

DATA COMMERCIALISATION

HOW TO CAPITALISE ON YOUR GREATEST ASSET



CONTENTS

Executive summary	3
Introduction	4
What is data commercialisation?	5
Define a strategy	6
Conduct ideation	8
Prototype & test	10
Industrialise & scale the solution	11
Embed a culture of data as an asset	12
Uphold customer privacy	13
Leverage new forms of analytics	14
Use technology as a differentiator	16
What does the future look like?	17

EXECUTIVE SUMMARY

Data is historically an under-utilised asset by banks. It's a by-product of a process rather than an asset. But this is changing. Banks are now following the example set by large tech firms to establish data commercialisation (or 'data monetisation') strategies. As banks enter the process of establishing their commercialisation strategy, the regulatory and market landscape is transforming too, bringing new challenges to the way in which they operate. We believe that this is the opportune time for banks to efficiently commercialise their data. Indeed, data commercialisation will not only be a competitive advantage for banks, but it will become the bare minimum for providing a high-level digital service to both their retail and corporate customers.

Capco and Lloyds Banking Group have partnered together to create a framework to generate tangible returns from data commercialisation:

OUR FRAMEWORK

- **Define commercialisation strategy**
 - o Linking to overall firm strategy and expression of how data can be used to drive revenue growth, retain customers, reduce costs and risk. Then mapping out short, medium and long-term objectives
- **Commercialisation ideation**
 - o The process for discussing, conceptualising and prioritising ideas. Focus on what benefits can be realised, how complex the problem is, data availability, privacy concerns and technological readiness
- **Prototype and test methods**
 - o Execution of a repeatable and robust process for testing hypotheses and quantifying outcomes
- **Industrialisation and scale**
 - o Conversion of successful prototypes into an optimal and scalable solution embedded into the business which has measurable and quantifiable benefits

This framework will allow banks to manage the risk associated with data commercialisation whilst building an engine room that allows the business to get value from their data. Key to delivering this framework is ensuring that the cultural elements and data privacy concerns are addressed, which will in turn allow banks to take advantage of new technologies and analytics capabilities.

The future remains uncertain in light of the Payments Services Directive 2 (PSD2) and the General Data Protection Regulation (GDPR), as the industry have yet to establish a consensus on their overall impact. Yet, as clients gravitate to digital channels and millennial customers expect a different level of service, it is imperative that banks take advantage of the data they hold. As a minimum they should start to define their strategy, build consensus with senior management and start to execute some high value business cases. Any bank that does not leverage data for commercial value could find their business model and position in the market under threat in the future.

INTRODUCTION

Data is all around us. It's ever-growing, and as we know, it's a powerful commodity, underpinning many of the world's most successful businesses. With larger-than-ever volumes of data now being captured and stored, coupled with cheaper and improved computer infrastructure and processing power, there has never been a better time to make data commercialisation part of the corporate strategy. 'Data commercialisation' or 'data monetisation' has been characterised by the likes of Forbes as 'the next frontier in digital transformation'.¹

This opportunity has been largely untapped by banks, and their corporate customers. But this is changing through the examples set by the largest tech and data giants, and a growing awareness around the value of data and how it can be used for competitive advantage. Data-rich businesses which do not commercialise data in an effective way to provide new services to customers or create new propositions will fall behind the competition and the new disruptors in the marketplace. It is not without some risks. Within a relatively short space of time there have been a number of new data regulations introduced, such as Open Banking (OB), the Payments Services Directive 2 (PSD2) and the General Data Protection Regulation (GDPR). These will ensure that banks abide by data privacy laws, use the data they hold appropriately, and drive an increased focus on data security.

Trust, security and transparency are vital for banks and their customers in the pursuit of data commercialisation, as customers view banks as data custodians for personal and transactional data. Institutions must maintain this trust by handling customer and transactional data safely, appropriately and transparently. Perhaps unfortunately, it was the Cambridge Analytica data scandal which catapulted the

concept of commercialising data into public consciousness - and highlighted the importance of banks appropriately using and protecting all data sources.

Our experience and analysis show that data commercialisation can be a source of competitive advantage for firms, albeit with appropriate risk management in place. This can be achieved by:

- Analysing the data to create new products or services which enhance the customer relationship
- Applying insights to create internal efficiencies
- Generating new revenue streams by selling anonymised aggregated data
- Reducing the burden of regulatory-driven technology programmes

Therefore, data commercialisation has the power to transform the internal analytics function from a managerial information (MI) provider into a 'profit centre'. This function can then become a central hub which develops value-added services for a customer base with ever-changing demands.

This paper outlines a conceptual methodology which illustrates where a bank can start with data commercialisation, how to set priorities, how to use data to provide value internally, as well as developing value-added services for its customer and client base, and ultimately how to capitalise on their greatest asset.

REFERENCE

¹ <https://www.forbes.com/sites/forbestechcouncil/2018/05/08/what-should-be-your-data-monetization-strategy-to-compete-in-the-borderless-economy/#7b2df6f40958>

WHAT IS DATA COMMERCIALISATION?

Whilst some financial institutions have started to test the water and realise early successes from data commercialisation, most are still trying to figure out what it is, before they can offer the benefits to their customers and clients.

Until now, banks have focussed on the capture and storage of data. They have made strides in securely governing their data through discovery, lineage and management programmes. Many businesses, in their various pockets, analyse and use insights from the data assets they own or manage. However, very few are creating commercial value from it.

