

DIGITAL DNA



DISRUPTION
AND THE CHALLENGES
FOR GLOBAL GOVERNANCE

PETER F. COWHEY • JONATHAN D. ARONSON

"Digital technology is the most powerful economic, political and social force shaping the world today. *Digital DNA*'s unique contribution is to provide a compelling, comprehensive and pragmatic framework for governance of global digital markets. This is an important and timely work." —Ambassador William Kennard, former Chairman of the Federal Communications Commission and former U.S. Ambassador to the European Union

"The digital economy has spawned a tug-of-war over data flows, implicating the Cloud, privacy, cybersecurity, the role of government, and international trade. Cowhey and Aronson tackle this fraught landscape with keen insight and a practical eye, offering a framework that propels innovation and economic growth, while advancing a digital environment that can be trusted. The time is ripe for adoption of their vision." —Ambassador Charlene Barshefsky, former U.S. Trade Representative

"Cowhey and Aronson have written an engaging treatise that covers an incredible amount of territory. *Digital DNA* is a fascinating read, with an original and deep thesis, one that both challenges and advances our thinking about crucial issues." —Shane Greenstein, Martin Marshall Professor of Business Administration, Harvard Business School

"Digital technologies are transforming the global trading system as a growing share of trade is now embedded in 'bits.' This must read book explains new and important issues, and Cowhey and Aronson articulate a compelling and fresh policy approach to enabling both global trade and innovation in this new digital era." —Dr. Robert Atkinson, President, Information Technology and Innovation Foundation

"*Digital DNA* provides a much-needed key to better understanding the changes at work in the digital era, not only in the US but also in Asia, Europe and worldwide. The authors are brilliant academics, but also have real policy-making experience. The authors' message is important for everyone seeking a deeper insight into the most extraordinary challenge of our time." —Noëlle Lenoir, former French Minister for European Affairs

"Cowhey and Aronson's practical and analytical understanding of the global adoption, use, and growth of the Internet results in a sophisticated, well-organized and timely overview of the very difficult cross-border/cross-cultural policy choices that arise in a complex world of disruption and production. *Digital DNA* is a mandatory read for all who are concerned about governance on and about the Internet." —Kathy Brown, President, Internet Society

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DIGITAL DNA

*As always,
for Margaret and Haruka
and for Joan, Adam, and Zachary*

Prologue

REGIONAL INNOVATION CLUSTERS AND GLOBAL ECONOMIC GOVERNANCE

DIGITAL TECHNOLOGIES ARE becoming critical to every facet of the world economy. These digital technologies are the “digital DNA” that unleashes dazzling changes in the information, communication, and production capabilities that are transforming how the world works. We call this the information and production disruption (IPD). The IPD is rapidly altering the dynamics of firms, how markets perform, and the potential for stronger economic growth and social prosperity. Government policy makers with an eye to the future are searching for policies to leverage the best potential of these disruptions, but have yet to determine how to reconcile seemingly contradictory policy challenges. We offer recommendations for global economic governance that provide a new foundation for problem solving to cope with messy problems that inevitably accompany large-scale change. Despite the current political headwinds, we show how trade policy can be the key platform for enabling an extensive complementary set of regulatory and nongovernmental actions to govern the IPD productively.

Scholars, government officials, and corporate executives from around the Pacific Rim have frankly acknowledged to us that the disruption is occurring but that it is difficult to grasp because it is so multifaceted. This diffuseness makes it hard to distill the first priorities necessary for governance reform. We respond to this challenge by clarifying the fundamentals on how the IPD is altering national and global

patterns of innovation. We choose this leverage point because economists agree that innovation—which we define as the commercialization of new knowledge—is central to global growth and prosperity. We further distill our inquiry by probing how the IPD alters the dynamics of regional innovation clusters.

We call the emerging regional patterns “digital platform clusters.” These clusters extend the dynamics associated with digital platforms (often associated with giant information companies like Google and Microsoft)¹ to smaller specialized technology firms and, as important, to firms rooted in more traditional industries. The sustainable success of industries close to the heart of the economic agenda of the Trump Administration, such as autos and other heavy manufacturing markets, depends heavily on how the IPD evolves on a global scale.

The digital DNA of the new innovation model entails distinctively global forces. Global interactions allow information feedback cycles to speed the production of initial designs and constantly refine them. As a result, the prospects for digital platform clusters depend in part on sound global economic governance. The governance choices include traditional issues of market access and competition, but they also require choices about how to build a trusted digital environment that covers cybersecurity and digital privacy. Getting the governance of the IPD right is critical to capturing the growth opportunities afforded by this new model of innovation. Getting it wrong could slow the world economy in the coming decades. Even worse, bad governance choices could breed widespread social and political mistrust because of the cynicism that surrounds the use of digital technologies.

