

# WHY DATA INTEROPERABILITY IS HARDER THAN IT LOOKS: THE OPEN BANKING EXPERIENCE



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## Why Data Interoperability Is Harder Than It Looks: The Open Banking Experience

By Sam Bowman

Many people hope that data interoperability can increase competition, by making it easier for customers to switch and multi-home across different products. The UK’s Open Banking is the most important example of such a remedy imposed by a competition authority, but the experience demonstrates that such remedies are unlikely to be straightforward. The experience of Open Banking suggests that such remedies should be applied with focus and patience, may require ongoing regulatory oversight to work, and may be best suited to particular kinds of market where, like retail banking, the products are relatively homogeneous. But even then, they may not deliver the outcomes that many hopes for.

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Data portability and interoperability tools allow customers to easily move their data between competing services, either on a one-off or an ongoing basis. Some see these tools as offering the potential to strengthen competition in digital markets; customers who feel locked in to services that they have provided data to might be more likely to switch to competitors if they could move that data more easily.<sup>2</sup> This would be particularly true, advocates hope, where network effects grant existing services value that new rivals cannot emulate or where one of the barriers to switching services is the cost of re-entering personal data.

The UK's Open Banking system is one of the most mature and important examples of this kind of policy in practice. As such, the UK's experience to date may offer useful clues as to the potential for similar policies in other markets, for which the UK's Furman Report has cited Open Banking as a model.<sup>3</sup> But fans of interoperability sometimes gloss over the difficulties and limitations that Open Banking has faced, which are just as important as the potential benefits.

In this article, I argue that Open Banking provides lessons that should both give hope to optimists about data portability and interoperability, as well as temper some of the enthusiasm for applying it too broadly and readily.

I draw on my experiences as part of the team that produced the industry review "Open Banking: Preparing For Lift Off" in 2019.<sup>4</sup> That report concluded that Open Banking, though promising, needed several additional reforms to succeed, a few of which I discuss in this piece. I was also the co-author of a white paper that argued for an Open Banking-like remedy in the UK's retail electricity market, which I discuss briefly below. All views expressed here are my own.<sup>5</sup>

I argue that there are three main lessons to draw from Open Banking for considerations of similar remedies in other markets:

1. Implementation is difficult and iterative, and probably requires *de facto* regulatory oversight if it is to be implemented effectively, with all the attendant costs and risks that entails.
2. The outcomes that interoperability produces may differ from those policymakers have in mind, and may not mean more switching of core services.
3. If Open Banking does succeed, it will be thanks to features of the UK banking market that may not be present in other markets where similar interoperability is being proposed.

I conclude that Open Banking has not yet led to noticeably stronger competition in the UK banking sector. Implementation challenges suggest that taking an equivalent approach to other markets would require more time, investment and effort than many advocates of interoperability requirements usually concede and may not deliver the anticipated benefits. To the extent that Open Banking is to be a model, it would be best applied as a focused approach in markets that bear particular characteristics and where the costs are outweighed by the benefits, rather than a blanket measure that can be applied to every market where customer data matters.

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2 Joseph Farrell and Paul Klemperer, "Coordination and Lock-In: Competition with Switching Costs and Network Effects", *Handbook of Industrial Organization* (Volume 3, 2007, Pages 1967-2072) <https://www.sciencedirect.com/science/article/pii/S1573448X06030317>.

3 HM Treasury, *Unlocking Digital Competition: Report of the Digital Competition Expert Panel*, (March 2019), p. 69. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/785547/unlocking\\_digital\\_competition\\_furman\\_review\\_web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf).

4 Open Banking Ltd, *Open banking, preparing for lift off*, (July 2019). <https://www.openbanking.org.uk/wp-content/uploads/open-banking-report-150719.pdf>.

5 Federation of Small Businesses, *Open energy: Using data to create a smarter, cheaper and fairer energy market*, (September 2018). <https://www.fsb.org.uk/resources-page/open-energy-using-data-to-create-a-smarter-cheaper-and-fairer-energy-market-pdf.html>.