We believe that banks must come to the realisation that their data is their most valuable asset for themselves, their customers and clients. But what defines a data asset and what are some of its characteristics?:

1. The organisation owns or has control over the data (although there is a dependence on legal consent and adhering to data privacy laws when processing it)
2. It allows the institution to solve a particular customer problem
3. The organisation can derive future economic benefits from the data
4. The organisation can purchase, sell or exchange anonymised data and insights with reputable and legally compliant third-parties

We have seen organisations in different regions interchangeably using the terms 'data commercialisation' and 'data monetisation'. For the purpose of this paper, the two terms are interchangeable.

There are two main types of data commercialisation:

Internal data commercialisation focuses on using data to create business insights that can improve decision-making, generate new opportunities (such as the creation of products or expansion to new markets), enhance the customer journey and experience, as well as drive improvements in operational processes. Imagine the power of being able to mine corporate international shipping inventories data and to proactively offer an appropriate product, such as trade financing.

External data commercialisation uses data assets in an organisation to create new data products or services for its customers and clients, or it allows an institution to develop anonymised data insight reports. These reports can be sold to third-parties or combined with third-party datasets (to be shared or sold as an alternative revenue stream). An example of this could be the sale of insights to customers on a range of topics, e.g. how Brexit has impacted trade between various countries and industries and the subsequent effect on a company's business model.

Between Capco and Lloyds Banking Group, we have created an end-to-end framework to generate tangible returns from data which could enable new services to be developed for customers, increase internal efficiencies to improve the customer journey or drive external revenues through new data-based propositions.

Figure 1 presents our data commercialisation framework. The remainder of this paper takes each component and describes how each one can be applied.

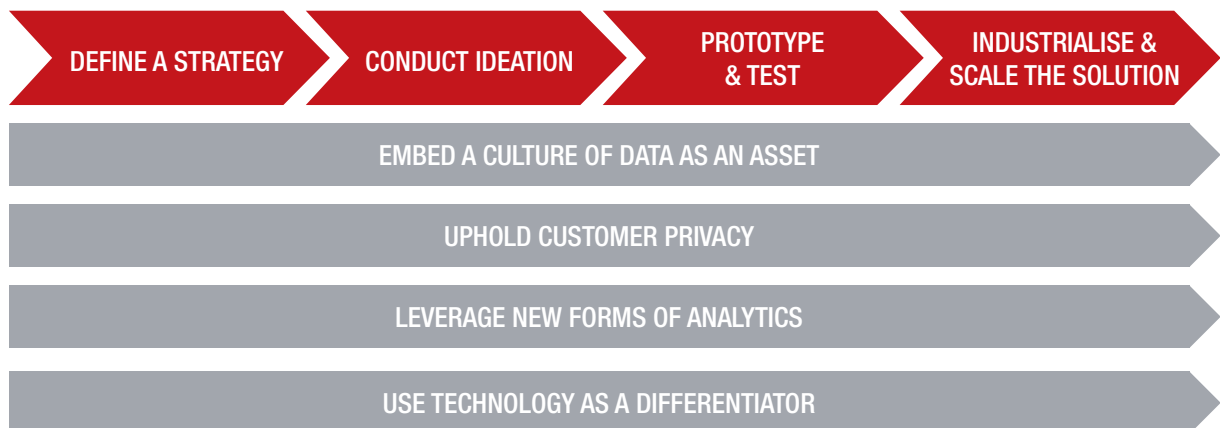


Figure 1: Our data commercialisation framework

1. DEFINE A STRATEGY

HOW TO SET A STRATEGY

There are four main drivers for banks to embark on data commercialisation:

1. Revenue generation
2. Customer retention
3. Cost reduction
4. Fraud prevention

Once the bank decides to start the journey, it must clearly outline its vision, including which of the above drivers to pursue. Specifically, the bank would review its group-wide strategy to see how data commercialisation can enable or empower it. Data commercialisation typically requires acceleration of the data strategy and to fit into the operating model. Some organisations have even set data commercialisation as an objective in its own right.

The next stage is to take the group strategy and filter it down to the individual business units. This will help determine where you can pilot commercialisation, what types of propositions to focus on first and in what timeframes, as well as identify the data sources needed.

DEFINING PRIORITIES

An organisation embarking on this journey should probably start with internal use cases, as it will help familiarise the business and operational functions about the concept of data commercialisation. They should be prioritised in line with overall strategic objectives,

the different data sources available and specific business problems to be solved. Figure 2 outlines the building blocks required to start commercialising data.

ASPECTS TO CONSIDER WHEN SETTING UP A DATA COMMERCIALISATION STRATEGY

- Alignment to the overall group strategy
- Alignment to the organisation's risk appetite
- Consideration of existing programmes or projects that can impact data commercialisation
- Consideration of external regulations such as GDPR, PSD2 and MiFIDII
- Definition of acceptable return on investment ratio (ROI) and payback periods for the programme and at the use case level
- Maturity of the data culture within the organisation
- Current state of the technological infrastructure
- Current level of data analytical skill available within the organisation

