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FinTech Innovation: Building a 21st Century Regulator

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Prologue: A Blueprint for Regulatory Engagement with Fintech Innovation

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Today, unprecedented changes in market infrastructure are making obvious what many commentators, academics and finance professionals have predicted for well over a decade: that the digitalization of markets are poised, along with automation and big data, to radically transform how market participants participate, how investors invest, and how savers save.

But the idea of "fintech"—a seemingly ubiquitous term of art describing the application of technology to financial services—is rarely linked to derivatives on the front pages of major newspapers and financial press. Instead, the word conjures associations tied to other perhaps more familiar sectors and activities. In banking, fintech is readily associated with peer to peer lending infrastructures,[1] and in securities, crowdfunding and roboadvising.[2] Meanwhile, in insurance, where firms are using new data analytics to reach new markets and, hopefully, underwrite safer policies, innovation has become so important a new catchphrase has emerged: insurtech.[3]

Yet arguably, no sector of the financial economy is poised to absorb the impact of fintech more than the $400 trillion global derivatives markets. The electronification of derivatives markets, though for the most part belated for swaps, has long been a feature of futures market ecosystems, just as it has in global equity markets. And as innovations in the banking sector evolve, firms are considering new derivatives products for peer to peer lending[4] as well as introducing blockchain and smart contract infrastructures for processing derivatives transactions.[5]

That derivatives markets in particular face such change should not be surprising. Indeed, the sector is, besides the comparatively modest equity crowdfunding space,[6] one of the few in recent memory in which financial innovation has been *mandated* by Congress.[7] Faced with the greatest financial crisis since the 1920s, Congress required under

[*] *Dr. Brummer's profile is [available here](#).*

[1] Jennifer Surane, *Venmo Killer? Banks Roll Out Faster P2P Payments with Zelle*, BLOOMBERG (June 12, 2017, 07:00 AM), https://www.bloomberg.com/news/articles/2017-06-12/banks-across-u-s-debut-faster-peer-to-peer-payments-with-zelle.

[2] Libby Kane, *Robo-Advisors vs. Financial Advisors: Which Is Better for Your Money?*, BUSINESS INSIDER (July 21, 2014, 4:40 PM), http://www.businessinsider.com/robo-advisors-vs-financial-advisors-2014-7.

[3] Oliver Ralph, *Ten Fintech Start-Ups That Are Causing a Stir In Insurance*, FINANCIAL TIMES (October 2, 2016), https://www.ft.com/content/db833e5a-6eb1-11e6-a0c9-1365ce54b926.

[4] Tracy Alloway & Matt Scully, *Wall Street's Thinking About Creating Derivatives on Peer-to-Peer Loans*, BLOOMBERG (April 30, 2015, 7:30 PM), https://www.bloomberg.com/news/articles/2015-04-30/wall-street-s-latest-craze-meets-small-short-in-new-derivatives.

[5] Arjun Kharpal, *Barclays Used Blockchain Tech to Trade Derivatives*, CNBC (April 19, 2016, 6:37 AM), https://www.cnbc.com/2016/04/19/barclays-used-blockchain-tech-to-trade-derivatives.html.

[6] Under the JOBS Act, in particular, Congress mandated the creation of a new fintech intermediary, the crowdfunding portal, which refrains from, among other things offering investment advice or recommendations and soliciting purchases, sales, or offers to buy securities offered or displayed on its website. *Jumpstart Our Business Startups Act Frequently Asked Questions About Crowdfunding Intermediaries*, at https://www.sec.gov/divisions/marketreg/tmjobsact-crowdfundingintermediariesfaq.htm

[7] Here the CFTC is not the only regulator that has been tasked with helping to devise and foster a new market ecosystem—but it is the most important. The SEC similarly was charged with creating a new transactional environment for securities-based swaps, and a new Office for Financial Research was established at the Treasury Department which is working with regulators to establish harmonized data fields for swap data repositories, among other things.

