FINANCIAL CONDUCT AUTHORITY

Fostering innovation through collaboration:
The evolution of the FCA TechSprint Approach

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1 Introduction

1.1 Our strategic objective is to ensure that the relevant markets function well and our operational objectives are to:

- protect consumers – we secure an appropriate degree of protection for consumers
- protect financial markets – we protect and enhance the integrity of the UK financial system
- promote competition – we promote effective competition in the interests of consumers

1.2 An essential component and key driver of effective competition is innovation. In addition to providing inventive solutions to meet consumers' needs, innovation enables agile start-ups to challenge incumbents, while driving incumbents to compete harder to retain customers. Innovation can also help to reduce standard operating costs and as a result reduce barriers to new entrants. As a regulator, we have developed a variety of tools to foster an innovation friendly environment and culture in the UK.

1.3 Innovation is an important area for us, now more than ever, because its disruptive potential is so strong. With the volume of Fintech investment now at $80 billion and RegTech at $4.5 billion per year globally, the financial industry is already in the midst of rapid technological-driven change.

1.4 Through initiatives such as the Regulatory Sandbox, Direct Support and the Advice Unit, we have been able to accelerate and improve responsible innovation. This has helped us fulfil our operational and strategic objectives by generating more positive outcomes for consumers. But beyond this, we also have a unique convening power to shape the direction of innovation, both in areas of technology and where wider issues persist in the market. This report looks at an element of our innovation toolkit that has enabled us to achieve this, and which has attracted a great deal of international interest; the TechSprint.

1.5 In this report, we explain our TechSprint model, and how it has evolved over time. As the first regulator to host such an event and with the experience of 7 TechSprints, we are often asked to share our learnings, particularly with other regulators within both the UK and globally. We are keen to support global innovation. We chair the International Organization of Securities Commissions (IOSCO) FinTech Network and the Global Financial Innovation Network (GFIN); a network of 57 organisations committed to supporting financial innovation in the interests of consumers. In the spirit of collaboration, we are sharing our TechSprint insights, learnings and best practice to support regulatory peers to undertake effective collaborative ideation and innovation efforts in their markets.

1.6 We also provide an evaluation of our TechSprint model and note some areas where we are working to further develop and improve our approach in the context of our wider efforts to foster sustainable and desirable innovation in financial markets. Through case studies we have illustrated key points, learnings and provided added information and insights that we hope will help others who are thinking of adopting a similar approach.

2 TechSprints – A brief history

2.1 In 2015, we created a small RegTech team and began to shape our initial understanding of the current state of RegTech innovation in the UK, as well as the challenges faced by firms involved, or attempting to become involved. Through responses to our Call for Input in 2016 and increased engagement on RegTech, it was clear that we might be able to use our convening powers to good effect. What was not clear was what approach would be most effective. Traditional approaches such as convening roundtables or conferences did not seem most appropriate for the proposed purpose.

2.2 Hackathons were becoming increasingly popular and we had seen that they were being used to good effect elsewhere. Traditionally, a Hackathon is a technology focused design sprint, bringing together computer programmers, interface designers, domain experts etc, to collaborate intensively over a short period of time on a software project. This seemed like an approach that we could adapt and apply to regulatory issues and we decided to trial the model.

2.3 It was important to start small to test the model and to start developing a blueprint that could be evolved and improved over time. As a first mover, we were aware that we were taking some risks. Our first TechSprint, held in April 2016, focussed on consumer access and consisted of 40 participants from across 10 organisations. In contrast, our largest TechSprint involved around 200 active participants from 80 organisations. For our most recent, the second AML and Financial Crime TechSprint, the TechSprint was run in parallel in two locations; London and Washington DC.

2.4 Each TechSprint is organised so as to comply with competition law and our regulatory principles, which ensure we are fair and transparent in our approach.

2.5 To adopt consistent practice, we use these working principles, for TechSprints as well as Proof of Concepts and engagement with the eco-system:

- The solution or approach should enhance a firm's regulatory compliance outcomes, or promote enhanced outcomes for consumers.
- The initiative is led by industry, characterised by multi-firm collaboration and participation.
- The solution is developed in an open and transparent manner.
- The initiative is made public, ensuring that other participants with genuine interest and contributions to make can be involved.
- We can participate in the discussion, but are not being asked to endorse the solutions developed.
- Experimentation and the learnings this provides are of value and should be facilitated where possible.

2.6 Being consistent, from issuing open invites to ensuring that the teams are mixed, has meant that we create a fair and transparent approach.

2.7 Our approach has developed over time. As we developed each TechSprint we refined the model including key components such as how we approached team formation. We have also extended the TechSprints over time, to include wider events and activities which are not common aspects of hackathons. These have been developed to broaden

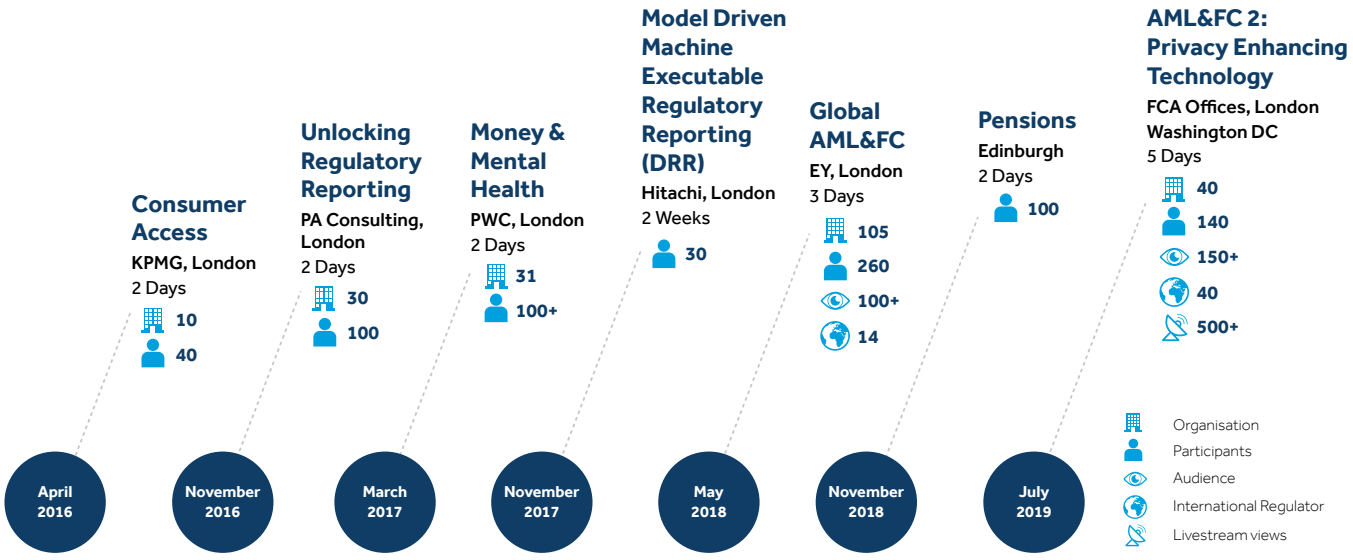
engagement and deepen industry and society's understanding of the use cases and problems the sprints seek to address and the nascent technologies which may offer solutions. As the model has evolved, the engagement element has become a key part of the event. Particularly where there is an International interest, we've looked for ways to share the event and invite diverse views and opinions.

2.8 Detailed information can be found on our website for each TechSprints and serves to highlight the evolution of our communications, from basic information to supporting videos and recordings of the final day demos.

- Event 1: Consumer Access TechSprint
- Event 2: Unlocking regulatory reporting TechSprint
- Event 3: Financial services and mental health TechSprint
- Event 4: Model driven machine executable regulatory reporting TechSprint
- Event 5: AML & Financial Crime International TechSprint
- Event 6: Pensions TechSprint
- Event 7: 2019 Global AML & Financial Crime TechSprint

2.9 Figure 1 also shows the evolution in terms of participation and complexity. By far our most complex and ambitious being the TechSprints focussed on AML and Financial crime, with large numbers of participants, live streaming and recording of solutions, and a wide-range of firms, organisations and regulators coming together from multiple continents. Each TechSprint has been unique as we have tested different elements or moved the dial on ambition.