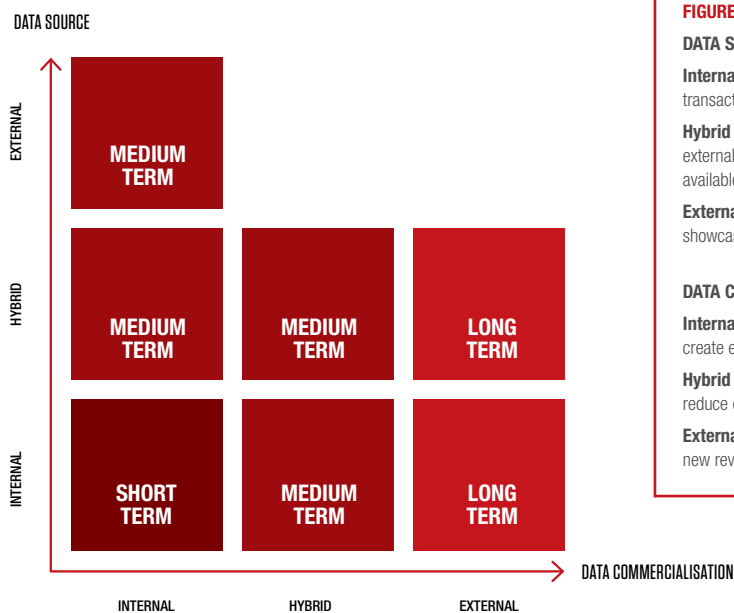


FIGURE 2 KEY:

DATA SOURCE

Internal - data generated by the organisation or its customers e.g. transactional data or payments data

Hybrid - data that is created through an amalgamation of internal and external data e.g. merging internal customer behavioral data with publicly available customer profile data

External - data that is purchased from the marketplace e.g. logistics data showcasing trade patterns

DATA COMMERCIALISATION

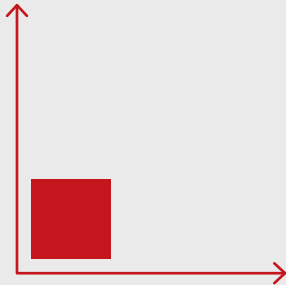
Internal - data used for use cases within the organisation to reduce costs or create efficiencies

Hybrid - data used to solve use cases that can be used to grow revenue, reduce costs or create efficiencies

External - data used for use cases that allow the organisation to create a new revenue stream

Figure 2: Building blocks for commercialisation

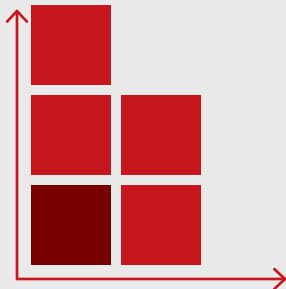
SHORT-TERM



The focus should be on 'commercialising' your data internally, using only internal data sources that are easily accessible and understood. These use cases are typically focused on improving internal efficiencies.

An example: Using payments transaction data to identify concentration of payment repairs and then putting in place automated remedial actions, so payments can be processed straight through (i.e. STP) which enhances the customer experience.

MEDIUM-TERM



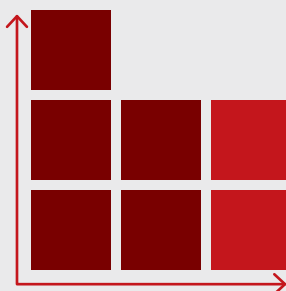
Once your organisation has made some early gains from data commercialisation, you should start to combine both internal and external data sources. In combining the two, you can:

- Create new services which enhance the customer offering
- Generate some form of data service that can be sold to the market
- Ingest external data to measurably improve internal processes (e.g. KYC)

An example: Using transactional data to provide customers with access to digital receipting functionality within their online bank account.

After this stage, organisations should also explore opportunities using solely external data, then align this with internal data to create a full view of the customer.

LONG-TERM



After gaining more experience with both internal and hybrid use cases, your organisation can then venture into propositions specifically developed to be sold externally. Typically, these data products are created utilising anonymised and aggregated internal or hybrid data sources and tested internally, and then sold as white-labelled data services to the open market, clients and other institutions.

An example: Combining energy providers' data with banking data allows customers to automatically switch to the most cost-appropriate utility product every year.

2. CONDUCT IDEATION

Ideation is the process of listing ideas or use cases where data can be modelled to answer and solve real-world problems. Multiple parts of the business should be involved to discuss, prioritise and conceptualise ideas before this prototyping begins, including key stakeholders from business areas, operational functions, IT and data teams. The ideation process can be broken down into 3 key stages: **Discuss -> Conceptualise -> Prioritise.**

DISCUSS

It is important that the discussion stage brings together cross-functional stakeholders so that all sides of the same idea can be considered. The focus should be on solving specific business problems as outlined in Figure 3.

CONCEPTUALISE

The idea should then be documented to clearly articulate the business problem it is solving, the scope of the prototype and the potential expansion to a scaled solution, the expected benefits, data and the resourcing requirements.

At this stage, there is a clear transition from silo-ed data assets to data-led propositions, or 'data products'. Key considerations during the ideation stage include:

1. The purpose of the use case ('the why')
2. The specific problems it is solving for the business or the customer, along with an initial definition of the 'data product' features ('the what')
3. The method and vehicle of delivery ('the how').