Title VII of the Dodd Frank Act that most over-the-counter swaps be traded and processed on new exchange like (and electronic) platforms, that the swaps become subject to clearing, and that reporting of trades be made to actors that had not yet been invented—swap data repositories—to help house, and ideally sift and make sense of transactions and their relevance for financial stability.[8] These reforms would not only spur critical improvements—but also demand, in order for Congressional rules to be implemented, innovation by markets *and* the regulators overseeing them. And by design, these changes have impacted the culture of the sector, and the CFTC.

Fintech "now" vs. "then"

Despite the changes already being brought by fintech, commentators tend to view today's technological innovation as a mere continuation of a long-running story of change that has always inhabited our financial markets. But today's fintech *is*, in fact, different from its predecessors. For one, many of today's disruptors are upstarts, with less established and often untested business models and technologies. Second, fintech tends to rely more than ever on not just automated, but also digitally based operational systems. Finally, fintech actors pinpoint, and often disintermediate discrete points in the value chain of longstanding business processes, whether it be trade execution, capital surveillance, clearing, settlement or reporting (or a combination of the above). As such, varying collectivities of actors can operate simultaneously while pushing constant changes and alternations in financial ecosystems.

For policymakers, these features and dynamics can create a highly challenging terrain for regulatory oversight. With more actors, more upstarts, and varying levels of disintermediation in multiple value chains, the marketplace environment can be extremely complex. Furthermore, just as new technologies present the possibility for enormous value, and more competition, many remain untested, and under stress scenarios could by dint of poor programming, operational malfunctions or hacking undermine core regulatory mandates like financial stability and the protection of those who depend on derivatives markets for their financial security.

The CFTC's Regulatory Response

Several years ago, Mr. Gorfine and I identified varying tools available to regulators attempting to navigate the inevitable tradeoffs accompanying differing regulatory responses to innovation.[9] Among the categories of choices included:

- Principles vs. rules-based regulatory frameworks
- Market Experimentation vs. Pilot Testing
- Ex ante Engagement vs. Ex Post Enforcement
- Regulatory Diversification vs. Regulatory Harmonization

Below, the CFTC's regulatory approach, which introduces a series of initiatives for deeper information-gathering and engagement, reflects the fact that these institutional choices can be integrated with one another to expand the range of tools available to supervisors. Engagement with knowledge-based communities throughout the country via initiatives like GuidePoint can potentially complement the agency's traditional capacity building activities and surveillance. Flexibility, and the prospect of experimentation and data-gathering in CFTC2.0 need not operate in a vacuum, but can (and are) housed within the agency's legal department to help ensure proper procedural integrity and more precise guidance as information is collected. And DigitalReg highlights how best practices really are "best" when they include feedback from not only regulators and the market, but also end users, consumer groups,

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[8] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 901, 124 Stat. 1822 (2010).
[9] C. Brummer & D. Gorfine, Fintech: Building a 21st-Century Regulator's Toolkit (Milken Institute, 2014), http://assets1c.milkeninstitute.org/assets/Publication/Viewpoint/PDF/3.14-FinTech-Reg-Toolkit-NEW.pdf.

academic institutions and international peers. In its sum, the announcement works within, but along a greater spectrum of strategies with the goal of positioning the agency to be as agile and forward looking as possible in order to better anticipate cutting-edge risks and opportunities facing financial markets.

I should caution, however, that getting this kind of policy mix right will not always be easy—and the stakes are high. Some changes in markets arise at the margins, and merely accelerate existing trends. But many of today's most ambitious fintech innovations raise the possibility (and for some, the probability) of disrupting some of the most central players in financial markets. This, by extension, raises concerns for systemic risk and instability should new technologies fail to operate as planned. Furthermore, complex technological systems can create new risks to market integrity—from breaches in cybersecurity to operational risks in software and automatized technologies that can undermine confidence in markets, and the willingness of farmers, ranchers and other end users to rely on the innovations for the financial services they need.

But it is precisely due to these risks that the need for a forward looking regulatory framework is especially urgent. To supervise effectively, efficiently, and prudently regulators have to know and understand what they are regulating. Existing tools—from draft proposals to notice and comment rulemaking—are helpful, and provide glimpses of the impact of potential regulations, but are also pervaded by high stakes, one-shot rulemaking. They also do not necessarily generate more information where it is by definition limited (as is often the case in novel technologies). Consequently, poor decisions can become embedded and locked into regulatory designs. Commentators have thus increasingly recognized that developing a larger toolbox of strategies becomes necessary as innovation accelerates, and the CFTC joins other agencies searching for those most relevant to its mandate and mission.