Figure 1: FCA TechSprints



2.10 We have learned a great deal from each event, from developing a view of best practice on matters such as logistics, participant composition, use case definition, and critical success factors. Each iteration has developed the credibility of the TechSprint model and created a 'brand' for the events. This has given us the foundation to place a greater emphasis on outcomes and delivering long term value, and understand what are the key ingredients that give the TechSprint solutions and networks true longevity and value.

2.11 Although each TechSprint will have its own unique elements and nuances, the model lends itself to some core outcomes and objectives. Although these outcomes have evolved since the first TechSprint, where the main outcome was understanding the viability of the model, there is an element of all of these outcomes in each TechSprint.

Key TechSprint outcomes

- Profound and rapid learning for regulators, firms and others on the application and impact of emerging technology.
- Signals regulatory interest on an issue requiring industry-wide collaboration to progress.
- The scale of the event impacts beyond the TechSprint, resulting in increased regulatory, academic and market focus on a technology or issue.
- New partnerships and relationships are forged, powerful networks built across jurisdictions.
- The power of time-bound experimentation results in rapid development of prototype solutions. In time, these can be scaled and impact the market.

2.12 TechSprints quickly became the foundation of our RegTech approach and with each TechSprint we have attempted to challenge ourselves and raise the bar higher, focusing on outcomes that will produce a fundamental shift in the industry. This has meant adopting an evolutionary approach, the key learnings of which we share below.

3 TechSprint approach and key learnings

Problem and solution identification

3.1 A huge factor in determining the success of a TechSprint is accurately identifying a problem for which the TechSprint is an appropriate tool. The FCA's remit is wide, and at any given time there are a range of topics that we could choose to focus on. However, not all proposals make it to a TechSprint. Our most successful TechSprints have had a clear focus that has galvanised firms and tech companies alike, attracted academics and experts who are keen to help tackle an issue and have also piqued the interest of fellow regulators who are also looking for a solution. We focus on the 'wicked' industry problems that cannot be solved in isolation or without a critical mass of participants – such as modernising Regulatory Reporting across the industry, or examining how to enable financial firms to legally share data as a network to detect and prevent financial crime. A TechSprint requires a vast amount of talent and expertise to be diverted for days, if not weeks, and so it must be framed in a compelling way.

3.2 To ensure that a TechSprint is the right approach, we explore the following areas:

- Is technology the answer? Is there an emerging technology whose application could provide a novel approach?
- Is the problem of sufficient scale for a critical mass of participants? Is it a pain point for the entire industry, or a persistent issue for a sector that cannot be solved in isolation? Is progress towards solving the problem thwarted or evolving at an undesirably slow pace?
- What is the exit strategy for the prototype solutions post-event? Participants need incentives to continue development post-event, whether that is efficiency or effectiveness benefits for regulated firms, or commercial opportunities for vendors.
- Is the problem likely to motivate and inspire participants to work collaboratively in search of a solution? Is the problem complex or interesting? Is there a personal or emotional hook, or a human element such as protecting vulnerable groups which will motive participants?
- Is a TechSprint the right tool to tackle the root cause? Or would other options be more effective, such as regulatory clarity through guidance, or single firm support through a Regulatory Sandbox, or a technology showcase day?

3.3 Even if the criteria above are met, a TechSprint is a resource-intensive approach. There should be a compelling business case to justify the time and resource costs of the event.

Case study 1 – TechSprints to solve industry-wide problems

Model-driven machine-executable regulatory reporting TechSprint – November 2017
Regulatory reporting is vital for regulators to fulfil their objectives. Receiving data from firms is critical to our ability to effectively supervise, monitor financial markets and detect financial crime. But we know that firms face challenges in meeting these obligations, such as navigating potentially complex rulebooks, interpreting specific requirements and developing systems and processes for providing varied data for submission to regulators. These are challenges addressed across the industry (often unilaterally), resulting in costly processes and inefficiencies. Moreover, there is a risk that firms implement and codify these interpretations differently, resulting in inconsistent data submission to regulators.

In November 2016, we had held a TechSprint called 'Unlocking Regulatory Reporting' where we took an open approach, inviting ideas for revolutionising reporting. We believed that technology offered a potential solution to this problem and indeed this was the case. We had seen nascent examples of a regulatory requirement contained in the FCA Handbook being converted into a language that machines can understand. The idea then involved machines using that language, to execute a regulatory requirement, effectively pulling the required information directly from the firm.

Developing a prototype solution would require active input from a broad range of stakeholders: regulated firms, technologists, academics, policy makers and regulators. No single institution could attempt to solve this problem in isolation, and it required intensive co-operation between all parties to fully understand the range of challenges and potential application of technology. Convening a TechSprint to develop a PoC was the perfect vehicle to accelerate progress on an industry-wide problem.

It was also vital to target a use case that had clear benefits for all participants, creating a compelling business justification for continued PoC development. For example, the accuracy of data submissions could be improved benefitting regulators, firm reporting costs reduced, changes to regulatory requirements could be implemented more quickly, and a reduction in compliance overheads could lower barriers to entry and promote competition.

This TechSprint had a completely different structure to any other. Instead of teams competing against each other we had one team of around 40 working for two weeks on the solution, with a 15-minute demonstration at the end. There wasn't a competitive team dynamic and we didn't have prizes, however the compulsion to find a solution that would revolutionise the industry drove participants to commit time and resource for two weeks. Testament to this is the fact many are still invested in and developing the project over two years later.

Use cases

3.4 Once a compelling problem statement has been identified, we then articulate more granular use cases that form the bedrock of a TechSprint. This will inform the data, platforms, technology and expertise required for the event.

3.5 To create use cases, we work with a range of stakeholders and experts before the TechSprint to ensure that we accurately articulate the challenges faced in the market. In practical terms, we have hosted workshops and roundtables with regulated firms, engaged with trade bodies and consultancies, used research and surveys and conducted deep dives on particular issues to develop the use cases. Internally, SMEs from across the FCA with interest and expertise in the relevant domain work together in the planning stage.

3.6 Defining the use cases is one of the earliest steps in preparing for a TechSprint. While they can be refined over time, a clear articulation is needed to inform the next steps: ascertaining and procuring the data assets and technology required at the event, and seeking expressions of interest from likely participants and the wider public.

3.7 We have used 2 types of use case for our TechSprints. The first seeks to bring the problem statement to life through personas and real-life scenarios. These work well when the challenge is linked to consumer behaviour such as for our Pensions and Money and Mental Health TechSprints. Each case study was based on real-life scenarios and highlighted behaviour, barriers, challenges and current outcomes. An example from our Money and Mental Health TechSprint in March 2017 is included below for illustrative purposes.

Figure 2 – an example Persona used in the Money and Mental Health TechSprint

Steven

Steven has bipolar disorder. This condition means he may: struggle to process complex problems, such as comparing a range of products, worse during acute periods of illness; lack of self-restraint , may be impulsive; experience higher spending, particularly during manic periods but also during periods of depression; experience memory problems, which can make it harder to stay on top of a budget or pay bills on time.

Steven has bipolar disorder. His manic episodes are characterised by a lack of inhibition, meaning he makes impulsive decisions without considering the consequences.

In a recent manic episode Steven took out a number of online loans and credit cards in a short period of time to fund an ambitious plan to set up a new business, without weighing up the pros and cons.

Once recovered Steven reflects that during a manic episode he loses touch with the reality of money, all cash feels like monopoly money. He can't even remember the amount of money he borrowed.

"I felt an overwhelming sense of optimism, like I was destined for success and everything was bound to go my way."

Now Steven is recovered he is seeking to repay his debts, but wishes that the debt he is now facing could have been prevented. He is always on guard for early warning signs that he might be getting ill again. His mother also helps with this, and when she can, she provides his safety check, by simply discussing financial decisions. This is often enough to make Steven consider whether what he is doing is positive or potentially harmful.

"My mum helps with my decisions about big purchases, like a new camera or car, because she is better at telling whether I am manic or not"

Steven lives by himself though, so his mother isn't always there to play that role. However, he would never grant his mother full power of attorney as when he is well he feels able to manage his own money and life goes on.