We explain how national policy responses intersect and potentially conflict with choices about global economic governance. In an interconnected world, the intersection of national and international choices alters the vector of technological and economic change. Hence, we propose a strategy for updating global governance that better reconciles the diversity of national preferences with the need for common global understandings about market governance. The necessary changes are too vast for a single book. Instead, we test our strategy against a series of “hard cases” that are critical to getting the governance of digital DNA right.

The specific catalyst for this effort is a reflection on a failed project. In 2009–2010, shortly after Cowhey exited from his senior trade policy role in the Obama administration, we agreed to become policy officers for an ambitious project of the Aspen Institute to chart ground rules for digital innovation in the world economy. The International Digital Economy Agreement, modestly called the IDEA project, had a talented, experienced leader on technology policy (Reed Hundt, a former chairman of the Federal Communications Commission), a strong professional management cast with deep policy experience (Gary Epstein, Don Abelson, and Charlie

Firestone), significant funding from foundations, and excellent participants from industry, civil society, and government. Yet, no consensus on first principles could be reached.

There were several reasons for the impasse at Aspen.² First, many participants doubted that the scope of the changes in information and communication technology (ICT) markets was so vast that significant updating of their traditional policy preferences was required. They favored nips and tucks over significant rethinking.

Second, IDEA covered too much ground in an integrated package. Everything was on the table: trade in digital technology and services, intellectual property, net neutrality, and freedom and speech rights on the Internet. Aggregation led to paralysis when we attempted to craft enlightened compromises.

Third, participants kept wondering how to make progress on an international agreement without the representation of the major emerging economies. What constituted a necessary core to get started globally?

Fourth, in an effort to bridge gaps and broker compromises, the project staff recommended going beyond status quo policy recommendations to embrace a significant new approach about how to manage global governance. The most controversial recommendation was a proposal to build a system of multistakeholder organizations (MSOs), joining together governments, industry, and civil society to undertake a larger share of the decision making about governance of the global digital economy. We saw no way to make the key policies binding without embedding them in a new treaty structure. Thus, we put forward an elaborate plan that proposed divisions of labor among MSOs and treaty-style obligations linking them to government policies. Our plan left participants, particularly those from the Obama Administration, wondering whether our approach would set the wrong precedent for discussions about how to restructure Internet governance. (Many of the government participants were focused on the challenges surrounding the “privatization” of the Internet Corporation for Assigned Names and Numbers.)³ This time, we will show that existing treaty arrangements could be the anchor if countries wish to build on them.

We learned several lessons from the IDEA experience that ground this book. We want to be bolder, but also pragmatic. Hence, our process this time was different. We started by brainstorming with a few close colleagues with intimate knowledge of the changing dynamics of technology and markets. Along the way, we consulted with and interviewed senior government, private-sector, and nongovernmental organization stakeholders from various countries, as well as our fellow scholars. Responsibility for the recommendations, however, is ours alone.

Like the Internet, the IPD’s future will be influenced by such threats as hackers, cyberattacks, limits on the global flow of data, and worries about the emergence of a world of digital haves and have-nots.⁴ Nonetheless, we still believe that the best way

forward involves pragmatic cooperation and compromise among public, private, and civic stakeholders coming together to work within MSOs. The MSO process itself is in vogue, but making it work requires a clear understanding of the respective roles of government and civil society. Our challenge is to persuade the stakeholders that progress and compromise are essential to innovation, job growth, and prosperity everywhere. We are encouraged that some leaders are urging initial steps toward embracing the challenge and taking the first steps toward international progress on cooperative solutions.⁵ Our argument is a probe of where the first steps could ultimately lead. It unfolds in four parts.

The first step, in Part I, is to define the scale, character, and urgency of the challenge that is raised by digital DNA. Nongovernmental organizations, corporate executives, and policy officials can churn out memos and issue a profusion of white papers, but unless the issue at hand is of major importance and is time sensitive, neither senior government officials nor high-level business executives will devote enough of their scarce time and attention to solving the challenge.

We argue that the IPD is changing how societies innovate and is an important driver of global economic growth. We compare this emerging digital platform cluster model to the dominant innovation model of the past thirty years that was symbolized by the vast successes of Silicon Valley. Our discussions with senior business executives showed a far more widespread appreciation than in 2010 that the IPD is a big deal. Specialized government technocrats have also grasped the point. But, although top political leaders praise entrepreneurship and innovation, they are more preoccupied by debates over slow economic growth, job creation, and the complex links between globalization and economic inequality.⁶ Layered on top of these concerns are worries about unfair trade and investment policies, a fear emphasized in the Presidential campaign of Donald Trump. And, although some of these complaints (such as Chinese industrial policy in digital industries) deserve serious attention and targeted policy responses, they also divert attention from the importance of IPD dynamics of such grassroots concerns as manufacturing and farming. Unless we get the global governance of the IPD right, it will be difficult to create the better jobs and higher productivity growth needed to fuel long-term economic progress. We synthesize the central dynamics of the changes to chart a path to making wise choices about the IPD's governance.

