

# Barefoot Innovation Podcast with Nick Cook, Chief Innovation Officer, Alliance for Innovative Regulation (AIR)

**\*Note that transcripts may sometimes contain errors and that transcript timing notations do not match the posted podcast**

Jo Ann Barefoot: Today I think is going to be one of my favorite ever podcast shows because we have Nick Cook back on the show. Nick has been with us many times before when he was at the Financial Conduct Authority, but he is now the chief innovation Officer here at AIR. And he and I get to work together almost every day on how we're going to help modernize the financial regulatory system to address the technology challenges and opportunities. So, Nick. I want to welcome you to the show. It's fantastic to have you.

Nick Cook: Thanks, Jo Ann. Good to be on the show again.

Jo Ann Barefoot: So, we got the idea of doing a podcast today, because we have just put out a white paper that you have authored. And it is about what you have called The Regulator's Odyssey and the journey ahead for regulators. Before we turn to that, I'd like you to remind the audience about your background. Tell us about you.

Nick Cook: Sure. Thank you. So, my background originally an economist, then a forensic accountant in private practice, mainly focused on financial crime investigations, fraud, money laundering, terrorist financing. Then into a greater focus on regulatory investigations. And that led me in due course to move into the UK's, what was the Financial Services Authority, which became the Financial Conduct Authority. I spent slightly over 12 years at the FCA in various roles, going in actually just after the collapse of Lehman Brothers. And I left during the second or third, I can't recall, lockdown of COVID in the UK. So, in 2021. Spent just under 13 years there. I worked in a variety of roles. I originally joined the enforcement division, focused on forensic investigations and then building cases and bringing cases around regulatory breaches of different types and different firm sizes and different market segments. I think that was a pretty important pivotal time for me, where I started to see how advanced technologies were being integrated into some of the regulatory processes of surveillance and investigation.

But, at that time, a lot of the technologies that were being used there were not more widely used across other aspects of the regulator. I spent several years in enforcement and then transitioned into data analytics role. So, led a small data analysis team, then became responsible for the FCA's data systems and technologies. Then its broader based strategy. And then, around 2015, '16, the FCA has launched its innovation endeavors and initiatives under Project Innovate, as it was called back then. And at that time, because I was responsible for the data systems and some of the technologies, I started to lead the FCA's work around core regulatory technologies. And then, in that context, work with an incredible team to start to explore how modern technologies and emerging

technologies could be applied, both by financial institutions for compliance purposes, and then through that work we began to learn about, I guess, the technologies of the day, but also the methods and the mindsets that innovators in the market were applying.

And we started to be able to think more consciously and deliberately about how those technologies could be applied to the FCA itself. And so, I performed a variety of different roles. In that time, we also created tech prints as a regulatory tool and an approach to enabling both learning and collaboration and experimentation. And then, for my final about three years, I was the director of the innovation divisions that I led. I had the pleasure of leading a really capable and fantastically engaged and enthusiastic team, that was responsible for the FCA's activities in relating to the external FinTech market. Things like the regulatory sandbox, very policy initiatives in relation to FinTech.

I was the care of the global financial innovation network when it was formed. I still remain responsible for the FCA's RegTech activities. And that really grew into a much greater focus on data science and data analytics. And then, was the joint sponsor with the director of the IT division for the FCA's data strategy and broader digital transformation program. So, ended up with a hybrid role of, both enabling external innovation and then, hopefully, championing and supporting internal digital transformation and innovation.

Jo Ann Barefoot: And we are talking today. You are in the UK and in the London area. I am in the Rocky Mountains in the American West.

Nick Cook: I think you win today.

Jo Ann Barefoot: It's not impossible that you'll see some elk running past me in the background here. But, I'm in New Mexico and that's seven time zones. So, I'm glad that we've had an opportunity to talk. Our team at AIR now actually spans 10 time zones. So, the thing that we want to accomplish today, I think, is to really help regulators themselves and the broader ecosystem around them, legislators and the industry and all the people who are stakeholders in the financial system really prompt them to think about the changes that are needed in the regulator's own technology. You already touched on the fact that at the FCA, your remit included both the external-looking issues, how is the industry using new technology and how should regulators understand and oversee that? But also, how should the regulator itself be using more data, new kinds of analytical tools, new techniques to keep pace with what's happening in the market?

We talk about this every day at AIR, and the longer we work on it, the clearer and more compelling it is to us that the regulatory agencies themselves have to undertake a tech transformation. And it's not just about getting some supervisory tools, sub-tech tools in the hands of their supervisors. It's really going at turning themselves into modern high-tech organizations, in terms of the technology, in terms of the people and talent and in terms of the cultures. And

you know how much I admire your deep thinking on this. And you put pen to paper, so to speak, fingers to the keyboards over recent months. Your paper actually evolved partly at the request of a regulatory agency who said, does AIR have a paper on what we should do? And we said, "Well, we'll write one." So, let's start by talking about why it's so important for financial regulators to take on this odyssey.

