future strategic autonomy. In the absence of robust regulatory capabilities and comprehensive digital governance frameworks, the early standardization of providers such as Huawei reduces the scope for sovereign decision-making and shifts the debate toward delayed securitization, with high economic, political, and diplomatic costs.

Against this backdrop, Huawei’s expansion into Central America should be understood as a peripheral manifestation of a systemic dispute for control of 21st-century digital infrastructure. In this sense, attempts by China to transform the region into a geopolitical foothold have contributed to its emergence as

Central America's second-largest economic partner – behind the United States, displacing the European Union – particularly in sectors such as infrastructure (ports, railways, dams, stadiums), energy, mining, telecommunications, and the trade of manufactured goods and raw materials (Expediente Abierto, 2024).

Thus, the present comparative analysis is part of a broader dynamic of technological competition, in which the absence of early governance, the gradual capture of technical and educational elites, and accumulated dependency shape national trajectories deeply conditioned by a rapidly evolving geopolitical environment. It is important to note that this study combined qualitative methods, including an exhaustive review of open sources and grey literature, with 25 semi-structured interviews.

The interviewees included academics, information technology specialists, cybersecurity experts, members of business chambers, current and former government officials, and international consultants with direct experience in digital transformation projects, technology regulation, or international cooperation in Central America. These interviews provided access to insider perspectives on decision-making processes, institutional tensions, external pressures, and operational limitations that are not always visible in documentary sources.

Most of the people interviewed requested confidentiality clauses due to the political, economic, or institutional implications of the information shared. Consequently, their testimonies are incorporated in the study anonymously, identified only as qualified sources, and were cross-checked against public documentation and other interviews to ensure consistency, reliability, and analytical rigor. Only in certain sections were brief transcripts of the interviewees' comments included, to give consistency to the analysis or when deemed relevant.

HUAWEI IN CENTRAL AMERICA

A GEOPOLITICAL NETWORK OF INTEGRATION, DEPENDENCE, AND STATE RESPONSE

2007-2025

COSTA RICA

YEAR OF ENTRY: 2007

TYPE OF HUAWEI INSERTION:

- DIPLOMATIC-COMMERCIAL. ENTRY POST-RECOGNITION OF CHINA (2007).
- LEADER IN DEVICES (40% OF THE MARKET, 2018).
- CONTRACTS WITH ICE >USD 34M.
- ENVIRONMENTAL SOFT POWER (HUAWEI FOREST, UNDP) AND CLOUD.

LEVEL OF DEPENDENCY

- **HIGH** IN DEVICES AND CLOUD SERVICES.
- **MODERATE** IN INFRASTRUCTURE (ICE).
- **INHERITED DEPENDENCY PRE-SECURITIZATION OF MORE THAN 15 YEARS.**

STATE RESPONSE:

-REACTIVE BUT FIRM

- EXECUTIVE DECREE FOR 5G EXCLUSION (2023). HUAWEI APPEAL BEFORE THE CONSTITUTIONAL CHAMBER.

- CRIMINAL COMPLAINT BY THE EXECUTIVE AND ICE AGAINST HUAWEI (DEC. 2024).

- DEFINITIVE REGULATORY EXCLUSION BY THE COMPTROLLER (2025). INTERNAL ICE CRISIS (UNION CAPTURE).

OUTCOME:

- EXCLUSION ACHIEVED BUT AT HIGH COSTS: 5G BLOCKAGE, LITIGATION, INSTITUTIONAL CRISIS IN ICE, DETERIORATION OF BILATERAL RELATIONSHIP WITH CHINA.
- SECURITIZATION

PANAMA

YEAR OF ENTRY: 2008

TYPE OF HUAWEI INSERTION:

- LOGISTICS-CORPORATE AND EDUCATIONAL.
- REGIONAL HUB (COLÓN FREE ZONE, INVESTMENT >USD 100M). INNOVATION CENTER (>USD 1M).
- SEEDS FOR THE FUTURE SINCE 2015. EDUCATIONAL ECOSYSTEM (>40,000 STUDENTS).
- FAILED ATTEMPT AT PERSONNEL HUB (300-500 CHINESE EMPLOYEES).

LEVEL OF DEPENDENCY

- **MODERATE**
- CONCENTRATED IN EDUCATION, LOGISTICS, AND REPUTATIONAL CAPITAL.
- NO DIRECT CONTROL OF CRITICAL TELECOMMUNICATIONS INFRASTRUCTURE.

STATE RESPONSE:

- SILENT AND MULTILEVEL CONTAINMENT

- IMMIGRATION/LABOR RESTRICTIONS (2023, <30 OF 500 ENTRIES).

- NON-RENEWAL OF BELT AND ROAD (2025).

- MUNICIPAL EXCLUSION ORDINANCES.

- INDIVIDUALIZED SANCTIONS ON ELITES (VISAS).

OUTCOME:

- EFFECTIVE EXCLUSION WITHOUT EXPLICIT NATIONAL BAN.
- INCREMENTAL USE OF ADMINISTRATIVE, IMMIGRATION, SUBNATIONAL, AND SECURITY INSTRUMENTS.
- PROGRESSIVE ALIGNMENT WITH WASHINGTON.

HONDURAS

YEAR OF ENTRY: 2008

TYPE OF HUAWEI INSERTION:

- CRITICAL INFRASTRUCTURE AND STATE CAPTURE.
- 70% OF TELECOM EQUIPMENT (2019).
- CLOUDCAMPUS WI-FI 6 AT UNAH (120,000 USERS). MOU WITH HONDUTEL (CONFIDENTIALITY CLAUSES).
- PRESENCE IN REGULATOR (CONATEL).
- DIPLOMATIC SHIFT TOWARD CHINA (2023).

LEVEL OF DEPENDENCY

- **VERY HIGH**
- STRUCTURAL DEPENDENCY IN TELECOMMUNICATIONS, EDUCATIONAL INFRASTRUCTURE, STATE-OWNED ENTERPRISE, AND NOW THE ENERGY SECTOR.
- LOW TECHNOLOGICAL REVERSIBILITY.
- CONTRACTUAL OPACITY.

STATE RESPONSE:

- WEAK

- DIPLOMATIC REORIENTATION TOWARD BEIJING (2023).

- PRESIDENTIAL VISIT TO CHINA AND HUAWEI. LEGISLATIVE REFORMS WITHOUT PUBLIC DEBATE.

- NO AUDIT, DIVERSIFICATION, OR RISK ASSESSMENT MECHANISMS.

OUTCOME:

- DEEP INSERTION WITHOUT INSTITUTIONAL COUNTERWEIGHTS.
- DEPENDENCY CONSOLIDATED BEFORE ANY STRATEGIC DEBATE.
- ACTIVE EXPANSION INTO NEW SECTORS. REGIONAL EARLY WARNING CASE.

HUAWEI IN CENTRAL AMERICA

A GEOPOLITICAL NETWORK OF INTEGRATION, DEPENDENCE, AND STATE RESPONSE

2007-2025

EL SALVADOR

YEAR OF ENTRY: 2008

TYPE OF HUAWEI INSERTION:

- NORMALIZED COMMERCIAL-EDUCATIONAL WITH SELECTIVE SHIFT.
- PRESENCE SINCE 2008, SUPPLIER TO PRIVATE OPERATORS.
- DIPLOMATIC SHIFT POST-2018 (BUKELE VISIT TO BEIJING, USD 500M IN PLEDGES).
- INTENSE EDUCATIONAL COOPERATION (UES, SEEDS FOR THE FUTURE 2024 IN SAN SALVADOR).
- TRAINING OF >11,000 PUBLIC SERVANTS

LEVEL OF DEPENDENCY:

- **MODERATE-LOW** IN CRITICAL LAYERS (5G EXCLUDED, CLOUD MIGRATED TO AWS/ORACLE)
- **HIGH** IN EDUCATION/TRAINING (TRAINING PROGRAMS IN THE HUAWEI ECOSYSTEM)
- TRADE DEFICIT >USD 2,600M WITH CHINA

STATE RESPONSE:

- DIFFERENTIATED AND DELIBERATE STRATEGY
- EXCLUSION OF HUAWEI FROM 5G (TIGO/MILLICOM)
- MIGRATION OF GOVERNMENT CLOUD TO AWS/ORACLE
- RAPPROCHEMENT WITH NVIDIA FOR ADVANCED COMPUTING
- ACTIVE TOLERANCE OF HUAWEI IN EDUCATION, DEVICES, AND TRAINING
- HIGH-LEVEL POLITICAL DIALOGUE (VP ULLOA-CEO HUAWEI)

OUTCOME:

- FUNCTIONAL DELIMITATION
- DELIBERATE GEOPOLITICAL REALIGNMENT ALIGNED WITH WASHINGTON.

GUATEMALA

YEAR OF ENTRY: 2007

TYPE OF HUAWEI INSERTION:

- EDUCATIONAL-ECOSYSTEMIC WITH RECENT PENETRATION INTO CRITICAL DATA.
- NO DIPLOMATIC RELATIONS WITH CHINA (MAINTAINS TIES WITH TAIWAN).
- HUAWEI AS A STABLE CHANNEL OF CHINA-GUATEMALA INTERACTION.
- INTECAP-HUAWEI ICT ACADEMY. ALLIANCES WITH UNESCO/MINEDUC.
- IGSS CONTRACT: USD 5.1M FOR DATA VAULT OF 3.3M AFFILIATES.

LEVEL OF DEPENDENCY:

- **LOW-MODERATE** IN TELECOM (STRUCTURAL LAG IN 2G/3G).
- GROWING IN SENSITIVE DATA (IGSS) AND TECHNICAL TRAINING (INTECAP, CROSS-CUTTING INTERNSHIPS).

STATE RESPONSE:

- FRAGMENTED AND INORGANIC. NO NATIONAL DATA SOVEREIGNTY POLICY.
- EACH PUBLIC ENTITY AUTONOMOUSLY DECIDES ON SUPPLIERS AND STANDARDS.
- IGSS PROCUREMENT WITH CRITERIA THAT FAVORED THE HUAWEI SOLUTION.
- NO CROSS-CUTTING STRATEGIC ASSESSMENT ARCHITECTURE.

OUTCOME:

- DECENTRALIZED DECISIONS WITHOUT CROSS-CUTTING GOVERNANCE.
- VULNERABILITY TO PROGRESSIVE INSERTION WITHOUT STRATEGIC DEBATE.
- EDUCATIONAL AND ECOSYSTEMIC CAPTURE PRECONFIGURES THE TERRAIN FOR HIGHER-STAKES DECISIONS.

ENHANCED INSERTION THROUGH CHINESE DIPLOMACY IN THE REGION

A comparative analysis of Costa Rica, Panama, Honduras, El Salvador, and Guatemala[2] shows that Huawei's early entry into Central America was not initially perceived as a strategic threat, but rather as a functional solution to structural deficits in connectivity, digital modernization, and access to technology. However, this trajectory takes on critical relevance when considering the organic link between Huawei and the CCP (Chinese Communist Party), as well as the systematic use of Chinese technology companies as extensions of state power within the framework of the People's Republic of China's global competition strategy.

