Disruptive technologies have been the driving force of globalization since the 19th century. Since the dawn of the industrial age and the advent of the steam engine, technological innovation has fostered human interconnectivity by reducing the cost of moving goods, ideas, and people. In this sense, the world has witnessed successive eras of globalization driven by disruptive technologies. The current phase of globalization, advanced by remote intelligence, digital technology, and artificial intelligence, may become the most disruptive and potentially destabilizing for polities and societies in advanced and developing countries alike. Although inequality between states is likely to continue to fall, we can also expect the accelerated hollowing out of once-stable economic institutions and patterns of life as well as the growth of inequality within countries. To what extent can national and international institutions contain the disruptive political and socio-economic effects of this new phase of globalization? And to what effect? Will disruptive technology increase, stabilize, or decrease global-interconnectedness and particularly global trade? Will the international community harness technology through the development of new or updated multilateral institutions with echoes of the GATT and the WTO? Furthermore, how can individual countries harness technology as an element of national power and economic statecraft?

Introduction
Soft Power Risks and Rewards: Emerging Dilemmas in Economic Statecraft

What is a state to do with disruptive technology? How can a state confidently execute economic statecraft when the systems, behaviors, and actors of the economy experience ongoing alteration? Economic statecraft itself, as a common type of “soft power” foreign policy, operates best in the world of known quantities and dynamics. No tool of strategy can find the shifting sands of disruptive technology an acceptable condition. It is consistent data, predictable effects, immutable structures, and familiar actors that foreign policy prefers. Disruptive technology not only challenges these preferences, but it even demands prioritization within economic statecraft. For the economy, the means of economic statecraft is itself the continuing creation of disruptive technology, and the perceived status quo, which statecraft might prefer, is merely an ephemeral snapshot in time.

Avoidance of disruptive technology is not a feasible option. Incorporating this technology is, however, still a very challenging proposition. At the heart of this challenge is, of course, the disruptive element. This produces unknowns in both risk/reward categories, as well as unknowns in magnitude and secondary effects. The aggregate of unknowns stymies clear reasoning, and for both democratic and autocratic regimes, navigating these technologies’ utility in economic statecraft is a frustrating effort. Not only is there little to no data available with which to predict potential outcomes, but extant analytical systems themselves must be seen as deficient, given their relationship to a system undergoing significant change. Simultaneously, these technologies and their disruptive characteristics represent a clear and compelling opportunity. Who wouldn’t want to be the first to adopt gunpowder into their military doctrine?
First-mover advantage in technology has historically offered political benefits to the host state seemingly commensurate to the economic benefits for the innovator.

States are left with this dilemma: not moving forward is an unacceptable risk (e.g., loss of benefits, relative loss of power to a successful competitor), and moving forward is a similarly unacceptable risk (e.g., unknowns). How they proceed is a function of how well they can attack the unknowns through analysis (or speculation), and once discovering probable results, how they can determine alignment with the technology (means) to a political objective (end).

**Economic Statecraft, Trade, and Technology**

In 1985, David Baldwin first published his seminal work “Economic Statecraft” and functionally defined this concept from what had previously been nebulous and overlapping literature on soft power, political economy, and strategy. Over the last several decades, the fundamental concept has not been radically altered (Baldwin’s 2020 update to the book is highly regarded) and the activity itself has emerged as a preeminent tool of foreign policy. In its current use, economic statecraft can be understood as the effort of states to achieve objectives in international politics (ends) by influencing economic conditions, structures, or actors (means). States employ incentives and barriers designed to alter economic behaviors and produce either offensive (damaging competitor/threat states) or defensive (strengthening the state, protecting against damage) results.

From its earliest applications, economic statecraft has focused principally on international trade as the context for its means. Imports and exports have long been viewed as a feasible and powerful mechanism for a state to achieve political goals. States can easily and effectively introduce barriers (tariffs) or incentives (subsidies, trade agreements) which have clearly connected political outcomes (e.g., external balancing). While trade remains an essential element of economic statecraft, technologies themselves have emerged as a new focal point. Unlike commodities, technologies spread as do ideas, for which traditional control frameworks of trade do not easily apply. Rather, technology drives a focus on establishing ownership and control, as well as setting conditions for endogenous development in order to better achieve that control. The United States, for instance, having provided for the innovative hub of Silicon Valley, has reaped the benefit of ownership for a wide range of computer technologies. Having established that control, managing access to those technologies becomes a potent tool of economic statecraft. Trade will remain an essential element, but it is technology which increasingly offers the greatest opportunities.¹

**Globalization and Its Effects**

The condition of globalization is an essential element in the equation of economic statecraft and disruptive technologies. Globalization is often referred to, yet curiously defies easy explanation as it includes a range of activities, dynamics, and characteristics. Some question whether globalization is in fact a discrete modern characteristic or merely the continuance of long-standing patterns of human behavior. Within the specific perspective of political economy, one can contend that globalization is in fact a specific phenomenon, in which interconnectedness between states has become not only deep and thorough in its penetrations but is now self-

reinforcing. Dependencies within the context of globalization cannot seemingly be fully or functionally removed, except at extreme costs. North Korea, for instance, may be the one political space that is currently able to keep the forces of globalization relatively at bay. And yet even they are incredibly dependent for both trade and technology on their neighbors.

