

The UK's Midata and Open Banking programmes: a case study of data portability and interoperability requirements

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This case study uses document and market outcomes analysis of the UK's technology-focused self-regulatory Midata and co-regulatory Open Banking programmes. It examines how effectively these voluntary and regulator-overseen industry-led actions increased competition and created better-functioning, more innovative and diverse markets for personal accounts and small business banking in the UK. It focuses on the use of two technical mechanisms to increase competition: data portability, and interoperability. These programmes went further than the EU's second Payment Services Directive, including a co-regulatory obligation for the nine largest retail and small business banks to agree a common technical interface and standards for security, user experience, and other areas identified as important to customers, overseen by a trustee appointed by the Competition & Markets Authority (CMA). We explore how these requirements evolved from an ineffective voluntary portability regime to in-depth interoperability obligations imposed by the CMA, which have enabled hundreds of firms to create a thriving UK "fintech" market of complementary financial services.

1. Introduction

This case study uses document and market outcomes analysis of the UK's technology-focused self-regulatory Midata and co-regulatory Open Banking programmes. It examines how effectively these voluntary and regulator-overseen industry-led actions increased competition and created better-functioning, more innovative and diverse markets for personal accounts and small business banking in the UK. It focuses on the use of two technical mechanisms to increase competition: data portability, which reduces switching costs, and interoperability, which shares some scale efficiencies across an industry sector.

Self- and co-regulation have been used in many jurisdictions to deal with complex fast-moving technology-based markets in online services.¹ In self-regulation, industries collectively define acceptable behaviour, technical standards, codes of conduct, and other market "rules of the game". In co-regulation, elements of state authority stand behind the processes determining these rules (such as a requirement for formal approval by a regulatory authority).²

These mechanisms are intended to maximise the contribution of the expert market knowledge of the participants, and to incentivise their compliance; but risk excluding other societal stakeholders and damaging legitimacy.³ We consider how far MiData and Open Banking achieved the intended benefits of self/co-regulation, while addressing its risks.

A long-debated issue of competition regulatory enforcement issue in these technology-dependent markets is the technical capability of enforcers. Posner noted in 2001: "agencies and the courts do not have adequate technical resources, and do not move fast enough, to cope effectively with a very complex business sector that changes very rapidly."⁴ Alexander and Stultz suggested: "to the extent that antitrust actions require behavioral rather than structural remedies, agencies and courts are often ill-suited to the task of implementing and monitoring such remedies, for a variety of reasons. This is particularly true when measured against the institutional capabilities of regulators."⁵ And Crawford et al. suggested "successful deployment of equitable interoperability requirements in important and complex markets will require a regulator with sectoral expertise and enough staff to ensure the regulations increase competition and are fully enforced."⁶

1 Ian Brown and Christopher T Marsden, *Regulating Code: Good Governance and Better Regulation in the Information Age* (MIT Press 2013).

2 Christopher T Marsden, *Internet Co-Regulation: European Law, Regulatory Governance and Legitimacy in Cyberspace* (Cambridge University Press 2011). "plainCitation": "Christopher T Marsden, *Internet Co-Regulation: European Law, Regulatory Governance and Legitimacy in Cyberspace* (Cambridge University Press 2011

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3 Marsden (n 2).

4 R Posner, 'Antitrust in the New Economy' (2001) 68 *Antitrust Law Journal* 925, 925.

5 Laura Alexander and Randy Stutz, 'Interoperability in Antitrust Law & Competition Policy' [2021] *Antitrust Chronicle* 31, 35.

6 Gregory S Crawford and others, 'Equitable Interoperability: The "Super Tool" of Digital Platform Governance' (2021) *Policy Discussion Paper*

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In particular, where complex technical standards are involved, policymakers “must come to grips with how standard-setting bodies operate and how to best bolster their effectiveness through appropriate government support and antitrust law oversight”, as well as be able to “evaluate the comparative institutional competence of alternative bodies which might play a role in remedial strategies and determine which strategies are preferable.”⁷ The “regulator must have the authority to ensure the application of interoperability produces vigorous competition.”⁸

There is also an ongoing debate about the flexibility and efficacy of *ex ante* legal requirements or regulatory rules compared to *ex post* judicial case-by-case enforcement, with some arguing “rules can become obsolete or ineffectual... The law is often nimbler in responding and adjusting to changes and uncertainties than regulatory rules... perhaps an antitrust action supported by a sectoral regulator’s supervisory assistance... would be better suited still.”⁹

In this case study, we describe how the self-regulatory Midata initiative had a limited impact, following which the UK’s Competition and Markets Authority (CMA) required large banks to cooperate in drawn-out ongoing technical standard-setting and implementation processes for Open Banking. We analyse the composition of the vibrant market for infrastructural and complementary financial services that has resulted – less so for services competing with the regulated banks’ core current account products.

1.1. Data portability and interoperability

Midata and Open Banking rely on two technical mechanisms to increase competition. *Data portability* lets a customer take data about them from one firm to another (including price comparison websites), reducing switching costs. *Interoperability* lets a customer use services from competing firms together, for example to authorise a payment or view account information from a bank using an app (such as accounting software) from a second company. It requires a degree of alignment between the data formats and systems of such firms.¹⁰ By sharing the benefits of *network effects* between firms (where each new customer provides potential additional value to other customers), it provides some of the benefits of scale efficiencies across an industry and wider society, rather than them accruing to a single provider.

In a competitive market, data portability and interoperability are valuable functions for customers, which firms have some incentives to support. But in a concentrated market, a large firm’s customers are a valuable source of market power, since it can exclude competitor services from interacting with them via that platform, while using their data to improve product quality and move into related markets in a way that is much more difficult for smaller competitors.¹¹ Where dominant players enable limited interoperability for complementary services, this can give them a means of “distorting the supply of disruptive innovation”, as well as nudging users towards profitable

innovations and exploiting “the economically and culturally marginal and at-risk segments of our population”.¹²

Ezrielev and Marquez have summarised a frequently-expressed concern in the competition policy literature that “interoperability may reduce competition and innovation for digital platforms.”¹³ In particular, “[b]ecause of the uncertainty of technological progress and the challenges of reaching agreement among participants with divergent views and agendas, in some cases the standard setting process may result in inferior technological and design choices. Interoperability standards may also lead to excess inertia, where standards lag technological and design advancements.”¹⁴

There are also concerns standards lead to “design by consensus”, reducing the ability of firms to experiment with new features.¹⁵ And sceptics have noted interoperability may have limited benefits where platforms have significantly different features, and users have different preferences and can easily *multi-home* (use several platforms simultaneously).¹⁶

1.2. The UK retail banking market

The UK’s retail banks have formed a relatively stable oligopolistic market structure for decades, where “larger longer-established banks are able to maintain high and stable market shares.”¹⁷ Metro Bank PLC, which received a banking licence in 2010, was the first new high-street bank in over a century.¹⁸

A lack of competition interacting with significant capitalisation and other regulatory requirements important for consumer protection and macroeconomic stability¹⁹ meant, as *The Economist* noted in 2010: “Banks were the first to use mainframes in the 1960s; many are still using the original applications because it is risky to swap them out.”²⁰ Further controls were introduced following the huge damage to the economy and consumer trust caused by the financial crisis of 2007–8²¹ (which included the first run on a bank in the UK for over 140 years²²).