In most of the countries analyzed, Huawei managed to consolidate its position before Western actors, such as the United States and Europe, fully incorporated the technological dimension into their national security agendas. This enabled early operational normalization, which now shapes the available policy options. This process did not necessarily involve deliberate ideological decisions by the Central American states, but it did produce adverse strategic externalities by facilitating the expansion of a technological actor closely aligned with legal obligations to cooperate with the Chinese state security apparatus.

Costa Rica is a prime example of how a strategic diplomatic decision—the establishment of relations with the People's Republic of China in June 2007—created a favorable institutional environment for the early entry of Chinese economic actors, including high-impact technological suppliers. Costa Rica

[2] The present analysis excludes Nicaragua from the Central American region because it was not possible to replicate the analysis in the three sources of information used for these five countries, namely: 1) open sources, 2) grey literature, 3) semi-structured interviews, to present a coherent analysis of Huawei's trajectory in the country.

then severed diplomatic ties with Taiwan, which had lasted more than six decades, becoming the first in Central America and one of the first in Latin America to formally recognize Beijing (Casas-Zamora, 2009).

Following diplomatic recognition, both countries moved quickly to build a solid legal and economic framework. In October 2007, the Investment Promotion and Protection Agreement was signed, followed in 2008 and beyond by numerous memoranda of understanding on economic cooperation, education, science and technology, infrastructure, and diplomatic facilitation (Hannig Núñez, 2024; MRRC, 2024). This institutional architecture reduced regulatory frictions and normalized the presence of Chinese companies in strategic sectors.

In this context, Huawei formally began operations in Costa Rica in 2007, more than a decade before any securitization of the technological debate (Arrieta, 2024). During this initial phase, the company was perceived solely as a legitimate technical provider, without any consideration of its structural ties to the CCP or the long-term implications for digital sovereignty. Subsequent commercial consolidation was significant. Huawei formalized its operational presence in 2013 and experienced rapid growth: its market share by value rose from 7.8% in 2013 to 40% in 2018, making it the country's leading mobile phone provider. In terms of volume, units sold increased from 111,000 in 2013 to more than 525,000 in 2018, an increase of almost fivefold over six years. Brand awareness increased from 22% to 98%, demonstrating a profound social normalization of the company (El Financiero, 2019).

This data is critical. It shows how a supplier linked to the CCP managed to capture a dominant share of the Costa Rican digital ecosystem before actors like the United States or Europe could formulate a coherent strategy to counter this expansion. Huawei's inclusion on the "blacklist" in 2019 introduced an exogenous politicization of the debate for the first time, but even then, the Costa Rican Electricity Institute (ICE, *Instituto Costarricense de Electricidad*)

publicly confirmed that there were no operational impacts or immediate perceived risks, demonstrating the degree of normalization achieved (Zuñiga, 2019).

In Panama, Huawei began commercial operations in 2008 and formally opened its local office in 2011, with approximately 40 employees in its early stages. Its expansion was supported by the country's logistics expertise and was further strengthened from 2015 onward through operations linked to the Colón Free Zone (Panama 24 Hours, 2022c). China's diplomatic recognition in June 2017 did not mark the beginning of Huawei's presence, but rather its subsequent strategic reinterpretation. During the first year of diplomatic relations, more than 25 bilateral agreements were signed in trade, logistics, and infrastructure, generating expectations of an expanded role for Chinese companies in strategic sectors (Fonseca, 2017). However, Illueca & Castillero Hoyos (2024) report that the most recent figure is approximately 47 agreements, covering economic cooperation, infrastructure, transportation, trade, and participation in the Belt and Road Initiative.

However, Huawei maintained a prudent and sector-specific expansion. Between 2019 and 2021, its presence focused on education, talent development, and business solutions, rather than control of critical infrastructure. In 2021, the company inaugurated its Innovation Center with an initial investment exceeding USD 1 million and expanded its educational ecosystem through ICT academies that reached more than 40,000 students through agreements with public and private universities (El Capital Financiero, 2021; La Estrella de Panamá, 2021).

The case of Panama illustrates a relevant pattern. The company's insertion does not necessarily materialize through direct control of critical networks, but through the gradual construction of institutional, educational, and technical influence through soft power by a company linked to the CCP, in a context

where the presence of Western actors on the digital agenda has been intermittent.

Honduras, for its part, represents the clearest case of early structural technological dependence. Huawei established an operational presence around 2008 and, for more than a decade, consolidated its position as a central provider of 3G and 4G infrastructure without significant political scrutiny (Pérez, 2019). The turning point occurred in 2019, when the company declared that Honduras was technically ready to deploy 5G and revealed that approximately 70% of the country's telecommunications equipment was supplied by Huawei. The company also emphasized that the existing 4G infrastructure could be migrated to 5G without immediate additional investment, reinforcing a narrative of technological continuity that discouraged any discussion about diversifying suppliers.

By then, the company had already established a presence in Honduras for over 12 years, and its statement regarding the migration to 5G set a strategic precedent for attempting to frame the country's digital ecosystem agenda under its leadership. This was further reinforced by its announcement that it had already begun transition trials with national telecommunications operators, such as Tigo (Millicom), Claro (América Móvil), and the state-owned company Hondutel.

In the case of El Salvador, the company has been operating since 2008, consolidating its position for over a decade as a technical and commercial provider in a small, open market structurally dependent on imported technology. During this extended period, the company supplied infrastructure, services, and devices to private operators – primarily Claro, Tigo, and Movistar – without generating significant public debate on digital sovereignty, technological dependence, or national security (Elsalvador.com, 2015; La Prensa Gráfica, 2017). This early technical standardization allowed Huawei to

become firmly integrated into the telecommunications ecosystem before any strategic evaluation of the relationship between the company and the CCP.

The turning point came due to a structural shift in the political and diplomatic landscape. The formalization of diplomatic relations with the People's Republic of China in August 2018, followed by President Nayib Bukele's official visit to Beijing in December 2019, substantially altered the interpretive framework of China's technological presence in the country. During that visit, cooperation agreements worth approximately USD 500 million were announced, including flagship projects of high symbolic and political value, such as the National Library of El Salvador (BINAES, *Biblioteca Nacional de El Salvador*), valued at around USD 40 million, as well as infrastructure, tourism, and urban development projects (Ellis, 2021; 2024). Similarly, during that visit, President Bukele was awarded an honorary doctorate by Beijing Foreign Studies University, which would set a precedent for soft power strategies aimed at capturing the country's political elites (Forbes Central America, 2019; Santos, 2025).

Although these commitments did not immediately translate into budgetary execution, the publicly released figures sharply raised expectations regarding the depth and scope of the relationship with China. In this new context, Huawei – now fully integrated into the national technology system – began to be reinterpreted not only as a technical supplier, but also as part of a broader framework of strategic cooperation with Beijing, even though its operating model had not been substantially modified.

This diplomatic shift coincided with a quantifiable deterioration in the bilateral economic relationship. Salvadoran exports to China fell from USD 85.5 million in 2018 to USD 51.9 million in 2019, while imports from the PRC continued to grow, reaching approximately USD 1.723 billion in the same year (Urquilla, 2025). The result was a trade deficit more than thirty times the value of exports. This dynamic reflects a broader regional pattern: China has established itself

as Central America's second-largest trading partner, but under a profoundly asymmetric structure characterized by sustained growth in imports since the early 2000s and by highly concentrated, low-tech regional exports (Expediente Abierto, 2026). In the specific case of El Salvador, the cumulative trade deficit with China exceeds USD 2.6 billion, illustrating the structurally unequal nature of this economic relationship.

This dataset is critical, given that Huawei's prior technical standardization reduced the political costs of its continued presence when relations with China became politicized, while the diplomatic shift accelerated the strategic interpretation of that presence without the existence of robust mechanisms for governance, auditing, or technological diversification. The risk for Western actors does not stem from direct control of critical infrastructure, but from the convergence of accumulated technological dependence, quantifiable economic asymmetry, and an increasingly politicized diplomatic relationship, in which a company linked to the CCP operates from a position of structural legitimacy.

The last case to be analyzed is that of Guatemala, the only country in the region that still maintains relations with Taiwan. Huawei has maintained a presence in Guatemala since the mid-2000s, operating with a predominantly low profile and limited to the commercial and technical spheres. This integration occurred within a context of structural technological lag, characterized by the persistence of 2G and 3G networks, profound territorial inequalities in connectivity, and fragmented regulatory frameworks that limited the adoption of next-generation technologies (Fernández, 2019). In 2019, while other countries were beginning to seriously discuss the deployment of 5G, Guatemala remained behind, with limited institutional capacity to assess long-term technological risks.

This environment reduced incentives for visible strategic investments, but facilitated incremental normalization at low political cost. Huawei consolidated its presence primarily as a provider of affordable consumer

devices and solutions for a highly price-sensitive market, strengthening its user base without relying on high-level regulatory decisions or strategic government tenders.

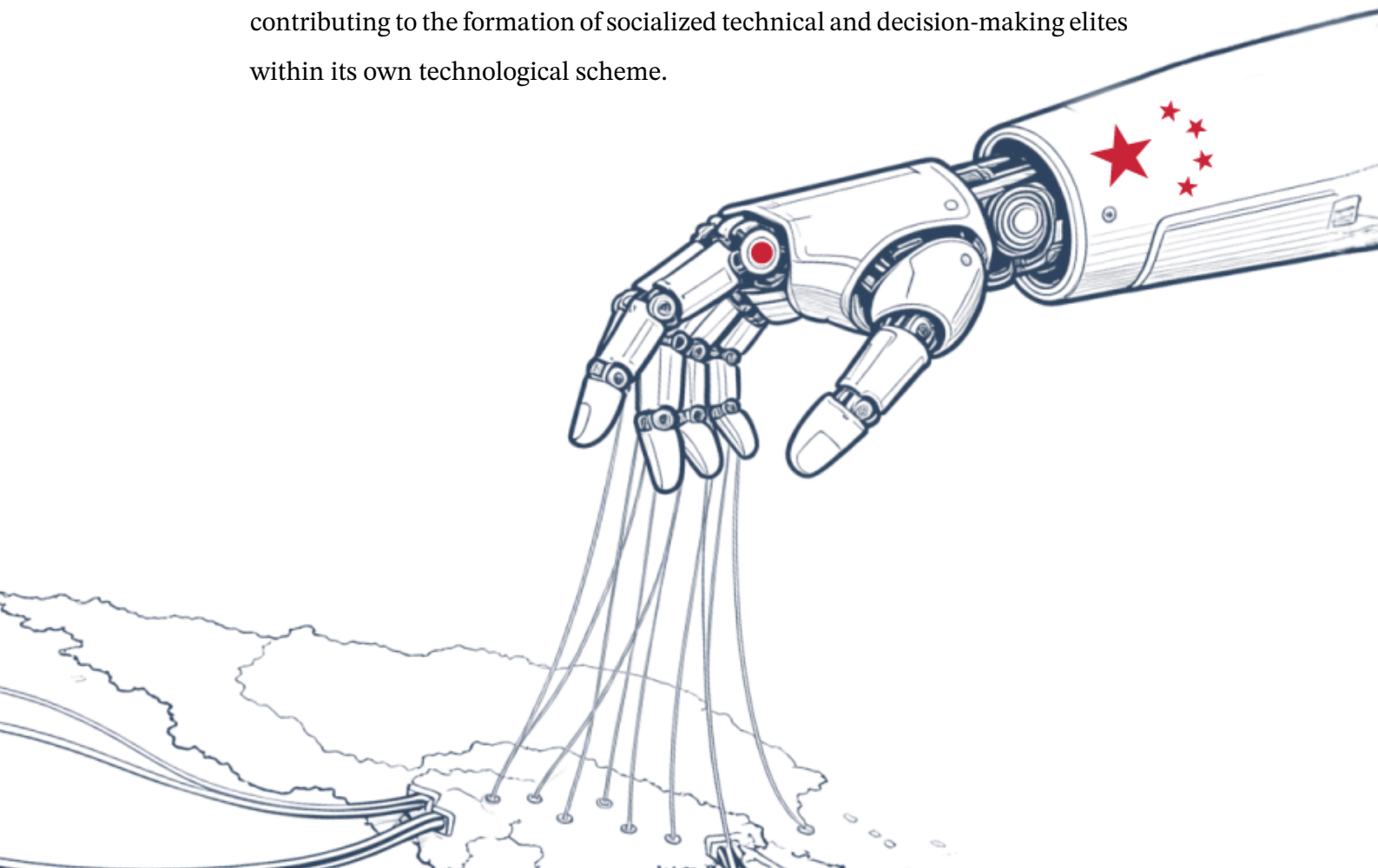
The COVID-19 pandemic introduced a new vector of legitimization. In March of 2020, Huawei donated 100 tablets to support educational continuity in schools in Quetzaltenango, at a time of high institutional pressure and rapid, forced digitalization (TGW Digital, 2020). Although quantitatively modest, this action had a significant symbolic impact. It allowed the company to position itself as a supportive and cooperative actor in an emergency, reinforcing its social and political acceptance without triggering visible geopolitical resistance.

