TIBCO

Data Sharing in Finance: Open Banking, CDR, and Beyond

Executive Summary

We live in exciting times, where companies and governments need to be more transparent and accountable to their customers and citizens. We have seen the fallout of the Royal Banking and Aged Care Commissions in Australia. New legislation has come out related to Open Banking and Consumer Data Right (CDR):

Open Banking

Open Banking is a government and regulator-led scheme that mandates banks share consumer data in a machine-readable way when customers request it so that they will be able to access and safely transfer their banking data to trusted parties. The overall goal is to reduce the friction of changing financial service providers and to spur innovation. Open Banking is part of the move toward an "Open API Economy," where services are exposed as APIs to other internal departments, partners, or public developers.

Consumer Data Right

The Consumer Data Right (CDR), part of Open Banking, gives Australians greater control over their data, empowering them to choose when to share it with trusted recipients. It is part of the larger Consumer Data Standards work, detailed at https://consumerdatastandards.org.au/

The opportunities and risks associated with Consumer Data Right (CDR) in Australia are massive, especially when you consider that these schemes share some commonality with the General Data Protection Regulation (GDPR) in the EU. For instance, GDPR gives customers the right to request the data held, which is very similar to CDR. In the case of the GDPR, we've seen recent examples of very large fines for non-compliant behavior. For instance, British Airways is facing a AUD$335 million fine over a 2018 data breach, one of the largest ever under GDPR.[1] However, while GDPR has fines up to 4% of revenue, CDR goes further, with potential for fines up to 10% of a company's revenue.[2]

Furthermore, the Australian Prudential Regulation Authority (APRA) recently reviewed non-financial risk compliance for the major banks and required they dramatically increase their minimum capital holdings. "Australia's major banks are well-capitalized and financially sound, but improvements in the management of non-financial risks are needed," said Wayne Byres, APRA chairman.[3]

But don't panic, help is at hand!

This document explains how organizations need to react to help ensure compliance, deliver transparency, and adopt new business models through a unified company data management solution, one with integrated data privacy & risk analysis, data governance & master data management, data virtualization, API management, and much more.

TIBCO has helped many global organizations, such as BNP Paribas, comply with similar legislation (such as GDPR and the Basel Committee on Banking Supervision's standard number 239 – or BCBS 239). We are confident that we can also help Australian organizations respond to and thrive as a result of Open Banking, CDR, and beyond.

What is the CDR?

The Consumer Data Right is designed to improve the flow of information in the economy, encouraging the development of new products and applications that reach more consumers and are better tailored to their needs. For general information on CDR, please see https://treasury.gov.au/consumer-data-right and https://www.accc.gov.au/focus-areas/consumer-data-right-cdr-0.

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1 CNET: https://www.cnet.com/news/british-airways-faces-record-breaking-230m-gdpr-fine-for-2018-data-breach/

2 Legalwise: https://legalwiseseminars.com.au/the-consumer-data-right/

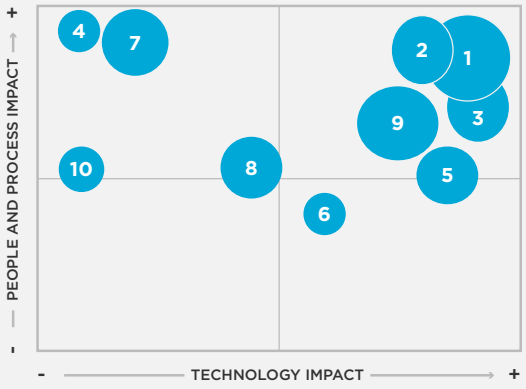
3 APRA: https://www.apra.gov.au/news-and-publications/apra-applies-additional-capital-requirements-to-three-major-banks-response-to

An Accenture Consulting paper[4] provides an excellent summary of some of the Consumer Data Right rules, of which the following are noteworthy:

- *Consent / authorization management.* Data holders and data recipients will need to obtain customer consent before customer data can be shared.
- *Consumer dashboard.* Data holders and recipients will need to create a consumer-facing dashboard showing all data-sharing authorizations (active and historical) that the customer has given. The dashboard should also record the disclosure of data.
- *Right to correction.* Data holders and recipients must correct any CDR data that a consumer deems incorrect or redundant. They must respond to requests for rectification within 30 calendar days.
- *Open and transparent data management.* Data holders and recipients must have a CDR policy on data management that is independent of any existing privacy policy. The policy should be easy to understand and drafted in a way that promotes consumer engagement.
- *Quality and security of data.* Data holders and recipients must ensure that the CDR data being shared is accurate, current, and complete for the purpose for which it is held. Recipients must also undertake adequate precautions to ensure data security.

The paper goes on to analyze the likely impact of the new rules on both technology and people & processes, as reproduced below.