At the same time, it is critical that the agency's experimentation be understood and operationalized as a response to 21st century markets, and not a means to create needless loopholes for untested technologies. Indeed, earlier calls for innovation, untethered to strong oversight and surveillance, have resulted before in improperly supervised markets with disastrous consequences for the economy. Instead, vigilance—and an adequate budget to rigorously test, gather and analyze data—will be required to maintain a robust regulatory perimeter while facing the fast-approaching future.

FinTech Innovation: Building a 21st Century Regulator‡

Daniel Gorfine

U.S. CFTC Chief Innovation Officer & Director, LabCFTC

Introduction

In May of this year, U.S. Commodity Futures Trading Commission (CFTC) Chairman Chris Giancarlo announced the launch of LabCFTC at the New York Stock Exchange alongside the Partnership Fund for New York City and the New York FinTech Innovation Lab.[1] Soon after this announcement, I was named Chief Innovation Officer and Director, LabCFTC, with the primary task of building out the LabCFTC initiative and furthering Commission efforts to make the CFTC a 21st century regulator for our 21st century digital markets.

Accomplishing this task, however, requires careful consideration, engagement with forward-looking thinkers, and a commitment to learn from experience and evolving regulatory best practices in facilitating market-enhancing innovation. So in this *Issue Brief*, I attempt here to outline details around our thinking at the CFTC regarding FinTech innovation and the role of LabCFTC. We are excited to share a number of current and forthcoming projects, and believe that our efforts, combined with those of our domestic and international peers,[2] can help to establish a model or blueprint for how to build a modern 21st century financial regulator. These efforts, we believe, are not optional, but necessary, given the pace and nature of change taking place in financial markets as a result of technology-driven innovation.

This *Issue Brief* is accordingly divided into four sections. First, I detail the launch of LabCFTC to provide context for our fintech initiative. Next, I build on Professor Brummer's and my prior work regarding the nature and characteristics of fintech innovation, and then make an assessment of the opportunities and challenges this type of innovation presents. Finally, I outline the CFTC's policy responses in light of these market and institutional features to underscore why now is the time to be proactive in developing modern regulatory tools, frameworks, and approaches.

‡ For a prior discussion of some of the ideas presented in this *Issue Brief*, please see remarks I made at the FIA Expo in Chicago, IL on October 19, 2017.

[1] Address of J. Christopher Giancarlo to the New York FinTech Innovation Lab, "LabCFTC: Engaging Innovators in Digital Financial Markets," May 17, 2017 [hereinafter "Giancarlo Speech"], available at http://www.cftc.gov/PressRoom/SpeechesTestimony/opagiancarlo-23.

[2] *See generally*, U.S. Office of the Comptroller of the Currency, *OCC Issues Responsible Innovation Framework* (Oct. 2016), available at https://www.occ.gov/news-issuances/news-releases/2016/nr-occ-2016-135.html; U.S. Consumer Financial Protection Bureau, *CFPB Launches Project Catalyst to Spur Consumer-Friendly Innovation* (Nov. 14, 2012); U.K. Financial Conduct Authority, *Innovation Hub now open for business, says FCA* (Oct. 2014), available at https://www.fca.org.uk/news/press-releases/innovation-hub-now-open-business-says-fca.

The Launch of LabCFTC

The mission of the Commodity Futures Trading Commission (CFTC) is to foster open, transparent, competitive, and financially sound markets.[3] The agency oversees markets vital to supporting the transfer of risk between market participants and by extension to the stability and reliability of real-world economic activity, ranging from the production and provision of gasoline for our cars, to the availability of credit for our purchases, and the offering of produce in our grocery stores.[4]

As one might expect, the agency's work has always included a heavy focus on agricultural products like wheat and corn, and even precious metals. But with the launch of technology-related initiatives, it's worth asking how do we now find ourselves making the jump from traditional commodities and risk transfer to topics like big data, bitcoin and artificial intelligence?

