# The Balance of National Security, Commercial Interests, and Individual Privacy

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by

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**The Balance of National Security,**
**Commercial Interests, and Individual Privacy**

Since the launch of Sputnik 1 in 1957, satellites' applications have proliferated. Of the 8,377 active satellites in earth orbit, most serve communications, earth observation, and navigation purposes (Ieva, 2024). Together, communications, observation, and navigation satellites contribute to national security. As satellite technology continues to advance, it brings about a myriad of ethical, legal, and societal questions regarding its use.

Recognizing the dual nature of satellite data utilization is critical in finding the right balance between national security, commercial interests, and individual privacy. Satellites offer valuable insights for enhancing public safety and security, including military intelligence, environmental monitoring, and disaster response. However, as satellite technology expands, concerns arise over unchecked surveillance, data misuse, and privacy violations. Ethical dilemmas surrounding surveillance boundaries and protecting individual rights emerge with the collection of vast data sets (Li & Lynch, 2019). The challenge then becomes navigating the balance between protecting the public with the use of satellite data and protecting the public against satellite exploitation.

The competition between privacy advocates and the federal and state governments to "align a legacy regulatory system with an increasingly diverse space environment," is an ongoing struggle involving discussions, legal battles, and regulatory efforts about the ethics of the new digital age (Goessler, 2022). While privacy advocates in the U.S. have demanded regulations to protect citizens' civil liberties from intrusive space-based surveillance systems, a powerful interest-group coalition consisting of national security proponents, technology companies, and other enterprises has so far thwarted such reforms.

**Review of Research**

Renenger (2002) examines the implications of satellite GPS tracking on the right to privacy, offering insights into the legal and ethical considerations surrounding surveillance practices. Wasowski (1991) worked to explore the ethical dimensions of international satellite remote sensing, shedding light on the history and underlying concerns that were rooted in early applications of global observation. Goessler's (2022) study investigates the private sector's perspective on U.S. space policy and law to understand the industry's commercial interests and regulatory challenges shaping the industry.

Renenger's (2002) studies public trust in technology adoption. Referencing a 19th century law review by Samuel Warren and Louis Brandeis, "…modern enterprise and invention have, through invasions upon [a man's] privacy, subjected him to mental pain and distress, far greater than could be inflicted by mere bodily injury," Renenger (2002) highlights the increasing significance of solitude and privacy amidst modern life. The study emphasizes that "only if a public trusts a technology, can they truly come to rely on it," reinforcing the critical role of trust in the acceptance and utilization of satellite technology in our modern, digitally connected world.

Wasowski (1991) sheds light to the underlying concerns of satellite remote sensing that arose during the early military applications. When satellites first started being launched, there were no notable objections raised over the potential violation of territorial sovereignty. This lack of opposition led to the establishment of a customary international law, granting any nation capable of orbiting a satellite the right to overfly any state without prior permission. However, Wasowski (1991) concludes that the lack of protest should not be interpreted as a lack of serious concern. Instead, it should be viewed as insufficient public awareness regarding the relevant

facts. This lack of awareness underscores the notion that technology is ethically neutral, yet ethically significant due to the limitless opportunities it provides.

With interviews of employees of U.S. space companies, Goessler (2022) reveals the challenges encountered by the private sector in navigating U.S. space policy and law, with public sector policies often trailing private sector innovations and investments. With the slow pace of federal government action, many employees called for clear standards to be set and facilitated rather than hinder commercial endeavors. Goessler (2022) recommends that policymakers take the complexities of space policy into account.

**Individual Privacy: Growing Public Concern**

Satellite technology's growing role in facilitating the collection of personal data has raised significant concerns over privacy infringement among the public. Citizens have grown apprehensive about the lack of transparency and accountability around satellite technology's use, creating vulnerabilities for the misuse of their personal information. Satellites pose as a significant concern due to their advanced surveillance capabilities, which allow for continuous, real-time monitoring. This surveillance capability, along with the rise of airborne search and technology, presents a significant challenge to the Fourth Amendment. Citizens have the right to privacy and freedom from unwarranted government intrusion. Law enforcement objectives, no matter how legitimate, do not supersede these protections (Shaefer, 1984).

Worries surrounding satellite technology extend beyond mere data collection to include concerns about the accuracy of the data collected and the potential for its misuse. TS2 SPACE offers the public use of satellites to send data and believes that allowing governments to use satellites to track citizens is necessary for public safety and national security. However, to uphold

public safety, “it is important for citizens to be aware of their rights and understand how governments are using satellite technology to observe and collect data about them.” Frąckiewicz (2023), an employee of TS2, believes that the risk associated with inaccurate or improperly collected data could be weaponized to “target individuals for surveillance or discrimination,” potentially resulting in unwarranted monitoring or discriminatory actions against innocent citizens. The absence of transparency and accountability measures leaves individuals vulnerable to unchecked surveillance and data harvesting practices facilitated by satellite technology. Without adequate safeguards in place, the potential for abuse of personal data looms large, posing significant threats to citizens’ civil liberties. As satellite companies continue to advance, it becomes imperative for advocates to address these issues proactively, ensuring that individuals’ rights are protected.