Having been effectively birthed with establishment of the liberal international order in the aftermath of WWII, globalization is inextricably linked to both trade and technology. These are the forces which have built a global web of interdependence. Each passing day, the arrival of technologies increase efficiency and further strengthen the power of trade, as well as the reach and speed of communications which tie states and their societies to each other. Despite the apparent success of liberalism in achieving these outcomes, old logics of realism - in which dependence is seen as a vulnerability or threat - have not disappeared. Globalization carries with it a range of effects and reactions, two of which are especially critical to understand within the context of disruptive technologies and economic statecraft: standardization and populism.

Standardization, or formatting, speaks to a driving need to achieve greater levels of efficiencies in service of the global economy. In order for goods, services, and persons to move freely and efficiently, both material and immaterial forms of standardization must occur. Technologies, as they demonstrate a significant improvement in efficiency, first emerge as potential formatting agents. If the technology has universal application within its domain, possesses strong cost/benefit ratio, and especially is first on the scene to meet those two conditions, it may then activate as the dominant technology, creating regional or global adaptations. Examples of this can be physical, such as the standardization of shipping containers, rail gauges, and A/V data formats (e.g., VHS over Betamax), as well as immaterial, such as software, procedures, and even language. Regardless of type, standardization is an implicit goal for the global economy, as it streamlines inflows and outflows of goods and services, reducing obstacles and therefore costs. As it occurs, it further reinforces the bonds of interdependence, forcing states to adapt and adjust and denying them potential to extricate themselves from dependencies.

The second characteristic or effect of globalization speaks to the realist logic regarding interdependence. Loosely, this can be viewed as a fear or rejection of dependencies between states and specifically can be tied to the domestic political phenomenon of populism. While populism is not essentially hostile to globalization, in its more recent iterations it has more frequently included negative reactions against interdependence and inflows of either material or immaterial (including legal and illegal immigration) content from other states. Populism can now even be seen as a probable result of overreaches by states in economic statecraft. In utilizing those tools made possible by interdependency, rather than achieve an objective, a state may instead provoke an unintended reaction.

The global economy is competitive in nature, and there must necessarily be losers to the competition. As states set conditions for economic statecraft, with its growing focus on technology ownership and control, they correlate success in technological dominance with standardization and increased magnitude to the effects of economic statecraft. Losers in the competition, be they states or societies within states, have been given reason to perceive interdependency through a realist lens, and when the targets of economic statecraft, may orient
towards populist sentiments. Populism thus can be seen within a globalization aspect as a perception that a state or its society is comparatively losing and is finding its own ideas, technologies, culture, and values becoming displaced by external agents. This is a powerful provocation, and one that is becoming increasingly familiar in the world. As states pursue economic statecraft in a globalized environment, they must appreciate not only how globalization deepens the import and opportunities of economic statecraft, but also how their efforts may generate or exacerbate populist movements.

**Disruptive Technologies and Their Impacts**

There are many individual technologies which can be understood as disruptive in nature and possess the potential to fundamentally alter the environment and systems with which they interact. As they pertain to states and economic statecraft, these technologies defy easy categorization given their disruptive nature as well as the substantial overlap between their applications. The groupings employed here focus generally on their economic associations in order to better delineate their relative implications to economic statecraft. Within each grouping, the technologies will be examined in their perceived potential to economic statecraft, with recognition that any analysis is fundamentally limited.

**Production and Logistics**

AI, Autonomous Vehicles/Automation, 3D Printing

*AI:*  
In 2017, Russian President Vladimir Putin made a bold claim concerning artificial intelligence that “the one who becomes the leader in this sphere will be the ruler of the world.” While he continued by asserting that if Russia were to gain this leadership, it would share, rather than hoard such technology, within the lens of globalization and standardization, one can easily see the potential. AI, as with machine learning generally, is not the objective super-human intellect it is popularly made out to be. Rather, it is the digital incorporation of the human biases which created its algorithms and fed it data to consume. Machine learning and AI systems are extensions of human thinking, and at least as prone to prejudice and bias as their creators. What is both dangerous and alluring to states is that popularly, these systems are believed to be free of bias, scientific, and fully objective in nature. The creator of such a system might be rightfully challenged as subjective, but the creation rarely is. Being the creator, or at least the home state of the creator, could mean replicating a host of norms (and biases) into other states surreptitiously.