Nick Cook: Yeah. Maybe just reflect on why we called it an odyssey. So an odyssey might be defined as a long wandering or void, often marked by changes of fortune. So, if you think of any odyssey, it tends to be epic journeys and they didn't always go smoothly. And I think it's a fairly apt analogy for the challenge that faces many institutions, including regulators. Why do they need them? [inaudible 00:08:47] Sorry?

Jo Ann Barefoot: The original odyssey took 10 years actually, as I recall.

Nick Cook: It's probably not far off the reality, but maybe the audience doesn't need to hear that. In my opinion, the regulatory system needs to modernize its technology, primarily to keep pace with the evolving financial market that regulators are responsible for overseeing the rise of digitally enabled financial services, the massive proliferation of data and the importance of data in new business models, new risk management approaches, new consumer experiences. At the same time that those digital technologies and that proliferation of data in our society and our economy are opening up new vectors and threats around financial crime. And at the same time, you have, to varying degrees and depending on the politics of the day, you have an increasingly, if not borderless, in some cases, sectorless financial services experience. You're seeing the blurring of lines between traditional sectors and the blurring of lines in some cases between traditional economies.

And so, you have this incredibly digitally enabled, data rich, but also challenging environment in terms of new threats, and processes, systems and approaches that are reliant on point-in-time snapshots of data and risk evaluation, and, or, are based largely on judgment and intuition, are unlikely to be successful or effective, given the types of change and evolutions that we see in financial markets. At the same time as well, of course with the growth of, we'll call it FinTech, but maybe it's digital financial services generally, but significantly enabled financial services, you're seeing an enormous increase in participation and inclusion of individuals around the world, who weren't historically taking part in financial services. And in one sense, that is the great opportunity of digital finance. But, we have to be mindful that some of those consumers may not be familiar with the products and services. And, or, the regulatory system to protect them, hasn't been fully developed. So, whilst the technology to serve them exists, the complaints and redress mechanisms, the legal structures, et cetera, might not quite be fit for purpose yet.

So, you've got this very fast-moving, rapidly scaling, digitally-enabled financial experience for consumers and regulators fundamentally need to map that pace and that type of activity through their own processes and oversight mechanisms. And if they don't modernize their technology, or they do so too slowly, they risk either falling behind the industries that they are charged with regulating. They may have significant blind spots in oversight. They may not respond quickly enough to risk. And that may ultimately result in a loss of public trust and support for regulators and regulation. In worst-case scenarios, it could lead to instability of the financial system, or just allow lots of misconduct of varying forms to go unchecked. And so, in many cases, the cost of inaction by regulators is very, very high. And so, in my opinion, they have to embrace these new technologies and various new ways of working and behaving in applying those technologies, in order to fulfill their mandate effectively in the digital way that we see today.

Jo Ann Barefoot:

Yeah. When we founded AIR five years ago, I think very few senior regulators had really come to grips with the degree of change, the importance of technology. And today that I think has completely changed. We find there's interest from all over the world. But, you have said over the years that some people are motivated by hope and some by fear. There's a group that are forward-thinking in terms of, how can we do better? And there's another group that's realizing that, to quote another thing you've said that I've often cited at the FCA, your team realized that if you held still, in effect, you'd be accelerating backwards. That there isn't really the option in this fast-paced environment to not go forward.

And you and I are both former regulators. As a lot of our audience knows, I'm a former controller of the currency in the United States. And both of us have a lot of empathy for the difficulty of this challenge for these regulators. They're very able, smart, dedicated, competent, expert people and they know how to oversee financial services. But, suddenly they have a new dimension of challenges here, that isn't really in the DNA of these organizations and in the skill sets of their teams and their leaders to a great degree. So, given that, put yourself in the shoes of a regulator who's saying, "I know I need to do this. Where do I start? What should I do?" And talk about what the paper offers them.

Nick Cook:

Sure. So, yeah. Just to double down on your point that I do have a lot of empathy for the situation and the challenge that they face. And I'd just add on top of that that it's worth being mindful that regulators in our society are often not celebrated for their successes. But, they are publicly and vocally and repeatedly maligned when they get things wrong. And unsurprisingly, any organization that exists in that kind of context will have a really strong fear of failure and may well have quite a strong status quo bias. So, as well as having a difficult set of challenges to overcome, they also have a context they operate within that might impact their psychology and their behavior. And so, I think that's part of the answer to your question, is to recognize that in order to

digitally transform, there are a number of multifaceted things that regulators need to lean into and to address.

Yes. They do need to invest in upgrading their technological infrastructure, both at the infrastructure layer and at the application layer. And they do need to move away from some of the legacy systems and approaches that they have used historically, probably for something that looks more flexible and where possible, cloud-native. That can be harder for some regulators than others, because we do not have ubiquitous cloud infrastructure access across the globe at the moment. But, there is a need to re-look at the technology infrastructure of the regulators. That's part of it. And the paper explore the number of the different dimensions and questions and choices that regulators, like many other organizations will face, in terms of how and when and in what way one could migrate applications or infrastructure to the cloud.

