

Response to Request for Input on LabCFTC Prize Competitions

SUBMITTED BY:

Jo Ann Barefoot
CEO, Barefoot Innovation Group
Cofounder, Hummingbird RegTech

I am pleased to submit this letter in response to the Commodity Futures Trading Commission (CFTC) Request for Input on the LabCFTC Prize Competitions.

The CFTC has brought impressive leadership to the challenge of using new technology to modernize financial regulation to make it both more effective and efficient. In particular, the LabCFTC initiative is exploring a wide range of new concepts that are a model for regulators everywhere. I want to commend the Commission for undertaking the Science Prize Competition Act (SPCA) as part of this effort and for soliciting public input on how best to leverage this resource to promote technology-based regulatory innovation.

My comments are based on my extensive experience with financial regulation and regulatory innovation, including work with regulators and central banks, financial industry leaders, and nonprofit organizations in the United States and around the world. I am a former U.S. Deputy Comptroller of the Currency and have served on the staff of the U.S. Senate Committee on Banking, Housing, and Urban Affairs. I have been a long-time consultant on regulatory matters, including as a partner and managing director at KPMG. I am a past member of the Consumer Advisory Board of the Bureau of Consumer Financial Protection and currently serve on the FinTech Industry Committee for FINRA and the Milken Institute Fintech Advisory Committee. For two years I was a Senior Fellow at the Harvard Kennedy School Center for Business and Government, writing a book and series of papers on financial regulation innovation. I host a global podcast show on financial and regulatory issues, Barefoot Innovation (which has been privileged to have both CFTC Chairman Giancarlo and LabCFTC head Daniel Gorfine as guests).

It is clear that today's technology is creating an unprecedented potential to make regulatory activities highly effective while at the same time containing and even sharply reducing costs. Driving this change is the fact that both finance and financial regulation are transitioning from the analog era, in which processes and structures were originally designed on paper, into the digital age. As with anything that is digitized, finance and regulation will become better, faster, and cheaper, if the regulatory response can be optimized.

However, converting the current legal and regulatory framework to a digitized approach will be highly challenging due to the complexity of the system and the many critical

issues at stake. One lesson being learned by regulators throughout the world is that this process requires creation of mechanisms through which regulators can conduct experimentation and testing of new concepts and tools. This is necessary mainly as means of rapid learning, as technology change is accelerating exponentially, outstripping the linear processes through which regulators normally examine new issues and take action. A global trend is underway with regulators adopting "labs" and "sandboxes," many of which are similar in design to LabCFTC.

Science prize competitions can be invaluable in fostering this kind of environment. I urge you to consider the following areas for focus (many of which are interrelated).

Recommendations for Program Design

Regarding how best to design the competitions overall, here are several thoughts:

Emphasize “lab” type experimentation and help shape best practice. LabCFTC has made an excellent start in using experimentation to study both industry trends and “regtech” technology for its own use. I urge use of the SPCA approach to seek input on how best to design the most effective possible program. The key is to create a “safe space” in which new technology can be tested in a controlled environment where participants will not face regulatory or legal risks, and where any problems and risks that arise can be contained at small scale and, where necessary, fully remedied. Labs should increasingly have mechanisms for feeding learnings into new, clear regulatory guidance for other businesses interested in the same innovations.

Emphasize interagency approaches. The multi-agency regulatory structure in the US is a major impediment to updating regulation as technology changes, and may even put the US at a global disadvantage in fostering financial innovation. I urge the Commission to design the science prize competitions, where possible, in cooperation with other agencies that share in addressing the issues involved.

Conduct “tech sprints” and hackathons. Particularly for regtech, the CFTC should consider conducting some prize competitions as hackathon-style events. In this format, the Commission would bring together participants who have the relevant business, regulatory and technology expertise, for a period of time -- typically several days. The participants would form competitive teams and work together, on site, to tackle a specific issue and produce proposed solutions, including a start on computer coding. The UK Financial Conduct Authority (FCA) has developed a model for this, which they call Tech Sprints, and finding it very valuable in generating new ideas, momentum, and resources.

Draw lessons from other models: The Securities and Exchange Commission and FINRA are applying machine learning to securities markets in the US. The FCA has been highly advanced in its regulation innovation work, as have the Monetary Authority of Singapore and the Australian Securities and Investment Commission.