3.8 The second type of use case formulation involves us setting out specific challenges within the problem statement. These are based on the outcomes we are trying to achieve, such as proving a theory or approach and are posed as a series of challenges/ questions rather than scenarios.

Case Study 2 – narrowly defined use cases on a particular set of technologies

AML and Financial Crime TechSprint (AML&FC)- July 2019
For the second AML and Financial Crime TechSprint, the use cases were narrowly focused on a set of specific technologies – Privacy Enhancing Technologies (PETs). PETs were identified as being of potential value in the first AML & Financial Crime TechSprint in July 2018. One of the barriers to identifying and impeding complex criminal networks is the ability to share data and knowledge across institutional and jurisdictional boundaries. Vital resources are often siloed within institutions, resulting in a global problem being tackled at an individual firm level.

In the months following the first AML&FC TechSprint, we identified PETs as a possible solution to enable more legal data sharing to support the fight against financial crime. We worked closely with a number of regulated firms and consultancies to precisely identify 4 PETs use cases.

Transaction Monitoring Distributed Analytics
How can a network of market participants use privacy enhancing technologies (PETs) and data analytics to interrogate financial transactions stored in databases within institutions to identify credible suspicions without compromising data privacy legislation?

Description:
Use technology (e.g. secure multi-party computation) to run analytics over separate nodes to identify patterns of transactions and behaviours and legally be able to benefit from the value of those data assets in the fight against financial crime.

Codification and dissemination of financial crime typologies by network participants
How can market participants rapidly and accurately codify typologies of crime, in a way that allows them to be quickly disseminated and implemented by other market participants in their financial crime controls.

Description:
How can crime typologies from data sources such as unstructured data, SARs, tacit knowledge or transactions, be codified and shared efficiently. Need to work on process or standardisation of crime typologies and/or network topologies, that can easily be shared and implemented by others on the network.

Privacy enabled KYC Data Sharing
How can a market participant check that the company or individual they are performing due diligence on hasn't raised flags or concerns within another market participant, and/or verify that the data elements they have for the company or individual match those held by another market participant?

Description:
Using PETs such as Zero Knowledge Proofs to compare information between firms on suspicious actors without exchanging or showing the underlying data. Data privacy and money laundering legislation also needs to be considered in parallel to this use case.

Registry Data Reconciliation (UBO)
How can technology be used to assist in identifying an ultimate beneficiary owner (UBO) across a network of market participants and a national register?

Description:
Use technology such as AI, machine learning, fuzzy logic, to identify and differentiate between different data register entries for the same beneficial owner or controlling person.

This was the first time that we had focused on a specific group of technologies rather than inviting a wide range of solutions from participants. Focusing in this way provided an opportunity for us and other participants to learn more about a nascent technology area and meant that the TechSprint had a clear focus which expanded on the outcomes of the previous TechSprint rather than revisiting the original scope.

Choosing to focus the use cases around a specific technology will impact the nature of the event. The technology was relatively nascent, intellectual property was highly valued, and participants informed us that this was the highest-profile exploration and potential to demonstrate those technologies to regulators, regulated firms and others that they'd ever been involved in. To a degree, we saw a more competitive event at the expense of collaboration.

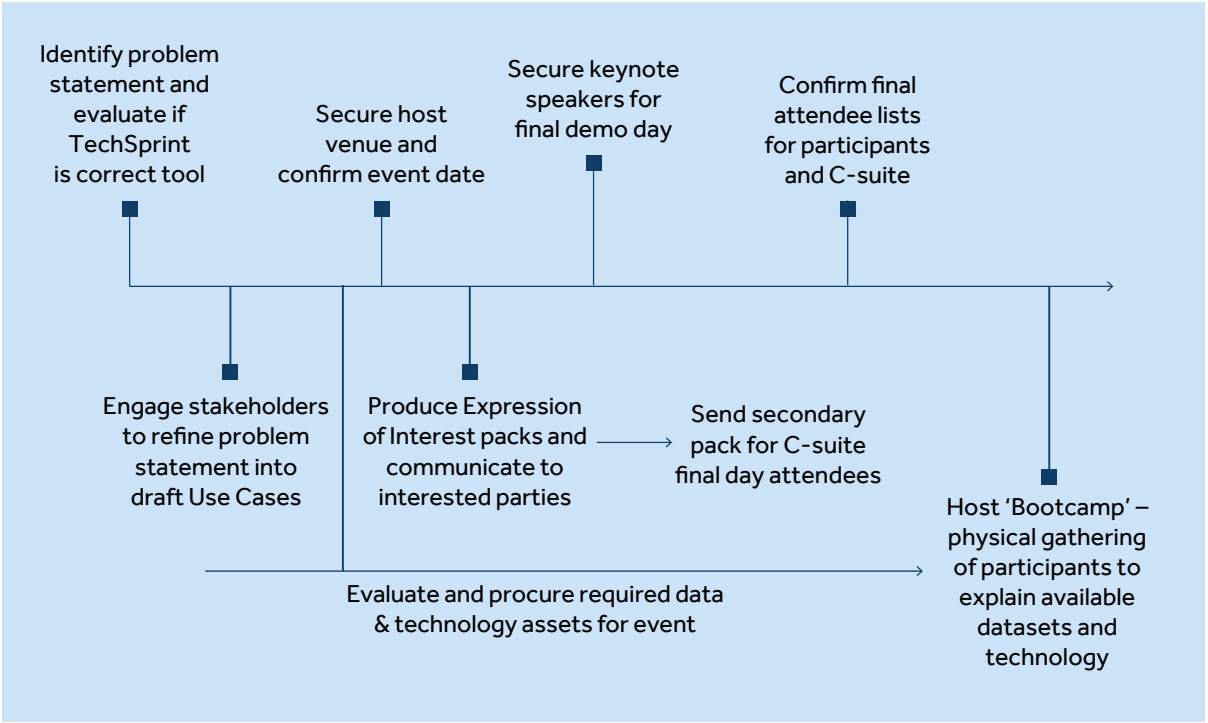
3.9 Technology agnostic use cases attracted a broad range of technologists from different areas to collaborate to understand how their IP can be linked in novel ways to develop the value chain. However, technology-specific use cases have generally seen the technology providers partner directly with a range of financial institutions, to understand how their specific IP can be applied in novel ways to solve the issue.

3.10 In practical terms, pursuing a specific technology use case has meant we have more selectively curated teams and specifically targeted invitations. We also saw teams utilising non-disclosure agreements, and we had to offer more privacy during the actual event (in terms of physical team location). Conversely, this competitiveness can be a useful lever to attract genuinely world-leading participants from across the globe and create a great deal of resonance within the industry on a particular technology.

3.11 Neither technology-focused nor technology-agnostic has proven to be the most effective approach, but rather are influenced by the problem statement, and the ramifications of each option should be considered at the outset.

Logistics

3.12 While there is no single 'correct' way to organise a TechSprint, we have generally followed the sequencing below for key milestones. The length of time needed to prepare will depend on the complexity and scale of the event. However, for indicative purposes, our simpler TechSprints have been organised from idea to execution within a few months, while the significantly more complex and larger AML & Financial Crime TechSprints took approximately 8 months, with a venue secured 6 months before, and expression of interest packs sent 3-4 months before.



3.13 In the early stages of planning a TechSprint, a lot of thought is given to the technology, data and participants. While these are key components, the venue and other logistical factors must not be underestimated. Teams spend long hours working together, in what is often an intense environment. Important considerations are:

- Venue spaces that allow for both concentration and collaboration areas.
- Catering and refreshments served throughout the day.
- An introduction session on the first day, with an emotive or motivational hook to inspire the participants, if appropriate to the topic of the TechSprint. We have found videos to be an effective tool (see Case Study below).
- Daily morning briefings for all participants to manage logistics, deepen the sense of community and inspire further collaboration and effort.
- Wi-Fi credentials clearly displayed, as well as access to collaboration tools such as Slack and Miro.
- Daily scrum master gatherings to assess common problems or potential collaborations.
- 'Goody bags' including TechSprint t-shirts distributed on day one, to contribute to the co-operative atmosphere.