What is the right mix, or how to think about the mix of buying things off the shelf, in terms of solutions versus building your own? How do you craft a strategy around that and how do you make choices about where to invest your finite resources? Where are you better placed to leverage market economics and scale? And where you better placed to invest in bespoke solutions? The paper also advocates for and explores the different types of technology and approach that are required to move along, or to embrace different forms of analytics. So, we've briefly talked about the need to lean into the data economy and the data environment that we see in today's world. And so, the paper looks at the different flavors of analytics regulators can apply and what they could be used for. But, also what are the underlying technological infrastructural requirements of those different approaches to analytics? And what do the regulators need to invest in terms of mindset, behaviors and methodologies that they're going to apply those types of analytics. There's quite a bit in the paper that explores that.

That obviously sits in the wider context of alongside investment in tech. There is a need to develop a clear data strategy for regulators that addresses governance practices, considers questions of data quality and accuracy. Obviously questions around data security and privacy, and then contemplates that data strategy in the context of the types of data and the types of use to which the data is going to be applied. So, that's where we start to get into some of the trickier issues around bias in models and getting that piece right. So, alongside investment in technology, there's an investment in the policy and governance infrastructure of the organization around data. And then, the other thing I'm really keen to stress in the paper, and I think in some ways it's become more visible to me post my time involved in digital transformation at the FCA. And I think it's partly the gift of reflection.

And then, as you and I have discussed before, I'm also blessed to be married to a psychotherapist. And so, I'm very interested in the psychological and anthropological aspects of innovation and why it is that people respond to change or threat or opportunity in different ways. You spoke about people being

stimulated by hope or fear, but also how people react to change and uncertainty, and then how others react to that response. So, the paper talks quite a bit about the cultural and mindset aspects of innovation. And thinking about both the cognitive biases and distortions that might impede efficient decision making, but also advocates, I hope, for a much more empathic approach to digital transformation, where leaders and colleagues across the organization recognize that everyone will experience their own reaction to change. And that if you can spend time understanding what's going on there and you can create environments where people can share their concerns, you can create environments where people can learn through experimentation. And you can create environments where, in a sea of what feels like constant change, humans can find spaces that feel comfortable.

I think that's a really important part of it. I often hear organizations and regulators say, "Well, change is the new normal. People just need to get used to constant change." And we are not physiologically capable of doing that. Human beings' brains are not designed to cope with ever constant change. The reaction to that that we have is one of stress. And persisting any group of people or any individual in a state of stress for an extended duration of time, any psychologist or psychotherapist will tell you is not a good thing to do. And so, I think part of what regulators need to think about, and certainly leaders in regulators think about is, how do we, in what feels like an environment of constant change, how do we create something that feels like safe equilibrium where we move through a series of stages, where yes, we are continuously improving, and yes, we are making progress and not just viewing it as job and finish and put down the tools and don't look at it again.

So, enabling near-constant change, but recognizing the need to balance that with the psychological damage that constant change can impose on people. So, I think if I was going to summarize that, they're the three big things for regulators to start to think about, is one, what is the technology infrastructure and what's our strategy around enabling more cloud-native, flexible, microservices architectures? Two, how are we going to handle the data aspect? How are we going to manage data? How are we going to govern it? What is our strategy for data? How are we going to embed data-driven decision-making into our governance processes? And how are we going to start to actually leverage this data and use it? And then, third, how do we recognize that fundamentally transformation is a human endeavor and lean into the various mindset methodologies and cultural aspects of that. But, I think they're the three main prongs that hopefully the paper captures some learning and some insights around.

Jo Ann Barefoot:

Yeah. I really think it does. I didn't look directly at this, but I'd say probably a good half of the paper is more on the human, as opposed to the machine side, of what this challenge is about or maybe almost half. And I think we have felt for years that the technology exists already. The technology is not the problem, although there are plenty of thorny tech problems, specifically for regulators.

But, this is about people. It's about building human systems, having the right people, training your people, but more deeply than that, creating the "safe space" as you're describing it, for people to deal with the fact that they don't already know the answers to all this. At this pace of change that we're in nobody has all the answers to where we headed. Look at where we're headed with AI. It's just an almost unique or unprecedented challenge. And so, how do you get there step-by-step, but still fast enough?

I mentioned that we wrote this paper at the suggestion of a regulator. It was actually the head of an agency who suggested it. What's the role of the leaders? Almost every financial regulatory agency today has a tech innovation group of some sort. And many of them modeled it on what you and your colleagues built at the FCA. The FCA was one of the first countries in the world to really undertake this challenge. And a lot of what you've built has been emulated. A lot of those were more outward-facing, regulatory sandboxes and so on and maybe less focused on the agency's own tech needs. But, as you think beyond what these innovation leaders are supposed to be doing and ask, what should the leaders of the agencies overall and their supervision, mainstream staffs of their enforcement groups and so on ... What is it that they should be thinking about?