IMPACTS OF CDR ON BANKS[5]



1 Sharing of customer data
2 Consent / authorization management
3 Customer dashboard
4 Open and transparent management of data
5 Anonymity and pseudonymity
6 Notification of collection and disclosure of CDR data
7 Quality of CDR data
8 Security of CDR data
9 Correction of CDR data
10 Record keeping and reporting

Bubble size indicates impact magnitude.

4 Accenture: https://www.accenture.com/t20190311t053853z__w__/th-n/_acnmedia/pdf-96/accenture-unlocking-valueconsumer-data-rights-rules.pdf

5 Ibid. Accenture.

Notice the largest expected challenges relate to sharing customer data, obtaining consent & managing authorizations, providing the customer dashboard, and supporting the correction & quality of data.

What Does this Mean for Organizations?

With Open Banking & CDR, privacy is becoming extremely important, and confidence in the accuracy of the data and who gets access is critical. Regulatory initiatives tend to have a key theme of consistent, integrated datasets that drive more granular data and improve data quality. When applied to customer data, reference data, and metadata, these improved insights will deliver significant competitive advantage. Innovative companies who embrace opportunities such as Open Banking will be able to create new, exciting, and frictionless experiences for customers, and the rewards are immense.

Traditionally, there has been little integration between data governance and data management. Governance and management were seen as independent, and the flow from data governance to data management was seen as one way. Policy documents were often "tossed over the wall" for implementation by IT and operations.

You can see this reflected in organizational structures. In many companies where the accountability lines are clear, the newly created office of the chief data officer is where data governance policies are created. Often policy implementation is in the hands of the system owners, who could be from IT, the line of business, or a shared services function such as Finance or Enterprise Risk/Privacy.

Because implementation teams will often interpret policy demands through the lens of their business (or local) context, there will be variations in understanding, which in turn affects systems implementation. This subtle, and sometimes not so subtle, systems-level inconsistency is problematic. Not only does it make it tough to assess the overall effectiveness of the governance program, it can create unintended consequences, especially if teams assume that everyone else has implemented all the policies in the same way or used the same definitions.

However, if the business has data governance and master/reference data in a single system, then governance policies can be tied directly to datasets while maintaining full lineage. Disparate teams can then collaborate using workflow feedback loops that allow policies and privacy or critical data elements (CDE) to be changed. This enables an agile framework where policy specifics are defined by the business users and subject matter experts, and their decisions are shared with the governance team, who can then approve the creation of new CDE/privacy data, metadata, and associated policy changes.

How Can TIBCO Help?

TIBCO can provide solutions to the immediate business challenges as well as provide long term competitive advantages.

It is important that organizations look beyond just meeting new regulatory compliance standards:

As Deloitte notes,[6] [emphasis added]: "As the rules and standards on privacy, information security and customer experience are finalised, the process of accrediting third parties will begin. Banks and organisations seeking to be accredited data recipients should ensure they are ready, *as those organisations that will thrive will be the ones that are prepared for the changes, customer-focussed and ready to leverage the opportunities that shared data provides.*"

Accenture[7] is even more clear: "*Australian banks should use the CDR as a tool to rotate to the new and derive competitive advantage by leveraging the latest technologies, especially artificial intelligence, robotics, machine learning and advanced data analytics.*"

Business Challenge: Data Consolidation & Accuracy [CRITICAL PRIORITY]

CDR rules require data holders and recipients to ensure that CDR data is accurate, current, and complete for the purpose for which it is held.

It can be a major challenge to consolidate data from multiple sources into a single system that can be easily accessed in order to provide a data-as-a-service offering. You may need to integrate disparate data sources in real time while avoiding the need to move or replicate the data.

How TIBCO Can Help

TIBCO Data Virtualization software lets you create a virtual layer for the data coming from disparate sources (databases, APIs, SaaS applications, files, etc.).

TIBCO Data Virtualization software provides a single point of access to customer / personal data. Combining all data across multiple sources, it provides one point to apply compliant governance policies on that data. The application of single point data access control meets requirements for determining who can access what data, and security features like individual row and column security and data hiding / masking can be used to enforce the data access requirements.

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6 Deloitte: https://www2.deloitte.com/au/en/pages/financial-services/articles/open-banking.html

7 Ibid. Accenture.

TIBCO Data Virtualization software can enforce encrypted data access and includes full logging to audit data access requests. In this way, it enables existing data systems to become compliant and controlled.

TIBCO Data Virtualization software also records the data lineage of exposed data to track the original sources. A business facing directory exposes this along with details of all the data available to the authorized user and can also record the usage guidelines and policies associated with data.

To ensure that you are sharing current and complete data, as required by CDR, you'll also need *TIBCO EBX software*. EBX software is an all-in-one, model-driven, agile, and multi-domain solution to manage, govern, and consume shared data assets. This software will provide the Master Data Management (MDM) that you need to model, manage, govern, and track shared data. When data needs to be shared with internal and external systems, or made available to consumers, having a single governed version of master data is crucial. The EBX data management framework ensures that data is accurate and correctly classified to enable the business to meet CDR rules.