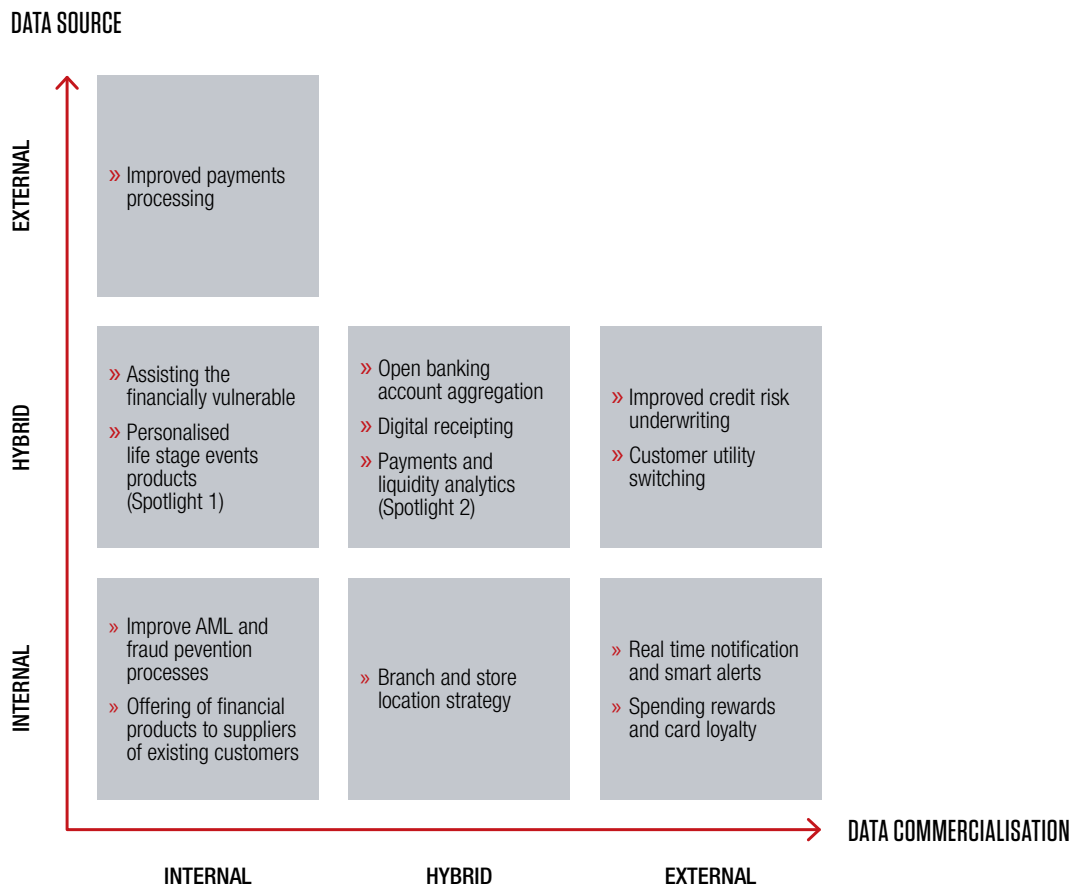


Figure 3: Example use cases

SPOTLIGHT 1: PERSONALISED LIFE-STAGE EVENT PRODUCTS

Financial institutions could build models that can predict customer behaviour and life-stage changes (e.g. getting married or buying a house). Using these models, internal teams are alerted about specific behaviour changes or life events, so they can personalise offerings and cross-sell products (e.g. offer a loan to support a marriage or a mortgage for a customer's first home).

These kinds of models can be built through a combination of internal customer and transaction data, as well as external data sources, such as Visa card spending reports, social media data and any insights about what competitors are doing. The bank would use diagnostic analytics, which looks at historical data to determine both what happened and why, so the model can be built to identify the relevant triggers that indicate a life-stage event. These models can then be further expanded to be used in a predictive and prescriptive manner. In fact, these kinds of behaviour models have been in use for some time by the giant retailers, such as Amazon.

Personalised life-stage event products are a great example where banks can conceptualise a new data-based product and then build prototypes which they test internally using their employees as a closed beta user group. This can allow the internal user group to provide feedback, so the products can be further developed before being tested with external customers and then officially launched.

To implement this data product, banks need to ensure they have the correct level of data privacy consent and authorisation in place from customers and external data sources. If they break data privacy laws or confidentiality contracts this could result in fines, loss of customers and reputational damage.

SPOTLIGHT 2: PAYMENT AND LIQUIDITY ANALYTICS

Payment & liquidity analytics is a commercial client proposition where banks can combine internal client transaction data with that client's financial statements. This provides banks with deeper insights into their customers' working capital management, developing a more comprehensive client understanding, thus improving the banks and clients' relationship. An example is changing the customer's account overdraft from fixed to variable to match their working capital needs. This reduces the risk as the overdraft limits will be dynamic and can still have an upper threshold, whilst customers get an option personalised to their needs.

This product also provides the opportunity for revenue generation, as the bank could create automated triggers to identify pre-existing client behaviours or identify changes in their financial situation (e.g. providing a bridging loan for seasonal businesses). The external commercialisation of this product to commercial clients benefits them as banks can proactively identify opportunities to improve their working capital or cash flow situations.

The capabilities of technology and an organisation's own internal technological limitations can heavily impact the timeframes and scope of this data-based product. For example, if either the bank or third party doesn't have API capabilities to ingest financial statements data, the organisation needs to develop other ways of pulling and consuming external data.

A core part of implementing a use case like this is making individuals aware of the value of both internal and external partnerships. Effective partnerships are key to ensuring successful development.

PRIORITISE

The prioritisation of ideas should follow a consistent scoring methodology. This will help the bank decide which ideas can be tested and implemented faster, to bring benefits that align to the overall data commercialisation objectives.

We recommend that the value from both the prototype and industrialised solution should be considered. Whilst the inclusion of the prototype may feel short-termist, often a solution focused on a narrow dimension can deliver disproportionate benefits.

ASPECTS TO CONSIDER IN A PRIORITISATION MECHANISM

- How much value will be created
- What duration will the benefit be created over
- Complexity of development
- Scalability of solution
- Data privacy constraints
- Analytics readiness
- Technology constraints
- Preference from the top: personal projects from leaders that can also assist in embedding data commercialisation into the organisation

3. PROTOTYPE & TEST

It is important to have a repeatable framework to test your hypotheses and confirm the benefits. Testing allows you to reduce the risk associated with exploring, developing and launching a new proposition, thus improving the chances of your product being successful when it is launched on a large scale.