Nick Cook:

Quite a few things, I think, is probably the simple answer. I think there is definitely a role for leaders to lead by example and to demonstrate an openness and enthusiasm to exploring how new technologies can be applied to the regulatory process. But, I think it's much more than that. I do think, fundamentally, the role of leadership is about cultivating the appropriate culture that embraces change, encourages innovation, values continuous learning, and really recognizing that [inaudible 00:25:53] isn't fundamentally just about adopting new technologies. It's about creating environments where colleagues feel empowered to explore new ideas, to challenge the status quo and to be given some authority and some autonomy to shape the future direction of the organization. And so, I think that involves things like incentivizing, experimentation, being very thoughtful about how much autonomy leaders can provide to the teams. Being specifically thoughtful about whether or not there is a culture of a fear of failure, and why that might be and what can be done to address that.

As I referenced, organizations that are maligned for their failures will often have a fear of failure or atychiphobia, as it's known. And I think part of leader's responsibility, or one of the things leaders could think about doing in order to really accelerate innovation and desirable change, is to think about how failure is framed within the organization, and whether it's framed as an opportunity for learning and growth, or whether it's framed as something that is to be avoided at all costs and a source of shame, embarrassment and punishment. And I suspect you can sense from my language which one of those I think they should do. But, I think there is a need to consciously reframe failure as something that occurs on the path to success. And experimental organizations will often say that unless we're failing, we're not trying hard enough. So, I think again, that's

something for leaders to think about. Are we both observing failure? Are we rewarding the learning from failure? And if we're never failing, is it because really we're just in a very modest version of the transformation that is probably required?

I think going back to the sponsorship angle, there is a need for leaders to be actively participatory in transformation initiatives. At a leadership level I think that includes things like having a greater bias for the use of data in key decisions. So, I think a lot of organizations invest in data science, without also investing in what sometimes refer to as "decision science," like the way in which data flows into the governance and decision-making structures of the organization. So, I think leaders need to play a really key role there. And then, I think as we've touched on a bit, fundamentally, I think leaders have to lead with empathy. They have to acknowledge the challenges and the experiences and the reactions that different colleagues and team members will have to the changes. Some people will embrace it quickly.

We've all seen the adopting curves for new technologies and there are early adopters and there are those that take a bit more convincing to adopt something new and different. And again, that comes down partly to our physiology. We are programmed to respond to uncertainty in a very negative way. That's how we survived the thousands of years. So, I think recognizing that and being empathic about that is really, really important. And then I think finally, and maybe most difficult for many humans and many leaders, is to be vulnerable and open-minded. And it may well be the case that in regulators, like any other organizations, those who have moved into positions of responsibility and leadership in any given context or paradigm or environment, may well not be the best placed to identify the strategies and answers and approaches needed in a new context. So, as the world changes around you, maybe the leaders of yesterday may not have all of the skills and capabilities needed to answer the big questions in this new world. But, I think that's okay, personally.

I think if leaders can recognize that actually the best leaders create space for others to shine and thrive, they focus on removing barriers, they focus on celebrating successes and rewarding learning, and they recognize that wisdom and creativity are not the preserve of the few that happen to be in leadership roles, but they are the gift of many. And a leader's role is the surface that wisdom. And to recognize that as a leader, you won't have all the answers. And if you can be comfortable with that and if you can be vulnerable with colleagues and team members and create space for others to come up with the answers, then I think that's what makes a great leader in our world today. So, yeah. I think there's quite a few things for them to focus on and to address. And some of them are deeply personal and, of course, therefore that's going to create some individual reactions and responses and some self-awareness, I think, of how I as a leader and feeling about the changes that are occurring. I think that's an important part of being able to move through it.



Jo Ann Barefoot:

So, suppose we have people listening who are saying to themselves, "I can recognize myself in what Nick is describing. I know this is important, but I'm not sure what to do." Who should that leader have around him or her? And are those people probably already in the agency? Do they need to be hired? If you are hiring people, how do you recruit? We know there's a dilemma that a lot of regulators talk with us about, on how to attract tech people into government agencies, which people perceive as tech backward and bureaucratic and so on. And then how ... This is a big, multi-part question, so apologies for that. But also, how do you use outside advisors or resources? I think you and I both feel that some of the traditional consulting models that regulators use probably need to be rethought in terms of who has the expertise that you need in this day and age. So, where do you turn?

Nick Cook:

I don't think you turn to one place. I think it's frustrating how many of my answers will be multifaceted in this way. But, I think it is the reality. I think part of the answer to your question is to be careful of assuming that the wisdom does not exist in the organization. I think that would be the first thing I would advocate against. I have definitely heard and seen regulators who malign the creativity of the wider organization, without having thought about whether or not they've created space for that creativity to shine. So, I think part of it is about creating opportunities for the hidden entrepreneurial talent to flourish. And there's various ways you can do that. There's lots of off-the-shelf tools that enable idea capital, which it's sometimes called to be generated and flow and develop within an organization. So I think that's part of it.