3.14 Our TechSprints have ranged from 2 days to 2 weeks (which in truth bordered on becoming a TechMarathon). Though there is no magic formula, we consider several factors, such as the complexity of the issue, cost, the availability of a suitable physical space and location. We also work to understand what technologies are being developed and how easily they can be built and deployed in a TechSprint. Finally, we seek to understand the potential return on investment for participants in both time and resource commitments given we do not pay them or reimburse their travel or any accommodation costs.

Case Study 3 – Using emotive videos at the AML&FC TechSprints

Financial crime is a truly global problem. The UN estimates that $1.6t trillion is laundered globally each year, but only about 1-3% of that figure is detected and frozen. But the facts and figures don't tell the devastating human cost of the crimes that generate these funds – modern slavery, drugs trafficking, arms dealing, people trafficking, and terrorist financing, amongst many others.

Financial crime can sometimes be perceived as a white-collar crime, one that takes place in locations far removed from the ultimate victims. At the 2018 AML&FC TechSprint, we wanted to bring home to participants the human suffering at the heart of financial crime and money laundering.

To do this we created an emotive video played at the opening of the TechSprint, as well as on the final day for the C-suite audience. We thought carefully about the tone, imagery, messaging, music and narrative, to drive home the problems and create a sense of unity, reinforcing our strapline of 'it takes a network to defeat a network'.

The video generated a powerful reaction. We were told by many participants that it reminded them they were working on a societal good, and helped to break down barriers and contribute to a collaborative environment.

We created a second video at the follow-up 2019 TechSprint based on the feedback received. Moreover, the videos are a readily shareable piece of collateral, capturing the problem we were trying to solve, and have been shared and viewed many times beyond the event itself. The tone and imagery of the videos sat on the boundary of our Communications approach as a regulator, but was in keeping with the theme of TechSprints as an innovative and different approach taken by regulators.

A video will not always be the correct tool, but where the topic is highly emotive, we have found them to be a highly effective motivational lever for the participants and the audience.

Technology

3.15 We have made many technology components available to the participants in TechSprints. Participants provide their own end-user computing devices, but we make the following available to facilitate the event:

- **Wi-Fi:** Having many developers in the room utilising large data assets and high-performance cloud infrastructure can mean a lot of concurrent users putting a heavy load on the locations' Wi-Fi. This requires technical expertise to understand the download / upload speeds and capacity of the networks. In some TechSprints we have worked with the hosting organisation to provide temporary upgraded broadband and Wi-Fi capabilities to meet participant needs.
- **Audio Visual (AV):** On the final day, audio visual equipment and support will be required so that keynote, panel discussion and teams can present their solutions in an environment that has good quality sound, optics and lighting. Some lessons learned from previous TechSprints:
  - The teams will have a certain amount of time to present their solution. Make it clear to them that their microphone will be 'cut' after their time is up to make it fair for other teams presenting if they start to overrun.
  - We now recommend that all presentations are pre-loaded on 1 laptop (plus a second back-up device) for the final demonstrations. We have learnt that swapping out multiple laptops has caused issues with connection ports and can cause presentation delays. Such delays can be stressful for the teams, irritating for the audience and erode the sense of professionalism and credibility of the event (which is an unfair reflection on the hard work and dedication of the teams).

  We have also used broadcast equipment to livestream the final day demos. For the second AML&FC TechSprint, we attracted over 500 unique views of the stream on the final day. For a TechSprint with high interest globally, this allowed us to reach a wide audience and share the learnings, the prototype solutions and the technical content with those that would otherwise be unable to take part.
- **Collaboration tools:** We always ensure that there is a way for the teams to communicate with each other to help them form before the TechSprint and communicate with each other during it. Various messaging tools should be used where possible (these can usually be set up for free) or online whiteboarding tools to help with team formation and communication between the FCA teams and external participants.
- **Technical Information:** We provide participants with material that will help to rapidly bring them up to speed on the relevant subject matter and provide a clear view of the domain area. Many participants from the technology side do not understand the regulatory or legal regime and providing (even surface-level) documents and briefings is very beneficial, and a gateway to productive conversations with the SMEs on hand. This material can be both bespoke for the event, or existing material recommended by SMEs. It is distributed in advance of the event, often using collaboration tools, and we frequently observe participants sharing further information/documents between themselves on the collaboration tools.
- **Platforms/environments:** The developers will require a place to access the data and use the tools that are available within these cloud environments. In the past, we have worked with the major cloud service providers who have supported us with access to platforms and environments, but some technical expertise is required to get the data onto the environments and onboard the developers. Such resources and the associated credits have, to-date, been provided pro-bono for our events, in keeping with the generous provision of resources by the TechSprint participants.

- **Intellectual Property:** In most TechSprints, we have taken the stance that the FCA is not in a position to legally protect individuals' intellectual property (IP), and any IP shared was done so on the basis of collaboration for the duration of the event. We have also stated that any IP created during the TechSprint is owned collectively and equally by all members of the team, and we have clearly stated that IP is the team's responsibility and the FCA cannot offer any protection for IP created during the TechSprint. However, we took a slightly different approach for the second AML&FC TechSprint. We acknowledged the sensitive nature of the nascent technologies specified in the use cases, and provided standard text for a Non-Disclosure Agreement (NDA) for participating entities and individuals to sign for existing IP and anything developed at the TechSprint. This NDA was strictly between team participants, not the FCA, and to be used at the discretion of teams.

Case study 4 – managing logistics at our largest TechSprint

AML and Financial Crime TechSprint 2 – July 2019

For our first 6 TechSprints, we used external parties to host the event to reduce the cost and resource burden on the FCA. However, our latest TechSprint was hosted at the FCA offices and was unprecedented for us in terms of logistics. Over 120 participants attended over 5 days working on solutions, an additional 40 international regulators attended roundtables, and approximately 200 c-suite attended the final showcase of solutions. We also livestreamed the entirety of the final day's events on the internet to several hundred viewers. In addition, we also had a live video connection to a second TechSprint location, where teams worked in parallel in Washington DC.

Using an external host has significant advantages and we have not experienced a shortage of organisations expressing interest in hosting an FCA TechSprint. We are grateful to those entities that have supported us to date. Venue, catering, WI-FI, and similar costs have generally been absorbed by the host, as well as providing logistical support approximately equivalent to 1-2 FTE in the month before the event.

As a regulator, we must be careful not to be seen to endorse any firm or organisation. We mitigate this risk by establishing clear communications guidelines at the outset with a TechSprint host, that have been agreed with legal counsel. These establish clearly the role of the host and our relationship, and can include specific requirements such as prior FCA approval of all press releases, and careful wording around how the relationship is referenced in public.

Internal hosting however has allowed us greater control over certain elements, such as TechSprint duration, and allowed us to run a major internal engagement programme, providing significant exposure and learning for over 500 colleagues that attended related events throughout the week.

People

3.16 As mentioned earlier, we do not reimburse participants for travel expenses or accommodation costs, nor do we pay people for their participation at a TechSprint. So why do participants get involved?

3.17 We believe the main drivers are:

- It interests them, and a TechSprint offers vast learning opportunities in a hands-on environment.
- They are motivated to solve important societal challenges for example, mental health and illicit crime.
- TechSprints present opportunities to build and develop a network, connecting with both peers and those with different experience and skillsets.
- Participants recognise the valuable opportunity to pitch to decision makers in firms, regulators, consultancies, tech companies and VCs/investors.
- Participants are keen to see how their technology and solutions could be combined with others to make a more compelling or potent product.

3.18 For us, the bringing together of incredibly capable people who share their insight and knowledge willingly is an incredible honour. Being involved in a TechSprint takes passion and commitment but brings with it opportunities that are hard to emulate in other environments.

3.19 As a regulator, we must be transparent and open when inviting people to engage with a TechSprint. We've found that using demo days (open invite days where anyone can come along to demo their solutions) to identify innovative firms or data providers has led to us identifying interesting and unique solutions. While we send out expressions of interest to potential participants, we also ensure transparency by publishing details on our website and encouraging interested parties to contact us.