We build on several insightful studies of ongoing disruptive change that focus on individual management choices, particular economic consequences, or specific policy issues.⁷ However, our concern is different. We seek a path toward an integrated approach to global economic governance that deals with ongoing disruptions, requiring a fresh approach to the synthesis of regulatory convergence, civic society engagement, and aspects of trade policy.⁸ Part I highlights the critical importance of

the IPD challenge, explores its links to the emergence of digital platform clusters, and lays out the pattern of governance choices.

We begin this assessment by analyzing today's dominant patterns of advanced technology innovation in the United States and elsewhere. Next, we examine the profound changes spurred by the IPD that are sweeping across firms and markets and the links between these changes and several major policy debates, especially competition in digital markets and the creation of a trusted digital environment. We conclude that the fate of a changed system of regional innovation and digital platform clusters will depend in important ways on choices about global economic governance. We sharpen our case by honing in on how two major firms in two distinct sectors, Monsanto and Qualcomm, are innovating in response to the IPD. Their strategies illuminate how governance and innovation policies must evolve.

Part II adds the next piece of the argument. We lay out a strategy and a design for governing the disruptions that relies on a mix of international agreements and the partial convergence of national policies that builds on our personal experience and the existing scholarship related to global governance and MSOs. Our focus is on governance instead of policy because private innovations by industry and civil society must complement government decisions and rules.

An international strategy that addresses the changing context of 21st-century global negotiations is needed for governance to evolve productively. Part II first considers who must be at the table and why. We take as a given that global economic power is dispersing and that governance preferences among actors are widening. Although more vigorous advocacy of particular national economic interests may influence specific advantages in global markets, the governance of the IPD will be more successful if there is some alignment of emerging national strategies. To build this foundation of collaboration will require bargaining, and therefore compromises among some cadre of countries. Therefore, we identify what would entail a "credible club," a core group of reasonably like-minded countries with sufficient influence to alter the world market through their choices. Over time, this club could add supporters and help forge important international governance innovations that eventually could win larger adherence. We also show why technocratic efficiency and political reality require that "civil society" play a larger role in any governance strategy.

Our strategy focuses on building from small groups of like-minded countries to larger coalitions because it creates greater credibility for new rules faster. But the Trump Administration seems likely to favor bilateral "deals." That does not doom a "club" strategy; the United States has mixed bilateral and plurilateral strategies in the past. But we urge careful thought on how to use bilateral pacts as templates for subsequent group negotiations.

Our approach also emphasizes the advantages of using trade as a platform for complementary regulatory and nongovernmental undertakings. Although recent political dynamics have diminished political support for trade policy, we remain convinced that it is still the simplest and sturdiest beginning point. Our discussion of cybersecurity demonstrates that various forms of cross-national regulatory collaboration can substitute for a trade foundation, but in the end such collaborations will repackage many of the features of trade pacts in new regulatory language. Therefore, we focus on trade as the beginning point of understanding which policies are needed for success. We also believe that trade and regulatory policies to enable the IPD globally are consistent with economic growth producing better jobs.

The IPD also requires that two different sets of bargaining challenges be addressed. First, there are “coordination” problems. Solutions to these types of problems include agreements on globally applied technical standards and national air traffic control systems with compatible practices for international flights. But coordination problems can slip into a second dynamic that scholars characterize as “cooperation” problems. Cooperation emerges from rough-and-tumble bargaining over negotiating challenges that seem to be the early focus of the Trump Administration. In cooperation situations, major actors may find that the best feasible solution is the second-best outcome from their individual perspective. Therein lies the challenge. Even the second-best solution may elude us because each player pursuing its best outcome may lead to collective failure. Actors also may not choose to focus on cooperation solutions. The successful resolutions of coordination and cooperation challenges often are linked. We propose a strategy to link coordination and cooperation mechanisms.

To decide how to proceed, we first must determine how much uniformity is necessary or politically possible among global policies. The trick is to embrace a strategy that helps sort out the minimum necessary degree of coordination. In some cases, convergence is less critical, as when the European Union (EU) and the United States are moving in close policy lock step. What is more important is the removal of certain risks created by the diversity of their policy rules. In other cases, more harmonization on a single policy is vital. It depends on the nature of the interdependence. To support our case, we compare and contrast the level of necessary harmonization needed to improve the security of digital e-commerce payments with what is needed to safeguard cross-border financial payments among banks.