I think not least that in many regulators you have individuals with a range of different backgrounds and skill sets and age profiles, actually. That's an important part of it, that actually there are folks in a regulator that are digitally native. There are others who are not, and that's okay. But, maybe it could be the case that some of the more digitally native individuals, who may well not yet have reached positions of leadership responsibility, could have some good ideas about how to embrace this more digital approach. As you'll know, I'm a massive advocate that regulators think consciously and thoughtfully about how they access ideas, and with them, and expertise from beyond their organization as well. There are various ways a regulator can do this. They can do it in very safe ways, like peer-to-peer interactions with other regulators, as you've referenced.

Many, many, many regulatory agencies have been looking at these issues and experimenting and exploring, and they're at various different stages and there is a lot that they can learn from one another, without falling into the trap of thinking there is a cookie-cutter, single way of doing this well. I think that's important. Learn from peers, but don't just copy blindly. Don't mirror what someone else is doing. Be mindful of your own context, your own outcomes, your own culture. But then, lean into the wisdom of academia, of the entrepreneurial sectors in the economy. We learned so much at the FCA from our engagement with, and ultimately our supervision and interaction with FinTechs. That was where we came to learn about the core technologies that are

reshaping our society. And came to learn about how folks build new tech and how they create experimental cultures, and how they enable innovation and how they move to a more agile and rapid prototype and mode of operation.

So, I think as you've referenced, a lot of the innovation units tend to be outward-facing and not many of them, in many regulators, then flow their learning into, be it the IT function or the strategy functions or the RIC functions of the organization. So, much more conscious focus on embracing learning from outside and finding ways of flowing those into the organization, I think is important. Recruitment is a challenge for some regulators more than others. Be mindful that in some markets, regulators are the employer, of choice and they have been for a long while. The central banks in many jurisdictions are still pinnacle employers for many, many folks in society. So, they often do have the choice of who to hire.

It's just perhaps that their understanding of the skills that they need or their familiarity with the different, maybe it's working styles or it's different preferences of different generations and different skill sets ... They need to be mindful of that. And so, we found it wasn't actually that difficult to hire the talent we needed into the FCA. What we had to be more thoughtful about was how ... Well, a couple of things. How do we potentially embrace the idea that people might not be with us for very long? So, we might be able to recruit, but we might not be able to retain for as long as historically we had become accustomed to. So, how do you get the best value from someone? How do you create an amazing experience for them during the time that they're with you? How do you make sure you don't lose their knowledge and their wisdom, if and when, they leave. But, not assuming that they're going to be with you for a decade or 12 years, maybe they're only going to be with you for three years.

So, I think regulators thinking about, in the event that maybe we might have higher churn and higher turnover of people that we bring in, we really should make sure that things like the recruitment time frame makes sense. If you're hiring someone for 15 years and it takes you a year to hire them, that's probably okay. If someone's going to be with you for two-and-a-half years and it still takes you a year to hire them, suddenly the economics don't really look great. And so, I think there are a number of recruitment processes, and maybe even recruitment biases, that regulators might need to re-explore. We were very conscious in the innovation division at the FCA to start reducing the assumed skills or assumed capabilities that had appeared on every single job description. So, you must have a degree, or you must have five years' work experience.

And so, I would encourage my teams to ask the question of why? Why does that matter? What we actually need is probably a 17-year-old with incredible programming skills. Does it really matter whether they've had five years' professional experience in the financial services industry? Maybe not. So, I think there are some things that might need to be looked at in terms of what is considered a minimum standard for recruitment of roles. And then things to

look at in terms of how you go about recruiting and accepting talent. And whether or not the regulator is visible in the right talent pools. I think that's the other thing for regulators to contemplate. Are we known in the spaces that we need to be known? And so again, relationships with academia can be really powerful there. Like hiring people out with the skills that you are looking for. And in terms of consulting, yeah, I think maybe there is a need to consider new approaches to consulting and advisory services. Obviously we do some work on that at AIR.

And I think where we've tried to focus and create a bit of a niche and a bit of an area of specialism is in this combination of embracing the human-centric aspect of innovation, the psychology and anthropology of innovation, alongside the well-established focus on the technology build out, the governance, the risk management. And I think there is probably a need for regulators to be able to access lived experience and insight around ... I think I've said this to you before, I would hire more psychologists. If I was a regulator driving a digital transformation program now, one of the first hires I would make would be a psychologist, to understand why people react. How do I create incentives for people? Maybe it's an economist or a psychologist, a behavioral psychologist, someone like that. But, people don't understand why humans react to certain stimuli in certain ways and how you can therefore go about attracting the right talent. How you can create the right environment internally and how you can reward courageous risk taking. So, I think it's not just hiring programmers and cloud engineers. I think the psychology aspect is key.