3.20 It is the same principle for the firms we regulate, we ensure that we have incumbents and challengers, large and small firms and where possible providers with differing product portfolios in the room. Having a good mix of firms means they will bring diverse perspectives and challenges and encourage each other to think differently. As the model has evolved we have also capped the number of individuals from each organisation in a team. It's important that the solutions are not existing ideas where a provider uses the TechSprint to pitch to a valuable audience rather than new solutions designed by a diverse team.

3.21 The teams bring together a diverse group of people. Introverts and extroverts work together, bringing their different strengths and working styles to the mix of the team. People who like to plan the solution to the smallest detail work with those that just want to get started with the solution and worry about the detail once they have something concrete. We have seen that on balance, the more diversity in a team, the more interesting and creative their solutions.

3.22 Throughout all our TechSprints, there has been a clear gender imbalance, something we are keen to explore and improve in future TechSprints. At our last TechSprint, of 140 participants just 25% were female. We know that this reflects the gender imbalance in the wider RegTech eco-system and we are keen to play our part in attempting to address this.

Team Composition

3.23 For the early TechSprints, team formation was based on what we thought would be a good mix. Our teams were formed heavily of front and back-end developers and subject-matter experts. Our focus was solely on the problem solution and development and therefore the team profile reflected that. Over time we identified that of course the developers were key to the teams, but a leader or a visionary gave the teams focus and were able to drive the solution. Also, as the final day moved to an event in its own right, with large, C-suite level audiences, polished presentations were required and teams began incorporating marketing techniques, and so 'the closer' role was established.

3.24 After several different iterations, we established the following core elements which we believe are required for a successful TechSprint team composition. We've also developed the description and labels for the role profiles, to engage and interest possible participants and to reiterate that these events are creative, novel and somewhat different from a standard software hackathon. As with many aspects of our approach, we'll continue to refine the role profiles and team composition as our experience and learnings develop.

Figure 3 – the different participant roles at a TechSprint, from the 2018 Pensions Invitation Pack

What role could you play?

Visionary (Designer)

You make beautiful things. Your artistic talent creates a solid appearance to any concept. We all like good looking things. You know the right colours, the right shapes and the right design to make the moving parts fit together seamlessly. You are also the big ideas person who can make unicorns and hit moonshots.

The Face (Front End Developer)

You make buttons do stuff. You make screens transition. You take the designs and make them function. You are a key player in making sure the user flow works correctly.

The Hack (Back End Developer)

You work with APIs that participants bring to the TechSprint. You know data well and are prepared to manipulate it for good. You glue stuff together to make it all work seamlessly.

The Expert (Domain Expert)

You have in-depth knowledge about the pensions and retirement income market and /or the challenges faced by consumers who use this market. This knowledge shapes the product to avoid pitfalls and to find niches that add advantages.

The Closer (Marketing Guru)

You know how to sell anything to anyone. You spin product descriptions to be irresistible commodities. It doesn't matter if I don't need your product, you can c onvince me to try it free for 30 days and then I'll end up paying for it because I have fallen in love with it!

Floating roles

The Jugglers (SCRUM Masters)

Responsible for the smooth running of the TechSprint. They will work with the teams, unblock the blockers and provide feedback on the solutions built during the TechSprint. Will also provide feedback to all teams before presenting back to the judges on the final day.

The Fixers (Technical Support)

There most probably will be technical issues that happen during the TechSprint. These resources are there to help you overcome any of these hurdles should they get in your way.

The Observers (Regulators / VC's...)

Theses interested parties will take the great ideas created from the event and help them gather future momentum.

The Doctors (Business Experts)

Key resources to help determine the advantages of the solution and why it's going to be successful. They figure out how the product will generate revenue from day one, and how partnerships can accelerate growth. They know pensions in all of their complexity. They understand the use cases and the current issues this TechSprint is trying to solve.

3.25 We encourage participants to think about which role(s) they fulfil before the TechSprint, to facilitate team formation conversations and create balanced teams.

3.26 It's important to have a range of experts, including technical, legal and regulatory involved in the TechSprint. No two events have had the same groups of skills with software engineers, lawyers, data scientists, marketers, infrastructure engineers, psychologists, consumer engagement specialists, medical professionals, humanitarian aid professionals, user interface specialists, customer-centric designers, behavioural scientists and many others taking part in one or more of our TechSprints to date. The more diverse the knowledge in the room, the more novel and well-designed we have found the solutions to be.

3.27 However, team members that can code the prototype solutions are key. In our experience and in society at large if there is a resource bottleneck, it tends to be these individuals, particularly data scientists and software engineers. In latter TechSprints, we have tended to specifically identify these individuals and build the teams around them.

Case study 5 –the importance of team composition

Pensions TechSprint – November 2018
Compiling an attendee list for a TechSprint is not easy. To deliver the best outcomes, you need a good mix of participants with a range of skillsets. In the lead-up to the Pensions TechSprint we had some difficulties with the balance of the teams.

We have many ways of recruiting teams for TechSprints. We publish details on our website, social media and in publications that will reach those with an interest in the topic. We use established networks such as Trade Associations and regulatory forums, as well as reaching out to those that we have identified through our own demo days and day-to-day work. Embedding ourselves within the RegTech ecosystem has been an objective for the FCA since the outset and this has given us a good knowledge of who is out there and what they are doing. For the Pensions TechSprint, we partnered with The Pensions Regulator, which allowed us to leverage their networks and relationships.

SMEs are crucial to the process but tend to be more suited as floating resources across multiple teams, unlike developers of which a few are required per team. While developers often have a continuous backlog of tasks, SMEs are usually required at periodic intervals to solve or advise on certain issues. In particular, their workload tends to be frontloaded at ideation and design phases early in the sprint and towards the end in the preparation of the final demo and pitch, which can lead to periods where they are not utilised.

Despite being well placed to get the right people in the room, we found ourselves with too many floating resources – pensions and consumer experts but not enough technical capability, very few 'Faces' and 'Hacks' to build the solutions. As a result, development capability was spread thinly across the teams.

It's difficult to quantify the impact this had on the final outputs. We saw some interesting solutions and designs, but feedback from participants suggested they had struggled with sharing resource and it had limited their ability to be creative with their solutions. We understand that the ambition of the solutions was constrained as a result. This also made post-event continuation more challenging for the teams which lacked the resource to develop a working technical PoC. Without the PoC as a foundation to build on, it can be extremely challenging to secure further commitment for development or investment post-event.

3.28 The size of a TechSprint team also warrants consideration. There will be factors that drive the decision, such as size of event and maximum number of teams (and pitches) which needs to be balanced with the requirement for expertise. We have found that teams of around 8-10 are optimal (with approximately 50-70% hands-on technical/ development skills). This team size generally includes enough resource to cover the key roles but not too many that could lead to too many opinions and ideas. Floating resource is also key to keeping the team numbers manageable as they can dip in and out of teams sharing expertise and knowledge.

Beyond the teams

3.29 As discussed, the TechSprint has evolved beyond a traditional hackathon. By our third TechSprint on Money and Mental Health in March 2017 we had started to recognise the breadth of opportunities a TechSprint offered. TechSprints attracted a wide-range of experts and we saw the potential for even more knowledge sharing in the form of panel sessions and talks on the final day. We also realised the power of the human

element of TechSprints, and how 'lived experience' of the problems we were trying to solve could add richness to the event and provide useful context and motivation to the participants and attendees. So, beyond the teams of the TechSprint we created a secondary element on the final day. This provided even more opportunities for people with a range of skills to get involved. Other roles include:

- Speakers – ranging from technology experts to people with lived experience or charities and support groups
- Panel members – Panels can be across the subject but we have found they work well when you have representatives from financial and technology firms, academics and the voice of the consumer or impacted groups discussing the opportunities and barriers.
- Judges – We have a panel of around 8-15 judges for the final demonstrations. Again, choosing a diverse judging group with different experience and views gives a richer experience for the teams.
- C-suite audience – Attracting a large audience of senior decision makers, investors, academics and influencers is key to the success of the TechSprint. Again, you may need to limit the numbers per firm to ensure as many are represented as possible.