*Autonomous Vehicles/Automation:*  
There are advantages to first-mover actions in software/hardware to include establishing the infrastructure and designing ‘the rules of the road’ so to speak. There will also be a reduction in labor required which can be an advantage to consumer/high-tech states but produces joblessness and labor glut in developing states/societies. Labor is a frequent element of free-trade agreements, which could impact future negotiations with more autonomous vehicles or automation – especially in commercial driving occupations and the associated communities along routes. Automation creates lost opportunity in this regard and may provoke “losing” states who lose either employment or remittance opportunities, creating further unrest or instability around the globe and within the United States.
3D Printing:
A net loss of control with manufacturing and trade (creates self-sufficiency, decreases interdependence); increased outflows of technology through 3D model sharing and reverse-engineering (favors developing states, disfavors tech innovating-states, potentially degrades business model of innovators).

Networks, Security, and Privacy
Social Media, Encryption/Privacy

Social Media:
Social media represents a specific vulnerability for democracies, which require voters to have a transparent and functional understanding of their collective issues, thus enabling them to band together through political parties and act collectively. Social media functions in many ways as a megaphone, amplifying only the loudest of the voices within segments of political communities inflating the power those who are most connected at the expense of others. The net effect of this is a warped understanding of the actual collective issues, which has been displaced by the perception of collective issues offered by just those few voices. No longer does democracy employ the town hall of individual voters, gathered to share their concerns and preferences for political outcomes. Instead, those issues are chosen, selected, and then propagated by a very small proportion of the overall population. Not only do quieter citizens lose opportunities to make their individual preferences felt, but they also feel compelled to adapt to those loudest voices. These individuals in many cases must be forced to leave behind self-interests that are authentic and adapt their thinking to include new policy ideas which they might have previously considered unpalatable or even unacceptable. Social Media has become challenging to democracies and an opportunity for autocracies.

Encryption/Privacy:
Both democracies and autocracies want access and control over information at the state level; democracies may limit this demand as a negotiation with their citizens, who largely prefer privacy. Privacy and encryption can be a tool for degrading control by states (when the software is made available by other states); crafting one’s one software offers access points. More generally, centralized state and commercial controls over communication in advanced market democracies may either degrade or concentrate depending on circumstance. For example, US Intel/LE convinced AT&T to allow free access to the primary telephone switch network (PTSN) as landlines were initially configured in the US. At the same time, the counter-vailing gradual monopolization of other sectors may also be a hallmark of advanced market democracy. By contrast, the trends in autocracies generally move against privacy during the life of the regime.

Finance
Digital Currency, Decentralized Finance/Blockchain

Digital Currency:
While cryptocurrencies are clearly misaligned with state interests (with the exception of degrading a competitor’s control), digital fiat currencies are fast emerging as a win-win solution for states which are facing increasing societal demands for digital finance and wish to retain full control over the currency used in their markets. China and the US are both moving forward with
digital fiat currencies, a race that may upend the current economic system. The Global South is one system of states which may generally possess at least one motive for crypto or other non-fiat currencies. Remittances play a substantial role in the economies of Global South states and are vulnerable to taxes and fees which lower the net proceeds of citizens who work internationally to support their domestic families. Digital currencies offer a means to recoup those losses. And yet, the first state which has made a digital currency official (El Salvador with Bitcoin), has not seen significant popular support for that initiative.

Decentralized Finance, Blockchain:
General perspective on DeFi is that states will suffer a lack of control of one of the hallmark tools of economic statecraft and domestic economic policy. States see themselves as best-suited to manage finance and possess a clear preference for the status quo of the banking system. Yet, as the Panama and Pandora papers clearly establish, traditional banking is in fact to the advantage of those who might attempt to hide revenue from states for tax or criminal purposes.

Conclusion
While disruptive technologies necessarily involve uncertainties and unknowns, it is in fact possible to identify probable preferences by states as they integrate them with economic statecraft. Disruptive technologies are simply part of our lived reality, and innovation and technological development will always be driving the most significant and attractive economic realities within which soft power or economic statecraft can be made to occur. States would of course be wise to consider the limitations and risks inherent in decision-making processes that are tied to disruptive technologies, as well as the probable tension between the desires of citizens both in their own state and abroad. The goals of economic statecraft will always be the same political objectives of the state, but the means are both in flux and prone to unintended secondary effects.

BIBLIOGRAPHY AND SUGGESTIONS FOR FURTHER READING