However, the Guatemalan case is particularly relevant because it demonstrates that the absence of large investments or formal infrastructure control does not eliminate strategic risk. In environments with weak regulation and technological lag, even small-scale humanitarian actions can contribute to the social and political normalization of companies linked to the CCP, expanding their legitimacy and reducing the space for subsequent critical evaluation.

TECHNOLOGICAL SOFT POWER: THE CAPTURE OF EDUCATIONAL AND POLITICAL ELITES

Huawei's technological soft power strategy in Central America should be understood as a sectoral extension of a broader pattern of structural influence promoted by the People's Republic of China across the region. As described in the report *Centroamérica en la geopolítica de China: una estrategia de captura de élites* (Central America in China's Geopolitics: A Strategy for Capturing Elites), the CCP has developed systematic mechanisms to align political, educational, and economic elites through a combination of selective cooperation, incentives, materials, symbolic legitimization, and discursive normalization (Santos, 2025).

Within this framework, Huawei operates as a functional vector of that strategy in Central America, transferring to the technological sphere the dynamics previously observed in diplomacy, infrastructure, and partisan politics, and contributing to the formation of socialized technical and decision-making elites within its own technological scheme.



Unlike traditional forms of capture, based on explicit political decisions or overt ideological alignments, soft influence exerted through technological power is characterized by its gradual nature and low visibility. China, particularly in Central America, has prioritized the cultivation of long-term relationships with key actors (universities, technical training institutions, emerging political figures, and professional networks) with the objective of internalizing a cognitive framework favorable to Beijing's agenda (Santos, 2025). In this regard, the educational issues, academies, ICTs, donations, and university partnerships promoted by Huawei are not isolated corporate social responsibility initiatives. Rather, they are coherent components of a repertoire of influence that shifts the debate away from digital sovereignty and national security, toward narratives of modernization, inclusion, and technological development.

Starting in 2020, Huawei's regional strategy in Central America exhibits a clear shift toward a logic of technological soft power, focused on human capital development, educational cooperation, institutional legitimization, and the building of ties with emerging elites. This orientation clearly departs from a predominately technical-commercial approach. This shift did not occur in isolation, but in a context marked by two converging factors: the hardening of the global geopolitical environment (particularly the restrictions imposed by the United States through the 2019 "blacklist") and the profound institutional vulnerability generated by the COVID-19 pandemic and other systemic crises in the region.

This pattern is particularly relevant because it indicates that, in Central America, and likely in other regions, Huawei implemented a soft power strategy to mitigate the political costs of U.S. sanctions. It did so by shifting the debate about its presence in these countries away from the realm of national security and toward areas of high social legitimacy and low strategic scrutiny, such as higher education, technical training, and development cooperation.

2020 marked a turning point in Costa Rica. Without abandoning its commercial presence, Huawei reconfigured its strategy toward a softer form of legitimization, supported by corporate social responsibility actions, educational cooperation, environmental sustainability, and digital services less politicized than the 5G infrastructure itself. During the public health emergency, the company donated 300 tablets to the Ministry of Public Education, channeled through formal state mechanisms and with the direct participation of high-level authorities, including the First Lady, ministers, vice-ministers, and emergency management officials. The joint presence of government officials and Huawei executives, as well as the participation of representatives from the Embassy of the People's Republic of China, at the public event reinforced a narrative of legitimate public-private cooperation, explicitly detached from any debate of technological risks or national security (Castro, 2020). At the same time, it demonstrated how the company's integration into the country was reinforced by the broader framework of Chinese diplomacy in the country.

At the same time, Huawei repositioned its strategic discourse toward the convergence of cloud computing, artificial intelligence, and productive digitization, presenting itself as a structural provider of long-term technological solutions for education, SMEs, and urban management. This narrative, disseminated through specialized media outlets, enabled the company to maintain its strategic relevance even amid increasing restrictions in other technological segments (Shi, 2020). In operational terms, the reported 200% growth of Huawei Cloud in its first year of operations in Costa Rica, achieved through alliances with local companies, demonstrates a deliberate shift towards "soft" digital infrastructures, characterized by lower political and regulatory visibility but high potential for functional dependence (Castro, 2021). This insertion was reinforced by alliances with multilateral organizations such as the United Nations Development Programme (UNDP) and by environmental initiatives aligned with Costa Rica's international

identity, such as the "Huella para el Futuro" (Footprints 4 our Future) program and the creation of the Huawei Forest, thus expanding the company's reputational capital (PNUD, 2021).

In Panama, Huawei prioritized selective expansion focused on education, talent development, and institutional positioning, and avoided taking on structural roles in the national telecommunications infrastructure. Following the company's inclusion on the U.S. "blacklist," Huawei maintained normal operations, emphasizing stability, service continuity, and building a "secure and sustainable software ecosystem" (Bermúdez, 2019; Almanza, 2019).

Educational cooperation became the central focus of this phase. The Seeds for the Future program[3], active in Panama since 2015, was renewed for a fifth consecutive year with key public universities, such as the Universidad de Panamá (UP) and the Universidad Tecnológica de Panamá (UTP), reinforcing Huawei's sustained presence in the training of engineers and ICT specialists (DPL News, 2019). At the same time, the company expanded its offering of business solutions and data centers, presented as neutral tools for digital transformation, without any formal indication of exclusivity or structural control (La Prensa, 2019).

The inauguration of the Huawei Innovation Center in 2021, with an investment exceeding USD 1 million, solidified this institutional approach. The center was presented as a contribution to the country's Digital Agenda, with an emphasis on talent and innovation, not as a strategic state infrastructure that should assess the risks of this alliance (El Capital Financiero, 2021; Freedom House, 2022). The expansion of the educational ecosystem – including partnerships with private conglomerates such as Exusa, which encompasses more than 40,000 students – and the organization of educational forums with the

[3] Seeds for the Future is a global training program launched by Huawei in 2008, aimed at university students and young professionals in areas such as ICT, 5G, artificial intelligence, and digital leadership. Beyond its educational component, the program has been analyzed as an instrument of corporate soft power, strengthening ties with emerging elites and promoting the early adoption of the company's technology ecosystem.

participation of national authorities, international organizations, and Chinese diplomats reinforced the company's social and political legitimacy (La Estrella de Panamá, 2021; Panamá 24 Horas, 2021b).

Regarding Honduras, the soft power strategy was deployed in a context of extreme crisis. Beginning in 2020, Huawei shifted the focus of its presence toward explicit social and educational legitimization, taking advantage of the convergence between the pandemic and the devastating effects of Hurricanes Eta and Iota. The establishment of a Huawei Technology Academy, in partnership with the Universidad Tecnológica de Honduras (UTH), positioned Honduras among the first in the region to host this type of training infrastructure. The project was presented as a hub integrating teaching, research, and institutional cooperation, and it was coordinated with the *Seeds for the Future* program, including opportunities for international training (Mercado, 2020).

On the humanitarian front, the donation of 1,700 boxes of basic supplies, valued at approximately USD 20,000, channeled through the national emergency authority, bolstered the company's social legitimacy during a period of heightened institutional vulnerability (Proceso Digital, 2020). The effort was accompanied by an explicit narrative of local rootedness, highlighting 13 years of presence in the country, the growth of its workforce from five to more than 300 Honduran employees, and Huawei's identification as an integrated social actor. Thus, the experience of Honduras illustrates how humanitarian and educational legitimacy can dampen political scrutiny, even when there is significant prior technical dependence.

In El Salvador, the COVID-19 pandemic acted as a structural accelerator for a particularly intense educational anchoring strategy by Huawei. Amid severe fiscal constraints, institutional limitations, and operational urgencies in the public system, the company consolidated its presence at the Universidad de El Salvador (UES), the country's leading public higher education institution,

through a progressive sequence of donations and training initiatives that institutionalized its role as a legitimate technological partner.

In 2020, UES received a donation of Information and Communication Technology equipment valued at USD 63,695.95 to support the implementation of a Huawei ICT Academy pilot program aimed at improving connectivity, access to digital tools, and technological training for students (UES, 2020). This cooperation was subsequently reinforced through the delivery of additional infrastructure, including a Huawei IdeaHub Pro interactive whiteboard valued at USD 14,651.08, thereby formalizing the company's presence in the university's physical and pedagogical spaces.

At the same time, Huawei promoted a narrative of economic impact aimed at reinforcing its public legitimacy in the context of crisis. The company highlighted that it maintained more than 200 direct jobs in the country and sustained an annual investment of approximately USD 20 million—figures that were particularly significant for a small economy highly dependent on foreign investment during a period of economic contraction (Funes, 2021). These metrics were used to position Huawei not only as a technology provider, but also as a key player in terms of employment, educational continuity, and economic recovery, reinforcing its soft power discourse.

The Seeds for the Future program gained increasing visibility as a pillar of educational diplomacy. By 2021, 42 Salvadoran students had been trained since the program's introduction in the country, including nine participants in that year's edition, who received intensive instruction in areas such as 5G, cloud computing, artificial intelligence, cybersecurity, and technological innovation. These modules were complemented by training on leadership and international networking within the framework of the Tech4Good initiative; this component integrated technical training with socialization in a global technological ecosystem linked to Huawei, reinforcing the projection of emerging technical elites.