Such concerns are further amplified by Kerry (2018), who works to improve policy and governance at local, national, and global levels, as he highlights the need for federal privacy legislation after many data breaches. Kerry (2018) argues, “In a constant stream of online interactions…it is unrealistic to read through privacy policies. And people simply don’t.” This observation underscores the sense of vulnerability experienced by users who unwittingly expose themselves to potential privacy violations. Moreover, the increasingly automated nature of data collection diminishes the opportunity for individuals to provide meaningful consent, rendering individual choice meaningless. There is no practical way that individuals know what data is being taken from them and what that data says about them. Trust needs a stronger foundation that provides people with consistent assurance that data about them will be handled fairly and consistently with their interests (Kerry, 2018).

**Advocacy and Union Reforms**

To diminish the growing public concern, the Electric Frontier Foundation has proposed numerous changes to the Department of Commerce's recent regulation on satellite licensing. These proposed changes aim to address the current and escalating threats posed by private satellites to our civil liberties. The suggested modifications include expanding disclosures of privacy risks within licensing applications, implementing regular audits on government data requests, integrating privacy assessments into the criteria for high-risk applicants, and initiating additional rulemaking procedures to address privacy concerns (Li & Lynch, 2019). Through these proposed changes, the Electric Frontier Foundation seeks to mitigate the growing public concern of their civil liberties. By advocating for accountability in satellite data collection, they aim to restore trust in the responsible use of satellite technology.

Privacy advocates have not only worked to alleviate public concern but also to address the lack of transparency concerning what is done with personal data. The Brookings Institute has conducted in-depth, nonpartisan research to improve this policy. According to Kerry (2018), the current trajectory suggests that "we are playing a losing game," emphasizing the urgent need for regulatory reform. Without changes to the existing framework, there is little hope of regaining ground. Kerry (2018) argues for the implementation of baseline privacy legislation, which would serve as a crucial foundation for regulating data practices. These baseline principles would not only provide clear guidelines to businesses but also serve as a barrier against potential overreach, outliers, and illegal activities. By establishing a widely accepted set of privacy principles, American companies can demonstrate their commitment to safeguarding individual privacy rights and adapt to evolving technological landscapes. This framework would ensure that data is utilized, stored, and shared in a manner consistent with individuals' interests and expectations.

Building trust through such measures is essential for fostering a sustainable digital world where individuals can confidently navigate their interactions.

International organizations, such as the International Telecommunication Union (ITU), are pivotal in shaping global standards and policies in our increasingly complex world. As a specialized agency overseeing various aspects of information and communication technologies, the ITU allocates significant resources to cybersecurity, acknowledging its importance in ensuring secure and dependable satellite communications. With the increasing demand for satellite networks, there arises a need for prompt and efficient conflict resolution procedures. At the forefront of international organizations, the ITU plays a central role in fostering global connectivity while developing specifications for emerging technologies. By doing so, the ITU not only enhances global connectivity, but also contributes to the formulation of regulations aimed at safeguarding individual privacy rights (Chawki, 2023).

These privacy advocates and unions are creating regulatory reforms to ensure the responsible and ethical use of data collection via satellite technology, thereby safeguarding individuals' rights in an increasingly interconnected and technologically advanced world.

**Private Industry Outreach in Satellite Data Collection**

The evolution of commercial satellite imagery, marked by ongoing enhancements in spatial, temporal, and spectral resolution, exemplifies the convergence of technological progress and privacy considerations. While these improvements make satellite images more affordable and accessible, they also introduce implications for individual privacy as most of these satellite images might not be "post-processed from a privacy-protecting and anti-surveillance perspective" (McAmis, Bennett, Sim, & Kohno, 2024). While Google Earth offers high-

resolution images, they are not updated frequently. In contrast, commercial firms often collect imagery of various locations on Earth multiple times a day, sometimes in response to specific customer requests (McAmis, Bennett, Sim, & Kohno, 2024). The extent of private industry's control of satellite data and the threat posed by it is shown through companies that access satellite data and monitor a vast amount of personal data and activities without the consent or knowledge of those being surveyed (Frąckiewicz, 2023).

The Alliance for Citizen Engagement (ACE) pushes to create a more objective, informed, and democratically engaged generation. To better understand the complex issue of privacy and space-related industries, the ACE describes the Outer Space Treaty, a foundational document in international space law that affirms that all space should be free for exploration by all states without discrimination. Despite its longstanding role as the primary legislation governing space exploration, the Outer Space Treaty contains several gaps that allow corporations to prioritize commercial interests over privacy concerns. This flexibility enables space industries to consider legal consequences of their actions later, which gives leeway to prioritize commercialization and expansion. Consequently, many corporations have adopted the policy, "whatever is not prohibited is legal," exploiting the loopholes within the treaty at the expense of individual privacy rights (ACE, 2023).