In addition, in developing a design strategy, we repeatedly stress the importance of achieving an appropriate minimum baseline of authoritative international agreement. This baseline can mix “*soft*” rules that commit governments to create certain types of policy and governance capabilities and “*hard*” rules that command or forbid specific forms of behavior. For example, both types of rules are binding

in trade agreements, but the right mix of hard and soft facilitates partial convergence of national governance approaches and still allows for national diversity in the policy mix.

The baseline also should pave the way for complementary governance mechanisms. We believe that, deployed appropriately, MSOs allow a more flexible, experimental, and expert way to link a policy framework to implementation schemes that can better respond to dynamic technological environments.⁹ MSOs also can make it easier to nudge political-economic coalitions across national boundaries toward more compatible understandings of their interests.¹⁰ We conclude that it is counterproductive to seek a neatly architected scheme of interrelated MSOs to respond to major issues. Ad hoc specialization and problem solving through many different kinds of institutions will prove superior to a grand scheme. But MSOs can only be fully effective if governments set clear baselines for policy and hold MSOs accountable. The use of international agreements that permit a greater role for MSOs in governance is an important building block for the management of the IPD.

Part III provides a detailed examination of three representative issues that are critical to the dynamics of digital platform clusters—cloud computing, cybersecurity, and privacy. These three issues, which the IPD brings to the fore, must be disaggregated and addressed to avoid paralysis.¹¹ We test our preferred governance strategy against these hard problems for global governance raised by the IPD. Other important issues remain, but these three case studies illustrate the particular policy challenges created by the IPD.

The first case covers governance for cloud computing and its related services (a foundational capability for the IPD). It focuses on the international commercial rules governing the emerging cloud architecture for computing, information-enabled services, and the associated issue of the transborder movement of data. Significant competition and market access issues loom in the growth of an inherently global information infrastructure. Trade negotiators have tackled part of the governance challenge, but we point out how civil society innovations are changing the “facts on the ground” while negotiators groped for consensus on some formal trade rules. We conclude that rules governing cloud computing and data flows will be effective only if they are linked to ways to forge a trusted digital environment.

The second case concentrates on international issues pertaining to cybersecurity. Creating a trusted digital environment requires strengthening cybersecurity and data privacy, not a comprehensive framework. We explore the governance of cybersecurity using cases from the finance sector.

The third case considers challenges about the balance between the economic gains from Big Data and the protection of personal privacy. We examine the privacy of data based on a comparison of the contrasting U.S. and EU approaches as

a springboard for our analysis. This negotiation permits a better balancing of the costs and benefits of different forms of regulation, a key concern of conservative economic analysts.

Cybersecurity and privacy are “hard cases” for global economic governance because, until recently, they largely were outside the frameworks of binding international agreements. Instead, they relied on consensus statements of normative expectations and endorsements of best practices. We argue that our strategy for governance creates more productive governance options.

The three issue areas are interlinked. Thus, it is hard to imagine a productive governance regime for the cloud ecosystem that exists separate from some common international understandings about cybersecurity and digital privacy. At the same time, we show that tidy grand bargains are unnecessary to make progress on these linked issues.

Finally, in the concluding chapter we suggest linking, or nesting, international agreements to advance a trusted digital environment into annexes of a new digital economy agreement to address gaps in trade policy related to the IPD’s impact on the functioning of world markets. We argue that such linkage is synergistic because it will strengthen the pacts on the trusted digital environment and reduce risks that rules on privacy and security will become excuses for protectionist strategies. There are several ways to anchor these policy arrangements to binding international agreements, but trade is the simplest conceptual and practical fit, so we focus on it in our proposal.

The most antitrade U.S. presidential campaign in memory has now concluded. The short and medium-term future of trade policy and agreements under the Trump Administration will diverge sharply in parts from past trade approaches. During the campaign Donald Trump and Hillary Clinton both opposed ratification of the Trans-Pacific Partnership (TPP) in its present form and followed through on this campaign promise on the Monday after his inauguration. Donald Trump also advocated tearing up the North American Free Trade Agreement. On the other side of the Atlantic, the consequences of Britain’s vote on June 23, 2016, to exit the EU and the defeat of the Italian Constitutional Referendum on December 4, 2016, which could undermine the Euro, continue to unfold as this volume moves towards publication. The ultimate consequences of the Brexit shock, and the defeat of the Renzi reforms in Italy, and the election of Emmanuel Macron in the French presidential election in May of 2017 are unknown.

The current divisive controversies raise proper concerns over the political will to rely on trade agreements to address crucial governance choices. Although we believe that, as a whole, we are far better off because of trade agreements, we also recognize that they have not delivered the unmitigated benefits that they promised and Congress has failed to provide and pay for adjustment mechanisms for those injured