A key element was the regional scale of this strategy. In August 2020, Huawei signed a framework agreement with the Central American University Council (CSUCA, *Consejo Superior Universitario Centroamericano*), an organization that brings together the public universities of the eight Central American countries and serves as a regional platform for academic coordination, the definition of educational agendas, and interuniversity collaboration. Through this agreement, the company committed to supporting the construction of classrooms, laboratories, and technology training programs in public universities throughout the region, significantly expanding the scope of its influence beyond the Salvadoran case (El Universitario, 2020).

This pattern is particularly relevant: educational diplomacy operates here as a mechanism for accelerated normalization that transcends the national sphere and inserts its leaders into regional academic governance structures in order to capture them. In doing so, it reduces political friction, shifts the debate away from the realm of national security, and prepares the symbolic and institutional groundwork for a deeper technological presence in later phases, even in the absence of explicit decisions regarding critical infrastructure.

Finally, the case of Guatemala represents one of the most sensitive from a strategic perspective for actors such as the United States and Europe in Central America. In the absence of formal diplomatic relations between Guatemala and the People's Republic of China, Huawei has functioned as one of the main, and most stable, channels of sustained interaction between China and strategic sectors of the country, building legitimacy through education, digital inclusion, institutional cooperation, and capacity building.

During the pandemic, the company initiated this process, as previously outlined, through actions with high symbolic impact, such as the donation of 100 tablets to support educational continuity in Quetzaltenango in 2020 (TGW Digital, 2020). Subsequently, it deepened its involvement through partnerships with UNESCO, the Ministry of Education (MINEDUC), and local educational

organizations, aimed especially at young women and Indigenous women facing structural exclusion. These initiatives were rolled out in a country where less than one-third of women regularly use the internet or have access to computing devices, which amplified the social and political significance of the intervention (UNESCO, 2021a; 2021b).

The true turning point came with the opening of the INTECAP–Huawei ICT Academy, integrated into the Technical Institute for Training and Productivity (INTECAP, *Instituto Técnico de Capacitación y Productividad*), the main state-run vocational training organization in Guatemala. Unlike previous educational programs, this initiative formally incorporated Huawei's content, methodologies, and certifications into a public training system, offering courses in networking, 5G, cloud computing, cybersecurity, big data, virtualization, and the Internet of Things (IoT) (Arévalo, 2023).

This institutionalization had implications that transcended the educational sphere. By integrating into INTECAP, Huawei began to indirectly influence the definition of technical profiles, certification pathways, and employability standards in strategic sector – in a country with limited state capacity to develop its own curricula in highly complex technologies. The training of human capital within a specific corporate ecosystem normalized the use of technological platforms and standards associated with Huawei, without clear mechanisms for diversification or strategic evaluation.

The strategy expanded to include internship, employability, and logistics programs, incorporating profiles that were not exclusively technical – including law, international relations, political science, and accounting – which demonstrates a cross-functional expansion into roles associated with the management, regulation, and administration of complex digital environments (Revista EYN, 2022). Complementing this ecosystem, the consolidation of logistics capabilities—such as the Intcomex Guatemala distribution center—

strengthened the infrastructure supporting the availability and scalability of Huawei technological solutions in the country (Forbes Centroamérica, 2021).

In this sense, Guatemala clearly illustrates how educational and ecosystemic capture can precede, and facilitate, strategic decisions of greater magnitude, even in contexts where formal diplomatic relations with China do not exist. The accumulation of social, institutional, and technical legitimacy progressively lowers the threshold of political and symbolic resistance, creating an environment in which Huawei's presence begins to be perceived as functional, efficient, and even necessary. This process does not yet imply control of critical infrastructure, but it sets the stage for future decisions to be adopted under a predominately technical and administrative logic, pushing the debate on sovereignty, data, and national security into the background, as well as the implications of the link between company and the CCP.

Chinese soft power in the region does not operate solely on the level of discourse; it materializes in institutional practices that generate functional dependencies and progressively reduce the margins of strategic autonomy of the recipient states (Santos, 2025). In Huawei's case, the capture of educational and technical elites precedes and facilitates the social, political, and institutional acceptance of its presence in increasingly sensitive sectors of the digital ecosystem. Thus, the company operates as a key intermediary between the global strategy of the Chinese Communist Party and national trajectories of digital transformation in Central America, reinforcing a technological insertion that, although presented as neutral and technical, actually has long-term geopolitical implications.

INTEGRATION INTO CRITICAL SECTORS AND NATIONAL TENSIONS

Unlike the earlier phases of soft legitimization and educational cooperation, beginning in 2022, Huawei's presence in Central America reveals a progressive shift towards areas of strategic digital infrastructure, where technological decisions carry direct implications for national security, data governance, and China's geopolitical positioning. This process manifests through differentiated trajectories, conditioned by state capacities, international alignments, and political windows of opportunity.

In Costa Rica, 2022 marked an intensification of Huawei's soft legitimization strategies within an increasingly adverse international environment. The company deepened its discursive alignment with the structural values of the Costa Rican state (environmental sustainability, innovation, education, and bridging the digital divide), thereby reinforcing its insertion in spaces of high social legitimacy and low political conflict. Initiatives such as the "Guardianes del Bosque" (Guardians of the Forest), based on the use of cloud computing and artificial intelligence for environmental monitoring, allowed Huawei to integrate its technology into conservation projects with NGOs and local communities, shifting the focus away from critical infrastructure toward environmentally accepted applications (Diario Sustentable, 2022).

The commemoration of 15 years of presence in Costa Rica sought to reinforce this narrative of deep-rootedness. Company executives emphasized its role as an ally of the State, the academic sector, and the productive ecosystem, highlighting talent-development programs, university partnerships, and digital inclusion programs, which consolidated the perception of Huawei as an actor integrated into the national development project (Siles, 2022; Brenes, 2022).

However, this phase reached its limit in 2023 with the adoption of Executive Decree No. 44196-MSP-MICITT regarding the cybersecurity of 5G networks,

signed on August 25 and published on August 31, on the eve of President Rodrigo Chaves's official visit to Washington, D.C. (Cordero, 2023; U.S. Embassy San José, 2023). Although formally based on cybersecurity criteria and adherence to the Budapest Convention, the decree introduced a structural exclusion of Chinese suppliers and, for the first time, incorporated a technological restriction criterion based on the national origin of the supplier.

This shift was particularly significant given that Huawei had maintained a functional presence in 3G and 4G networks for more than a decade, maintaining active contracts with ICE and RACSA[4], and having accumulated public acquisitions totaling approximately USD 33.2 million since 2020, without these ties being previously framed as a national security concern (Cordero, 2023). The securitization of Huawei was a response to an exogenous transformation in the regulatory and political environment, closely linked with the strategic alignment with the United States following the massive cyberattacks of 2022 attributed to the Conti group (Murillo, 2023a; 2023b; 2023c).

Huawei's response included appeals for protection before the Constitutional Chamber (case file 23-023887-0007-CO), as well as the commissioning of an independent study by CINPE-UNA[5], financed with approximately USD 40,000, which warned of delays in 5G deployment, cost increases, potential tariff increases, and a substantial reduction in the projected economic impact of 5G on the national GDP (CINPE-UNA, 2023; Morris Gray, 2023). These actions reveal that the company leveraged the framework of national legal institutions, as well as prestigious universities in Costa Rica, in an effort to maintain its presence within the country's critical infrastructure sectors. In doing so, it

[4] Acronym for Radiográfica Costarricense S.A.

[5] The study was titled "Evaluación del impacto económico de la exclusión de proveedores de las inversiones de la red 5G en Costa Rica" (Assessment of the Economic Impact of Excluding Suppliers from 5G Network Investments in Costa Rica), and UNA itself stated that it was requested and funded by Huawei Technologies Costa Rica S.A.

demonstrated a shift toward more assertive and confrontational tactics in response to government efforts to limit its influence (Pomareda García, 2023).

Regarding Panama, throughout 2022, Huawei was fully integrated into the Panamanian economic and logistical ecosystem, enjoying strong media legitimacy, built mainly through educational cooperation, stable corporate presence, and alignment with Panama's narrative as a regional hub for connectivity and services (Illueca, 2023). The company reported approximately 450 direct jobs, business relationships with more than 20 local suppliers, and the operation of a regional supply center in the Colón Free Zone, with cumulative investments exceeding USD 100 million, consolidating Panama as a logistical and corporate hub for Latin America and the Caribbean (MICI, 2022).

At the same time, Huawei strengthened its reputation through corporate social responsibility initiatives aimed at the education sector. Technology donations, including Huawei IdeaHub interactive displays, benefited more than 5,000 students in public schools, in coordination with the Ministry of Education (MEDUCA), the National Authority for Government Innovation (AIG, *Autoridad Nacional para la Innovación Gubernamental*), and civil society organizations, reinforcing a narrative of bridging the digital divide without exerting control over educational or technological governance (El Digital Panamá, 2022). In addition, in 2022, the company celebrated 14 years of presence in Panama, highlighting the continuity of programs such as Seeds for the Future, active since 2015, and benefiting more than 125 university students by that point (Panamá 24 Horas, 2022a).

An analytically relevant feature of this period was the sustained silence surrounding 5G. Despite the global prominence of this technology, there were no public announcements regarding deployment, operator contracts, regulatory timelines, or public policy definitions. This void was not simply the result of technical caution or regulatory lag. In its early stages, 5G began to be

interpreted by both state and external actors as infrastructure with strategic implications for the security of the Panama Canal and its surrounding logistical ecosystem, introducing a layer of geopolitical sensitivity prior to any formal decision (Illueca, 2025).

This context is directly linked to a corporate strategy developed behind closed doors by Huawei between 2022 and 2023, aimed at transforming Panama into an expanded regional hub for the company. According to interviewed sources, the project contemplated relocating between 300 and 500 Chinese employees to the country, with the objective of establishing Panama as Huawei's third key operational node in Latin America, alongside Mexico and Brazil, and thereby forming a regional operational triangle. "*In this operation, it was widely observed how lobbying and persuasion strategies were employed from other Latin American countries; in the case of Mexico, the company held frequent meetings with the head of the Panamanian Embassy to facilitate the approval of work visas through gifts, dinners, and receptions*," stated a former Huawei contract employee, subcontracted through Adecco to assist with immigration procedures (personal communication, December 2025).

However, this initiative triggered institutional containment mechanisms that marked a turning point in the relationship between Huawei and the Panamanian state. In operational terms, the project encountered significant restrictions from its initial phase. First, the National Migration Service increased controls and reviews regarding entry requests and work visa applications for Chinese personnel, resulting in substantial delays and limitations. Secondly, the Ministry of Labor and Workforce Development (MITRADEL) heightened its scrutiny of requested work permits, particularly regarding their potential impact on local employment and compliance with national hiring quotas.

In parallel, the Ministry of Commerce and Industries (MICI), responsible for the SEM[6] and EMMA[7] regimes, initiated a more cautious review of the project's actual scope, assessing potential implications for investment flows, knowledge transfer, and strategic risks. Additionally, an interviewed source indicated that the National Security Council identified the projected volume of foreign personnel as a sensitive issue, given security considerations and the concentration of Chinese-origin corporate capabilities at a strategic logistical hub in the hemisphere.