The table below is an illustration of the typical milestones required to perform prototyping:

MILESTONE	DESCRIPTION
Data requirements defined	<ul style="list-style-type: none"> • Detail the data requirements for the prototype to be evaluated against the business requirements defined during ideation. Include data aspects such as volume, time range, geographical location and privacy or confidentiality constraints
Data availability confirmed	<ul style="list-style-type: none"> • Confirm the existence of data, within the applications and systems that are in scope • Grant data access via a sandbox environment that allows data modelling/analysis to be performed • Prepare data for the analysis, including data cleansing, data enrichment, data masking and security
Initial dataset analysed	<ul style="list-style-type: none"> • Evaluate the initial hypothesis through the selected model (see section 7 for understanding how to select an appropriate model) • Iterate until a model reaches the desired output, to meet business requirements • Create a front-end interface for the results, so data 'tells a story'
Initial results evaluated	<ul style="list-style-type: none"> • Review prototype with the business according to the success criteria defined • Mock up what the Minimum Viable Product (MVP) could look like and assess high-level requirements for the full-scale solution
Estimation for business benefits refined	<ul style="list-style-type: none"> • Update Return on Investment (ROI) and payback projections based on the refined benefit estimations • Where applicable, estimate qualitative benefits of a full-scale implementation of the solution, such as improved customer satisfaction or improved managerial information. • Include a mechanism to measure the ongoing benefits
Decide whether to proceed with the full-scale solution	<ul style="list-style-type: none"> • Decision gate (see further details in the next section)

4. INDUSTRIALISE & SCALE THE SOLUTION

Following a successful prototype, the organisation will need to refine the projected benefits or realisation timelines. The business case to progress to an industrialised and scaled solution needs to be driven by these updated estimates.

Industrialising is the process to optimally deliver the activity, making it as automated and standardised as possible. Scaling involves identifying additional scope for a data product or other stakeholders that can benefit from the proposition, such as other business areas, geographies and client segments. The objective is to leverage the utility to scale value beyond the initial prototype scope. We have devised a process for industrialising and scaling a data proposition:

REFINE. Identify the updates necessary to create an MVP along with a roadmap for future product iterations. Highlight the quantitative and qualitative benefits for each iteration.

DESIGN. Design the target solution in conjunction with all the affected stakeholder groups, especially the end-customer. The proposition sponsor, in conjunction with their data product manager, needs to complete a roll-out implementation plan, including the scalability of the solution from a technology perspective.

DELIVER. Apply automation techniques, advanced analytics methods and next generation technologies to build industrialised solutions, such as rule-based automation or machine learning. Use case examples of where these have worked in harmony include financial crime where the rules spot the known-knowns, and the machine learning detects the unknown-unknowns. Organisations should seek to build flexibility within the model or algorithm prototyped, so changes to the product can be more easily deployed in the next iterations. Firms should make the outputs available to end-users via an event-driven architecture instead of monolithic alternatives whenever possible (see section 8 for more information on technology).

OPTIMISE. After the model is developed, it needs to be tested under different conditions in order to improve the quality of the output. The process involves minimising squared deviations by tweaking specified sets of parameters.

TRIAL. Initially implement a test case to check the solution is working better than the prototype and matches the scope of the design phase. Decide whether this MVP is good enough to move into production or whether further refinement is required. Organisations often spend a lot of time in this phase trying to deliver the perfect solution and miss out on opportunities to deliver incremental short-term value whilst enhancements are being worked on as part of subsequent releases.

ENHANCE. Continuously identify the potential for further improvements to the product by reviewing the processes and the operating model, surveying customers and benchmarking the industry.

5. EMBED A CULTURE OF DATA AS AN ASSET

Culture is a known enabler for organisational change. When energy and emotional commitment are linked to specific change initiatives they are undoubtedly more successful.

Data commercialisation should be viewed as part of a cultural change within an organisation. This will promote data as a valuable asset that can support your organisation's vision, values and behaviours. To make this happen, every individual in your organisation needs to take a new approach to how they interact, view and use data.

Executive sponsors should be the driving force in ensuring data commercialisation becomes part of your firm's culture. They should explain the direct and indirect benefits to the business, so relationship managers, sales teams and product owners become engaged, champion the process and sponsor individual use cases.

You should partner with other businesses and corporations to develop joint data propositions. In doing so, more datasets are available to be combined to form new data products, which can mutually benefit banks, their customers and other partners.

Part of the education around data commercialisation should be to present data as an asset that can be used to develop innovative propositions. This will require a new approach to product development, sales and management, so that new propositions derived from data are treated internally and externally as products, instead of projects. Indeed, data propositions should not be a temporary endeavour, but rather a product to address specific problems. Multi-disciplinary teams from the relevant areas need to work together in squads to drive the development and launch of the products, like a mini start-up. This delivery model reduces risks commonly associated with product management and will greatly help your organisation in its journey to a data-driven culture.

As customer demands evolve, changes to the data proposition will be required, and as commercialisation grows within an organisation there will need to be dedicated product teams developing and managing these new data-based use cases. Larger institutions with multiple data products across different business areas will need to establish clear common protocols around governance and security, infrastructure, processes, methodologies and standards for the commercialisation of data products.

In light of PSD2 and OB, some banks have already dealt with

application programming interfaces (APIs) as products in their own right, instead of simply being a by-product of technology implementation. Data commercialisation should be treated in the same way. It is equally important to incentivise behaviours associated with it, such as having a mindset to test, learn and move on quickly when things don't go right.

Above all, to ensure that data commercialisation is embraced rapidly and widely throughout an organisation, its vision, beliefs and objectives must align to the wider organisational culture.