# I. IMPLEMENTATION IS DIFFICULT AND ITERATIVE

Open Banking was launched in 2018, following the Competition and Markets Authority's Retail Banking Market Investigation, which concluded that low customer-switching rates were a cause of weak competition in UK retail banking.<sup>6</sup> It followed an abortive earlier attempt at an open data standard for regulated sectors of the UK economy called Midata that offered customers CSV files giving snapshots of their transactions history with certain third parties, such as their energy company. The hope was that this would make price comparisons easier and more tailored to "change personal banking forever."<sup>7</sup> Unfortunately, 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.

Open Banking was built with many of these failings in mind. It also had the power of a CMA Market Investigation Reference behind it, as well as the European Second Payments Directive ("PSD2"). The effort required the nine largest banks to make their retail and small-business customers' banking data available to approved third parties through a secure API. This allowed those customers to share elements of their bank details with services like aggregators that combine accounts from several different banks on a single dashboard, as well as to initiate and schedule payments (thus incorporating PSD2's requirements). Both the API and the security and user-authorization framework around it were designed by a CMA-governed body called the Open Banking Implementation Entity ("OBIE").

Open Banking allows third parties to read user account balance information, transaction history, information about regular payments, and a few other related items.<sup>8</sup> It also allows customers to give third parties the ability to make and schedule bank-to-bank payments.<sup>9</sup> These allow customers to share "read" and "write" privileges with third party apps, an authorization they can also grant separately. For example, a small-business customer could share her account details and transaction history with an accounting app that automatically categorizes transactions and gives an estimate of payable tax. Or a customer could authorize a third-party app to make a payment from their account to a currency-exchange service or an online merchant, rather than making a card payment or having to enter bank details manually for a bank-to-bank payment.

This data must be provided by banks for free. And it is important to note that this data is relatively simple and uniform across all banks, which may not be the case in other markets. Even where banks employ different internal codes for transaction data, making the data legible for external sharing only requires them translating a few items of information widely understood by all financial institutions, such as the amounts of money involved, the address and name of the body giving or receiving the funds, the date of the transaction, and so on.<sup>10</sup>

Nevertheless, implementing Open Banking has been a long, laborious process. Most banks missed the initial rollout deadline, and many missed subsequent deadlines related to product improvements. Many of the problems have stemmed from the incentives that banks face. If Open Banking succeeded on its own terms, incumbents would lose customers to competitors. If the new system suffered breaches or other service problems, customers might blame the banks themselves. 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.

The customer authorization process, through which a user authorizes a third-party provider to access their data, was 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. Launched in 2018, by which point most bank customers had become accustomed to using mobile apps to manage their banking, Open Banking used an out-of-date browser-based process that required that users log in repeatedly. The OBIE responded to the ensuing customer dissatisfaction by imposing new guidelines on the banks, which heavily controlled and directed the authorization process. The improved process now works app-to-app on mobile; users are brought from a third-party provider's app to their bank's app, where they can authorize the TPP, and then brought back again.

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6 Competition and Markets Authority, *Retail banking market investigation: Final report* (August 2016), p. xxxiii. <https://assets.publishing.service.gov.uk/media/57ac9667e5274a0f-6c00007a/retail-banking-market-investigation-full-final-report.pdf>.

7 Department for Business, Innovation & Skills, *The midata vision of consumer empowerment* (November 2011). <https://www.gov.uk/government/news/the-midata-vision-of-consumer-empowerment>.

8 Open Banking Ltd, *Account and Transaction API Profile - v3.1.7*. <https://openbankinguk.github.io/read-write-api-site3/v3.1.7/profiles/account-and-transaction-api-profile.html>.

9 Open Banking Ltd, *Payment Initiation API Profile - v3.1.7*. <https://openbankinguk.github.io/read-write-api-site3/v3.1.7/profiles/payment-initiation-api-profile.html>.

10 Open Banking Ltd, *Transactions - v3.1.7*. <https://openbankinguk.github.io/read-write-api-site3/v3.1.7/resources-and-data-models/aisp/Transactions.html>.