Business Challenge: Data Requests, Updates & Usage Tracking [CRITICAL PRIORITY]

This challenge revolves around managing the data lifecycle after it has been ingested and consolidated. To start, this involves managing requests for data (in accordance with sharing policies, discussed in the next challenge) as well as the requests to update data.

Data holders and recipients much provide a dashboard showing all active and historical data-sharing authorizations as well as allow customers to identify incorrect or redundant data.

To meet this challenge, an organization must know where the data came from, how current it is, and who can access it.

How TIBCO Can Help

Since TIBCO EBX software manages reference and master data across the source operational systems such as CRM, ERP, and other applications, you can easily track where data came from and who it has been shared with.

TIBCO EBX software also provides you with data lineage, so organizations will be able to quickly identify the source system and make the necessary corrections, in order to meet the 30 calendar days requirements of the CDR.

Finally, EBX software provides workflows that support controlled change management or data approval to help you make the changes requested by consumers. EBX workflows provide the ability to model a step-by-step process involving multiple users, both human and automated, while supporting notifications on certain events. These actions can be supported by *TIBCO Nimbus and TIBCO BPM* software, as discussed next.

Business Challenge: Data Sharing Processes & Policies [CRITICAL PRIORITY]

The CDR rules require data holders and recipients to have and apply new policies on data management.

For example, organizations need policies and procedures to approve new data recipients or to handle complaints and conflicts relating to data sharing.

How TIBCO Can Help

Upstream systems like *TIBCO Streaming, TIBCO Messaging*, or TIBCO EBX software can trigger systems that help manage business processes.

The software might trigger business process management (BPM) actions using *TIBCO ActiveMatrix BPM software*, which can move information from anywhere to anywhere. Some actions may be automated, while others will need to be checked by a person through a case management tool. We can help you include contextual actions, recommendations, and instructions from TIBCO Nimbus software.

Nimbus software provides a process management platform that allows organizations to capture and deploy its business policies and processes in a format and language that is easily understood by all employees. The result: it becomes easier and faster for the right employees to do the right thing at the right time, reducing inefficiency and risk and improving compliance.

Business Challenge: Data Security [CRITICAL PRIORITY]

The CDR rules require data holders and recipients to ensure data security.

Beyond standard authentication and authorization, you may need systems that track and analyze requests and the associated threats & risks, to prevent unauthorized access to sensitive data.

Data holders and recipients also need to check the appropriateness of the data they are releasing by determining who is using it and for what purposes. These checks may be done automatically or by a person.

How TIBCO Can Help

In addition to basic authentication and authorization built into your API, you will need a way to gather and report on machine data and logs. *TIBCO LogLogic software* is a log management platform that provides complete visibility into your on-premises and cloud IT infrastructure. For instance, it offers the ability to quickly monitor, report on, and alert for risky or

suspicious traffic, unsecured data transports, or access control list changes on your file servers and datastore. In addition, TIBCO LogLogic Compliance Manager software provides customizable report workflow that simplifies the review and audit process for adherence to internal and external policies like GDPR or CDR.

In addition, you may need an additional predictive analysis tool to ensure that the data request is genuine, in exactly the same way that you predictively analyze credit card transactions to prevent fraud. Requests for data (or even the data itself) can be analyzed using TIBCO Streaming software, and anomalies can be sent to *TIBCO BusinessEvents* or *TIBCO Data Science software*, which can use machine learning / AI to review anomalies and then take actions.

For example, you might use these tools to detect requests for more data than usual and coming from a different location than usual. Cumulatively, this might be enough to cause you to put the request on hold until it can be reviewed against policy & procedures, perhaps using TIBCO ActiveMatrix BPM and TIBCO Nimbus software.

Business Challenge: Data Breach Notification [CRITICAL PRIORITY]

Participants are required to give notification to the Australian Information Commissioner of an "eligible data breach" where a reasonable person would conclude that the unauthorized access to or disclosure of CDR data would be likely to result in serious harm to the data subject. Many organiszations still find this challenging because they have no easy way to determine the cause and extent of the breach.

How TIBCO Can Help

In the unfortunate case of an incident, TIBCO LogLogic software offers detailed forensics to track how and when the breach occurred, which systems and data were accessed and when, how many people and records were affected, and make clear what remedial measures need to be taken. The forensic engine runs in real time, so you get to the root cause of incidents within seconds, not days, supporting more effective decision-making and efficient resolution and reporting.

Business Challenge: Data Lifecycle & Expiry

Data holders and recipients must ensure that data is removed according to the correct disposal schedule appropriate to the information lifecycle.