Case study 6 – More than a Hackathon

Money and Mental Health (M&MH) TechSprint – April 2016
The M&MH TechSprint was the first time that we moved to a model that really took the TechSprint from a hackathon, to a multi-faceted event. The event and the event space provided by the hosts lent itself to opening up the demos to a much wider audience. Managing finances during periods of poor mental health was a topic that had, and still has, lots of interest from the financial industry as well as consumer bodies, charities, academics, healthcare professionals, public bodies and technologists.

We wanted the event to really bring to life the experiences of people with poor mental health so that the problem wouldn't be abstract or simplified. We invited a diverse group of panellists and speakers, a mixture of those with first hand or 'lived' experience, academics who were researching ways to help identify mental health issues and therefore help support people, as well as banks who were looking at how they could better serve vulnerable consumers. For this event, we partnered with the Money and Mental Health Policy Institute, which gave us access to fantastic speakers for the event, and allowed us to leverage their public profile to increase awareness and reach.

The judging panel was also diverse. For this subject, it was important to ensure that the solutions were not only viable from a technology point of view but that they would also work for people in practice, when they needed support the most. Again, we had experienced judges, consumer experts and academics to balance the technology and financial expertise.

As well as this supporting event, we also had a mini TechFair as people arrived on the final day, with the opportunity to try Virtual Reality software. This was all a great way to test some of these elements, and we adopted and built on this model for each subsequent TechSprint. Our TechSprint in July 2019 had 8 speakers across the week, 3 panel sessions and a TechFair – all with the intention of bringing the subject alive for as wide a range of audience as possible. As we have developed the model, we have found that TechSprints are a hugely valuable opportunity to inform, educate, excite and engage colleagues across the FCA and other regulators on a technology or subject area.

Data

3.30 We have found that high quality datasets are fundamental to a successful TechSprint. It is important to have quality data assets that participants can use during the TechSprint to develop and prove the validity of the solutions they develop.

3.31 As highlighted earlier, to ensure this quality we will have agreed the scope of the TechSprint, which use cases will be addressed and the technology that we think will be used. We will then bring together industry experts to help decide on the appropriate datasets and our approach to getting or generating them.

3.32 For every TechSprint, we create a use case to data matrix tool that highlights which data is relevant to which use cases. An example can be seen in Annex A. This indicates whether we have identified the right datasets and adds an extra layer of rigour to any data acquisition process. It is also a useful aid we share with participants at the bootcamp.

3.33 Another consideration is whether the data that we provide is real, synthesised or anonymised. Real data should only be used if it is publicly available and doesn't contain personally identifiable information (PII). Real aggregated data could be used, but with caution, it is important that there is no PII contained in the data itself and that it cannot be disaggregated to reveal specific private or sensitive information.

3.34 If, however the datasets need to reflect real-life behaviours and such datasets would normally include PII in the real world, we look at other methods of obfuscation or creation either by using synthetic datasets or anonymising it. We have considered anonymising real data in the past, but there are risks associated with current methods whereby people may be re-identified. Other methods such as differential privacy could be used, but this is nascent in its development and finding expertise to do this is quite difficult, although there are academics and commercial vendors active in this field.

3.35 With support from external parties, we have provided synthetic data in our AML&FC TechSprints which is a good way to ensure we comply with GDPR and the UK's Data Protection Act 2018. However, this requires a good understanding of the data models to be used, a statistical model that reflects 'real world' data and a representation of the behaviours that you are expecting to emulate within the dataset. It is important to reflect these behaviours to a sufficient quality, so the teams have an opportunity to demonstrate the efficacy of their solutions.

3.36 Whatever approach we take with data acquisition, it always requires specific technical expertise, time and resource to have the datasets available for a successful event. With each TechSprint iteration, we have increasingly realised the value of high-quality data assets, and this has been matched by expectations from participants. When it comes to data acquisition, it is important to consider:

- **Resource:** This may require multiple disciplines working together such as data providers, SMEs and project expertise.
- **Time:** To do the analysis, assemble a team, understand the patterns and behaviours that are to be represented and create or source the data you will be working against deadlines. It is important to never underestimate the time it takes to undertake these activities. We now seek to assemble a team immediately even while establishing the use cases so that the working group can consult on the use cases and understand the data requirements.

- **Cost:** To eliminate risk of non-delivery we have found that it is best to procure some of the core data sets. While it is possible for data vendors to do some of this work for free it will be done at the 'side of desk' and won't have the same attention to detail which will increase risks to both its delivery and quality.

3.37 Working within Europe means working within the General Data Protection Act (GDPR) and will require a Data Protection Impact Assessment (DPIA). This will require sign off by a Data Protection Officer (DPO) within your organisation. We engage with our DPO as early as possible to ensure that they are comfortable with the approach taken and have plenty of time to inform and ultimately approve our approach to data protection, even if the data is totally synthetic.

Bootcamp

3.38 We always ensure that the participants are fully briefed 7 to 10 working days before the beginning of the TechSprint for the following reasons:

- To educate the participants on the format of the TechSprint, use cases, data and technology that will be available and their role during the TechSprint.
- To provide participants with the opportunity to ask questions and seek any clarification from the material we have already sent them.
- To commence onboarding of participants to the cloud environments, collaboration tools and communication channels for the TechSprint,
- For some TechSprints, we have also demonstrated various technologies and or domain expertise that they may wish to use as part of their solution development.
- To allow any participant that has yet to be allocated a team an opportunity to form or find a team before the TechSprint.
- As many of the participants may not know each other, it gives them an opportunity to meet before the TechSprint begins.

3.39 If any new or interesting technologies are available to the participants, this can also be communicated at Bootcamp. However, we have learned from previous experiences that there is a line between educating teams on these technologies versus technology providers pitching their product and using it as an opportunity to sell their product which goes against the collaborative, development-focussed spirit of the TechSprint.

Communications and engagement

3.40 TechSprints offer many opportunities for communications and engagement. We use engagement with a TechSprint as one measure of the impact we have had on the industry, so our approach in this respect is key. Being able to cultivate a wider ecosystem that can coalesce around a problem, develop the most viable prototypes, and maintain innovation momentum after the sprint is crucial, and cannot be achieved without effective communications and engagement.

3.41 In the first instance, the focus is on engaging and attracting interest. As mentioned earlier, this needs to be a transparent approach and will include targeted communications to participants already identified as having an interest, and wider

communication inviting expressions of interest. This would generally be through our website, industry publications, public speeches and social media.

3.42 Use of social media is important to amplify the reach of our communications, and we have found that there is high usage of platforms such as Twitter and LinkedIn in the RegTech/FinTech space. The term 'TechSprint' which we were the first to coin, has itself provided us with a unique and identifiable name, which has become both a way to track engagement as well as an opportunity to stand out from the social media noise. We use #FCASprint across our TechSprint communications and encourage participants to use this in their communications. Again, this allows us to track and measure interactions and builds a community on social media.

3.43 Depending on the focus of the TechSprint, we have also found that visual content can be a powerful and compelling tool. We opened both the AML&FC TechSprints with moving videos showing the awful human cost of the crimes, the proceeds of which are then laundered through financial markets. We have found that humanising the problem statement can be profoundly motivating and help to set the tone for collaboration and unity throughout the event. The videos have also been shared widely, resonating well beyond the brief timespan of the TechSprint.

3.44 Our Twitter statistics show that since we introduced #FCASprint, the hashtag has been used in nearly 4,500 individual Tweets, with a reach of over 21 million users. The hashtag is only used during the TechSprint and in the immediate run up and post event phase, therefore the activity is highly concentrated around the TechSprint dates and predominantly created by those participating. During our Money and Mental Health TechSprint in 2017 the hashtag was used in more than 1,500 Tweets. We attribute this to actively promoting the use of Twitter during the TechSprint using a 'twitter wall' displaying real-time hashtag monitoring, as well as working with organisations who have an extensive social media presence.

3.45 During our most recent TechSprint we saw a shift across social media platforms with more than 100 LinkedIn stories using #FCASprint in addition to the activity on Twitter which continued to average around 450 Tweets, increasing our reach to a relevant and engaged audience. Nearly 90% of the tweets that mention #FCASprint originate from the UK and United States. However, the hashtag has appeared in tweets from 48 countries indicating growing global interest and engagement with TechSprints.

