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CHINA'S BEIDOU VISION: DEFENSE AND INDUSTRIAL STRATEGY BEHIND THE WORLD'S FASTEST-GROWING GLOBAL NAVIGATION SATELLITE SYSTEM

Abstract

China's Beidou global navigation satellite system (GNSS) is poised to become a significant alternative to GPS and Galileo for a large portion of the world's commercial, industrial, and public users of satellite position, navigation, and timing.

Beidou's emergence as an important alternative system for the Asia-Pacific results from a comprehensive Chinese-government strategy of using the development of this system to serve defense and industrial policy goals.

Chinese policymakers intend for Beidou to become the backbone of a modernized military of global reach. At the same time, Chinese leaders see Beidou as the infrastructure that supports emerging GNSS applications industries at home and their regional exports. For example, government regulations and policies encourage users in areas as diverse as transportation, mining, and finance to use Beidou-supported hardware.

The defense and industrial policy goals behind Beidou deserve attention because they highlight three issues critical to the future of this system and GNSS technology writ large.

First, the Beidou constellation raises significant questions about signal frequency allocation for GNSS. Deeming such systems integral to defense and industrial modernization, policymakers are reluctant to compromise on their features or launch schedule. Developments in and between the Beidou, Galileo, and GPS programs illustrate this challenge. As global demand for GNSS grows, how will the international community manage scarce frequency resources? What international governance mechanisms are available or possible?

Second, Beidou and the industries it supports emerge onto a landscape in which the interoperability of GNSS hardware is not given. Whether or not states building GNSS can meet their defense and industrial goals while building interoperable systems will shape how GNSS technology evolves. In this sense, examining Beidou provides a glimpse into a future of commercial and civil GNSS capabilities fragmented into regional systems. Yet Beidou also holds the promise of a global market in which users everywhere benefit from the competition between makers of interoperable hardware and software.

Third, the Chinese government's goals in building Beidou are explicitly both military and civil. How have these dual goals shaped the course of Beidou's development? In what practical and operational respects is Beidou distinct from systems such as Galileo? What are the limits of international cooperation on intrinsically military or dual-use programs of this type?

Analyzing Beidou's context in defense and industrial policy allows us to explore these questions empirically and systematically. This study is based on original Chinese-language sources and first-hand interviews with specialists in China.