How TIBCO Can Help

TIBCO's EBX software provides full lifecycle management so it can trigger end-of-lifecycle actions when data is due to expire. So, for instance, it could flag expired data, prevent it from being shared, and trigger a workflow to update the data.

Business Challenge: Delegated Data Governance

While it's important to ensure central governance of data, it's also critical for individual lines of business to be able to effectively influence overarching data governance. For instance, business stakeholders need to be able to identify new critical data elements (CDE) and have them reviewed by the governance team.

How TIBCO Can Help

TIBCO's EBX software provides the ability for your key stakeholders to collaborate to identify new CDE, and once reviewed and approved by the governance team, the data producers can then create metadata and physical mapping with data sources to create data lineage.

Business Challenge: Data Streaming & Transfer

When taking data from external sources, businesses will need to deal with the challenge of ingesting large amounts of data, as well as transferring that data to other systems through an enterprise grade messaging solution.

How TIBCO Can Help

Incoming data (transactional and streaming) can be captured using the TIBCO Messaging suite, which Is designed for real-time, high-throughput data distribution. The suite includes the *TIBCO Messaging - TIBCO Apache Kafka Distribution software*, which is ideal for high throughput situations where you need data retention and playback capability.

Data can be analyzed in flight using TIBCO Streaming software. This tool is specifically designed to meet the performance requirements of high-volume, real-time streaming applications. In contrast to the traditional database model where data is first stored and indexed and then subsequently processed by queries, TIBCO Streaming software processes the inbound data while it is in flight, as it streams through the server.

Business Challenge: Data Analysis & Visualization

CDR will mean that organizations are going to be sharing, holding, and analyzing even more data than ever.

You may need to hold some data in memory so you store it effortlessly and then provide quick access and analysis. For instance, you may need to receive, hold, and analyze millions of recent transactions to be able to give real-time analysis.

Finally, you might want to analyze your data to discover heretofore unknown relationships that you can use to give greater insight and drive innovation.

How TIBCO Can Help

To access critical data and analysis in real time, you'll need the *TIBCO ComputeDB in-memory optimized analytics database*, based on Apache Spark and Apache Geode (open-source version of GemFire), which delivers high throughput, low latency, and high concurrency for unified analytic workloads. TIBCO ComputeDB software is ideal for use by CDR data holders and recipients as a way to store data that is queried often or needs to be accessed very quickly.

You can also use TIBCO Streaming software to analyze and act on streaming data, as noted above. *TIBCO Spotfire software* is not only a leading data visualization tool, but the only offering that can handle real-time streaming data.

Finally, you can use *TIBCO Graph Database software* to discover, store, and convert complex dynamic data into meaningful insights — which will allow you to innovate and deliver new offers and services.

Business Challenge: Application Integration / Data as a Service Architecture

It may be necessary to connect various applications together so you can expose a complete dataset through your open APIs. Without effective integration between various systems, it may be impossible to provide a data-as-a-service offering. This is especially challenging for organizations with multiple or legacy applications developed over years.

How TIBCO Can Help

You may need a more traditional on-premises enterprise service bus (ESB), especially when mission-critical core business processes have to be integrated and high availability, reliability, and performance are needed. *TIBCO BusinessWorks software* is a leading integration and service delivery platform.

Alternatively, you may be able to leverage a more modern microservices approach. This could use containers for better elasticity and horizontal scaling. *TIBCO BusinessWorks Container Edition software* allows cloud agnostic integration projects supporting different PaaS and container platforms, such as Cloud Foundry, Docker, Kubernetes, or AWS ECS.

Finally, you might choose to use an integration platform as a service (iPaaS) that is hosted and managed by the provider. *TIBCO Cloud Integration software* has been designed with scalability as a core focus. It employs elastic load balancers, auto scaling groups, and multiple instances of EC2 for running microservices with high availability and automatic scalability.

Business Challenge: API Management

There are substantial security, performance, and other challenges that come from publicly exposed APIs that deliver Open Banking or data sharing and release services.

You need an API management platform that can provide API creation, packaging, testing, management, community administration, performance analytics, and embedded gateway-supplied security.

Finally, you may face challenges in monetizing your APIs.

How TIBCO Can Help

TIBCO Mashery software is the leading API management solution on the market. It provides API modeling and mocking, packaging, interactive documentation, streamlined publishing to a portal, reporting, analytics, and community administration. It allows you to repurpose data through public, partner, or private APIs. And as a key enabler for digital business, Mashery software helps you manage your APIs as products—securely, openly, and at enterprise scale—to create new revenue opportunities, new routes to market, and greater value for partners.

It offers out-of-the-box integration with all of TIBCO's integration components (TIBCO BusinessWorks, TIBCO BusinessWorks Container Edition, and TIBCO Cloud Integration software) via web user interfaces and command line / scripting tools for automation and DevOps.

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