Because of this convergence of immigration, labor, regulatory, and security restrictions, the mass relocation did not happen. Of the 300–500 projected hires, fewer than 30 actual hires were finalized, compelling Huawei to partially scale back its strategy, reduce the scope of the project, and reconsider Panama's role in its regional architecture after 2023.

The Panamanian case is particularly illustrative, as it demonstrates that it is possible to contain Huawei's expansion in sensitive areas such as human capital, security, and strategic governance. The coordinated actions of key Panamanian state institutions exemplify a form of selective containment, one that is not expressed through explicit bans or public confrontation, but through the incremental use of administrative, transparency, immigration, and security instruments.

In Honduras, by contrast, Huawei's insertion was much more profound. In 2021, Huawei transitioned from social and educational legitimization to integration into critical infrastructure, particularly through the Universidad Nacional Autónoma de Honduras (UNAH). With more than 120,000 students and faculty members, over 140 academic programs, and nine campuses, UNAH constitutes a critical educational, administrative, and social infrastructure,

[6] Acronym for Sedes de Empresas Multinacionales (Headquarters of Multinational Companies).
[7] Acronym for Empresas Multinacionales para la Prestación de Servicios Relacionados con la Manufactura (Multinational Companies for the Provision of Services Related to Manufacturing).

whose operation depends heavily on digital connectivity, data management, and access control.

The adoption of the CloudCampus solution, based on AirEngine Wi-Fi 6 technology, enabled full wireless coverage with baseline speeds of 100 Mbps, consolidating network connectivity, management, and operational control under a single provider. This integration introduced long-term operational dependency and reduced technological reversibility, establishing a precedent that could extend to other sectors of the State or government (Huawei, 2021).

From a strategic perspective, the significance of the UNAH transcends the educational field. The integration of connectivity, network management, access control, and security within a single technological architecture effectively transforms the university infrastructure into de facto critical infrastructure, as it concentrates large volumes of data, sensitive information flows, and operational control capacities in the hands of a foreign supplier. Such a configuration generates long-term operational dependency and substantially diminishes technological reversibility by driving up the technical, financial, and organizational costs of any future replacement of the provider.

Moreover, the case established an institutional precedent. The normalization of the use of Huawei's integrated "turnkey[8]" solutions in a complex, national-scale public institution became an implicit reference point for other sectors of the State, particularly in a context characterized by limited technical capacity, fragmented regulatory frameworks, and pressure for rapid results in digitalization. Thus, this penetration into critical educational infrastructure served as a bridge between earlier social legitimization and direct government integration. All without considering or evaluating national security risks.

[8] In the field of technology and infrastructure contracting, a "turnkey" agreement refers to an arrangement in which the provider designs, partially finances, supplies, installs, and integrates a complete system, delivering it to the end client ready for operation. Under this model, the contracting entity relies heavily on the provider for the technological architecture, maintenance, and subsequent updates, which can foster relationships of technological dependency and limit independent technical oversight.

This process deepened in 2022, when Huawei assumed a more visible role as a legitimate interlocutor in regulatory and sectoral policy forums. This occurred within the framework of the institutional reactivation of the National Telecommunications Commission (Conatel, *Comisión Nacional de Telecomunicaciones*), under new leadership aimed at strengthening coordination between the State, private operators, and technology providers. In these meetings, Huawei participated alongside key actors such as Tigo Honduras and Cable & Wireless (Betolini, 2022). A source connected to Honduras' telecommunications institutions noted: "*from that moment on, the company began to organize a series of meetings, parties, and receptions in its headquarters on the ninth floor in Torrenova, in Tegucigalpa, in order to gain the sympathies of political figures to benefit future agreements*" (personal communication, November 2025).

In these forums, the company ceased to position itself exclusively as a provider of technical solutions for specific projects and began to operate as a consultant in discussions about the future of the sector, including technical presentations on fiber-optic infrastructure, network modernization, and the capabilities required for eventual 5G adoption. The integration of this technology into the national regulatory agenda was framed as a strategic priority for improving competitiveness and generating economic value, linking public policy decisions directly to technological trajectories already established by providers such as Huawei.

This process of regulatory normalization unfolded, however, within an environment marked by structural institutional weakness. The Honduran telecommunications sector faced persistent challenges, including limited service penetration, the financial sustainability of the state-owned operator, Hondutel, and limitations in oversight and control mechanisms. These challenges were compounded by amendments to the Framework Law for the Telecommunications Sector, approved at the end of the 2018–2022 legislative

period without broad public debate, which modified the contribution criteria for the Telecommunications and Information Communications Technology Investment Fund (FITT), raising concerns about their impact on connectivity expansion and the reduction of the digital divide (Téllez, 2022).

Thus, Honduras represents an early warning case. It demonstrates how, in contexts characterized by high technological need and limited state capacity, the prior normalization of a supplier can facilitate its direct integration into critical infrastructure, without clear safeguards regarding diversification, interoperability, risk assessment, or reversibility. Unlike Costa Rica, where securitization was institutionalized after the fact, or Panama, where containment occurred silently, Honduras illustrates a scenario in which dependency consolidates before strategic debate takes place.

In El Salvador, the debate over deploying 5G networks significantly reshaped national technology policy and marked a turning point in the state's relationship with foreign technology providers. For the first time, next-generation connectivity ceased to be treated as a sectoral or technical issue and instead became conceptualized as a matter of power, sovereignty, and international positioning, closely linked to the strategic competition between the United States and China.

This shift in approach did not result in a widespread break with Huawei, but rather the adoption of a strategy of selective containment. The Salvadoran government opted to clearly delineate those nodes considered critical—most notably 5G infrastructure and, subsequently, the government cloud—while maintaining Huawei's presence in areas regarded as less strategically sensitive, including higher education, talent development, consumer devices, and non-structural technological cooperation. As noted by Kaska, Beckvard, and Minárik (2019), several governments have adopted these types of differentiated strategies towards Chinese suppliers, restricting their participation in critical

layers of digital infrastructure while maintaining cooperation in commercial or lower-impact technological segments.

The turning point occurred with the definition of the 5G deployment framework, which was placed under the leadership of Western operators, led by Tigo El Salvador, a subsidiary of the Millicom Group, under a model of private investment and state regulatory oversight, and without a centralized public tender that included Chinese suppliers. This decision was not a response to the emergence of technical failures attributable to Huawei, nor to the documented security incidents within the country, but rather to a deliberate and strategic geopolitical realignment by the Bukele administration. This move aligns with the intensifying strategic competition between the United States and China for control over critical digital infrastructure in Latin America and the implications that such infrastructure may have for the sovereignty of decision-making processes and state information security (Ellis, 2022).

Related to this dynamic, the investigative report "*El asunto chino: Nayib Bukele negocia red 5G con Estados Unidos y obtiene silencio por la reelección*" (The Chinese Affair: Nayib Bukele Negotiates 5G Network with the United States and Obtains Silence Regarding Re-election) published on the portal *Prensa Comunitaria* documented that the Salvadoran government conducted parallel negotiations with both the People's Republic of China and the United States concerning technological cooperation, investments, and strategic alignment. In that context, Huawei's exclusion from the 5G network functioned as a high-value geopolitical variable, integrated into a broader political exchange with Washington, rather than as the result of an adverse technical assessment of the company (Silva, 2023). The episode highlighted the centrality of 5G as strategic regional infrastructure and demonstrated the capacity of the United States to influence and shape technological decisions in key Central American countries.

The shift was not limited to mobile connectivity. Stemming from the debate surrounding 5G, the Salvadoran State moved toward a broader reconfiguration of the critical layers of the digital ecosystem, particularly in government cloud infrastructure. The agreement signed with Google Cloud, spanning a seven-year term, redefined the State's digital architecture based on criteria of heightened state oversight, data control, and geopolitical alignment with U.S. providers. The agreement included the modernization of public services, the deployment of solutions such as Google Distributed Cloud in sensitive sectors including health and education, and the strengthening of institutional data-management capabilities (Swissinfo, 2023; SELA, 2023).

This movement represented a qualitative shift. The cloud ceased to be a fragmented technical decision, made independently by different agencies, and instead became an explicit instrument of public policy, integrated with considerations of security, digital governance, and international relations. Although the Salvadoran state did not develop its own sovereign infrastructure, it did regain strategic decision-making capacity regarding platforms and data flows, aligning the state's critical layers with partners considered politically reliable by Washington.

The logic of state control began to extend, albeit initially, into advanced computing and artificial intelligence. In 2025, El Salvador explored cooperation with NVIDIA to develop GPU processing capabilities for public-sector use and sovereign artificial intelligence (Hernández, 2025). Although this collaboration remained in an exploratory phase and did not constitute a comprehensive endogenous AI development program, it reinforced a clear strategic signal. The Salvadoran State sought to reconfigure its critical technological architecture through partnerships with leading U.S. companies in semiconductors and high-performance computing.

From an economic and market perspective, this process developed in a context of technological cycle change. After the exceptional growth in demand during

the pandemic, the mobile device market began showing signs of saturation and deceleration. In 2023, smartphones remained one of the country's principal import categories, but with reduced growth margins and intensified competition among manufacturers (Alemán, 2023). In this scenario, Huawei maintained its presence as a key player in specific segments, although without market leadership, and was displaced by competitors such as Samsung.

El Salvador offers a particularly instructive case. Unlike models of total exclusion or unrestricted integration, the country adopted a strategy of functional delimitation, in which technological cooperation with China was tolerated in non-critical areas, while strategic layers, 5G, government cloud systems, and advanced computing, were gradually aligned with U.S. suppliers. This approach enabled the Salvadoran state to preserve margins of autonomy, avoid unnecessary economic disruption, and simultaneously align its most sensitive digital infrastructures with the regional security interests of the United States.

GEOPOLITICAL TENSIONS AND THE SECURITIZATION REFRAMING

In 2024, the Huawei case in Costa Rica ceased to be a sectoral regulatory dispute and evolved into a systemic political-institutional crisis, one in which decisions by the Executive Branch, judicial disputes, internal conflicts within the public sector, and explicit geopolitical pressure related to the deployment of 5G networks all converged. Although this dispute did not start in 2024, it certainly crystallized it, exposing the limitations of the Costa Rican model of technological governance in an increasingly securitized international environment.

This process is part of a broader reframing spearheaded by the United States beginning in 2020, through initiatives such as the Clean Network, which redefined digital infrastructure – including 5G networks, cloud services, and cross-border data flows – not as neutral technological goods, but as national security assets, thereby establishing a new regulatory and reputational framework for evaluating suppliers considered "untrusted" (U.S. Department of State, 2020).