The answer is that financial markets are fast-evolving and this has changed the way market participants interact, trades are formulated and processed, risk is assessed and hedged, and business operations are executed. No longer do market participants rely on face to face interactions, or filing cabinets, lock boxes, and fax machines. Instead, markets have become increasingly electronic, digital, and interconnected. Underpinning these changes are advances in technology, which in turn challenge underlying assumptions about markets, market participants, and their functions.

Given this dynamic, Chairman Chris Giancarlo announced when unveiling the LabCFTC initiative in New York earlier this year that the CFTC can no longer be an analog regulator in an increasingly digital world.[5] The Chairman's remarks resonated strongly with me, especially given the critical role that policy and regulation play in facilitating market-enhancing innovation and ensuring market integrity. In my view, we in government can only accomplish these objectives when we have up-to-date and appropriate tools, understanding, and regulatory approaches to deploy. It is this belief that serves as the predicate for the establishment of LabCFTC.

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[3] *See* U.S. CFTC, *CFTC Mission Statement*, available at http://www.cftc.gov/About/MissionResponsibilities/index.htm.

[4] *See generally*, Bruce Tuckman, *Derivatives: Understanding Their Usefulness and Their Role in the Financial Crisis*, J. of Applied Corp. Fin. Vol 28, No. 1 (Winter 2016).

[5] *See* Giancarlo Speech. Specifically, Chairman Giancarlo has tasked the LabCFTC with, in his words:

> *"bridg[ing] the gap from where we are today to where we need to be -- Twenty-First century regulation for 21st century digital markets. LabCFTC will help the CFTC:*
>
> - *cultivate a regulatory culture of forward thinking;*
> - *become more accessible to emerging technology innovators;*
> - *discover ways to harness and benefit from FinTech innovation; and*
> - *become more responsive to our rapidly changing markets".*

What is FinTech and What Makes It Different?

A threshold question frequently asked, as in the prologue here, is what is FinTech, and how, if at all, is this different today from technology-driven innovation we have seen in financial markets and services for decades and certainly since the advent of the ATM or electronic trading platforms?

FinTech innovation today covers broad swaths of financial services and markets -- ranging from efforts to disrupt components of retail banking and wealth management to aspects of capital markets, trading, and market infrastructure.[6] On the retail-facing side, Fintech innovations are occurring across platforms involving:

- Payments;
- Lending;
- Crowdfunding;
- Virtual Currencies;
- Open Data and Finance Analytics; and
- Robo-Advisory.

Meanwhile, on the capital markets side of the spectrum, including the markets regulated by the CFTC, we are witnessing significant activity involving:

- Distributed Ledger and Blockchain Technologies (including virtual currencies);
- Smart Contracts;
- Artificial Intelligence and Machine Learning;
- Predictive Data Analytics;
- Algorithmic Trading;
- Cloud Computing;
- Digital Identity; and
- RegTech (or technologies that can enhance or improve compliance and oversight activities).

It may seem elementary – though should not be understated – that one critical common thread running through these nodes of innovation is the central role of the internet (and frequently related mobile technology), which has over time helped to transform aspects of nearly every major industry in our modern economy. Through the internet, more people are connected to information, opportunities, services and products—and with more ease and greater speed—than ever before. This is not only transforming the delivery of groceries and mass communications, but is also reconfiguring the structure and activity within financial markets.

[6] See Christophe Williams, *What is FinTech?*, Wharton FinTech Club Blog (Feb. 16, 2016), available at https://www.whartonfintech.org/blog-archive/2016/2/16/what-is-fintech.