Emphasize solutions that could be implemented gradually and voluntarily as an alternative track. A major impediment to modernizing financial regulation and compliance is the fact that the financial regulatory system is highly complex, and that changes therefore often impose high implementation and transition costs. This sometimes leads the financial industry to oppose reforms even if they would be positive, as the improvements might not outweigh the expense and difficulty of adopting them. One partial solution to this is to develop some situations where regulated entities could choose between traditional regulatory processes and adoption of a new technology-based alternative. The latter would start small, as most successful innovation does, and could be refined over time, eventually evolving into mainstream regulatory methods. Science prize proposals that would facilitate this kind of transition design should be encouraged.

Topic Areas

Regarding topics to explore through the competitions, I suggest the following:

Machine-readable regulation. Extensive work is underway by both regulators and regtech companies throughout the world to make regulations machine-readable. This is a highly promising way to reduce regulatory costs, confusion, and errors, which would in turn reduce the risk that regulatory expense and uncertainty will chill financial competition and innovation.

Machine-executable regulation, especially for regulatory reporting. My work at Harvard included exploration of the potential for issuing some regulations in the form of computer code. The FCA conducted a successful experiment with this concept in November of 2017. In my view, it is the most potentially transformative innovation yet identified in the regulatory arena and I would urge further experimentation.

The FCA's experiment focused on modernizing regulatory reporting processes, which is a particularly promising use case for machine-executable regulation. A growing body of work suggests that both industry and government could save massive amounts of time and resources if some reporting were shifted into a mode where regulators could issue a block of computer code that, when applied to the reporting entity's data, would automatically produce correct reports. Clearly a system like this would raise many complications, but it deserves to be explored. Not only could it save costs, but it could greatly enhance regulators' visibility into markets by enabling them to see complete and real-time data, rather than relying on periodic and partial reporting as is typical today.

Other reporting innovation. Even without adoption of a machine-executable approach, the CFTC should explore enabling reporting entities to connect directly with the Commission through an API. As noted above, this would enable real-time and full-scope access to data. Such an approach could be instituted, at least initially, as an option for

the industry, allowing time for the CFTC to refine the process and also avoiding the disruptive transition challenges that accompany any system-wide change in reporting requirements.

If this approach is adopted, it would be essential for the Commission to develop and communicate clear standards as to what kinds of data patterns and outcomes are acceptable in order to encourage adoption. Ideally, the standards would be designed to offer the equivalent of a “safe harbor,” enabling reporting entities to be confident in whether they are properly meeting requirements.

Outcomes-based regulation with metrics. A related concept is to shift regulation wherever possible to outcomes-based frameworks that include objective metrics based on rich data, as opposed to process-oriented rules. An excellent competition would be to propose ways to articulate quantifiable outcomes standards in key areas, and ways to measure performance against them.

This could include identifying one or more key areas in which the Commission believes that new technology could largely “solve” longstanding or intractable problems, and designing an ambitious, measurable goal for achieving the solution over a specified period of years. Such a step can galvanize collective effort around achieving important objectives.

Machine learning for market monitoring. I urge the CFTC to run experiments on use of machine learning and behavior modeling to detect potential signs of market misconduct and instability, as a means of prioritizing areas needing closer scrutiny through traditional methods. Again, the SEC is employing these kinds of methods.

Differential privacy and homomorphic encryption. Another highly promising innovation is the emergence of technologies that can analyze data that has been detached from personally-identifiable information, to detect patterns that may indicate problems like market misconduct, systemic risk, and money laundering. Exploration is underway on use of “differential privacy” and the related concept of homomorphic encryption. These methods can enable regulators to use machine learning to review large sets of data, without risk of compromising individuals’ privacy. Under such a system, computers analyze data without “knowing” whose it is. If potentially problematic patterns are found, regulators can initiate a formal procedure to gain permission for its analysts to identify the parties involved and investigate further using traditional tools. This approach has the potential to leverage the power of new data and machine learning, while still safeguarding confidential information.

Regtech for the CFTC and industry. I encourage the Commission to establish mechanisms through which it can try out “regtech” solutions for its own use, outside of the formal procurement process, with appropriate safeguards and time limits for the experimental period. This may require changes in legislation, administrative procedures,

and procurement processes. As superior solutions are identified, they should be adopted by the Commission.

A related issue is that the agency should seek to foster adoption of regtech by the financial industry, with appropriate safeguards. Regtech usage is often constrained today by concerns about whether regulators will approve new methods, even if they are demonstrably superior.

Legal impediments to experimentation. The Commission might use the prize competition to invite proposed solutions for addressing the many current legal impediments to experimentation by the CFTC and other U.S. regulatory bodies. While the research itself would not be science-based, it could significantly advance science innovation goals in market regulation.

Again, I appreciate the opportunity to comment on these matters and commend the CFTC for its vision and leadership in bringing innovative technology into the regulatory and compliance arena in finance.