A 2014 market study by the UK’s Competition and Markets Authority (CMA) found *barriers to entry and expansion* for personal current accounts were high – competitors to existing banks found it difficult to successfully market new products. Customers found it difficult to

No. 4 4 <https://academic.oup.com/ej/article/108/448/545-564/5128568> accessed 17 August 2021.
 7 Philip Weiser, ‘Regulating Interoperability: Lessons from AT&T, Microsoft, and Beyond’ [2009] *Antitrust Law Journal* 305 <https://scholar.law.colorado.edu/articles/454>.
 8 Crawford and others (n 6) 31.
 9 Alexander and Stutz (n 5) 35.
 10 Alexander and Stutz (n 5) 33.
 11 Wolfgang Kerber and Heike Schweitzer, ‘Interoperability in the Digital Economy’ (2017) 8 *JIPITEC* <https://www.jipitec.eu/issues/jipitec-8-1-2017/4531>.

12 Ariel Ezrachi and Maurice E Stucke, ‘The Darker Sides of Digital Platform Innovation’ [2022] *Network Law Review* <https://www.networklawreview.org/ezrachi-stucke/>.
 13 Jay Ezrielev and Genaro Marquez, ‘Interoperability: The Wrong Prescription for Platform Competition’ (2021) 3 *Antitrust Chronicle* 8, 9.
 14 Ezrielev and Marquez (n 13) 13.
 15 Ezrielev and Marquez (n 13) 13.
 16 Ezrielev and Marquez (n 13) 8.
 17 Competition & Markets Authority, ‘Retail Banking Market Investigation Final Report’ (2016) xxiii.
 18 Competition & Markets Authority, ‘Retail Banking Market Investigation Final Report’ (n 17) vi.
 19 Nicolo Zingales, ‘Open Banking, Instant Payment, and the New Wave of “Pro-Competitive Regulation” in the Financial Sector’ in Maria Lucia Padua Lima (ed), *Fintechs & Law* (Juruá 2021).
 20 ‘Computer Says No’ [2010] *The Economist* https://www.economist.com/finance-and-economics/2010/07/22/computer-says-no?story_id=16646044 accessed 13 September 2021.
 21 Holly Powley and Keith Stanton, ‘The Future of Banking Regulation’ (*Institute of Law*, 2017) <https://legalresearch.blogs.bris.ac.uk/2017/04/the-future-of-banking-regulation/> accessed 13 September 2021.
 22 Bank of England, ‘The Financial Crisis - 10 Years On’ (September 2018) <https://spark.adobe.com/page/DAIRb7HdWiHqA/> accessed 13 September 2021.

compare providers, and infrequently switched. This confirmed similar findings by the CMA's predecessor.²³ A further study by the CMA and Financial Conduct Authority came to similar conclusions for the small and medium-sized enterprise (SME) banking market.²⁴

Banking innovations – such as online banking from customer PCs and smartphones – were mainly related to reduced costs, such as closing branches, and increasing existing customer revenues.²⁵ A parliamentary commission reported in 2013: “A good deal of the innovation in the banking industry makes products and pricing structures more complex, hindering the ability of consumers to understand and compare the different products.”²⁶

1.3. Policy-induced competition

Retail banking services exhibit several similar characteristics to digital consumer markets, notably high *returns to scale* (larger firms make bigger profits) based on strong network effects (particularly in payments), switching costs and the availability of customer data (for credit assessment and other purposes). Recognising payment-related network effects, an independent review for the UK government in 2000 recommended licensing of payment system participants and requiring non-discriminatory access by providers.²⁷ And while UK banks agreed with the government to reduce switching costs with the launch of a seven-day switching service in 2015, following a recommendation of a government-appointed independent banking commission,²⁸ financial stability obstacles remained to entrants competing *for* (rather than *in*) these markets (where one firm takes a dominant position away from an incumbent, which can be the only way to overcome high returns to scale).

As Crawford et al. noted, in such situations, it is the difficult task of regulators to stop a dominant firm from buying or burying new potential competitors, which may not anyway appear frequently enough to maximise social welfare.²⁹

Data portability and interoperability are mechanisms by which regulators can introduce “policy-induced competition” and stimulate competition *in* such markets: ‘a perhaps imperfect but still formidable alternative means of allowing market forces to help generate the

“considerable amounts of innovation and wealth creation” that would otherwise be misappropriated or deterred because of an unlevel playing field.’³⁰

In a series of initiatives since 2010, successive UK governments and the Competition & Markets Authority have cajoled and then required major banks to implement these mechanisms, first through a “Midata” initiative, and then through “Open Banking” remedies imposed following a market investigation of personal current accounts and small business banking.

1.4. Midata: data portability

“Midata” (originally called “mydata”) was a government programme undertaken from 2011 with UK businesses and consumer groups to help customers safely access their own transaction data, to “take advantage of the growing number of applications which can use this data to find them a better deal, or tell them interesting things about their spending habits.”³¹

The original vision for the project (shown in Figure 1) included examples relating to financial services, and leading payment and banking providers Barclaycard, Mastercard, HSBC, RBS Group and Lloyds committed to participating in the programme following a roundtable organised at the Prime Minister’s Office.³²

As the programme developed, participating banks enabled customers to download their transaction history, which could be uploaded to price comparison websites to help users find the most suitable personal current account. The first such tool launched on 26 March 2015 on the GoCompare price comparison website.

Following its market investigation, the CMA concluded: “Although the Midata initiative is a positive development, it is not straightforward to use, its current application is not fully effective and its usage remains very low.”³³ A more sceptical observer suggested: “Midata was a complete failure. It was cumbersome for users, relied on one-off snapshots of data that limited what it could be used for, and allowed customers to edit the data themselves, making it useless for purposes like credit scoring.”³⁴ While the latter issue could technically be addressed by the originator providing digital signatures that can be used to authenticate the data, it seems this design possibility was not considered.

The CMA noted other problems with the use of Midata for financial services: “Many of the use cases described rely on being able to access not just individual account data, but also aggregated data (anonymised account data) and reference data (banks’ respective charges, terms and conditions), ideally published as open data. This includes the core ‘Midata’ account switching use case, which would benefit from more standardised data on [Personal Current Account] terms and conditions in achieving its potential.”³⁵

23 Competition & Markets Authority, ‘Personal Current Accounts: Market Study Update’ (2014) 8–16.

24 Competition & Markets Authority and Financial Conduct Authority, ‘Banking Services to Small and Medium-Sized Enterprises: A CMA and FCA Market Study’ (2014) 7–11 https://assets.publishing.service.gov.uk/media/53eb6b73ed915d18880000oc/SME-report_final.pdf accessed 9 August 2021.