The institutional turning point occurred on February 7, 2024, when the Administrative Litigation Court issued a preliminary injunction that partially suspended the application of Executive Decree No. 44196-MSP-MICITT following a legal request filed by the ICE Internal Workers' Front (FIT-ICE, *Frente Interno de Trabajadores del ICE*), composed of SIICE[9] and ASDEICE[10]. The court argued risks of serious harm to public interest and the continuity of service, which opened a prolonged period of legal uncertainty, compounded by the simultaneous admission of appeals for protections filed before the Constitutional Chamber by both Huawei and union actors (Tomás, 2024). This development marks a new

[9] The Union of Engineers of the Costa Rican Institute of Electricity (SIICE, *Sindicato de Ingenieros del Instituto Costarricense de Electricidad*) is a labor union that brings together engineers and specialized technical personnel from the ICE. It exerts direct influence in strategic areas of the institute—telecommunications, energy, technical planning, and procurement—and frequently intervenes in debates regarding technology contracting, network modernization, and institutional governance.
[10] The Solidarist Association of Employees of the Costa Rican Institute of Electricity (ASDEICE, *Asociación Solidarista de Empleados del Instituto Costarricense de Electricidad*) is a solidarity-type organization that brings together ICE workers and administers savings, credit, and employee benefit funds. Unlike a traditional labor union, it combines financial, internal representation, and benefits management functions, which affords it the capacity for informal engagement with middle and upper management.

phase of political elite capture, given that union leaders pursued these legal resources to benefit Huawei's interests in the country.

The political dimension of the dispute intensified on May 15, 2024, when labor unions such as Acotel[11] and Anttec[12] publicly denounced the participation of at least seventy ICE officials, including middle and upper management with influence over procurement processes, in a Huawei-funded "party" held on April 26 at the Hilton La Sabana Hotel. The accusations indirectly implicated the ICE's Telecommunications Management, then headed by Luis Diego Abarca, and reached the institute's executive president, Marco Acuña, who ordered the opening of internal investigations (Villalobos, 2024).

From the perspective of the reorganization promoted by the United States, such episodes reinforce the interpretation that risks associated with Huawei extend beyond technical vulnerabilities and include the capture of administrative and union elites, precisely one of the central arguments used to justify the Clean Network as a preventive mechanism for technology governance (PISM, 2021).

However, it is important to note that this conflict between union leadership and internal ICE organizations revealed a case of elite capture involving factions sympathetic to Huawei and a group antagonistic toward it – a dynamic that fragmented ICE's internal governance and subsequently evolved into a strategy using "sharp power[13]" within Costa Rica (Mazzina, 2024). This episode functioned as a retrospective reframing mechanism. A technological relationship that had been institutionally accepted for over fifteen years, encompassing active contracts and public procurement deals that, according to the Office of the Comptroller General of the Republic, had exceeded USD 34 million since 2020, came to be

[11] The Costa Rican Telecommunications and Electricity Trade Union Association (Acotel, *Asociación Sindical Costarricense de Telecomunicaciones y Electricidad*) is a trade union organization that brings together workers in the telecommunications and electricity sectors, with a strong historical presence within the ICE and its subsidiaries.

[12] The National Association of Energy and Communications Technicians and Workers (Anttec, *Asociación Nacional de Técnicos y Trabajadores de la Energía y las Comunicaciones*) is a trade union organization with a technical-operational profile, comprising personnel specializing in the infrastructure, networks, maintenance, and operation of energy and telecommunications systems—primarily within the ICE.

[13] Sharp power refers to the set of strategies employed primarily by authoritarian regimes to influence, penetrate, and distort the informational, cultural, and academic spaces of democratic societies through information manipulation, indirect censorship, and political or economic pressure, without resorting to the direct use of force or traditional mechanisms of coercion.

reinterpreted as evidence of institutional capture and conflicts of interest, all without the benefit of a prior technical assessment regarding risks to national security (Villegas, 2023; Casasola, 2023).

In contrast to this reactive process, which entailed a heavy reliance on technology, the U.S. model incorporated explicit corrective instruments, such as the “Rip and Replace” program. Through this initiative, the state assumed the fiscal costs associated with dismantling legacy technological dependencies, preventing reversals from being blocked by sunk costs, litigation, or institutional resistance (Federal Communications Commission, 2023; Lipscombe, 2024).

At the same time, geopolitical pressure took on an explicit character. During official visits to Costa Rica in April 2024, U.S. Ambassador-at-Large for Cyberspace and Digital Policy, Nathaniel Fick, and Deputy National Security Advisor, Anne Neuberger, publicly warned of the risks associated with integrating Chinese technology into critical networks, reinforcing the Costa Rican Executive’s securitized narrative and situating the 5G debate firmly within the framework of national security and strategic cooperation with Washington (Ammachchi, 2024). These warnings aligned with the logic previously established by the Clean Network, which sought to internalize U.S. criteria for “trusted technology” and shift the 5G debate from the technical realm to that of national security and strategic alignment among like-minded democracies (U.S. Department of State, 2020; Fidler, 2020).

This sequence of events ushered in an unprecedented dynamic within the context of Chinese diplomacy in Central America, marked by the adoption of a confrontational and pragmatic tone aimed at defending the Asian giant's interests in Costa Rica. The response from the Embassy of the People's Republic of China elevated the conflict to the diplomatic sphere. Ambassador Wang Xiaoyao characterized the U.S. warnings as politically motivated accusations lacking technical basis; she denounced external pressure to exclude Huawei and argued that the company had operated in Costa Rica since prior to the establishment of diplomatic relations in 2007, without any objective risks to national security ever

having been substantiated. This discourse explicitly framed the case within the broader geopolitical rivalry between the United States and China for control over strategic digital infrastructure (El Observador, 2024; Expediente Abierto and ProBox Venezuela, 2025).

Huawei responded by combining legal strategies with soft legitimization initiatives, reinforcing social and environmental responsibility programs, such as TECH4ALL, and conservation projects developed in collaboration with SINAC, the Macaw Recovery Network, and the Tropical Science Center (Huawei, 2024). However, in the new political climate, these actions began to be interpreted less as neutral cooperation and more as corporate soft power, significantly diminishing their symbolic efficacy.

Finally, on December 11, 2024, the filing of a criminal complaint by the Executive Branch and ICE against Huawei, along with its manager in Costa Rica and officials of the institute, served as a definitive political closure of the space for soft legitimization. From that moment on, prior technological cooperation was reinterpreted though a narrative of institutional capture, thereby nullifying its capacity for reputational neutralization (Muñoz, 2024a; 2024b).

The aggregate result was a structural blockage of the 5G rollout. While other countries advanced toward 5.5G networks and advanced architectures, Costa Rica remained entangled in litigation, suspended decrees, and institutional controversies (Soto, 2024). By 2025, the conflict reached a multilevel peak. The Minister of Science, Innovation, Technology, and Telecommunications publicly acknowledged the deterioration of bilateral relations with China as a direct consequence of Huawei's exclusion, shifting the debate toward the geopolitical costs of the decision (Rivero, 2025).

Subsequent judicial rulings, including the rejection of injunctive relief in February 2025 and the definitive administrative closure of the 5G market in October of that same year by the Office of the Comptroller General of the Republic, solidified this exclusion as a structural feature of the new Costa Rican regulatory order (Martínez, 2024; Ruiz, 2025). Despite these costs, Costa Rica consciously chose to abandon

technological neutrality in favor of geopolitical coherence aligned with the security architecture promoted by the United States as a strategic partner.

In the case of Panama, the security-oriented reframing followed a distinct yet convergent trajectory. Following the operational failure in 2023 to consolidate Huawei as an expanded regional hub, the company initiated a strategic reorientation in 2024 grounded in soft legitimacy and educational cooperation, prioritizing areas characterized by low political conflict. This phase was marked by high-profile events, such as the Huawei LATAM Education Summit 2024, which brought together educational leaders, technology partners, and regional officials to discuss digital transformation and inclusive education (PR Newswire, 2024). This pattern is consistent with broader dynamics of corporate technology diplomacy, wherein Chinese firms deploy soft power instruments to preserve their institutional presence amidst rising geopolitical contestation, without directly challenging critical state infrastructure (Fidler, 2020).

During this period, Huawei strengthened its position as a provider of educational infrastructure through solutions such as Digital Classroom (IdeaHub Board 2) and Intelligent Campus, and deepened its institutional integration through agreements with the Regional Bureau for Education in Latin America and the Caribbean, as well as its admission as an associate member of UNESCO through the Global Alliance for Literacy. These initiatives consolidated a narrative of social cooperation, without translating into formal control over critical telecommunications infrastructure. This type of selective functional insertion has been widely documented in the literature on Chinese soft power as a mechanism for generating political legitimacy and institutional dependence without incurring high regulatory costs.

That same year, Huawei announced the establishment of its first Regional Cybersecurity and Transparency Center for Latin America, based in Panama, presenting it as a mechanism to facilitate the review of code and equipment by governments and external auditors. Although the initiative reinforced the narrative of corporate transparency, its formal integration with the national CSIRT

or the National Authority for Government Innovation was not confirmed, underscoring its corporate and not-state nature (TyN Magazine, 2024; García, 2024). With this, the Panamanian government demonstrated restraint in the face of the company's expansion into critical national sectors, thereby reclaiming its autonomy from China's interests.

By 2025, with Donald Trump's return to the U.S. presidency, geopolitical confrontation with China intensified. Secretary of State Marco Rubio's visit to Panama in February of that year constituted an act of strategic signaling, as he declared Chinese influence in the Canal area "unacceptable" and warned of potential measures to protect U.S. interests in accordance with existing treaties (Associated Press, 2025). In the weeks that followed, Panama decided not to renew its memorandum with the Belt and Road Initiative, a gesture interpreted as an alignment with Washington's priorities (Bloomberg Línea, 2025).

This shift materialized in concrete decisions aimed at strengthening the strategic partnership. In June 2025, a joint project was announced between the United States and Panama's Ministry of Public Security to replace Huawei-associated infrastructure at 13 critical sites, install seven new towers across four provinces, and execute an investment of USD 8 million—funded entirely by the U.S. government (Infobae, 2025; Independent Español, 2025). This action was explicitly framed within the "rip and replace" policy applied by Washington to suppliers deemed high-risk, and with Panama serving as a willing partner (Berna, 2025).

Concurrently, the United States activated instruments of individualized diplomatic pressure, shifting the geopolitical dispute from the state level to the personal level of Panama's political elites, with a clear emphasis on those who had been captured by the CCP's soft power. In 2025, former President Martín Torrijos publicly confirmed the revocation of his U.S. visa, a decision he explicitly linked to his critical stance regarding recent agreements between Panama and Washington (TVN Noticias, 2025; Vegas Loo, 2025a). Similarly, former presidential candidate Ricardo Lombana confirmed the cancellation of his visa, framing the measure

within the broader debate concerning national sovereignty and the neutrality of the Panama Canal.

Subsequently, the capital city's Deputy Mayor, Roberto Ruiz Díaz, was notified of a similar measure, thereby extending the scope of these restrictions to subnational actors with political prominence (Newsroom Panama, 2025; Vegas Loo, 2025b). From an analytical perspective, these actions functioned as mechanisms of coercive signaling, characterized by low political cost and high visibility, aimed at disciplining divergent stances without resorting to formal economic sanctions or overt diplomatic ruptures, thereby reinforcing the structural asymmetry of the bilateral relationship[14].