3.46 The overwhelming majority of tweets have a positive sentiment. They have been valuable in demonstrating the inspiring and optimistic tone around the events. Conversely, social media monitoring has not proven to be a rich source of insights regarding how to improve the TechSprint model. Instead, we've relied on direct feedback from TechSprint participants, observers and engagement with the wider RegTech ecosystem to source this information.

3.47 For our AML and Financial Crime TechSprint we coined the strapline 'It takes a network to defeat a network', which we used across our communications. To those involved in the TechSprints it became a rallying cry and united the participants at the TechSprints. It amplified that the participants were part of a community and embodied the collaborative essence of a TechSprint.

3.48 As a regulator, we do have restrictions when it comes to communication and engagement. We need to consider our language and approach, ensuring that we stay impartial and transparent. We need to stay within the guidelines that are set by our

central communications team to protect the integrity of the organisation, and initially the approach of a TechSprint sat on the boundary of this. The AML videos were tonally and visually close to the limit of communications that we or other regulators would generally publish. Attention-grabbing and motivational content has been valuable but we continue to be mindful of the need to project an appropriate and professional image externally. We work very closely with our central communications team and set clear guidelines to participants about how, when and what they can communicate about participating in a TechSprint.

3.49 We understand that TechSprints are great opportunities for participants to showcase their work, however this needs to be done in a way that protects our impartiality and particularly respects the competition remit we have.

Showcase day

3.50 The showcase on the final day is a real opportunity for teams to share their prototype solutions with a large audience made up of C-suite level industry representatives, academics, experts, and investors. To ensure that everyone gets the same opportunity to pitch, we have since TechSprint 2 adapted the '240 seconds of glory' format developed by NASA – as the basis of our approach.

3.51 We adopted 240 seconds of glory quite early in the model, but as with most elements of the TechSprint this has been adapted to be fit for purpose. For the first AML&FC we developed the below evolution of that model (but still only allowed 240 seconds), and for the second AML&FC TS we afforded the teams longer (8 minutes) as the concepts and the technology were more complex and we wanted to give teams that had spent a week working together more time to display their hard work.

3.52 As mentioned earlier, the Model-driven machine-executable regulatory reporting TechSprint saw us deviate from this format because of the difference in approach of having one team working together on the same solution. Therefore, there were no prizes or judging and the whole team presented for 15 minutes on the final day. Adapting the model to suit the required outcome is key and something that we that we haven't been afraid to do across all TechSprints.

Figure 4 – Pitching guidance for the teams at the 2019 AML&FC TechSprint adapted from NASA's model

3.53 It's important to keep the pitches focused. Our TechSprints have involved between 6 and 18 teams, meaning it's only possible to offer a small window for pitching. We believe the format and approach we encourage teams to use is a solid basis for any innovation pitch; outlining the challenge, linking the solution to the problem, describing why it's important (empathy) and explaining how the solution works, and the impact it will have. It's a tough ask for the teams to deliver so much information in a short presentation but it makes for very compelling pitches and focuses the minds of both the participants and those in the audience. The length of pitches will often be dictated by the number of teams participating. At the 2018 AML&FC TechSprint we had 16 teams pitching and had to limit pitches to 4 minutes, to keep to timings and avoid viewer fatigue.

Judging panel and awards

3.54 The judging panel use consistent criteria to guide their assessment of the teams as highlighted in the figure below. We have used this criteria across the TechSprints, however the second AML&FC differed as we changed the award system having just 1st, 2nd and 3rd place awards. This was because the solutions were all using PET solutions and so made some of the prize categories redundant.

3.55 The five award categories can be found below and no monetary prizes are awarded. Being recognised as a winner within a field and the opportunity to pitch to a C-suite audience, seem sufficient to drive the competition. Again, we have adapted our approach, using voting technology on smart phones to improve the speed of the judges' deliberation. This also allowed us to include the entire audience in People's choice, which added a great element of participation for everyone attending.

Figure 5 – example judging criteria taken from the Judges Pack at TechSprint 7

Assessing the teams – Judging Criteria

Market readiness

How long would it take to develop to a production-ready standard?

How easily could a firm deploy the solution within their technology stack and how expensive would it be to implement?

Creativity

How innovative/creative was the solution? Was it something you had never seen before?

Did the solution have the 'x-factor'?

Presentation

Did the team effectively articulate how the solution solves the use case?

Effectiveness

To what extent does the solution have the potential to make a material impact on detection and prevention rates?

Could the solution be applied across a broad spectrum of market participants/ across different market sectors?

How many organisations could implement it?

4 Post TechSprint

Maintaining momentum

4.1 A great deal of intellectual capital is brought together during a TechSprint. After collaborating intensely for a finite period of ideation and development, showcasing the prototype solutions to the C-suite audience on the final day can feel like the culmination of the event. While there are many success measures for a TechSprint (such as educating firms and regulators, establishing credibility of emerging technology, furthering research, and cultivating an ecosystem), one key success measure is the future success of the Proofs of Concept (PoCs) developed during the event. A core objective for a TechSprint is for some of the solutions (or evolutions thereof) to ultimately be developed and then deployed in the market.

4.2 To date, to help maintain post-event momentum, we have provided support to the teams in a number of ways, including making various connections with consultancies and other specialists who provide assistance with the business model, intellectual Property, legal issues, etc. We have also held follow-up meetings with various teams to provide further feedback on their solutions as they continue to iterate, and in the case of the Machine executable regulatory reporting TechSprint, have been directly involved in development of the solution along with the Bank of England. Nevertheless, one of our critical reflections is that maintaining momentum and continuing development for the solutions post-event remains a challenge for teams, and there are perhaps further steps we can take.

4.3 Therefore, to ensure that TechSprints are delivering longevity and value for money, we have analysed the challenges and obstacles that the participant teams face in maintaining momentum and scaling their PoC, and which of these is within our gift as a regulator to alleviate.

From Proof of Concept to Proof of Value

4.4 TechSprints are finite by nature. We have learned that without a post-event technology environment, that supports TechSprint teams through the delicate transition phase from PoC to Proof of Value (PoV), many will struggle to continue. The prototypes, design ideas and PoCs developed and showcased at the TechSprint prove that a novel technology solution can work on a theoretical level. However, they require further investment, both in terms of time and resources, to transition from the PoC stage to PoV and ultimately production stages. They must be able to show that the concept can be scaled to deliver value, and is operationally viable in a real-world production environment. Where this has happened, we have seen participating firms continue to allow staff to work on the solution as part of their day job, and/or the solution has received investment to continue. For example, machine executable reporting (now called Digital Regulatory Reporting, or DRR) has received investment through the UK Government's Pioneer fund and resources contributed by a group of regulated firms, the FCA and the Bank of England for an extended period of time. Further information about our DRR programme is available here.

4.5 Outside of TechSprints, many start-ups also fall at this stage due to a failure to secure investment to continue developing the concept to scale. This risk is rather compounded in the TechSprint model, due to the nature of multi-firm, multidisciplinary, and geographically diverse team participation. While we often see incredible progress during the development phase of a TechSprint, expectations must be managed around what can realistically be produced within a short development period. It is important to communicate to participants far in advance that they should consider their capacity to continue development post-event.

Challenges faced by regulators as TechSprint hosts

4.6 We also recognise further challenges which result from the restrictions of the TechSprint model hosted by regulators. Many traditional hackathons use prize money to seed further investment in the best solutions. Moreover, teams are often comprised of participants from a single organisation and so commitment from team members (and their management) to continue pursuing the PoC post-event can be more straightforward to obtain. In our TechSprints we have focused on solving difficult industry-wide problems. As such, one of our core tenets has been the need for teams, in compliance with competition law, to cross-pollinate ideas and drive collaboration on shared problems.

4.7 To generate awareness of the solutions without endorsing them, we have found the following methods effective:

- An external judging panel is invited to decide on the winner(s), so they are not perceived as the 'regulator's choice'.
- More recently the solutions of the teams that participated are transparently displayed on the FCA website, to allow the industry to evaluate their potential. Our latest TechSprint took this a step further, displaying recordings of the final day presentations for each team. To date, the videos of this TechSprint have been viewed over 1,200 times.
- Pre and post-event communications in briefing and invitation packs, clearly stating the FCA's position on not -endorsing participants or a TechSprint prize winner.

