



National Cyber  
Security Centre  
a part of GCHQ

# UK Cyber Security Research for Financial Technologies

An NCSC/EPSRC sponsored workshop  
held at Newcastle University at London | March 27, 2018.  
40 participants from industry, government and academia.  
A full report of the workshop is available from the organisers.

## EXECUTIVE SUMMARY

1. **Resilience, not just cyber security.**

Delineation of the problem space to 'cyber security' would not fit with financial industry nomenclature, since regulatory and industry needs are expressed in terms of operational resilience. Moreover, the concerns of government go well beyond cyber attacks and include unintended consequences of automation (bias, ethics), justification of regulatory measures, ecosystem resilience, etc. Future initiatives therefore should aim to cross academic disciplines and concern all aspects of resilience of the financial industry sector.

2. **Strong government need for research and academic investment.**

The need for academic research in financial industry is not only driven by commercial opportunities and industrial challenges, but also strongly by the need for government to protect UK's economic and citizen's interests. Recent crises in both the tech and finance sector demonstrate the challenges for government. Thought leadership can assist government in establishing effective governance for the complex and fast-moving financial industry and the underlying technologies. Growing a sizable, world-leading community of researchers and experts could therefore be an invaluable tool to improve government's ability to prevent and respond to potential crises.

3. **Need for establishing a research community.**

Academic research directly associated with financial technologies was felt to be relatively sporadic and isolated, even if a lot of deep expertise exists in the UK that could be translated to the industry. A wide-spread need was felt to establish a community platform and network activities in support of a better integrated

interdisciplinary research community. Such a community could also shed light on and explore how to overcome the system mismatch that was widely considered to exist between the various sectors, e.g, with respect to incentives, time lines and ways of working.

4. **Improve the talent pipeline.**

A better interaction between industry and academia would help establish and continue to feed the talent pipeline of high-quality graduates the industry desperately needs.

5. **Priority research topics.**

The workshop did not aim to rank or prioritize research questions, but the following research areas were among the most frequently mentioned:

- establish approaches to **evidence-based regulations**, to support or advice on initiating regulatory measures and anticipate the consequences of regulations
- development of approaches to manage cyber resilience through advances in **risk management techniques**, without ignoring societal concerns
- understand the resilience impact of continued **automation** throughout the finance industry, for instance in automated trade, automated banking services and develop technology to both exploit and provide resilience to AI-based automation
- provide safe solutions to **open banking**, respecting regulations to both open up banking and protect customer data
- advance specific **cyber resilience technologies**, including traditional network security, fraud detection and post-quantum cryptography and develop safeguards for technology developments such as crypto-currency, online and open banking.

6. **Approaches to funding.**

Funding initiatives could innovate in approaches to bridge between and integrate the three sectors (industry, government and financial services), developing mutual understanding and joint ways of working. Such initiatives could include identification of problems by industry and government, funds to create a community, or funding for interdisciplinary interaction or industry/government/academia co-creation.

Workshop organization:

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Jenny Conn, Newcastle University (diversity & equality observer)

Mohamed Ali Aamir, Newcastle University (note taker)

Jasmine Walker, Newcastle University London (local organiser)

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