Yet the internet is not the only common thread. Other characteristics or trends that are common across many, though not necessarily all, of these innovations, and which may be relevant to policymakers include:[7]

1. **The Rapid Pace of Innovation and Adoption**. Exponential increases in computing and programming power over the past decades,[8] combined with rapidly decreasing computing costs, have contributed to the simultaneous increase in the pace and impact of innovation. Increasingly fast and interconnected computer systems permit rapid iteration and advances, while also driving frictionless popular adoption. For example, whereas a traditional brick-and-mortar enterprise would potentially take decades and thousands of employees to scale across geographic regions, a mobile application today can gain tens, if not hundreds, of thousands of users across geographic boundaries in little time at all.[9]

2. **The Disintermediation of Traditional Functions or Actors.** Financial innovations typically seek to transform the operations of traditional intermediaries or bypass them altogether. This characteristic can challenge regulators planning for a future where regulations will need to adapt to the new market realities. Whether one considers exchanges, clearinghouses, banks, broker/dealers, or financial and investment advisors, the functions these actors perform and the identity of those performing the functions are likely to evolve over time.

3. **The Industry Convergence Technology Drives**. New technologies and the internet often reduce the cost of entering new markets, and are accordingly driving increased competition between historically distinct industry sectors. For example, traditional financial institutions, telecom providers, technology companies, and startups are increasingly competing for the same set of users or customers.

4. **The Rise of Borderless Platforms**. The internet does not recognize traditional geographic boundaries and borders, and instead can allow platforms to scale rapidly across the world. This dynamic drives the need for greater regulatory collaboration, coordination, and harmonization in order to maximize the efficiency and scale benefits technology can provide.

5. **The Opportunity for Greater Inclusion and Access**. The scalability, efficiency, and lower transaction costs common with many FinTech innovations – largely made possible by the internet and mobile – hold significant promise in promoting financial inclusion and increasing access.

[7] Substantial portions of the below are derived from the following publication – Chris Brummer & Daniel Gorfine, FinTech: *Building a 21st-Century Regulator's Toolkit*, Milken Institute (Oct. 21, 2014), available at http://www.milkeninstitute.org/publications/view/665.

[8] *See* Harald Bauer, Jan Veira, and Florian Weig, *Moore's Law: Repeal or Renewal?,* McKinsey & Company (December 2013), available at http://www.mckinsey.com/insights/high_tech_telecoms_internet/moores_law_repeal_or_renewal.

[9] See, e.g., Rani Molla, *Venmo users sent $8 billion last quarter — twice as much as a year ag*o, recode (July 26, 2017), available at https://www.recode.net/2017/7/26/16044528/venmo-8-billion-transaction-volume-growth-rate-chart.

Through the use of a computer or mobile device individuals around the world are able to secure financial services or participate in markets they might otherwise not have been able to access.[10]

6. **The Need for Greater Technological Literacy**. Computer scientists and data scientists are playing a greater role than ever in financial markets and services.[11] Technology and software are powering transactions and increasingly automating key operational functions. This dynamic increases the need for leaders in industry and government to ensure that they have the requisite technological literacy to remain apprised and in control of rapidly evolving business models.

Opportunities and Challenges FinTech Innovation Presents

There is little doubt that many FinTech innovations have the potential to—and already are — enhancing markets and improving services to the benefit of the American public. Whether the benefit is increased efficiency, lower transaction costs, improved compliance, enhanced transparency, improved access, faster speed, increased certainty, enhanced analytic and predictive power, or the more efficient flow of capital to productive use, our society stands to transform and improve based on such innovation.

In the case of distributed ledger and blockchain technologies, for example, new innovations hold promise in improving clearing and settlement processes, facilitating regulatory reporting, and even transforming information capture, delivery, and analytics capabilities. We are also intrigued by their ability to power smart (or self-executing) contracts, which can incorporate compliance provisions and potentially decrease execution risks. The cloud, meanwhile, is allowing data to flow seamlessly and at lower cost, which is helping to develop a surrounding ecosystem of innovation and analytics. All the while, in the related fields of automation, machine learning, and artificial intelligence, we see the potential for smart and predictive systems to improve outcomes based on data – whether in health, manufacturing, or financial markets.

These innovations are not without their new challenges or risks, however.[12] The disintermediation of traditional actors or their functions will strain rules and regulations written for a different era. Proper recognition of new and emerging actors in markets will necessitate regulatory consideration. And new hazards will emerge or increase in prominence, whether around data security and cybersecurity, system governance and accountability, or new asset classes, including those in the virtual realm.