CULTURAL CONSIDERATIONS

- Treating data as an asset and a product
- Having active sponsors for the overall programme and individual propositions
- Involving multi-disciplinary teams in the management of data products
- Building external partnerships to develop joint propositions
- Having a mindset of testing, learning and moving on quickly when things fail

6. UPHOLD CUSTOMER PRIVACY

Like any other asset, you need to protect the data your organisation manages, and control its usage. This is especially required for personal data since the implementation of the GDPR. Any firm involved with data commercialisation needs to understand the concept of data privacy, and quickly identify if data is mishandled or used without consent. Failure can result in huge fines, reputational damage and customer attrition.

When developing data-based products using datasets that contain personally identifiable information (PII), you should complete a data protection impact assessment (DPIA), irrespective of whether you are directly analysing or commercialising these data points. This DPIA is vital in ensuring a bank considers the impact on individuals when developing new products or services, and ensures they put the customer first by handling their data appropriately. This is a requirement from the Information Commissioner's Office (ICO) since the implementation of GDPR², and should be documented even if data is masked, anonymised or pseudonymised.

You need to have controls to manage the data subject's consent and personnel authorisation for accessing and using PII. You will also need to have methods in place to meet GDPR requirements for Data Subject Access Requests, e.g. data portability, right to erasure, and the right not to be subject to automated decision-making processes. If combining internal and external data sources, there needs to be an assessment on a third party's compliance with GDPR requirements and a notification to data subjects of the provision of data to the third party.

These steps are vital in ensuring new data-based models and products can be used and sold with customers' best interests, without harming their rights and breaking any privacy laws.

DATA PRIVACY CONSIDERATIONS

- Commercialisation activities are clearly documented
- There is a lawful basis for processing the data
- Customers have consented to having their data used for the creation of new data propositions
- Third-parties involved in the proposition are compliant with data protection regulations
- A DPIA has been documented for each individual proposition
- There is a robust control framework to ensure the above points are being managed

REFERENCE

² <https://ico.org.uk/media/for-organisations/documents/2013559/big-data-ai-ml-and-data-protection.pdf>

7. LEVERAGE NEW FORMS OF ANALYTICS

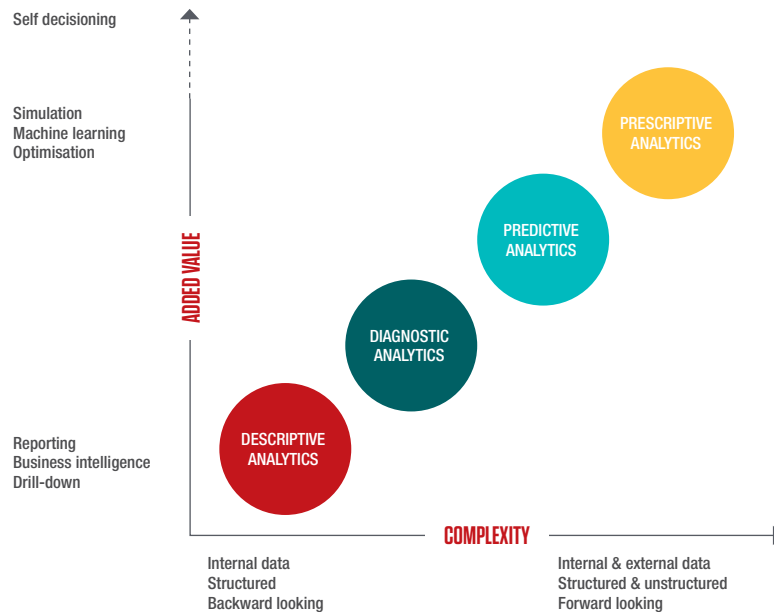


Figure 4: Evolving analytics maturity

It is our view that data analytics is one of the main building blocks of data commercialisation. Typically, analytics was used to drive one of three P&L levers: revenue growth, cost reduction and improving efficiencies. But data analytics within data commercialisation take it one step further. It can also span one or more of these levels, enabling improvements across internal, hybrid and external commercialisation.

There are a variety of techniques that can be used to solve commercialisation use cases, and the selection of these techniques will depend on the analytics readiness of the organisation (e.g. architecture, tools, culture, skills). There are four analytical maturity levels, as shown above in Figure 4.

TECHNIQUES

Descriptive analytics: what is happening?

Descriptive analytics answers the question of what happened in the past. This works by taking raw data from multiple sources and combining it to give valuable insights. These findings simply signal that something is wrong or right without explaining the reasons behind an occurrence.

An example: The aggregation of transactional data into clusters to identify the geographic concentration of outbound cross-border payments over time.

Diagnostic analytics: why did it happen?

Diagnostic analytics looks at past performance to determine what happened and why. Historical data is measured against other data to answer the question of why an occurrence happened.

An example: Correlating specific parameters in transactional data to spot patterns and reasons that may explain the decline of outbound payments in a specific region over time.

Predictive analytics: what will happen?

Predictive analytics uses data to identify past patterns to predict the future. It takes the findings of descriptive and diagnostic analytics to detect tendencies, clusters and exceptions to predict future trends. It is a valuable tool for forecasting.

An example: Utilising identified patterns of outbound cross-border transactions to create a model that predicts, with a certain degree of accuracy, the oscillation of payments for upcoming months.

Prescriptive analytics: what needs to happen?

Prescriptive analytics prescribes what action is needed to eliminate a future problem or to take full advantage of a promising trend. This state-of-the-art type of analytics initially requires the base historical data and external information due to the nature of statistical algorithms but then prescriptive analytics takes over and uses sophisticated tools and technologies like machine learning and AI to model the future.