25 Open Data Institute and Fingleton Associates, ‘Data Sharing and Open Data for Banks’ (2014) A report for HM Treasury and Cabinet Office 12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/382273/141202_API_Report_FINAL.PDF accessed 2 August 2021.

26 ‘Changing Banking for Good: Report of the Parliamentary Commission on Banking Standards, Volume I: Summary, and Conclusions and Recommendations’ (House of Commons 2013) Command Paper HC 175-1 18 <https://www.parliament.uk/globalassets/documents/banking-commission/banking-final-report-volume-i.pdf> accessed 13 September 2021.

27 Don Cruikshank, ‘Competition in UK Banking: A Report to the Chancellor of the Exchequer’ (HM Treasury 2000) xvi <https://webarchive.nationalarchives.gov.uk/ukgwa/20050302022201/http://www.hm-treasury.gov.uk/media/B90/95/BankReviewExecutive.pdf>.

28 Independent Commission on Banking, ‘Final Report’ (2011) 218–222 https://webarchive.nationalarchives.gov.uk/ukgwa/201208271430590e_/http://bankingcommission.independent.gov.uk/ accessed 13 September 2021.

29 Crawford and others (n 6) 5.

30 Alexander and Stutz (n 5) 34.







31 Department for Business, Innovation & Skills and the Cabinet Office Behavioural Insights Team, ‘Better Choices: Better Deals. Consumers Powering Growth’ (2011) 18.

32 Department for Business, Innovation & Skills and the Cabinet Office Behavioural Insights Team (n 31) 20.

33 Competition & Markets Authority (n 17) xv.

34 Sam Bowman, ‘Why Data Interoperability Is Harder than It Looks: The Open Banking Experience’ (2021) 1 *Antitrust Chronicle* 21, 4.

35 Open Data Institute and Fingleton Associates (n 25) 5.

Morning	Afternoon	Evening
 <p>07:00 Have a shower “How much energy do I use a day?”</p>	 <p>12:00 Lunch “How much do I normally spend?”</p>	 <p>19:00 Internet shopping “How much could I save on my weekly shop?”</p>
 <p>08:15 Cash machine “How much money do I usually withdraw and how long does it last?”</p>	 <p>14:00 Phone call “Am I on the best tariff?”</p>	 <p>19:30 Internet banking “How much did I pay in credit card fees this year?”</p>
 <p>08:30 Commute “What is the quickest route?”</p>	 <p>18:00 Supermarket “How often do I get my 5-a-day?”</p>	 <p>23:00 Bedtime “How much does it cost to leave the hallway light on?”</p>

Business can use your data to answer these questions ...

... but with 'mydata' you could too

Figure 1. Scenarios given by the UK government's 'mydata' programme
Source: UK government, released under the Open Government Licence

1.5. Open Banking: interoperability

Banks outside the UK had already started making use of technical interoperability mechanisms such as Application Programming Interfaces (APIs), OAuth (an authentication protocol), and open data (to share information about products and services) by the time of a review for the UK government in 2014; UK banks were “by and large yet to do so.” The report found “demand for data is strong across alternative lenders, accounting software platforms, comparison and advisory services, payment services and others. Many of these organisations already create considerable value from data.”³⁶

To encourage this further, a joint industry-government Open Banking Working Group was created by the UK Treasury in 2015. Its objectives were to create a framework for an open API standard, publish a plan for the standard to be created and administered, and evaluate the use of open data for benefits to consumers and business.³⁷

The group was asked to produce recommendations beyond technical specifications, considering as well “key issues around customer usability and trust, security of data, liability and governance of the open API standard” and informing “the development of business, legal and technical policies required to develop the open API standard alongside governance and protocols”.³⁸

While the group was asked to work in an “open” and “collaborative” manner, its governance (steering committee) was dominated by the banking industry, with a co-chair from Barclays and seven of the remaining thirteen members from banks, two members from trade associations (representing fintech and tech startups) and

two NGO representatives (OpenCorporates, and a second co-chair from the Open Data Institute).³⁹

The ODI/Fingleton review noted an incentive for banks to enable interoperability to remain at the centre of *ecosystems* of complementary software and services rather than being “unbundled” by competitors.⁴⁰ However, for competitive rather than complementary products, it is generally in the interest of dominant digital platforms to exclude competitors fully or partially from access to their customers.

Even in the UK's oligopolistic markets for personal current accounts and SME banking, this “platformisation” strategy did not prove enough of an incentive for banks to put APIs in place without external regulatory requirements. For complementary services, “applying an open API standard across the whole sector would create the optimal conditions for the re-use of data. However, some organisations predicted that it would take considerable effort and co-ordination to achieve.”⁴¹ Furthermore, “exclusion of rivals from a network, through denial of interoperability...depriv[es] consumers and other network participants of the benefits of positive network effects—that is, of the added value to the network itself that the excluded rivals would have provided.”⁴²

2. Open Banking interoperability requirements

Open Banking-like services had already begun to develop on a small scale during this period, using so-called “screen-scraping”, such as SafetyNet Credit, Pariti and Money Dashboard. However, screen-scraping is a technically inferior mechanism, relying on software impersonating a user accessing a bank website, which is inefficient (slower and with a greater communication overhead) and

36 Open Data Institute and Fingleton Associates (n 25) 4–5.

37 Open Banking Working Group, ‘Terms of Reference’ 2.

38 Open Banking Working Group (n 37) 2.

39 Open Banking Working Group (n 37) 6.

40 Open Data Institute and Fingleton Associates (n 25) 5.

41 Open Data Institute and Fingleton Associates (n 25) 5.

42 Alexander and Stutz (n 5) 34.

Open Banking Ecosystem Key participants

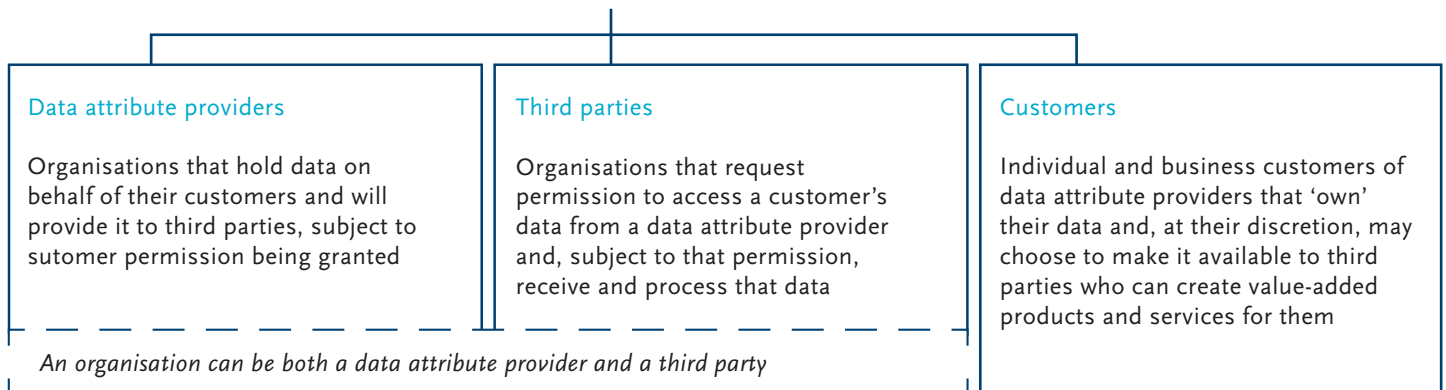


Figure 2. Open Banking ecosystem key participants

fragile (since it can break every time a website is changed). It also creates a significant security vulnerability, since users must share login credentials with the software, which can then use them to carry out any actions the user can via the website – with no means for the website to differentiate the user and the software.