The reaction of the Embassy of the People's Republic of China in Panama, led by Xu Xueyuan, was immediate and sustained. Through official statements, interviews, and intense activity on social media, the ambassador denounced the U.S. actions as an expression of a "Cold War mentality," accusing them of diplomatic intimidation and political coercion. Beyond mere rhetorical rejection, the Chinese strategy incorporated complex discursive tools, including references to international law, historical analogies, and appeals to Panamanian sovereignty, with the aim of challenging the U.S. narrative before both political elites and the public opinion (Expediente Abierto & ProBox Venezuela, 2025). This active public diplomacy sought to reframe Huawei's exclusion not as a sovereign Panamanian decision, but as the result of external pressures, demonstrating that the conflict had transcended the technological sphere to become fully embedded within the geopolitical rivalry between major powers (Embassy of the PRC in Panama, 2025).

Finally, technological containment expanded significantly to the subnational level, operating as a low-profile yet high-impact mechanism of alignment. In 2025, the municipalities of Panama, San Miguelito, and Santiago (Veraguas) approved

[14] In addition to the publicly confirmed cases involving Torrijos, Lombana, and Ruiz Díaz, a source within Panama's political ecosystem indicated that other Panamanian officials and political figures reportedly faced restrictions, cancellations, or warnings linked to the U they made no public statements. Among the names mentioned are Didiano Pinilla (Deputy and First Vice President of the National Assembly), Carlos Outten (PARLACEN Deputy), Noriel Araúz (former Director of the Panama Maritime Authority), and Leonardo Kam (former Panamanian Ambassador to China)..S. visa regime during the same period, although

ordinances and administrative agreements restricting the acquisition and use of telecommunications technologies originating from countries that are not signatories to the Budapest Convention on Cybercrime. Although framed in general legal and digital security terms, these provisions effectively and de facto excluded Chinese suppliers, including Huawei, and mandated the gradual replacement of equipment within local telecommunications and video surveillance systems (La Prensa Panamá, 2025). From a strategic perspective, these measures replicated at the municipal level the containment logics already observed in other countries in the region, such as Costa Rica, allowing progress in technological exclusion without incurring the political cost of an explicit national ban.

Taken together, these processes confirmed that Panama has ceased to be a peripheral space, transforming instead into a central strategic interface within the rivalry between the United States and China. The progressive containment of Huawei, orchestrated through direct diplomatic pressure, individualized mechanisms of political coercion, and subnational regulations, served as a tangible indicator of geopolitical alignment, effectively integrating Panama's technological governance into the hemispheric security framework promoted by Washington. In this context, technology ceased to function as a neutral variable of development, becoming instead an explicit instrument for regional strategic ordering.

The year 2023 marked a geopolitical turning point in Huawei's insertion in Honduras, witnessing a shift from a relatively normalized, technocratic relationship to open politicization—directly linked to the reorientation of Honduran foreign policy. The severance of diplomatic relations with Taiwan and the establishment of formal ties with the People's Republic of China immediately altered the technological, financial, and security governance landscape, thereby expanding the scope of action for Chinese technology actors within strategic sectors of the State.

This shift materialized rapidly on the international stage. Barely three months after the re-establishment of relations with Beijing, President Xiomara Castro

undertook an official visit that included high-level meetings with officials from the Chinese Communist Party as well as key players in the financial and technological sectors, mirroring the “soft power” tactics previously applied to Nayib Bukele. Of note was the meeting held in Shanghai with Dilma Rousseff, President of the BRICS Development Bank, which culminated in the signing of an agreement to incorporate Honduras into that mechanism, opening the possibility of access to financing for infrastructure and sustainable development projects outside of traditional Western financial circuits and within Beijing’s orbit (Portillo, 2023).

In this context, Huawei assumed a structural role in the new bilateral approach. Following her meeting with the BRICS Development Bank, President Castro visited a Huawei Research and Development Center, where she held meetings with company executives to explore cooperation in ICT, inclusive connectivity, digital transformation of the State, health, education, green development, and talent development, explicitly integrating the technological dimension as a pillar of the new diplomatic relationship (Jiamei, 2023). In this context, it becomes evident how Huawei’s expansion and its capture of political elites mutually reinforce one another within the framework of diplomatic relations and the global interests of the CCP.

A strategically relevant factor was that the intensification of technological cooperation preceded full diplomatic institutionalization. Since 2023, the Embassy of the People's Republic of China in Honduras has operated on a provisional basis within hotel facilities (the Hyatt Place Tegucigalpa), lacking a permanent headquarters. The delegation was initially headed by Yu Bo, the first ambassador accredited following the re-establishment of relations (Ministry of Foreign Affairs of the People's Republic of China, 2023). This situation revealed a critical asymmetry: while the formal diplomatic architecture remained incomplete, actors such as Huawei were already fully embedded in sensitive sectors of the country.

That same year, an intense internal controversy erupted regarding the relationship between Huawei and Hondutel. Public debate was sparked by the possibility that the Chinese company would assume an operational role within the state-owned

enterprise, raising concerns about espionage risks, control over sensitive data, and a loss of autonomy regarding critical infrastructure (El Heraldo, 2023). Although Hondutel's General Manager, José Antonio Morales, repeatedly denied any transfer of control or interference in the operation of the National 911 Emergency System, framing the relationship as a strictly technical partnership, these clarifications coexisted with a deeper structural issue: institutional opacity (Morales, 2023). Likewise, the perceived need for high-ranking political officials to address these controversies serves as a symptom of the capture of government elites.

The relationship between Hondutel and Huawei was formalized through a memorandum of understanding containing broad confidentiality clauses, backed by resolutions from the Institute for Access to Public Information (IAIP), which prevented access to key information regarding the technical and contractual terms of the agreement (Madrid, 2023). This restriction undermined mechanisms for auditing, democratic oversight, and strategic risk assessment. An interviewed source affiliated with Hondutel stated, "*the primary risk is that Huawei, as a corporate actor, exploited the fragility of the Honduran institutional framework to shield the agreement from public scrutiny, which casts doubt on its intentions*" (Personal communication, November 2025).

It is likely that these tensions prompted Huawei, in 2024, to reorient its strategy toward a low-conflict operational institutionalization, prioritizing educational and regional cooperation. In November, Honduras inaugurated a program offering two thousand technology scholarships with support from Huawei, aimed at young people across Latin America and the Caribbean in fields such as artificial intelligence, 5G, and technological innovation (López, 2024). This effort was complemented by the ICT Talent program for the digital development of Latin America and the Caribbean, promoted jointly with CELAC, which allocated 100 specific slots for Honduras under a virtual training framework.

At the same time, the government announced the recovery and modernization of Hondutel through a budgetary allocation equivalent to approximately USD 46.1

million, aimed at strengthening infrastructure, diversifying services, and regaining strategic capabilities in the face of dominant private operators (El Heraldo, 2024). As part of this process, Hondutel advanced technological partnerships with global providers such as Starlink, Google, and Huawei to bolster the national fiber-optic network and the provision of cloud services (La Prensa, 2024).

From a quantitative standpoint, Hondutel reported revenues exceeding USD 13 million from projects considered strategic during 2024, including the National 911 Emergency System and the Loss Reduction Program, in which Huawei was deeply involved (La Prensa, 2024; El Heraldo, 2024). Nevertheless, the participation of external technology providers, including Huawei, enabled the stabilization of operations in the short term, albeit at the cost of entrenching operational dependencies that would be difficult to reverse in the absence of equivalent state capabilities.

This dynamic expanded in 2025 into non-digital yet strategic sectors. In September, the National Institute for Teachers' Pension Fund (INPREMA, *Instituto Nacional de Previsión del Magisterio*) evaluated a USD 200 million investment for a 200 MW photovoltaic solar park, financed with pension funds and backed by preliminary agreements with Huawei for technology supply (Ini, 2025; La Prensa, 2025). In a country with 554 MW of installed solar capacity and an ongoing tender for an additional 1,500 MW Huawei's potential entry into the energy sector reflected the functional diversification of its presence, extending its influence beyond telecommunications.

Likewise, the involvement in INPREMA exhibits the initial symptoms of tactics that the company has already deployed in other countries, such as in Costa Rica, namely, the attempted capture of trade union elites. This could foster internal fragmentation within the institution and give rise to future governance conflicts, much as occurred at the ICE. In this regard, the Honduran case demonstrates how institutional weaknesses, regulatory opacity, and geopolitical reorientation create conditions conducive to the deep entrenchment of Chinese technological actors.

In contrast to Honduras, El Salvador opted for a strategy of selective containment, combining exclusion in critical sectors with a controlled expansion of educational and training cooperation. In 2024, Huawei's presence reached its highest level of public visibility with the hosting of the 2024 Latin America and the Caribbean Seeds for the Future Summit, for the first time on Salvadoran soil. The event, organized jointly with the Government of El Salvador and UNESCO, brought together between 130 and 150 students from more than 20 countries and was presented as a milestone in the national strategy for positioning in innovation and digital talent (La Prensa Gráfica, 2024).

In the context of the event, Huawei reported that the Seeds for the Future program had benefited more than 2,100 students in Latin America since 2014 and that, under its 2.0 version, the company would invest USD 150 million through 2026 to impact over three million young people globally. On a regional scale, a cumulative investment exceeding USD 10 million was recorded, with more than 300,000 beneficiaries across Latin America and the Caribbean (Huawei, 2024). These figures reinforced a narrative of cooperation based on human capital, rather than on the control of infrastructure.

Government discourse accompanied this visibility by emphasizing education and digitalization as key pillars of the national project. High-ranking officials underscored that cooperation with Huawei aligned with state programs for educational and administrative modernization, presenting the company as a technical and training partner rather than a provider of critical infrastructure (Invest in El Salvador, 2024). This narrative was consistent with the post-2023 strategy: to preserve closeness with China in areas of low geopolitical risk, while the strategic sectors remained under differentiated control frameworks (Infodemia, 2024).

In 2024, agreements were intensified to donate Huawei IdeaHub interactive displays and SD-WAN educational connectivity solutions to thousands of public schools, accompanied by a discourse of inclusion and a gender focus in STEM fields (Flores, 2024; Noticias 360°, 2024). However, this visibility coexisted with

institutional gaps. An interviewed source noted: "*The problem is that the publicly announced memoranda of cooperation were not available in official archives, despite formal requests for access to information, introducing ambiguity and secrecy into these agreements to this day*" (Personal communication, December 2025). Much as in Honduras, the company appears to exploit the weaknesses in the transparency frameworks of Central American nations to facilitate its entry into critical sectors.

The success of this partnership led to a shift in the relationship in 2025 towards a high-level political-strategic dialogue, which demonstrates the reactivation of attempts to capture government elites. In May, Vice President Félix Ulloa held a meeting with James Huang, CEO of Huawei El Salvador, to explore opportunities for cooperation in education, health, agriculture, and public administration, with a particular emphasis on technology regulation and institutional capacity-building (ContraPunto, 2025; Empresas 503, 2025). As a result, Huawei provided training to more than 11,000 public servants in digital skills and technology regulation, under the coordination of the Graduate School of Innovation in Public Administration (ESIAP, *Escuela Superior de Innovación en la Administración Pública*). This situation underscores the ongoing efforts to deepen dependence on the company, given that these training programs are embedded within the Huawei technological ecosystem.