Jo Ann Barefoot:

I think an aspect of that, and we've seen some regulators do it, whether they're thinking of it in terms of hiring a psychologist or not, they are trying to bring in skills like human-centered design, which has been so prevalent in the tech world for so long and really not so much in the government of any type. And thinking through these questions of how are people going to do this task? What are they trying [inaudible 00:40:49] I love it that you referred to the generation issue. I'm a baby boomer and I'm a great believer that, as we get more younger people into influential and decision-making roles, we're bringing, as you say, digitally native people. We're bringing a different dimension. And I think one of the things that we hear all the time is that younger people come into these regulatory agencies and take a look at the technology and say, "I can't believe we do it this way." And older people too.

I'm not digitally native, but I expect good digital tools in everything I do today. And why would we not have that in the function as important as financial regulation, where there's so much at stake and we need better information. We need faster, more timely information, we need better analytical tools. We know that regulators are inundated in reports that they don't have time to read and can't fully digest. Increasingly we are using AI to help understand what is data telling us. And there's just whole new approaches available.

One thing I want to ask you about is at the FCA, you and your team ended up really creating a very large division. You went from a handful of people to a major workforce. And since you've left, they've gone on many more things we can link to the podcasts that we've done with them more recently. But then, we look at the resource issues in other markets. And at AIR we're doing a lot of work, you're leading most of it. With regulators in Africa. We're planning a tech sprint in West Africa next year on consumer financial protection in digital markets and so on. Can technology be a solution for regulators that are seriously resource constrained? And how best could they go about making the most of the resources that they have?

Nick Cook:

Yeah. So, compared to other regulators and markets our innovation team was large and the amount of resource, both financial and human, that we applied to the FCA transformation was substantial in absolute terms. But, it's worth remembering the size and complexity and scale of the UK financial market that the FCA is responsible for, as well. So, the FCA supervised and still does supervise over 50,000 entities, who collectively employ several million people and who, as an industry, contribute very close to double-digit percentage of UK GDP, which is a huge, huge number. And so, even though we did have a pretty large investment in this activity, as a share of the overall workforce of the FCA, and in comparison to the size and complexity of the market we were supervising, it was still relatively modest, I believe.

I think your question, though, is technology one of the key enablers to cope with limited financial resources? I think that is the question we were fundamentally answering ourselves at the FCA. There was no way that 2,500 to 3,000 people, across all of the different regulatory functions the FCA was responsible for, could ever effectively supervise 50,000 entities of varying size, scale, complexity in dozens of different market segments and hundreds of different products market. It was impossible. So, it was actually the increasing complexity of the supervisory responsibility of the FCA, alongside the learnings that we were having in the FinTech market, that created, in my opinion, many of the catalysts that then gave rise to the investment in digital transformation. And so, put simply, there is no doubt that advanced analytics, data science, cloud-enabled infrastructure, can review and analyze data of various forms structured, unstructured, from multiple sources in close to real time, at a scale and level of sophistication that human beings are entirely incapable of.

And so, recognizing that and recognizing that for many regulators, they do not have the complexity of the financial markets that the FCA UK was responsible for ... And also recognizing that there have been, I guess ... I don't know if you'd call them vanguards, but there have been early adopters around the world, in terms of regulators who have done a lot of the experimentation, who have got hands on with lots of technologies, who were investing at a time when the technology was much more expensive than it is today. There is a vast amount of learning out there that can be applied. And so, I think part of the answer to your question of how do you do well with limited resources is, don't do the same thing that

someone has already learned how to do. Don't learn the same thing again. Learn something new, learn something different. And if you can, and if you're able to, be generous and share your learning with your peers and other regulators.

But, take account of what's already been attempted, what's already been done. There are various regulators who have built cloud-native architectures. There are those who've experimented with an absolute myriad of different technological and analytical methods. There are those who have built incredible scale reporting systems that operate in real time, delivering meaningful insight for dozens or hundreds of people within the organization. There's a lot of learning out there. I think that being said, what they've all learned and what most regulators do well, who have done this well, is they start small. They get hands on. They experiment. They understand what value means to their organization. They understand the risks, the issues, the business decisions that are fundamental and are important. And they try and target their finite ... And "finite" can mean different things to different organizations. But, they target their finite resources where there is either the highest possibility of success and, or, the highest realizable value to be gained. So, they are very conscious in how they allocate their finite resources.

I think there are things as well, that regulators can do in concert with one another. And we haven't really seen that. You and I have been hoping for this wave to come through in some form for a while. And you've started to see the early stages of it, but there hasn't been the development of shared solutions or common solutions, or open solutions for supervisory needs as yet. But, it does seem almost inevitable that, as you've now got dozens or hundreds of regulators who are starting to look something like an [inaudible 00:48:28] market, that you might start to see more off-the-scale for more common solutions, or more open source solutions that are applicable.

And then I think the other thing to be mindful of, is to recognize that the worst thing to do is not start. The thing that has to happen is regulators need to get on the journey. And so, finding the next best action ... And again, we're going back to some of the methodologies and the mindsets of FinTech here. But, embracing that idea that we don't know the whole journey that we're going to undertake. We can't possibly foresee our entire journey ahead. But, we can be pretty clear what are our sensible next best actions today. And so, given we've got limited resource and we don't want to waste too much money, actually it would be a horrible waste to spend all of that resource trying to conceive of a perfect strategy, trying to conceive of a perfect approach, only to find out in six or 12 months that it was wrong anyway.