As the UK government noted later, “Open Banking was around for a decade before it picked up pace, and the key impetus was legislation [sic] requiring banks to participate and fund an implementation body.”⁴³

Following a market investigation, the CMA made a Retail Banking Order⁴⁴ which required the nine largest British banks to participate in an Open Banking Implementation Entity and implement the standards it agreed, including for APIs. In parallel, all UK banks were required to support broader elements of access to account information and payment services by chapter 2 of the second EU Payment Services Directive⁴⁵ (which was implemented in UK law by the Payment Services Regulations 2017). The participants identified in this ecosystem by the Open Banking Working Group are shown in Figure 2:

In a 2021 review, two CMA officials noted the ambition of this remedy, going beyond addressing specific competition problems: “open banking opened up the possibility of something a bit more radical: market transformation, by creating a new ecosystem of innovative products and suppliers, forcing incumbent banks to raise their own performance, benefitting customers.”⁴⁶ By putting an Implementation Entity at the centre of the design of Open Banking, overseen by

the CMA and with a consumer representative, the programme was intended to ensure the innovation paths and incentives it fostered were beneficial for wider society.⁴⁷ It also reduced the risk of regulatory capture of the CMA.

Examples of the new types of services envisaged by the CMA Market Investigation were:⁴⁸

1. Unbundling products such as overdrafts and savings accounts from current accounts.
2. Removing incumbency advantages of SME banks with access to customer transaction history in providing loans.
3. Automated transfers of money into interest-earning savings accounts, and from lower-cost loans to avoid overdrafts.

2.1. The Open Banking Implementation Entity and Trustee

The CMA Order required the UK's nine largest high-street banks to set up an Implementation Entity (OBIE) to “agree, consult upon, implement, maintain and make widely available, without charge open and common banking standards” including an open API standard, data format standards, security standards, governance arrangements, and customer redress mechanisms.⁴⁹

The banks were also required to appoint a CMA-approved Implementation Trustee to oversee this process, consulting stakeholders and identifying consensus and where this was not possible to impose a decision, providing monthly update reports to the CMA, and monitoring bank compliance. The Entity was chaired by the Trustee, and made up of industry specialists (financed by the banks) and a programme director, and other stakeholders such as the government Treasury.⁵⁰ A Steering Group advised the Trustee, made up of representatives of the

43 Department for Business, Energy & Industrial Strategy, ‘Next Steps for Smart Data: Putting Consumers and SMEs in Control of Their Data and Enabling Innovation’ (2020) 13.

44 The Retail Banking Market Investigation Order 2017.

45 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Text with EEA relevance) 2015 [32015L2366].

46 Adam Land and Bill Roberts, ‘Open Banking, the UK Experience’ (2021) 1 *Antitrust Chronicle* 7, 9.

47 Ezrachi and Stucke (n 12).

48 Competition & Markets Authority (n 17) 443.

49 The Retail Banking Market Investigation Order 19–20.

50 The Retail Banking Market Investigation Order 64.

banks, CMA, industry body Pay.UK, the Payment Systems Regulator (PSR), national data protection authority the Information Commissioner's Office (ICO), Treasury, Financial Conduct Authority (FCA), industry representatives, and independent consumer and small business representatives.⁵¹ The entity had significantly greater resources available to it than the CMA would have to oversee such a project, with a direct budget of £32.7m in 2020 (down from £47.6m in 2019) and significant staff resources from the banks.⁵²

Much of the preparatory work for the OBIE was done by a working group of industry experts, following a request from the UK government.⁵³ One of their key findings related to avoiding anti-competitive behaviour in the work of the entity, stating it must ensure unrestricted participation, transparent procedures, and access to a voluntary standard on fair, reasonable and non-discriminatory terms.⁵⁴ These correspond to the requirements of the EU's horizontal cooperation guidelines.⁵⁵

Following several OBIE staff complaints of bullying and harassment, and a critical review led by an independent legal firm appointed by the CMA, the first implementation trustee resigned in October 2021. The review criticised the fact that “too much power was vested in one individual (the Trustee) with insufficient checks and balances. The Trustee's role under the Order placed him in a position of conflict: he was responsible both for leading [Open Banking Ltd] and ensuring it was properly managed but also for supervising it and those that funded it (the CMAg).”⁵⁶ In response, the CMA appointed new non-executive directions to the OBIE board, to provide “appropriate independent scrutiny and oversight.”⁵⁷

2.2. Technical standards development

The Open Banking Working Group originally envisaged a data interoperability-focused standard, with financial service providers holding customer data (shown in Figure 2 above as “data attribute providers”) enabling access to third parties following customer authorisation.⁵⁸

As well as “read” access to this data, the standard also defined “write” access to include payment initiation, even if payments are actually initiated by calling an API function, rather than writing data to the provider system.⁵⁹ From a technical perspective, the state of any system can be altered by “writing” new data into its memory/storage areas – although it is bad system design practice

to do so, making the resulting system fragile, since any internal redesign can break any other system using it, and validity checks cannot be done by the system on values being written to its memory/storage.

Due to its pioneering nature, the Open Banking Working Group found “there are a number of emerging financial API sets in the market, but there is no existing standard that meets all requirements for an Open Banking API.”⁶⁰ However, several fundamental technical standards were recommended by the WG, including the JSON data format and the OAuth authentication standard. The overarching standard framework defined by the group has five key elements:

1. API Standards – with functional conformance testing every time API specifications are updated.
2. Security profile – Open ID Foundation assesses bank conformance with the Financial-grade API (FAPI).
3. Customer Experience Guidelines – manual assessment of conformance.
4. Operational Guidelines benchmarks.
5. Open Data Standards.

The complete set of APIs enable authorised access to customers' bank account balances, transaction histories, and details of regular payments; and to execute payments.