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[10] *See* Kristalina Georgieva, *Digital financial inclusion: what works and what's next*, The World Bank Blog (June 29, 2017), available at https://blogs.worldbank.org/voices/digital-financial-inclusion-what-works-and-what-s-next.

[11] *See* Jonathan Marino, *Goldman Sachs is a Tech Company*, Bloomberg (Apr. 12, 2015), available at http://www.businessinsider.com/goldman-sachs-has-more-engineers-than-facebook-2015-4 (noting that more than 25% of Goldman Sachs employees are software engineers, and that the total number of such staff exceeds numbers at Facebook).

[12] For a recent exploration of varying kinds of potential tradeoffs embedded in regulatory decision-making when grappling with these risks, see C. Brummer & Yesha Yadav, *The Fintech Trilemma* (Vanderbilt University Law School Legal Studies Research Paper Series, Research Paper No. 17-46, 2017), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3054770.

Building a 21st Century Regulator

With this backdrop of innovation, opportunity, and new challenges, what does it mean for a regulator to be fit for purpose? How can we keep pace with change, facilitate market-enhancing innovation, ensure market integrity, and proactively plan for where our markets are heading?

Our vision is that LabCFTC can help develop a blueprint or model for building a 21st century regulator. Chairman Giancarlo housed this initiative within our Office of General Counsel so that LabCFTC can leverage its deep bench of expertise to help manage the interface between technological engagement and innovation, regulatory modernization, and existing rules and regulations. The initiative is designed to make the CFTC more accessible to FinTech innovators, inform the Commission's understanding and incorporation of emerging technologies, and serve as a focal point for the development and implementation of regulatory policy within the FinTech space. Collectively, LabCFTC's innovation outreach and policy shaping efforts will provide greater regulatory certainty and support that encourages the deployment of market-enhancing technology, ensures market integrity, and helps make the CFTC to be more effective and efficient in performing its mission.

To achieve its goals, the LabCFTC initiative has three core components:

First, what we call '**Guide Point'** is our newly established dedicated point of contact for FinTech innovators to engage with the CFTC, learn about the CFTC's regulatory framework, and obtain feedback. Such feedback and discourse may provide innovators with valuable information that could help them save time and resources. Guide Point is also the conduit for innovators to identify potential friction or uncertainty in existing rules that may, if appropriate, be addressed by working with our colleagues across our divisions to leverage proper regulatory tools, including no-action relief, Guidance, or rulemakings. Internally, the value proposition beyond facilitating innovation is for us as an Agency to learn and better understand emerging technologies, as well as proactively consider potential regulatory opportunities, challenges, and risks.

Second, LabCFTC's **'CFTC 2.0'** fosters the understanding, testing, and potential adoption of new technology that can make the Commission a more effective and efficient regulator. While US regulators do not currently appear to have the same ability or authority to engage in certain sandbox or proof of concept trials as do our counterparts in other parts of the world, we will continue to explore all avenues and regulatory tools that permit us to 'kick the tires' and truly understand emerging technologies and systems. We will accordingly strive to support and stimulate innovation through prize competitions that can solve public policy challenges. Ultimately, our understanding and potential incorporation of these technologies will be critical in our keeping pace with innovation and markets.

Finally, LabCFTC's **'DigitalReg'** is designed to support the Commission's effort to build a 21st century regulator and regulatory framework. In light of rapidly evolving technology, DigitalReg will help the Commission identify and develop regulatory tools, approaches, and culture that promote market-enhancing innovation and satisfy key regulatory objectives. DigitalReg will serve as a CFTC-wide internal resource to help educate CFTC staff on Fintech-related developments. After all, there is no greater multiplier effect on the ability to impact the culture and thinking of an organization than through its people. DigitalReg will also act as a hub to help the Commission coordinate with other U.S. and international regulatory authorities, and engage with external organizations, including academic institutions and think tanks, in order to share best practices and help drive FinTech related research.