Challenges faced by TechSprint teams

4.8 We have analysed the common problems that teams have experienced post-TechSprint when continuing to develop their PoC. Broadly speaking these can be divided into 4 categories:

- difficulty maintaining the team dynamic
- difficulty partnering with a financial institution
- lack of data or other assets
- lack of regulatory clarity

Difficulty maintaining the team dynamic

4.9 The nature of cross-organisation team formation, including geographic diversity means post-sprint collaboration can be tricky. Teams are formed for the TechSprint and therefore individuals in teams are usually meeting for the first time. With such a short timeframe, figuring out contractual obligations with regards to IP and ownership is unlikely. Linked to this, is the possibility for unequal expected future returns between participating firms. A collaboration between a technology vendor and banks for example, may see the development of the solution, which potentially adds some value for the banks, but a major commercial opportunity for the technology vendor. Here, we have seen the vendor keen to continue for compelling financial reasons, but the banks pull-out due to the unequal (lower) expected future returns on their time investment.

4.10 We have also seen instances where most of the team are keen to continue developing the solution, but are unable to because a single SME or key individual pulls out.

Difficulty securing a partnership with a financial institution

4.11 Another common challenge where a TechSprint team has struggled post-event is the inability to find a suitable financial services firm to partner with. Even if the technological concept has been validated at the TechSprint, the next stage is often to continue development of the PoC with a regulated firm. The team must convince a firm to develop trust in the solution and must establish the business case for deployment and implementation – to justify the security, procurement risk and cost requirements involved. Even if they are successful, these are lengthy processes that can slow development, and the absence of progress while moving through a lengthy procurement cycle can be fatal to an unfounded, nascent and disparately-resourced team.

4.12 Where a team has included participants from a financial institution, these have tended to be more successful post-sprint. However, it has been dependent on the quality of the solution developed at the TechSprint and the ability (and seniority) of the individual to champion the PoC to their internal stakeholders. Even with senior sponsorship, it can be challenging to navigate the various due diligence and governance processes at a financial institution.

Data and resource

4.13 A further consequence of being unable to partner with a financial institution that impedes post-sprint development, is the lack of data assets and other resources to continue developing and testing the nascent solution. The leveraged TechSprint model has, so far, relied on the temporary provision of data assets and infrastructure. To keep costs minimal and deliver value for money, these resources have either been given pro-bono for the duration of the event, or procured on short licenses. Post-event, we receive many requests for participants to have access to the data or cloud environments to continue development. To date, we have been unable to meet these requests. Partnering with a bank to get access to such assets could fulfil this requirement but is challenging for the reasons outlined above.

4.14 Another option would be to purchase access to the assets (for example, cloud credits, and the synthetic data sets used at the sprint). But due to the nature of the TechSprint teams this is difficult. Where teams are made up of multiple organisations (and generally do not have a formal contractual relationship with each other) reaching agreement on who should pay for the required data and technology assets can be an obstacle.

Regulatory clarity on subject area

4.15 A further challenge that teams face post-event is residual regulatory uncertainty. Throughout the event, we have found it crucial to have relevant regulatory and legal expertise on hand to help navigate and interpret the regulatory landscape to aid teams in their solution design and build. At the 2019 AML & Financial Crime TechSprint, for example, there were SMEs from the FCA, as well as the Information Commissioner's Office (ICO), multiple foreign regulators, and legal and compliance specialists from the private sector. While the FCA continues to liaise with the teams post-sprint, this help is not immediate nor infinite.

Solving the challenges

4.16 The issues faced by TechSprint teams to continue post-event are complex and manifold – as should be expected when bringing together hundreds of individuals from different organisations, industries, and countries. However, we have learned a great deal from the TechSprints we have run so far, and each iteration has provided higher quality and more targeted support to the teams post-event. While we cannot solve every challenge teams face, and indeed it is necessary for market forces to decide what is 'fit-for-survival', we are exploring setting-up a more permanent solution to support post-event development.

4.17 We know that making the step from PoC to PoV is a difficult transition. We know that the nature of teams is a barrier to finding a suitable firm to partner with. We know that a missing rung in the ladder to market is the lack of access to high-quality synthetic or anonymised data assets against which to develop and test new technology solutions. To alleviate these challenges, we are currently looking at and beginning conversations with the industry, other regulators, and public and third sector entities to explore what a more permanent digital testing environment might need to look like. We have heard that a more permanent TechSprint environment resembling a 'digital sandbox' where very focused PoCs (both developed at TechSprints or otherwise) can be tested and then shown to industry, is an idea worthy of further exploration and attention. We intend to set out our thinking and proposals in this regard in the first half of 2020.

5 Conclusion

5.1 TechSprints are a successful tool, if used correctly, and can bring about rapid change by galvanising effort cross-industry. The true value of TechSprints is difficult to quantify however, one thing is certain, TechSprints shine a light on industry problems and encourage innovative, collective problem solving like no other tool available to us as a regulator.

5.2 Our approach has adapted and morphed as we have worked through each problem and solution to ensure that we achieve the best outcome. We do not claim that the approach we have developed is perfect and we note that maximising post-sprint momentum and progress continues to present challenges. Although this report highlights that there is not a fixed formula or blueprint that can be applied, it does show that there are key components that when executed well, do deliver great results.

5.3 Our commitment to the industry is to continue to support them as they explore innovative solutions. We will continue to work towards providing on-going support and tools to allow TechSprint solutions to move from ideation to production. We will continue to be tech-activists within the industry and evangelise innovation as a potential solution to some of the most difficult and complex challenges facing the global financial industry and wider society.

5.4 As part of this we are sharing our learnings and experiences with other regulators so that what we have done can be replicated and we hope, improved further. We welcome further engagement and feedback on our TechSprint approach and encourage those with suggestions and ideas to email regtech@fca.org.uk.

Annex A
Data matrix tool

UC No	Use Case	Check	Retail Transactional	Customer (KYC)	Black listed accounts	Beneficial Owner Banking Dataset	Typologies	Sanctions / PEPs	Companies House	Location / Device Data
Check			✓	✓	✓	✓	✓	✓	✓	✓
UC1	How could the detection and reporting of suspicious activity within capital market be improved?									✓
UC2	How can technology aid to look at transaction flows across jurisdictions when a centralized way of data sharing is not possible?	✓	✓							
UC3	How can the quality of feedback provided to firms from SARs be improved without breaching data privacy and AML tipping-off restrictions?									
UC4	How can financial crime patterns be efficiently and effectively identified and codified in such a form that the algorithms can be shared across borders and between institutions?	✓	✓	✓		✓				

Annex B
Glossary of terms

C-Suite	C-suite refers to the executive-level managers within a company. Common c-suite executives include chief executive officer (CEO), chief financial officer (CFO), chief operating officer (COO), and chief information officer (CIO).
FinTech	Financial technology (Fintech) is used to describe new tech that seeks to improve and automate the delivery and use of financial services.
Hackathons	A technology focused design sprint, bringing together computer programmers, interface designers, domain experts etc, to collaborate intensively over a short period of time on a software project.
Incumbents	An incumbent in business most commonly refers to a leader in the industry being discussed. The company may possess the largest market share.
Intellectual property (IP),	Intangible property that is the result of creativity, such as patents, copyrights, etc.
NDAs (non-discolsure agreements)	A contract by which one or more parties agree not to disclose confidential information that they have shared with each other as a necessary part of doing business together.
Persona	The aspect of someone's character that is presented to or perceived by others, in this instance created by an author.
Proof of Concepts	Evidence, typically deriving from an experiment or pilot project, which demonstrates that a design concept, business proposal, etc. is feasible.
Prototype	The original or model on which something is based or formed.
RegTech	RegTech (Regulatory Technology) is the management of regulatory processes within the financial industry through technology.
Regulatory Sandbox	The FCA sandbox is open to authorised firms, unauthorised firms that require authorisation and technology businesses that are looking to deliver innovation in the UK financial services market.
SMEs	Subject Matter Experts within this report
Use Case	A specific situation in which a product or service could potentially be used.

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