An example: A utility that models various inter-company and external scenarios and details the impact each would have on spending behaviour, and what associated changes the company needs to make.

TYPES OF SOLUTIONS

There is a second lens that should be applied, alongside the chosen analytical technique - will the use case be solved with a hypothesis driven approach, or a data driven approach?

Hypothesis-driven solutions are most commonly applied to use cases where the firm has a reasonable expectation of the output and are using the model to re-affirm, tweak or refresh previous models.

An example: Established firms generally know their customers well, and the bulk of the insight they gather from segmenting their customers' data will re-affirm their previous conclusions. The exception to this is emerging trends, such as the adoption of mobile in payments behaviour which may cause new customer segments to rise out of the mix.

Data-driven solutions are used when a firm wants to take a fresh approach to analytics and build the model without any pre-determined hypotheses. In this exploratory approach, the solution does not rely on assumptions and the output of the model is purely based on data observations. The results will be inferred at the end of the analysis. It can be quantitatively tested for accuracy, and the action will be designed based on the insights drawn.

An example: When a firm is launching a new bank into the marketplace, the proposition can be centred around all relevant data sources that the firm can gather from internal data, market reports, brokerage firms, social media data, surveys, focus groups, industry trends, and competitor information, etc. The firm will then put all the data into an 'engine' and allow the model to draw clusters of relevant customers and their associated attributes.

ASPECTS TO CONSIDER WHEN SELECTING THE APPROPRIATE MODEL(S):

- Data quality of the sample data set
- Size of the sample data set
- Whether the results need to be labelled (e.g. categorise customers into a segment) or quantified (e.g. predict growth of a product for a specific customer segment)
- Existing knowledge about the data, such as known patterns or correlations
- Degree of confidence required in statistical outcome
- Skillset available and experience of resources

8. USE TECHNOLOGY AS A DIFFERENTIATOR

CORE TECHNOLOGY ASSESSMENT

In the short term, you can deliver proof of concepts that will deliver value without significantly impacting business-as-usual operations, as banks don't need to have state-of-the-art technology to start commercialising data. However, the ability to industrialise an analytics capability into an organisation is dependent on underlying data quality levels and technology maturity. Companies should assess their technological maturity and understand the current and future state of each layer of their data architecture stack. If the technology is relatively immature, align the pipeline of commercialisation opportunities with the delivery of technology upgrades from other strategic programmes.

A data commercialisation programme needs to deliver value that is repeatable and scalable. There is no off-the-shelf solution. After all, organisations have varying levels of appetite for innovation, company-specific constraints (such as legacy IT infrastructure), and different budget limitations.

Figure 5 below is an example of a smart data architecture configuration that services the needs of the business by providing quick, accurate and connected data to the end-user.

Create an infrastructure that allows the use of APIs whereby internal and external data can be ingested into a data store, and then be prepared, cleansed and indexed in a staging area. Once the data is in a store, the data querying, the model recalculation and updates to algorithms can happen in the associated utility tool. Data consumers will have access to this data through business intelligence or analytics interfaces. It is preferred to use technology solutions that will allow end-users to self-serve on the product, removing reliance on data science or data provisioning teams.