And so instead, if you can lower the cost of starting, lower the cost of experimentation, get hands-on, start learning from others and act, rather than analyze and strategize for too long, but get into a space of action and learning through doing, I think that's where you start to actually value from finite resources, rather than that finite resource just in a back room strategizing and

planning for months and months on end, only for those plans to not actually withstand ... What's the phrase? The best strategy never withstands contact with the enemy? Obviously a military phrase, but I think it's applicable in this context as well.

Jo Ann Barefoot: This is such a subtle point and such a profound one, that the regulator has to become comfortable with moving forward, without knowing exactly what is going to happen, how they're going to do it. They're going to have to become agile in the sense of being able to move ahead and then iterate again and change. Making this whole system more agile and updatable is really challenging. And it's going to be necessary because of, again, the pace of change in the technology itself. I've told you the story of working with one of the US regulators a few years ago, and visiting with them and having their person who was leading their innovation work tell me about having had an epiphany over the weekend, because she had been reading the FCA's website.

And she said that the light bulb that went off for her was that a financial regulator can move. She was a lawyer and she was saying, "We don't put anything out that isn't know lawyered to the teeth and buttoned up and we're just completely confident in what it is. And instead we need to start taking action and communicating in ways that are saying we are embarking on a journey. And we'll be figuring out as we go. We'll be communicating, we'll be taking input." I also want to-

Nick Cook: Yeah. That we are knowingly imperfect. I think it's an unusual position for regulators to adopt. And actually, worth remembering, whilst the innovation program and the digital transformation program now is very, very large, it did not start like that. And in fact, when it started, I remember my boss at the time, he was inspired by the whole skunkwork concept, the idea that you had this otherness unit, this team that did something that was out of the ordinary. And in some ways the brief for the team was almost, "Don't be like the rest of us. Be consciously different." Now over time you have to become a little bit more sophisticated, because at some point it needs to normalize into the way of being and the way of acting of the organization. But, I think be courageous, be thoughtfully different, and be comfortably imperfect. Those sorts of ideas, I think, are really powerful for very small teams, who inevitably cannot chart the full path ahead of them.

Jo Ann Barefoot: Yeah. Absolutely. I know we're potentially near our time limit. What haven't we talked about that we should?

Nick Cook: I think maybe there's a few other learnings around the innovation teams themselves. So, we're focused quite a bit on the leaders. And maybe we start to tackle it here with this idea that, at some point, whilst the innovation team is encouraged to be disruptive and encouraged to be differentiated, one must be thoughtful about how that's perceived and experienced by the other parts of the agency and other colleagues. And so, I think there's some simple things to

have in mind. One, don't only ever do the really exciting, appealing work. At some point, you have to do some of the drudge work. You have to do something that, unambiguously your colleague would recognize as being something they don't want to do. And I think consciously leaning into that idea from time to time, I think is helpful.

I think the other thing is, again, and I think we're focused a bit on the psychology, the psychological learnings, the human-based learnings for leaders. They are very applicable for the innovation team as well. It's definitely something I saw and experienced and have seen in various organizations, where innovation teams are frustrated with the response they receive from their colleagues. And I understand why it's frustrating when someone says no or someone doesn't seem to be on the journey with you.

But, I think, again, just having a really strong bias for empathy at that moment and ask the question of, why might they not be enthusiastic about this? Is there something that we're doing that might be generating that reaction? Is there something in their lived reality that we need to be thoughtful of? Is there something in the way in which they're rewarded or the way in which they're incentivized, or the structure that they operate within that we are anathema to. We are in some ways causing some sort of strong reaction to. So, I think again, and I realize how focused I'm on this issue ... But, I've often said that in the age of machine learning, the most fundamental thing I think we need to do is invest in human learning. Understand how humans act, how humans behave, how humans respond. And if we can do that, we can find strategies to embrace machine learning. So, I think maybe just to double down on that point a little bit.

Jo Ann Barefoot:

Yeah. That's great. We have talked to AIR about the idea of maybe creating a regulatory innovation heroes or something like that, because every agency has people in it. Some of them are in the innovation groups, a lot of them aren't, who really are trying to think about, how do we do this work better using technology? And increasingly the tide is turning in their direction, but still a lot of them fight the tide every day just to try to figure out how do you have impact. So, I love that point. Anything else you want to explore?

Nick Cook:

I guess there's just the discipline around technology that we haven't necessarily covered. And we do cover it in the white paper. And again, it's part of the human reaction to technology, but being mindful that as you start to adopt more technology-driven, data-driven approaches, that presents new types of risk and threats for the regulator to manage, primarily cyber-based threats. And so, I think just, again, that's probably a space where external expertise is going to be particularly helpful for regulators in understanding whether new types of infrastructure or new reliance on different data systems, or new automated decision-making systems. As you start to embrace those, how do you do that safely?