Executing on the Vision

Our plan for LabCFTC and transforming into a 21st century regulator is we believe a bold one, but the need is real and the time is ripe. We will be executing on this vision and our evolving policy framework through various vectors and regulatory tools, including:

- **Engagement.** Since the LabCFTC initiative was launched, we have already held multiple office hour sessions with innovators in New York City, Chicago, and Washington, D.C. We look forward to visiting Silicon Valley, Austin, and Boston early in 2018. In total, we have met with over 100 entities ranging from startup to established financial institution to leading technology companies. This form of engagement with innovators is our bread-and-butter, and the mechanism that provides us with the knowledge, questions, and insights that drive our broader work. We will be sharing some of our aggregated learnings about emerging technologies and related regulatory opportunities and challenges through regular publications, including an annual white paper.

- **LabCFTC Primers.** Underscoring this approach, we were pleased to recently release our first "LabCFTC Primer" on the topic of virtual currencies. The primer seeks to: (1) provide a brief overview of virtual currencies; (2) explain the CFTC's role in overseeing this space; and (3) educate the public on potential risks or challenges. It is our belief that publications like this one, adhering to a similar format, on emerging innovations and technologies can educate the public, add clarity and certainty to the market, and provide a high-level roadmap regarding the CFTC's thinking. We intend to publish a series of primers regarding other FinTech innovations.

- **Prize Competitions.** Next, in-line with our mission of fostering market-enhancing innovation, we will soon be seeking public feedback regarding a series of innovation prize competitions we intend to begin in 2018 under the authority we are provided by the Science Prize Competition Act.[13] These competitions will afford us the ability to spur innovation that can solve public policy challenges and enhance our markets. Such competitions may involve, for example, novel ways to use or share data, make our rules machine readable (i.e. develop a "robo rulebook"), or build a more dynamic, digital, and "smart" notice-and-comment platform.

- **Internal Educational Resource.** Our next project underway involves building out educational tools for our colleagues within the agency in order to help keep all of us up-to-date on emerging technologies. This will allow us to be sure we remain ahead of market developments and have in our regulatory toolkit thoughtful approaches to innovation. For example, we will be prepared to think about the principles verse rules spectrum in rulemaking, and determine when erring towards one end of the spectrum or other might be appropriate in encouraging the development of a nascent space as compared to prescribing particular behavior. Indeed, the Commission's

[13] 15 U.S.C. § 3719.

amendment to its recordkeeping requirements earlier this year is a good example of ensuring that rules are permissive of evolving technologies and standards, when appropriate.[14]

- **Regulator Collaboration.** Next, we see significant opportunity to formalize our collaboration efforts with international and domestic regulators who are similarly focused on facilitating market-enhancing innovation. These relationships may foster information-sharing on market trends and developments, permit "warm handoffs" of innovators, and facilitate learnings from regulatory sandbox, prize competition, and proof of concept activities.

- **Advisory Committee.** Finally, we are excited to have the work of LabCFTC supported and augmented by the recently restarted Technology Advisory Committee (TAC).[15] The TAC advises the CFTC on technological innovations in the markets and the appropriate regulatory response to those advances. The TAC will be comprised of industry leaders and subject matter experts who will make recommendations to the CFTC, and further underscores the Commission's commitment to leveraging appropriate regulatory tools and resources in order to become a 21st century regulator in increasingly digital markets.

Conclusion

Ultimately, the blueprint outlined above is our starting point, but as with all innovative efforts we intend to learn and iterate in order to best accomplish our regulatory goals. Moreover, even as we implement our framework, markets will continue to evolve, as will the underlying technologies. So we, too, plan to evolve, by developing legal and regulatory expectations and expertise with adaptability and engagement, and learning opportunities with piloting and experimentation. As this process unfolds, we look forward to continuing to hear from you – innovators, market participants, and regulatory stakeholders – and to sharing our findings as we advance our work.

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[14] *See* Press Release, U.S. Comm. Fut. Trading Comm'n, *CFTC Unanimously Approves Amendments to Recordkeeping Requirements* (May 23, 2017), available at http://www.cftc.gov/PressRoom/PressReleases/pr7562-17.

[15] Press Release, U.S. Comm. Fut. Trading Comm'n, *Commissioner Quintenz Named Sponsor of the Technology Advisory Committee* (Sept. 18, 2017), available at http://dc2kt11.cftc.gov:8080/PressRoom/PressReleases/pr7611-17.