2.3. Security mechanisms

Consumer research found that security and redress were one of the most significant concerns of potential Open Banking users, who expected “bank-grade security around their finances”, “financial compensation for security breaches” and “their bank to be involved in the administration of such claims.” 77% of respondents thought “third parties accessing their financial data should be regulated.”⁶¹ The CMA Market Investigation similarly found: “Customer confidence in the security of their information and, if a breach does occur, the availability of appropriate and speedy redress, are likely to matter at least as much to customers as the opportunities and benefit from using new technology.”⁶²

To address these security concerns, the Open Banking Working Group decided to implement a control framework “that allows flexibility for future threats and technical flexibility to allow innovation in implementation of the controls.”⁶³ Banks also noted the importance of parallel Regulatory Technical Standards being developed as part of the EU Payment Services Directive 2 process, and identified the main issues to be addressed as “(i) authorisation and authentication standards; (ii) standardised permissions frameworks (i.e. the need to ensure and manage explicit customer consents); (iii) whitelists (i.e. lists of third parties with the necessary security clearances); and (iv) customer redress mechanisms.”⁶⁴

51 Open Banking Implementation Entity, ‘Annual Report 2020’ (2021) 26 <https://assets.foleon.com/eu-west-2/uploads-7e3kk3/48197/obie-ra-art-work-10096a5716bf30-2.5853a6c2c203.pdf> accessed 15 September 2021.

52 Open Banking Implementation Entity (n 51) 28.

53 ‘The Open Banking Standard’ (2016) 3 <http://theodi.org/wp-content/uploads/2020/03/298569302-The-Open-Banking-Standard-1.pdf> accessed 2 August 2021.

54 ‘The Open Banking Standard’ (n 52) 66–67.

55 Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements 2011 1, para 280.

56 Alison White, ‘Investigation of Open Banking Limited’ (Competition & Markets Authority 2021) 14 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1022451/Independent_report.pdf accessed 25 October 2021.

57 Kalyeena Makortoff, ‘Chair of UK Open Banking Body Resigns over Bullying Report’ (*The Guardian*, 1 October 2021) <https://www.theguardian.com/business/2021/oct/01/chair-of-uk-open-banking-body-resigns-over-bullying-report> accessed 19 October 2021.

58 ‘The Open Banking Standard’ (n 52) 10.

59 ‘The Open Banking Standard’ (n 52) 18.

60 ‘The Open Banking Standard’ (n 52) 29.

61 ‘The Open Banking Standard’ (n 52) 16.

62 Competition & Markets Authority (n 17) xxxviii.

63 ‘The Open Banking Standard’ (n 52) 6.

64 Competition & Markets Authority (n 17) 453.

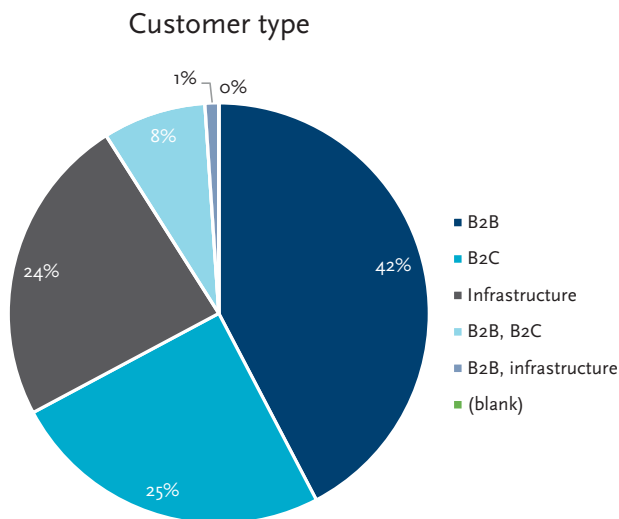


Figure 3. Intended users of third-party service
source: Open Bank Directory

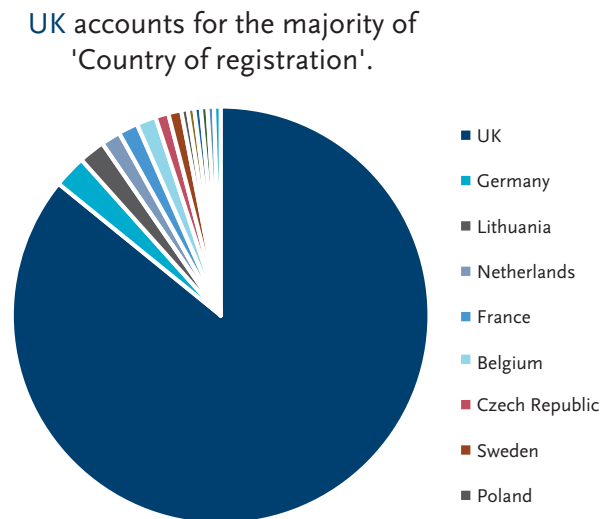


Figure 4. Country of registration of non-bank third-party providers
source: Open Bank Directory

The Working Group noted the availability of “existing, mature, open security protocols and standards” for the API specification, including “TLS, OAuth and OpenID Connect”, as well as applicable broader security standards: ISO 27000; PCI DSS (a payment card industry security standard); the Cheque Printers Accreditation Scheme (CPAS) and tScheme.⁶⁵ The framework suggested using CPAS as a model – “a security accreditation model based on ISO27001 with a specific minimum threat profile, against which independent auditors can assess the security of data attribute providers and third parties”.⁶⁶

A key decision was whether firms using the API had to be accredited. Given the sensitivity of customer account data and especially payments initiated from those accounts, this was required by the Implementation Entity – although the working group noted the potential issue of anticompetitive use of this by banks to “impose obligations on [third party providers] that go beyond what is necessary to ensure customer security.”⁶⁷ Companies accessing account information must be accredited by the UK's Financial Conduct Authority. A review concluded this accreditation was one key reason for the success so far of the Open Banking security framework.⁶⁸

3. Open Banking outcomes

3.1. Diversity and complementary innovation vs competition

Analysis of the 198 non-bank third-party providers in the Open Bank Directory on 19-20 October 2021, visualised in Figure 4, shows the largest number of services (42%) were targeted at businesses (particularly enabling them to take payments directly from customer accounts). Services aimed at consumers (25%) or developers of Open Banking services (24%) were also popular, while some services targeted both consumers and businesses (8%) or businesses and developers (1%).

Almost all the providers (86%) were UK-registered companies, which may be a consequence of the UK's exit from the European Union in 2020. Before then, EU single market law allowed providers from other member states to directly offer services – as companies from Germany (5), Lithuania (4), the Netherlands/France/Belgium (3), Czech Republic/Sweden (2), and Poland/Ireland/Denmark/Bulgaria/Luxembourg/Hungary (1) still did.

The most common main types of services per provider were payments (25%) and financial planning (23%), with a significant number of software tools (13%) and account aggregators (11%) providing an infrastructural foundation for other services. Also popular were accountancy and tax tools (8%) and credit scoring (6%), followed by lending (4%) and loyalty management (3%). A smaller number of providers offered ID verification, mobile money accounts and credit cards (2% each), with individual providers offering foreign exchange, price comparisons and regulatory compliance as their main services (shown in Figure 6).

As Kerber and Schweitzer noted, with the evolution of complex digital platforms, it is becoming more difficult to disentangle what they called horizontal (competitive) and vertical (complementary) interoperability.⁶⁹ However, Figure 6 shows that mainstream banking services such as payments, lending, credit scoring, mobile money, credit cards and foreign exchange made up 40% of providers' main services, with the remaining 60% offering more innovative services complementary to traditional banking. It is also the case that many of the non-bank providers of traditional banking services targeted specific niches (such as credit scoring for landlords, or helping tenants improve their credit score by incorporating regular rent payments) or expanded existing services (such as adding cryptocurrencies to payments). A standardised interface has not simply led to a homogenous set of services.