Particularly bearing in mind, one, the pivotally important role that regulators play in ensuring the integrity and protection of consumers in financial systems. And two, that regulators increasingly have access to, whether they saw it or not, is a choice that they perhaps need to make ... But, they have access to some of the most sensitive and some of the least publicly available data in our economies. And that therefore makes them an attractive target for cyber attacks and cyber intrusions. So, I think I'm a technophile and a lot of the paper is written by a technophile who believes that actually our progress as regulators is entirely reliant on embracing these new technologies and finding ways to enable teams and colleagues to use them. But, we have to do that mindful of the new threats and the new risk factors that we create in doing so.

Jo Ann Barefoot: Absolutely. We don't underestimate the difficulty of this challenge. We have a second paper coming behind this one. Do you want to talk a little bit about what that will add to the metrics?

Nick Cook: Yes. So, for those that can firstly bear to go on an odyssey, and then maybe it's almost like diving down the rabbit hole, the next paper is going to go a level down. So, in many ways, this first paper is about the infrastructure of digital transformation, both the technology infrastructure and the cultural infrastructure of transformation. The next paper's taken down into the application layer. So, what we're going to do is, it's going to be a shorter paper and it's really to try and bring alive for regulators than others, an understanding of how specific analytical approaches or specific technologies can be applied to deliver value to regulators against some of their core needs.

So, we're going to look at a series of capabilities that regulators generally require. It might be things like anomaly detection or it might be things like process automation or complaint handling automation. But, we'll pick a series of both longstanding capabilities and some of the new ones that we think regulators need in today's world. And we'll try and give a viewpoint on, what does the application layer look like? We to go a bit beyond just saying you could use AI and machine learning. We'll start to point out some specific models of machine learning that might be applicable, or we'll talk about how simulation technologies might be applied, for instance, for exploring different types of financial crime, for instance. So, just going down the rabbit hole a bit further and more into specific applications and technologies.

Jo Ann Barefoot: Right. We have a lot of resources for regulators that they're growing. And I would love to call on the audience to let us know what would be most helpful to you. Should we be doing more conferences? We have learning series. We're coming out with a new model risk management white paper. We wrote one previously. We have a paper on AI and financial regulation. We're trying to explore all of these topics, but meeting people where they are is our challenge, to find out what would be most helpful to people. So, we would love to hear from that. Someone suggested to me the other day that maybe we should run a monthly online gathering and showcase a regulator every month. What's an



innovation that some regulatory agency is wanting to share with others? And would others like to come and join in that? So again, we'd love to know what is most helpful. Nick, do you want to distill this into any parting words of advice, or words of wisdom, that you hope people will keep in mind as they go forward and as they read the white paper?

Nick Cook:

I can try. It's a long paper and for that I slightly apologize. But, I think what I would say is, for those that read, it is hopefully written with understanding and empathy of the challenge that regulators face. But, it is also written from the point of view that change is a must that has to occur. There is a need for us to modernize our regulatory systems and our regulators. That to do that well, will take courage and will require some risk taking. And when one is faced with that, I think it's really important to remember that today's system isn't perfect. I think that's one of the other things that you often see, is that we compare new technologies, new methods, new ways of doing things to some perceived nirvana, some perception of perfection. And that isn't the system we have today. We have a system that has flaws. And that's okay, most systems do.

So, when regulators and their leaders and their teams are exploring what they might do, let's make sure we compare it to the right standard. Let's not compare it to perfection. Let's be really thoughtful about how good, or not, our current models and approaches and systems are. And then, recognize that it will be an imperfect journey. I think that's the real message that I would hope anyone takes, is that to err is probably the most human thing that any of us can do. We will make mistakes. The greatest shame is to continue to invest in something that has proven to be ineffective. It's far better to seek, to learn, to pivot and to go again. And I think if we can all embrace that mindset, that through experimenting and through trying, we will learn the most. And we will ultimately chart our way along the path in the most effective way.

And we would do that by working together and enabling others to bring their wisdom to the problem and suggest solutions. And that as leaders, our role is to create that space. That's our role, fundamentally. Create the space for progress to occur. And then be mindful. My paper will age quickly. I think that's the other thing. And the temptation to keep editing it and keep adding new sections, new ideas, but it was really, really high. And so, apologies if anyone reads it and thinks, "The world has already moved on." But, maybe that in and of itself, is the strongest message, that the world will continue to move on. And so, all we can do is invest in the methods and the mindset to be able to cope with that. And hopefully there are some learnings in the paper and some ideas that give people, at least a head start, or something to work with.

Jo Ann Barefoot:

That is so well taken. So, it's called The Regulator's Odyssey, and you can download it at our AIR website, which is [regulationinnovation.org](http://regulationinnovation.org). And Nick, I can't thank you enough for sharing your thinking with us today. It's exciting, inspiring and essential, it seems to me, to get people in motion. So, thank you.

Nick Cook: Thank you, Jo Ann. I appreciate the time and the conversation.

Jo Ann Barefoot: Where is my ... ? There it is.