The OBIE also provides guidelines about the amount of time APIs can be offline, either for updates or other maintenance, or because of errors. This is extremely important to third parties that build apps on Open Banking. If the APIs they use are unreliable, users will just not use their services. The OBIE's detailed guidelines define exactly how downtime should be calculated ("when five consecutive requests for access to information for the provision of payment initiation services, account information services or confirmation of availability of funds are not replied to within a total timeframe of 30 seconds"). Although its target of 0.5 percent downtime per month has only been met twice since June 2018, service quality is improving, and is usually above 98 percent.<sup>11</sup>

Open Banking has had an impressive security record, with no mass data breaches occurring since its rollout. The main risks have been phishing-related, such as rogue websites tricking users into making payments to them via Open Banking's payments functions. While this is not, by itself, a flaw in Open Banking, it highlights deficiencies in Open Banking's design — namely, the inability to recall payments through the payments APIs. Some of Open Banking's security success is down to the requirement that participating apps be approved by the financial regulator and added to a whitelist of services by the OBIE before they can operate in the market.<sup>12</sup>

Open Banking's implementation has involved ongoing design and oversight that has changed the system throughout its rollout. The process has been long, difficult, and required significant ongoing management by a quasi-regulatory agency. Doing this hasn't been simple, obvious, quick, or easy, and it has not been a mere exercise in "standards setting" — the design decisions have all involved trade-offs and judgements about what trade-offs are most reasonable. The incentives of the parties involved are often at cross-purposes, with important participants sometimes required to do things they really don't want to do, and dragging their heels whenever they get the chance. That doesn't mean it can't be done, but it's not straightforward.

## II. OPEN BANKING HASN'T DELIVERED OBVIOUS COMPETITION BENEFITS (YET)

By some accounts, Open Banking has already proven a roaring success. According to the Open Banking Implementation Entity, as of January 2021, 2.5 million people in the UK use Open Banking-enabled products, nearly 6 billion API calls were made in 2020, and 300 third-party providers have signed up to the whitelist to have access to Open Banking APIs.

The Open Banking "App Store" lists over 100 apps that use the service, and the OBIE says over 300 firms are active in the market, with another 450 on the way.<sup>13</sup> Some promising examples include Credit Kudos, which uses transaction data to measure creditworthiness, in competition with the incumbent credit-scoring companies; Moneybox, which rounds up card payments to the nearest pound and puts the difference into an investment account; Money Dashboard, which allows customers to view and manage financial accounts with different providers on a single interface; Tully, which helps people budget and manage debts; and Xero, the accounting software that draws transactions from small-business accounts to automatically populate accountancy tables. Many other apps provide similar services to these.

These are impressive accomplishments, and it is indisputable that many useful services now rely on Open Banking in ways that are good for consumers. Many of these had used a much less secure and user-friendly approach called "screen scraping" to access this data, where the customer gave their bank login details to the service and allowed it to log in to their account on their behalf. This practice is now banned, and some fintechs have complained that Open Banking does not replace some of the functionality that screen scraping allowed.

But is this enough to call Open Banking a success? There are 54.7 million bank account customers in the UK, so 2.5 million users represents adoption by about 4.5 percent of these.<sup>14</sup> The service is growing at a rate of about 1 million customers every six months, but it's too early to say whether this rate will accelerate as more services enter the market or decelerate as the early adopter segment becomes saturated.<sup>15</sup>

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<sup>11</sup> Open Banking Ltd, *Open Banking APIs Performance*. <https://www.openbanking.org.uk/providers/account-providers/api-performance/>.

<sup>12</sup> Open Banking Ltd, *Open Banking: Guidelines for read/write participants* (May 2018), p. 18. <https://www.openbanking.org.uk/wp-content/uploads/Guidelines-for-Read-Write-Participants.pdf>.

<sup>13</sup> Open Banking Ltd, *Annual Report* (2020), p. 4. <https://assets.foleon.com/eu-west-2/uploads-7e3kk3/48197/obie-ra-artwork-10096a5716bf30-2.5853a6c2c203.pdf>.

<sup>14</sup> Statista, *Number of customers at selected banks in the United Kingdom (UK) from 2007 to 2020*. <https://www.statista.com/statistics/940560/number-of-customers-at-select-banks-in-the-united-kingdom/>.