⁶⁵ 'The Open Banking Standard' (n 52) 46.

⁶⁶ 'The Open Banking Standard' (n 52) 42.

⁶⁷ Competition & Markets Authority (n 17) 458.

⁶⁸ Bowman (n 34) 5.

⁶⁹ Kerber and Schweitzer (n 11).

Main non-bank provider service

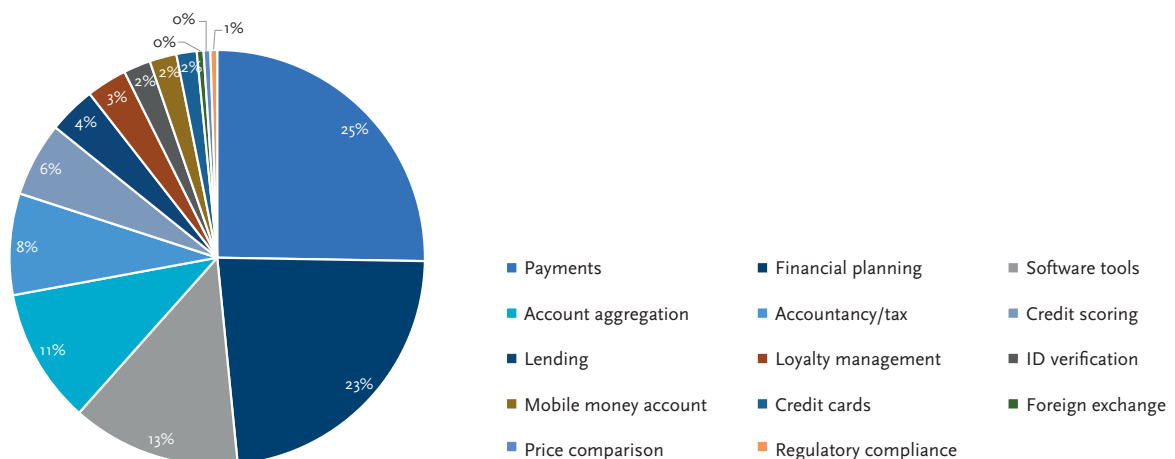


Figure 5. Main non-bank provider services
source: Open Bank Directory

It seems more likely competitors will focus on specific services they can offer profitably, to banks themselves and their customers, including infrastructure, credit checking and meeting Know Your Customer requirements from anti-money laundering regulations – although one cross-national review noted “growing concerns that BigTech firms could scale up in financial markets very quickly, thereby posing a significant competitive threat to traditional banking. While their first steps are going to take place in the payment arena, they could rapidly expand into the provision of credit, insurance, savings and investment products.”⁷⁰

This could significantly affect bank profitability, since the overdraft (short-term lending) facilities they offer are lucrative, while their savings accounts usually underperform competitors’ interest rates. Open Banking could make it significantly easier for their customers to manage products from a range of companies. Around 45% of personal current account customers use overdrafts, and many could save hundreds of pounds a year by switching to cheaper accounts.⁷¹ That said, such competitive overdraft services, or the use of Open Banking payments to by-pass card-payment networks such as Visa and Mastercard, have yet to take off.⁷²

A small number of providers offered mobile money accounts – Monese, Revolut, Tide and Wise. These were the closest Open Banking services to fully-fledged competitors to the large banks, acting as potential substitutes by offering accounts, payment cards, foreign exchange, and moving into the provision of credit, both to consumers and businesses.

These services all took advantage of the EU’s lightweight e-money regulatory regime to launch and scale up, although Revolut later applied for banking licenses in many jurisdictions. Wise listed on the London Stock Exchange in July 2021, valued on its debut at £8bn (US\$11bn),⁷³ while Revolut became Europe’s second highest-valued

fintech company the same month when it took private investment at a valuation of US\$33bn.⁷⁴ The highest-valued company then, Klarna, offered buy-now-pay-later (BNPL) services in the UK also via Open Banking⁷⁵ (although the value of such BNPL services fell significantly in mid-2022 as they faced higher interest rates and competition from new entrants including Apple – by 85% in Klarna’s case⁷⁶).

3.2. Comprehensive standardisation vs competition for the market

The Open Banking Working Group concluded that more than technical issues, the issues which would require the greatest work related to governance, security, liability, standards, communications, regulation and legal.⁷⁷ The fraction of the main body of the standard taken up with these different topics is:

- Standards: 23%
- Developer resources: 7%
- Security: 7%
- Governance: 17%
- Regulatory and legal considerations: 23%
- Implementation plan: 23%.

In this case, the APIs have continued to evolve beyond the initial design phase, with the implementation trustee able to recommend new

Big Win for Post-Brexit London’ *CNBC* (7 July 2021) <https://www.cnbc.com/2021/07/07/wise-direct-listing-london.html> accessed 22 October 2021.

74 Ryan Browne, ‘Digital Bank Revolut Valued at \$33 Billion in Funding Round Led by SoftBank and Tiger Global’ *CNBC* (15 July 2021) <https://www.cnbc.com/2021/07/15/digital-bank-revolut-valued-at-33-billion-in-new-funding-round.html> accessed 22 October 2021.

75 Ryan Browne, ‘SoftBank Leads \$640 Million Investment in Klarna, Valuing Buy-Now-Pay-Later Firm at \$46 Billion’ *CNBC* (10 June 2021) <https://www.cnbc.com/2021/06/10/klarna-softbank-funding-round.html> accessed 22 October 2021.

76 Ryan Browne, ‘Klarna Valuation Plunges 85% to \$6.7 Billion as “Buy Now, Pay Later” Hype Fades’ [2022] *CNBC* <https://www.cnbc.com/2022/07/11/klarna-valuation-plunges-85percent-as-buy-now-pay-later-hype-fades.html>.

77 Open Banking Working Group (n 37) 5.

70 Oscar Borgogno and Giuseppe Colangelo, ‘Open Banking and the Ambiguous Competitive Effects of Data Portability’ (2021) 1 *Antitrust Chronicle* 32, 34. Competition & Markets Authority (n 17) xi.