Li & Lynch (2019) states that U.S. companies and research institutions seeking to launch private satellites must first secure a license from the federal government. With the rising demand for satellite technology, these private companies advocated for a streamlined licensing process to expedite satellite deployment. However, this push for efficiency, from a commercial standpoint, lacks concurrent efforts to address the heightened privacy risks posed by the increase of satellite imagery and recordings. Each deployment of a private satellite grants individuals with access to

the resources to delve into a "virtual time machine," enabling surveillance of private residences, public movements, and individuals' activities without their consent.

Individual's privacy expectations and preferences frequently clash with current commercial satellite practices. However, rather than addressing challenges to ensure individuals' privacy rights are protected, technological companies prioritize only their commercial interests.

**Resistance to Enact Meaningful Regulatory Reforms**

The political, legal, and ethical issues surrounding international satellite technologies activities have a long and complex history. Beginning in World War I, where national security needs led to the emergence of remote sensing technologies (Wasowski, 1991). During this period, the infringement upon national airspace was deemed to be as significant as infringement on the territory beneath. Following the war, a customary international law evolved, stating that any nation orbiting a satellite could freely overfly the airspace of other states without prior authorization. There was minimal opposition to this arrangement at the time. However, people claim that a more informed population might have expressed objections to these practices. Despite this hindsight, the absence of widespread protests caused no regulatory reforms to this law. Instead, the lack of public protests was interpreted as a lack of serious concern (Wasowski, 1991).

Coffer (2020) recounts how satellite imagery has led to some of society's most influential discoveries, and as high-resolution data provides exciting new security possibilities, serious privacy concerns have also been raised. Coffer (2020) wants to showcase how satellite-based industries encroach on some individuals' perception of privacy. She writes about the numerous legal cases indicating a preference for national security over the enactment of reforms

safeguarding individual privacy. A lawsuit in 1984 between a Florida sheriff and a homeowner shows the emphasis on national security over privacy. Acting on a tip, the Florida sheriff suspected a homeowner of growing illegal substances on their property. Lacking any ground intelligence, the sheriff conducted aerial surveillance, leading to the homeowner's arrest for marijuana possession. Although the homeowner challenged the state of Florida for the violation of reasonable privacy expectations, the court ruled in favor of the state. Such historical examples foreshadow the potential for a similar outcome in today's digital era, where the interests of satellite data providers often supersede individual perceptions of privacy rights (Coffer, 2020).

History has repeatedly demonstrated the tendency for satellite technologies be exploited for political purposes. Intelligence agencies, such as the National Security Agency (NSA), have exhibited resistance to enacting reforms to surveillance programs despite widespread public outcry regarding privacy infringements. NSA programs have infiltrated numerous communication technologies integral to everyday life, and although oversight systems such as the Foreign Intelligence Surveillance Court (FISC) monitor government surveillance activities, their detailed operations remain unknown. Operating through one-sided procedures heavily skewed in favor of national security interests, FISC operates without meaningful transparency, despite public protests. Regardless of assertions from organizations like the American Civil Liberties Union advocating that "we all have a right to know what kinds of information the federal government is collecting about innocent Americans, on what scale, and based on what legal theory," FISC appears disinclined to provide such information (ACLU, 2023).

## Conclusion

The exploration into satellite technology has uncovered implications for privacy, security, and human rights. While there is often a narrative of progress and promise surrounding advancements in satellite technology, there are still numerous issues that demand urgent attention, including privacy concerns, national security, regulatory frameworks, and international cooperation. Despite Americans' pride in technological advancement, it is evident that the evolution of privacy rights has not kept pace with the rapid progress of technology, leaving individuals vulnerable to exploitation and misuse of their personal data. Satellite technology should not only advance innovation but should uphold ethical standards in service of society and the environment as well.

A key issue in the satellite technology landscape is the delicate balance between individual privacy and national security. In some instances, ensuring the safety of the nation may warrant certain infringements on privacy. However, the way that those infringements are carried out remains a subject of debate and contention. It is imperative to strike a balance between safeguarding national security interests and upholding the privacy rights of individuals.

Implementing comprehensive licensing and increasing public awareness are crucial steps in establishing a regulatory system that maintains the continuity of satellite data collection and usage for national security, while respecting privacy rights. These measures promote trust and accountability in satellite technology usage by fostering transparency, accountability, and informed consent, ultimately achieving a balance between legitimate and improper data collection. Investing in robust oversight mechanisms and regularly evaluating the effectiveness of regulatory frameworks can help address the emerging challenges and ensure that privacy protections keep pace with technological advancements.

As society navigates an increasingly technical world, it is important that people maintain a steadfast focus on fundamental human rights. Satellite technology has the potential to revolutionize various aspects of our lives, but this progress should not come at the expense of individual civil liberties. By addressing the privacy implications of satellite technology and implementing regulatory measures, we can ensure that satellite technology serves as a force for good.

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