<sup>15</sup> Open Banking Ltd, *Three years since PSD2 marked the start of Open Banking, the UK has built a world-leading ecosystem* (January 2021). <https://www.openbanking.org.uk/about-us/latest-news/three-years-since-psd2-marked-the-start-of-open-banking-the-uk-has-built-a-world-leading-ecosystem/>.

There is no indication that Open Banking has increased switching between current account providers, but this might be the wrong goal, anyway. Although the original HM Treasury report that proposed Open Banking suggested that it would drive increased switching, and it has been one of the main promises made by advocates of similar interoperability in other markets, the CMA's order is more focused on improving customer control over their money.<sup>16</sup>

But there is still no use case that changes in a significant way how most users manage their money. One of the most promising potential applications — services that automatically borrow from lower-cost lenders instead of bringing customers into expensive overdrafts — has still not arrived. Nor is there much sign of services using Open Banking's payments tools to undercut the card-payment networks.

As a competition remedy, then, it is hard to say that Open Banking has been a clear success. Interoperability has clearly been somewhat useful in UK banking, but the primary benefits realized, three years in, have been in greater access to ancillary services such as overdraft lending, accounting services and other money-management apps. If the ability to easily share customer banking history has not, as it turns out, led to more customers changing banks, it is difficult to conclude from the Open Banking experience that being able to share a list of your social-media contacts will increase adoption of and switching to new social-media services.

### III. BANKING MAY NOT BE A GOOD MODEL FOR OTHER MARKETS

The UK banking market is not an obvious model for measures that may apply in other markets. It is highly regulated, with banks required to maintain equity capital of at least 8% to 11% of weighted assets.<sup>17</sup> Incumbent banks also benefit from large implicit (and sometimes explicit) subsidies in the form of bailouts, exclusive access to reserve accounts and Lender of Last Resort facilities, and deposit guarantees. Though obviously some or all of these may be necessary for financial stability, they likely also have the effect of reducing competition in banking, as the CMA concluded.<sup>18</sup> Although some new challengers have entered the UK banking market, they have struggled to compete with incumbents, whose dominance of the retail-banking market is largely unchanged since the CMA's market investigation.

Bank customers in the UK also largely treat their banks' offerings as a single bundle of products. Many customers use the same bank that provides their current account for credit cards, mortgages, loans, and savings and investment accounts, even when these are much more expensive than alternatives offered by third parties. This is likely to be at least partially because it is more convenient to manage these services through one screen, because their home bank already holds the data on them to assess their creditworthiness for many of these services, and because doing so as a bundle reduces search costs for consumers. In these cases, the customers who switch home bank accounts the least are also likely to be the ones who shop around for alternative third-party services least as well.

This means that the potential for interoperability may be greatest in this sort of market, where normal competitive pressures do not push incumbent firms to provide data-sharing, even though customers may want it, and where the bundled nature of the offering means easier data-sharing with third parties may allow customers to access cheaper and better ancillary services. In markets where such ancillary services are less important, data interoperability may have fewer potential benefits.

The data affected by Open Banking is also incidental to an existing commercial relationship. Banks, for the most part, do not consider collecting transaction data to be the point of the relationship. This is not the case in markets where user data is relatively more valuable. Supermarkets, for example, effectively pay customers for data about their shopping habits through loyalty card programs. The same may be true in digital markets that employ user data for product improvement and ad-targeting purposes, where user data is part of the "return" from providing a free service.

The incentive effects of mandatory data-sharing in these markets may be very different to the effects on UK banking, which are themselves ambiguous. If mandatory data-sharing was imposed on supermarket loyalty card schemes, for example, one supermarket could free ride on another's loyalty card scheme by convincing customers to share data provided to the original scheme with them. This would erode the incen-

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16 Fingleton Associates and the Open Data Institute, *Data Sharing and Open Data for Banks: A report for HM Treasury and Cabinet Office* (September 2014), p. 32. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/382273/141202\\_API\\_Report\\_FINAL.PDF](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/382273/141202_API_Report_FINAL.PDF).

17 Bank of England, *Financial stability report* (December 2015), p. 8. <https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2015/december-2015.pdf?la=en&hash=79D815F673187E150A4DB75159EBF82E991E332F>.