71 Bowman (n 34) 25.

72 Ryan Browne, ‘Wise Direct Listing Values Fintech Giant at \$11 Billion in

functionality to the CMA – for example, “the Trustee reported to us in September 2019 that the volume of payment initiation transactions was very low compared with account information sharing and that this indicated that the functionality delivered by the standard was inadequate for merchants or [Payment Initiation Service Providers], in particular because of the absence of reverse payment functionality. As a consequence, refund functionality was incorporated into the roadmap.”⁷⁸

Firms facing a regulatory requirement to develop standards that may benefit their competitors may be tempted to slow proceedings to a crawl. Bowman noted: “Most banks missed the initial rollout deadline, and many missed subsequent deadlines related to product improvements... And since the banks had to pay for both the OBIE and for the implementation in their own systems, most regarded the process as a costly burden.”⁷⁹

To counter this, the CMA used explicit targets to push the pace of development, with officials writing: “We found that some banks were able to adopt open banking standards faster than others, usually because of the configuration, including security standards, of their main banking platforms. We therefore faced a choice: should we set stretching targets and accept the fact that some banks would continually be in breach of our Order? Or should we set targets that all of them could meet? We chose the former and were quite explicit that we did not intend to move at the pace of the slowest provider. Had we not done so, implementation would have taken, literally, years longer.”⁸⁰

One specific mechanism by which banks appeared initially to deter customers from using competitors’ services via Open Banking APIs was by designing customer authorisation processes which were “widely considered to be incredibly offputting to customers in the early stages. Banks required customers to navigate as many as 12 screens of intimidating warnings and caveats.”⁸¹ This led to the development of specific Open Banking standards to make this process easier, while still protecting overall security.

While the CMA order applied only to the nine largest UK retail banks, the Open Banking standards have been widely adopted by other firms – partly to meet their obligations under the EU’s second Payment Services Directive, even though they were free to develop their own or adopt alternative standards. This means “close to 99 percent of [UK] current account consumers are using account service providers who have adopted the open banking standards.”⁸²

Finally, Bowman suggested: “A mandatory standard could undermine the incentive firms have to differentiate themselves on the basis of their own interoperability standards or of the security around those standards. And it could lock in market participants to a subpar standard, especially if the standard has been

built under the influence of incumbents.”⁸³ The Implementation Entity has begun separate work on “premium APIs” outside the CMA Order, for example relating to identity attributes. It hopes this “enables industry to realise the commercial benefits of their efforts.”⁸⁴

However, CMA officials have highlighted the industry-wide cost savings of a common standard, particularly to small entrants: “under PSD2 banks and other payment account providers were not required to adopt common or interoperable standards: banks were free to choose which standards to adopt. While potentially pro-competitive, allowing each bank to create their own APIs raised barriers to widespread and timely adoption of open banking by customers and intermediaries. In these circumstances, developers would either have to build applications which were capable of working with many different standards or use a technical service provider to link them up with lots of different banks.”⁸⁵

While there have been some barriers to multi-homing in UK retail banking, such as requirements for minimum monthly payments into and out of accounts, there was largely convergence around core services offered, including newer services such as online banking (which can significantly reduce costs for banks). Interoperability can reduce the incentive for platforms to invest in services, since their benefits may partly flow to interoperable competitors⁸⁶ – hence why digital competition regulatory proposals in the US⁸⁷, UK⁸⁸ and EU⁸⁹ would apply only to the largest platforms, preserving incentives for smaller competitors to invest.

3.3. Forms of governance

The Open Banking remedies were not the result of a typical competition case investigating abuse of dominance or collusion – not least since the UK retail banking market is oligopolistic, rather than dominated by one or two large players. The CMA used its market study and investigation powers, detailed in Part 4 of the UK Enterprise Act 2002, equivalents to which may not be available to other competition authorities.

This case highlights the benefit of sector-specific development of interoperability remedies, given the importance of the types of available and potential services in specifying APIs, ontologies, and governance mechanisms. More broadly, researchers have noted, “the balance between the benefits and costs of interoperability varies across markets, technologies, and business models.”⁹⁰

The CMA required the creation of a specific Implementation Entity with an Implementation Trustee reporting to CMA, rather than

78 Competition & Markets Authority, ‘The Future Oversight of the CMA’s Open Banking Remedies’ (GOV.UK, 17 May 2021) <https://www.gov.uk/government/consultations/future-oversight-of-the-cmas-open-banking-remedies/the-future-oversight-of-the-cmas-open-banking-remedies> accessed 5 August 2021.

79 Bowman (n 34) 4.

80 Land and Roberts (n 46) 12.

81 Bowman (n 34) 4.

82 Land and Roberts (n 46) 10.

83 Bowman (n 34) 26.

84 Open Banking Implementation Entity (n 51).

85 Land and Roberts (n 46) 9.

86 Ezrielev and Marquez (n 13) 12.

87 H.R.3849 – ACCESS Act of 2021, ordered to be reported 24 June 2021.

88 ‘A New Pro-Competition Regime for Digital Markets - Government Response to Consultation’ (UK Houses of Parliament 2022) Command Paper CP 657 <https://www.gov.uk/government/consultations/a-new-pro-competition-regime-for-digital-markets/outcome/a-new-pro-competition-regime-for-digital-markets-government-response-to-consultation>.

89 Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act) 2022 (OJ L) 1.

90 Ezrielev and Marquez (n 13) 8.

involving an existing financial services regulator (either the central bank, or the Payment Services Regulator). Marsden's 'Beaufort scale' of self-regulation classifies self/co-regulatory mechanisms on a scale from very light-touch firm-led regulation to state-overseen industry-led regulation.⁹¹ The OBIE is an example of an "independent body (with stakeholder forum)", imposed and with ongoing scrutiny by the CMA, funded by the nine banks – the highest level of co-regulation on the scale.

CMA officials have written this model "worked well for us but this may have been due to the particular circumstances we faced. As the first jurisdiction to adopt open banking we had little or no precedent to rely on and were therefore to an extent feeling our way."⁹²

4. Next steps: the steady-state Implementation Entity, and the Smart Data Working Group

While the CMA Retail Banking Investigation Order was time-limited under UK legislation (hence its timetable to complete the necessary standards), bank obligations under the UK implementation of the Payment Services Directive continued (at least until they are updated following Brexit.) Even before the order was made, the Open Banking Working Group suggested: "The steady-state funding of the Open Banking Standard should be self-sustainable and reliable. The funding system should be based on an efficient, non-profit, cost-recovery model. The costs of implementing and sustaining the Open Banking Standard and developer resources ... should be sufficiently modest not to act as a barrier to entry."⁹³

The CMA carried out a consultation on this "steady state" continuation in early 2021 and decided in 2022 to set up a Joint Regulatory Oversight Committee with the Financial Conduct Authority, Payment Systems Regulator and government to work towards it.⁹⁴ Tension was already apparent between the banking industry trade association (UK Finance) blueprint for the implementation entity's long-term evolution and the views of (some) fintech users of the system, particularly over the make-up of the governing board.⁹⁵

The UK government is extending open banking-type mechanisms under its "Smart Data" programme to other regulated industries, including a wider range of financial products, such as savings, mortgages, consumer credit, investments, pensions, and insurance; energy (led by energy regulator Ofgem); and communications (led by communications regulator Ofcom) – which it plans to "establish frameworks for the regulated sectors which can be applied more broadly."⁹⁶

Primary legislation is planned to require industry participation in sector-specific schemes, with further details set out in secondary

legislation, and a cross-sector "Smart Data Function" to "increase coordination between sectors, reduce duplication and drive interoperability."⁹⁷ The government also created a "Smart Data Working Group" with a range of departments and regulators.⁹⁸

In a spring 2021 update, the government identified enabling interoperability as one of four key principles, "to address barriers to competition and realise Smart Data benefits for consumers and businesses."⁹⁹ It also extended the life of the working group for a further six months, and asked for public comments on whether a 'Smart Data Council' should be established, possibly with an executive board to give advice and recommendations on cross-sector issues.