Finally, there is the case of Guatemala. In 2025, Huawei's presence ceased to be confined to frameworks of educational cooperation or sectoral modernization, moving instead to fully penetrate the core of the State, specifically, the management, custody, and resilience of sensitive data belonging to a strategic institution. This turning point materialized with the awarding, by the Guatemalan Social Security Institute (IGSS, *Instituto Guatemalteco de Seguridad Social*), of a contract worth approximately USD 5.1 million for the provision of an integrated cyber recovery vault solution, designed to safeguard critical information regarding some 3.3 million members and beneficiaries (López, 2025).

Beyond the relative monetary value, the contract carries severe implications for digital sovereignty and national security. The data involved included medical

records, medication logs, budgetary information, and administrative databases essential to the operational continuity of the social security system. The decision positioned Huawei—through its local intermediary, U Energy Corp, S.A.—as the direct technology support provider for one of the Guatemalan State's most sensitive information repositories, in the absence of an explicit national policy on data sovereignty or critical infrastructure governance (Bin, 2025).

From a procedural standpoint, the contract was awarded through a formal bidding process approved by the IGSS Board of Directors, by a majority vote with one dissenting vote. The process involved two bidders, one of whom was disqualified due to non-material administrative non-compliance, in accordance with the applicable legal framework. However, the case highlighted a structural vulnerability within the Guatemalan state apparatus: institutional fragmentation in decision-making regarding critical technologies. In practice, each public entity operates with broad discretion in selecting suppliers, establishing security standards, and defining risk criteria, without a national architecture to coordinate cross-cutting strategic assessments (López, 2025). A technical expert from Guatemala's Superintendence of Telecommunications (SIT), who was interviewed, noted: "*Regarding the IGSS contract award, it stood out that the technical criteria for the tender effectively sought a Huawei solution, which is suspicious, even when considering low cost as the primary competitive advantage*" (Personal communication, November 2025).

A significant qualitative factor, confirmed by an interviewed source, was the explicit acknowledgment that Huawei actively participated in the commercial strategy of the winning bidder, U Energy Corp, S.A., a company that operated as an intermediary for Huawei and offered discounts to enhance the economic competitiveness of the proposal (Bin, 2025). This fact, while not constituting a formal irregularity, illustrates the company's structural capacity to indirectly influence public procurement processes, particularly in contexts characterized by technical asymmetry, operational urgency, and limited state negotiating capacity.

The public debate following the contract award centered on data sovereignty and cybersecurity, with analysts and specialists highlighting the potential risks associated with using Chinese-sourced technologies to safeguard sensitive information. These concerns were grounded in Chinese national security legal frameworks that mandate companies domiciled in that country to cooperate with the State on intelligence matters. Huawei responded through official statements, denying the existence of “backdoors” or legal authority to access data hosted outside of China (Bin, 2025).

Nevertheless, the exchange tended to reproduce conflicting external narratives, without sufficiently addressing the underlying structural problem: the weakness of the national framework for data governance, technology auditing, and sovereign control. The visit by U.S. Secretary of State Marco Rubio reinforced this interpretation by explicitly underscoring the national security dimension of information and communications control. This case illustrates how the absence of national governance regarding critical technologies can transform seemingly technical administrative decisions into vectors for Huawei’s insertion into key national sectors, with direct implications for the State’s security, institutional resilience, and strategic autonomy.

CONCLUSIONS AND STRATEGIC IMPLICATIONS FOR CENTRAL AMERICA

A comparative analysis of Huawei's presence in Costa Rica, Panama, Honduras, El Salvador, and Guatemala reveals a regional pattern. Far from reflecting isolated national trajectories or ad hoc public policy decisions, the cases examined reveal a convergent sequence characterized by early technological insertion, the progressive accumulation of operational dependencies, institutional normalization achieved through soft power, and the cognitive alignment of technical elites, followed (in later phases) by securitization processes induced by the intensification of strategic competition between the United States and the People's Republic of China. This sequence reconfigures technological governance in Central America and exposes the actual limits of state sovereignty within an environment of systemic rivalry for control over digital infrastructures.

In all the countries analyzed, Huawei's entry proceeded according to a predominantly technical and functional logic, unlinked, in its initial phase, from explicit national security considerations. The company positioned itself as a competitive provider of 3G and 4G networks, connectivity solutions, educational equipment, and digital services, capitalizing on open regulatory environments, urgent modernization needs, and limited state capacity to assess long-term strategic risks. At this stage, digital infrastructure was conceived as a neutral operational input, governed by criteria of cost, efficiency, and scalability, rather than as a vector of political power or structural dependency.

From a strategic perspective, this initial assessment proves decisive. The absence of an early national security evaluation was not necessarily due to institutional negligence, but rather to a widely-shared conception within the region during the 2010s, which understood technology as an essentially

apolitical sphere, detached from geopolitical rivalry. Within this framework, the national origin of a supplier held no strategic relevance, and technological cooperation was seamlessly integrated into development models oriented toward market principles and international openness. This premise, now eroded, served as the starting point for vulnerabilities that would only fully manifest in later stages.

Over time, the initial technical integration evolved into a progressive accumulation of operational dependencies. Huawei did not limit itself to supplying equipment, but integrated itself into comprehensive ecosystems that encompassed technical training, specialized maintenance, certifications, system interoperability, and local talent development. This process silently yet steadily diminished the scope for technological reversibility available to States, while cumulatively increasing the financial, operational, and political costs associated with any attempt to replace the provider.

The dependency thus acquired a dimension that transcended the physical infrastructure to extend to knowledge and human capabilities. The concentration of technical expertise around a specific system deepened the information asymmetries between the States and the provider, weakening national audit, supervision and control capacities. At this point, technological sovereignty began to erode not through a formal transfer of control, but through the gradual loss of strategic flexibility. States retained legal title to their assets, yet found their effective capacity to manage them autonomously increasingly restricted.

A cross-cutting element in the cases analyzed is the progressive capture, direct or indirect, of technical, educational, and administrative elites. This phenomenon should not necessarily be interpreted as corruption in the strict sense, but as a more subtle process of cognitive, professional, and institutional alignment. Through training programs, certification, academic cooperation, travel, specialized events, and knowledge transfer, Huawei has succeeded in

positioning itself as an indispensable partner for key sectors of the state apparatus responsible for operating, evaluating, and making decisions regarding critical digital infrastructure.

In Costa Rica and Panama, this dynamic was particularly evident in public companies, technical unions, universities, and administrative bodies with the capacity to influence technological standards and acquisitions. In Honduras, Guatemala, and El Salvador, the process operated primarily through the accelerated development of human capital and the provision of comprehensive solutions within contexts of institutional weakness. In all cases, the result was convergent. Actors with technical influence began to internalize supplier-friendly frameworks, reducing their willingness to question their strategic role and shifting the debate from national security to operational efficiency.

This dynamic constitutes a structural vulnerability of the first order. The capture of technical elites does not require direct political control to generate strategic effects; it suffices to shape the incentives, knowledge, and career trajectories of those who operate critical infrastructure. In this sense, technological competition with China is fought simultaneously on the material and human levels, and the governance of digital infrastructure becomes a problem of cognitive power, in addition to a technical one.

In this context, the expansion of corporate soft power appears as one of the most consistent mechanisms of institutional normalization. Faced with increasingly restrictive regulatory environments, Huawei deployed soft legitimization strategies focused on education, sustainability, digital inclusion, and social responsibility. Regional training programs, scholarships, cooperation with multilateral organizations, and social projects served as reputational anchoring instruments that helped depoliticize their presence and make it more difficult to question them publicly. In countries characterized by educational gaps and budgetary constraints, this soft power functioned as a

partial substitute for public policy, shifting the debate away from technological sovereignty and toward social cooperation and human development.

The common turning point across all cases was the late securitization of digital infrastructure, largely driven by the strategic leadership of the United States. In the wake of intensifying global technological rivalry, Washington redefined digital infrastructure as a core component of national and hemispheric security, articulating this vision through direct diplomacy, cybersecurity cooperation, regulatory frameworks, and technology-substitution programs.

This strategic shift is reflected in the National Security Strategy, the National Defense Strategy, and the Department of State's Agency Strategic Plan, all of which converge on the premise that digital infrastructure and telecommunications, such as Huawei, must be treated as critical assets with a direct impact on sovereignty, security, and the regional balance of power (The White House, 2025; U.S. Department of Defense, 2026; U.S. Department of State, 2026). Within this framework, the United States identifies the People's Republic of China as a systemic competitor and warns that technology companies may function as operational extensions of the Chinese state, particularly when embedded in strategic sectors such as networks, data, cloud computing, and advanced digital services.

In Costa Rica and Panama, this influence translated into explicit regulatory decisions and the progressive exclusion of Chinese suppliers of critical layers. In El Salvador, the approach was more selective, focused on containing the risk of 5G without a total rupture. In Honduras and Guatemala, securitization emerged in a fragmented manner, conditioned by already consolidated dependencies and limited state capacities.

The United States' promotion of cybersecurity standards, transparency, data protection, and institutional resilience was driven not solely by immediate geopolitical interests, but also by the need to prevent critical infrastructure from becoming subject to legal and political frameworks incompatible with democratic and open-market principles. Nevertheless, the varied outcomes demonstrate that the effectiveness of this leadership depends on its capacity to combine strategic pressure with technical cooperation and viable alternatives.

In this regard, technological sovereignty can no longer be conceived as a static condition or as a normative declaration. In the countries analyzed, sovereignty took shape in a fragmented and reactive manner, conditioned by technical decisions accumulated over time. The competition between the United States and China did not create these vulnerabilities, but it did expose them and accelerate their manifestation. States with greater institutional strength managed to steer the process toward governance frameworks more aligned with the Western security architecture, even while incurring significant economic and diplomatic costs. Those with more limited capabilities faced sharper dilemmas, finding themselves compelled to manage strategic risks without adequate instruments for control and oversight.

Taken together, the analysis demonstrates that Huawei's early entry served as a vector for implicit alignments, not through direct imposition, but through the absence of strategic governance. The progressive capture of elites and the systematic use of soft power entrenched dependencies that were only called into question when the geopolitical environment rendered their problematization unavoidable. U.S. action, far from being merely coercive, served as a catalyst to reintroduce national security criteria into decisions that had previously been externalized to the technical sphere.

The central challenge for Central America is not choosing between powers, but rebuilding state capacities that allow for decision-making. For the United States, the challenge lies in sustaining its leadership by offering structural

solutions that enhance the genuine autonomy of its partners. In an increasingly polarized international system, technological sovereignty emerges as a central field of dispute, the defense of which ultimately depends on the strengthening of institutions, elites, and regulatory frameworks compatible with a democratic and open order.

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The present comparative analysis is part of a broader dynamic of technological competition, in which the absence of early governance, the gradual capture of technical and educational elites, and accumulated dependency shape national trajectories deeply conditioned by a rapidly evolving geopolitical environment. It is important to note that this study combined qualitative methods, including an exhaustive review of open sources and grey literature, with 25 semi-structured interviews.

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