18 *Retail banking market investigation*, p. xxviii.

tive to collect this data in the first place. The same may be true in certain digital markets, where free services become charged-for. This does not mean that such an approach would necessarily be harmful, on balance, but it is a potential trade-off that has to be weighed.

A bigger risk may be the effect of state-specified standards on data services offered in the market, which the UK government's smart data impact assessment highlights.<sup>19</sup> 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. For example, if card networks can help to shape payments-processing interoperability standards in the United States, and those standards are made mandatory for banks, new entrants like Plaid may find it harder to compete by offering their own, superior standards.

Because of these factors, even if the UK's Open Banking project is eventually a success, it does not follow that a similar approach would be beneficial in all other markets. Instead, it may be best to consider what features in other markets would make mandatory data-sharing particularly useful. Some features may be high barriers to customer switching for a core product, combined with important ancillary services that are usually bundled with the core product, and confidence that intervention would not erode important incentives to provide a valuable service and/or collect user data in the first place, or preclude a better data sharing standard from emerging spontaneously.

One market where a similar intervention may work is electricity, where smart meters that enable sophisticated demand-management products (like home batteries and other tools for shifting use to off-peak times) could help customers significantly reduce their bills, but incumbent providers may have little incentive to provide them.<sup>20</sup> In this and certain other natural monopoly markets, interoperability may be a natural fit with existing regulations to drive competition.

Note, however, that in the UK, smart meters are being rolled out mandatorily. A measure that imposed data-sharing requirements in markets where smart meters are provided by electricity companies as part of their competitive offering may undermine the incentives those firms have to offer them in the first place.

Data-sharing of this kind may also suit markets where there is a high degree of price discrimination between engaged marginal customers who switch often to take advantage of switching deals, and disengaged inframarginal ones who do not and suffer expensive "loyalty pricing" as a result. In these cases, data-sharing may allow intermediaries to enter and switch services on behalf of the currently "loyal" customers, improving outcomes for disengaged customers.

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19 Department for Business, Energy & Industrial Strategy, *Regulatory Powers for Smart Data Initiatives* (September 2020), p. 25. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/915974/smart-data-impact-assessment.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/915974/smart-data-impact-assessment.pdf).

20 *Open Energy*. <https://www.fsb.org.uk/resources-page/open-energy-using-data-to-create-a-smarter--cheaper-and-fairer-energy-market-pdf.html>.

## IV. CONCLUSION

It is probably too early to judge whether Open Banking has succeeded in its aims, but the experience demonstrates that any similar intervention would be a significant undertaking that would require ongoing regulatory oversight. In the UK, the CMA is currently consulting on the future of this oversight,<sup>21</sup> and considering a governance model where the non-oversight functions of the OBIE are transferred to an industry-run body.<sup>22</sup>

Those hoping that Open Banking-style interoperability will drive competition in digital markets may want to curb their enthusiasm, given that Open Banking has not, so far, led to the outcomes they seek. There are many features of the UK's retail banking sector that may make it unusually good for this kind of intervention, including that it largely entails sharing relatively uniform and simple sets of data.

Similar interventions in markets where data is significantly more complex and heterogeneous across different providers would presumably require even more involved regulatory oversight and decision-making about product design. It is misleading to present this process, or similar processes, as just being about “standards setting” — Open Banking is a mandatory competition remedy, the CMA's goals for it are at odds with many large incumbent banks, and it has required a regulator to make important decisions about product design and pricing that come with trade-offs. Nor is it clear that Open Banking has succeeded compared to other remedies the CMA could have imposed on the retail banking market, or that equivalent measures in other markets would be better for competition than other remedies.

If Open Banking succeeds, which I dearly hope it will, it will have been a long, hard slog, and led to a different kind of competition to the kind envisaged by many proponents of mandatory interoperability in other markets. It is likely to be best used in narrow, focused circumstances, not as a generic fix for any market suffering from weak competition.

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21 Competition and Markets Authority, Consultation launched on the future governance of open banking (March 2021). <https://www.gov.uk/government/news/consultation-launched-on-the-future-governance-of-open-banking>.

22 UK Finance, Open banking futures: blueprint and transition plan (March 2021). <https://www.ukfinance.org.uk/policy-and-guidance/reports-publications/open-banking-futures-blueprint-and-transition-plan>.



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