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Is the Innovation Winter Coming?

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SYNOPSIS

Securing an advantage in emerging technological domains such as artificial intelligence (AI) and 5G means winning the competition for global talent and unrestricted access to supply chains. The accelerating Sino-US strategic competition, however, raises new debates on regulatory regimes and the future diffusion of information and technologies across borders.

COMMENTARY

ONE OF the most pressing issues in contemporary international relations is the expectation of a new era of intensifying strategic competition. This is characterised by the confluence of political, economic, and military-technological competitions in the context of major shifts in the global security environment.

At the forefront of this growing strategic rivalry is the contest for future supremacy over global security and economic institutional grids between the world's major military powers – the United States and China. The character of the emerging Sino-US strategic competition, however, differs from its recent historical precedents.

The Disruption of Talent Pipelines

Most recently in the period of the Cold War, the US focused solely on maximising containment of its strategic competitor, the Soviet Union, across all dimensions – political, economic, ideological, and military; the Soviet Union countered with comprehensive efforts to shift the overall "correlation of forces" to favour Moscow.

This approach can no longer apply. Today, long-term economic interdependencies co-exist with core strategic challenges, while ideological and institutional contests focus on the making and interpretation of overlapping rules and norms.

A key feature of the emerging Sino-US strategic competition is its expected impact on the pace, direction, and character of technological innovation. According to the Eurasia Group's 2019 Top Risks report, the global drive for new technologies such as artificial intelligence (AI) and robotics will be adversely affected by "a politically driven reduction in the financial and human capital available to drive the next generation of emerging technologies." This is evident in two broad categories: the disruption of talent pipelines and competing regulatory regimes.

Siloed Research Communities

Talent is the most important yet most limited resource in technological competition today. For areas such as AI, for which the largest companies are all headquartered in China or the US, the race to hire and retain researchers and engineers is one of the strategic determinants of a country's ability to get ahead.

If others grow to share President Putin's view that the leader in AI will dominate the world, impulses to race for AI supremacy (or likewise 5G, quantum supremacy) will overpower open collaboration.

Both Washington and Beijing have displayed such thinking, albeit differently, with a conflation of nationals with state-driven actors. In the US, hawkish views on immigration have taken their toll on the innovation pipeline. There are signals that this may worsen: in 2018, the Trump administration considered and shelved a ban on all Chinese citizens studying in the US, as reported by the Financial Times.

In 2015, a misguided effort to comply with US sanctions on Iran led a public university to ban Iranian students from science and engineering graduate programmes. Although ultimately reversed, the pre-Trump precedent shows how blanket bans can be wielded at the expense of freedom of exchange.

In China, the conflation of nationals with state agents is far more pressing and dangerous. Recent cases of China arresting foreign nationals contemporaneous with foreign policy crises have stoked fears over further "hostage-taking," which will further limit track-two exchanges between academics and researchers. In tandem with fears over Chinese industrial espionage and forced technology transfers, this will accelerate the siloing of research communities to the detriment of scientific collaboration and mutual understanding.

Regulating Technological Fortresses

While there is growing awareness and consensus that globalised supply chains are vulnerable to interference, strategic competition may lead to countries putting up more barriers – not only on the flow of talent, but also to reduce dependencies on foreign-sourced digital infrastructure and components.

This is perhaps most obvious in the recent debates on fifth-generation (5G) wireless infrastructure, which began ramping up since the release of a 2012 U.S. congressional report condemning ZTE and Huawei as national security threats. In the intervening years, as supply chain security garners more attention, products from the companies have been prohibited from US government systems; export controls have tightened; and accusations of sanction violations have been laid out.

The most recent ban on Huawei doing business with US companies raises a critical question: will the future digital economy be open or controlled systems? Because 5G networks promise massive leaps in computing power and connections to Internet of Things (IoT) devices, the hardware choices countries make today will inform the version of connectivity to which they subscribe tomorrow.

Furthermore, as China and Russia embark on their own, more closed versions of the Internet, the bi- or trifurcation of the Internet points toward similar economic and societal fortressing.

Rethinking the Rules

Technology provider questions will force states to evaluate the rules to which they are beholden. With the EU leading data privacy regulations, Japan potentially following in suit, and the US lagging behind, Chinese laws strictly requires compliance with government requests regardless of data theft, privacy, and security concerns.

This means a choice of digital critical infrastructure suppliers who are muddling through security and privacy debates, or one who actively relegate those debates in favour of digital authoritarianism or Chinese interests.

Some states, including the US and Australia, have already decided they belong to the former camp. States such as the United Kingdom and Germany are attempting to straddle the line, and many others – including BRI partners that must synchronise their technological standards with China – will not have the choice.

Some also choose to use more surveillance technologies – including 18 countries using Chinese monitoring systems. For non-democratic and corrupt societies, this may sacrifice openness and fairness; depending on the state, instead of reducing crime, the surveillance can further accelerate corruption.

Implications for Southeast Asia

While in the short-term, the ongoing US-China strategic competition may yield some economic benefits for Southeast Asia, particularly with a potential shift of US companies from China, a forced choice between open versus controlling technological fortresses poses a long-term threat to hedging strategies.

In particular, Southeast Asian countries lagging behind in the development emerging critical technologies are vulnerable to becoming collateral damage to the US-China technological divide. To date the clearest case of longer-term disruption to Singapore came in early 2018, when Washington blocked the Singapore-based firm Broadcom

from buying Qualcomm, a chipmaker whose customer base includes the US Special Forces and other U.S. military units.

As David Sanger reported: “the stated fear was that Broadcom, while not itself Chinese, would not invest heavily in research – and Huawei and other Chinese firms would benefit.”

The bottom line is that US and China trade and technology tensions bring about new debates on future innovation trajectories and nature of global competitiveness. In the Eurasia Group’s prediction of an innovation winter, 2019 is the year that “investors and markets will start paying the price.” For a country like Singapore, the political drivers behind this trend already got a head-start.

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