Bowman suggested data-sharing requirements will work best in markets like banking, with high switching costs for a core product commonly bundled with important ancillary services, where such requirements will not disincentivise service provision or voluntary development of a sharing standard. He identified electricity markets as similar, where providers do not have an incentive to help customers use less energy through technologies such as batteries and demand management/time-shifting, as well as other markets where cheap deals are available to frequent switchers. In such markets, intermediaries with authorised access to customer data could switch services on behalf of "loyal", disengaged customers to improve outcomes.¹⁰⁰

5. Conclusions

The development and oversight of Midata and Open Banking illustrates several interesting issues relating to the detailed self and co-regulatory processes used, as well as the potential of data portability and interoperability as pro-competitive remedies (in the CMA's terminology).

In terms of outcome legitimacy, the Open Banking programme has attracted a significant number of users and participating firms, with over 4 million personal and small business customers, and over 750 firms supplying compatible products and services by February 2021¹⁰¹ (although it is worth noting the UK's population at this time was around 67m¹⁰²). In December 2020, nearly 700m API calls were made.¹⁰³ It has inspired similar programmes in many other jurisdictions. Section 3.1 shows a wide range of both competitive and complementary services are being offered by non-bank providers, targeting a range of market sectors.

Despite political engagement and encouragement at the highest levels, the self-regulatory Midata programme has so far had a limited impact. Firms had little incentive to develop new features, and the resulting restricted benefits to consumers did not encourage take-up. For this reason, the CMA required the largest banks to participate in Open Banking, using broad market investigation powers that go significantly further than the usual competition regulator powers in other jurisdictions against cartels and abuse of dominant positions.

91 Jonathan Cave, Christopher T Marsden and Steve Simmons, 'Options for and Effectiveness of Internet Self- and Co-Regulation' (RAND Corporation, 2008) xii https://www.rand.org/content/dam/rand/pubs/technical_reports/2008/RAND_TR566.pdf.

92 Land and Roberts (n 46) 12.

93 'The Open Banking Standard' (n 52) 35.

94 Financial Conduct Authority, 'The Future of Open Banking and the Joint Regulatory Oversight Committee' <https://www.fca.org.uk/firms/future-open-banking-joint-regulatory-oversight-committee>.

95 Katherine Griffiths, 'Don't Let Big Banks Run Reforms, Says Tide Chief Oliver Prill' (*The Times*, 30 March 2021) <https://www.thetimes.co.uk/article/dont-let-big-banks-run-reforms-says-tide-chief-oliver-prill-gcjbzmmms>.

96 Department for Business, Energy & Industrial Strategy (n 43) 12–13.

97 Department for Business, Energy & Industrial Strategy (n 43) 14.

98 Department for Business, Energy & Industrial Strategy (n 43) 15.

99 Smart Data Working Group, 'Spring 2021 Report' (Department for Business, Energy & Industrial Strategy 2021) 7.

100 Bowman (n 34).

101 Open Banking Implementation Entity (n 51) 4.

102 Office for National Statistics, 'Population Estimates' (2021).

103 Open Banking Implementation Entity (n 51) 20.

The CMA also required the inclusion of a consumer representative in the implementation entity to increase the legitimacy of the outcome. The UK government plans to create additional legal powers to require firms to participate in its future Smart Data initiative.

The development of the Open Banking programme's technical standards has not been entirely straightforward, partly because of the pioneering nature of the scheme, needing ongoing monitoring by the CMA via its implementation trustee. The development was largely carried out by the banks' own technical staff, coordinated by the implementation entity, taking full advantage of their technical expertise – rather than relying on a regulator choosing existing standards from a standards definition organisation in a relatively new area (while taking advantage of relevant standards for specific technical areas where they already existed).

By creating a single set of standards, the programme made it much easier for competitor firms to use them, rather than having to deal with different technical standards for each of the nine regulated banks. The standards have continued to be developed via the implementation entity, adding new functionality, and avoiding the regulatory stasis warned of by Alexander and Stutz.¹⁰⁴ Most innovation has come in complementary products rather than direct competitors to the regulated banks' current accounts, even though the Open Banking APIs enable functions such as payments which make it easier to develop these.

The implementation entity was also able to publish monthly statistics on the performance of the banks in fulfilling technical requests from third-party provider systems,¹⁰⁵ enabling the implementation trustee to ensure sufficient resources were being dedicated by the regulated banks and reducing the challenge of information-gathering on effectiveness necessary for regulatory strategy improvement. Publication as well as the banks' interaction within the entity also reinforced a norm of compliance, without the need for more punitive sanctions.¹⁰⁶

The security and privacy issues raised by interoperability requirements are critical in relation to banking services, and the Open Banking programme spent significant time addressing them. It made use of mature technical standards such as TLS (also used for secure web browsing) and required participating firms to be accredited by the Financial Conduct Authority, alongside firms' general duties under the UK's Data Protection Act 2018. It was a networked regulatory regime, which as Baldwin and Black noted, needs cooperation and information sharing between regulators for success.¹⁰⁷

Enforcement of FCA accreditation was straightforward, since unaccredited firms could be technically excluded from connecting to other Open Banking participants. The Information Commissioner's Office, responsible for enforcement of the Data Protection Act, has noted its "ongoing, mutually-beneficial engagement" with the OBIE, providing broad advice as well as specific information to third-party providers on gaining customer consent, and on end-user risk.¹⁰⁸

Financial regulators in other jurisdictions aiming to increase innovation and to a lesser extent competition in their financial services markets therefore have the benefit of a rich UK experience to draw on, enabling them to move more quickly. This case also provides a detailed example of the use of interoperability as a pro-competition intervention, which is increasingly being looked at by regulators and legislators as a means to stimulate greater competition in online services. Alongside enforcement of existing competition rules, it provides regulators with a mechanism to incentivise redesign of uncompetitive industries, part of the holistic approach of Baldwin and Black's "really responsive regulation".¹⁰⁹

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March 2021) <https://ico.org.uk/media/about-the-ico/consultation-responses/2619652/ico-response-cma-banking-remedies-20210329.pdf> accessed 25 August 2022.

¹⁰⁹ Baldwin and Black (n 101).

¹⁰⁴ Alexander and Stutz (n 5).

¹⁰⁵ Open Banking Implementation Entity, 'API Performance Stats' <https://www.openbanking.org.uk/api-performance/> accessed 25 August 2022.

¹⁰⁶ Robert Baldwin and Julia Black, 'Really Responsive Regulation' (2008) 71 *Modern Law Review* 59.

¹⁰⁷ Baldwin and Black (n 101) 75.

¹⁰⁸ Information Commissioner's Office, 'Response to the CMA's Consultation on the Future Oversight of the CMA's Open Banking Remedies' (29



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