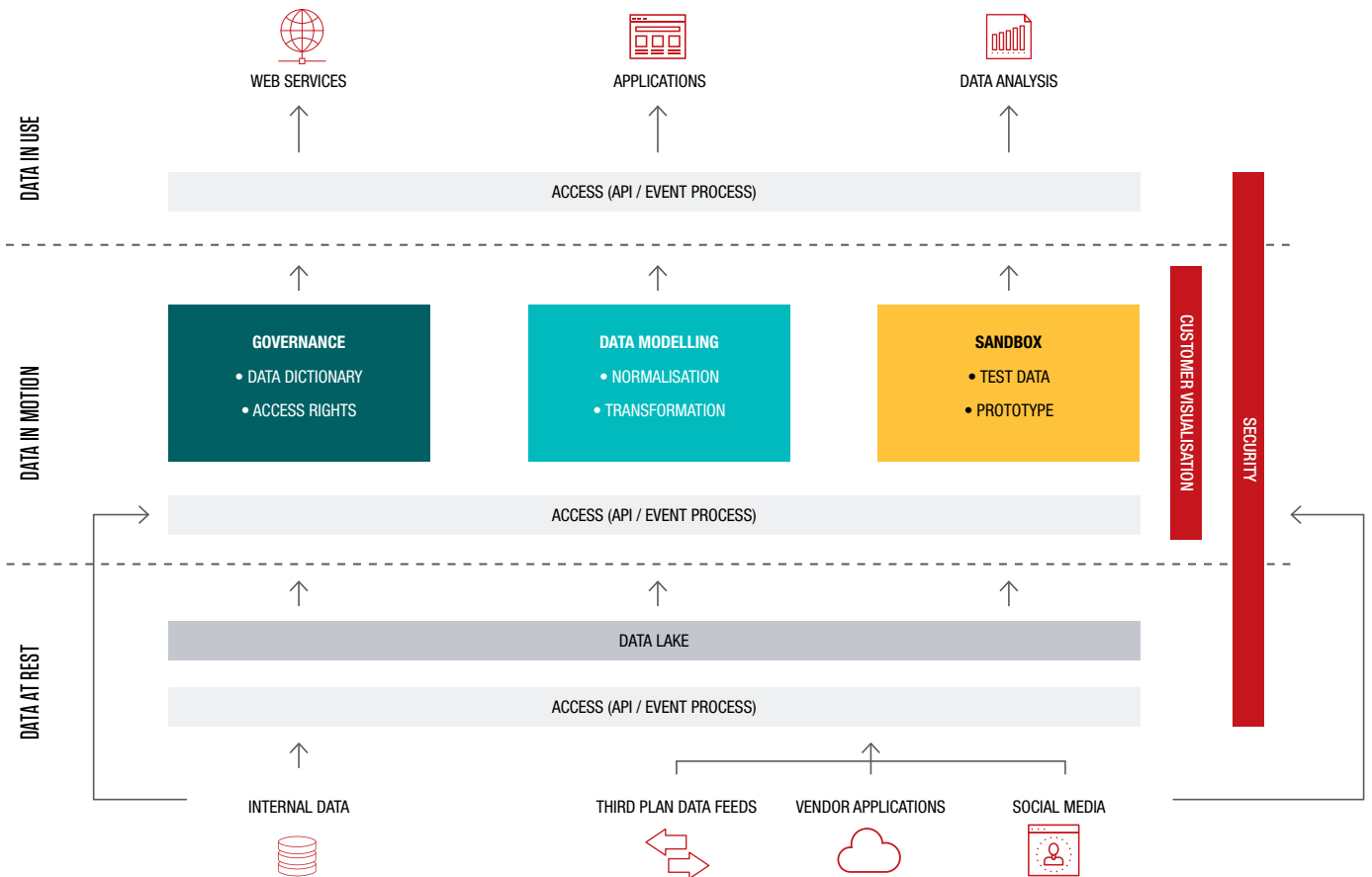


Figure 5: Smart data configuration

9. WHAT DOES THE FUTURE LOOK LIKE?

The history of data marketplaces can be traced back as far as the mid-1800s, when Paul Reuter, founder of Reuters news media, began making stock exchange prices available between Paris and London. This set the foundations for thinking about data in a different way.

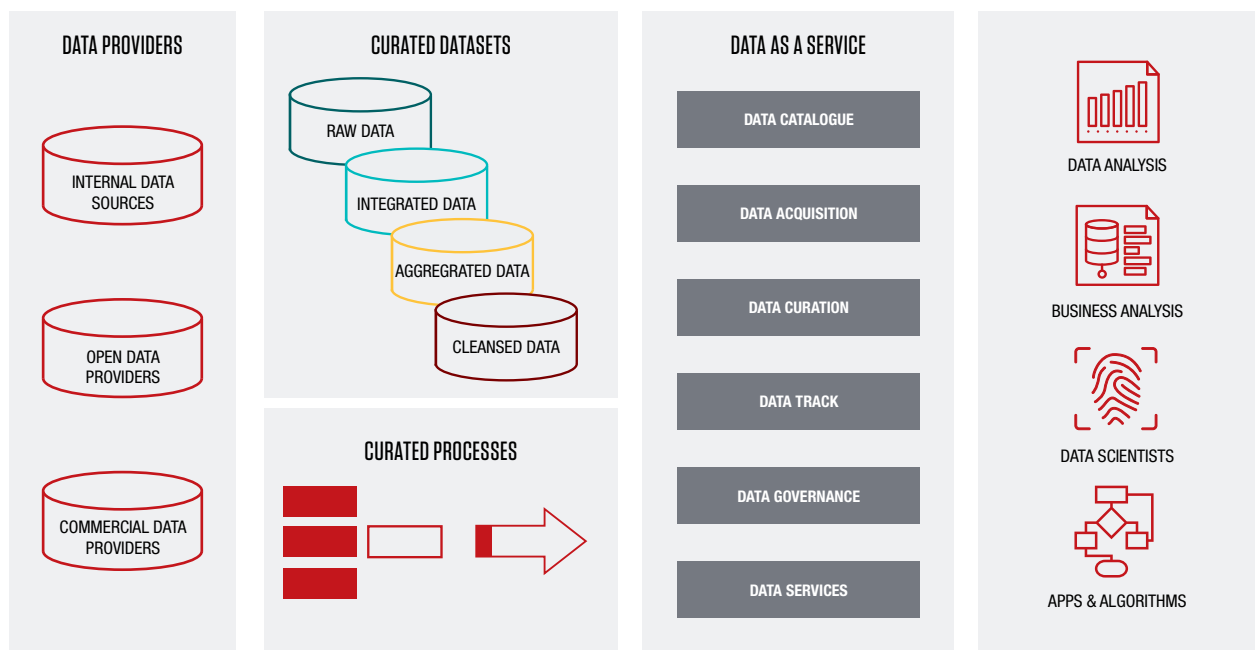


Figure 6: Illustration of the data marketplace

(adapted from Dave Wells March 2017, Data-as-a-Service)

A data marketplace is a platform where companies and individuals can buy and sell data online. It helps users who are seeking a specific data set to explain their needs, create a request, add a deadline and budget, uphold data privacy, and in turn allow aggregators to respond with relevant data for purchase. Some industry sectors, such as registered charities may be able to access data for free if there is reasonable justification to do so (i.e. corporate social responsibility efforts).

Imagine logging into your Amazon account, but instead of buying a book, film, or new Kindle, you're able to purchase data generated by companies. It could be aggregated transactional data from banks used to understand macroeconomic shopping trends, sales data from a soft drinks company for the government to publish statistics on consumption of sugary drinks, sensors on oil rigs in the North Sea to better predict weather, or from air-conditioning units bought by real estate developers trying to gain a competitive advantage

over their competitors when designing new projects. This is the concept of a data marketplace, and it's not far from becoming mainstream. There are already channels through which companies can buy and sell data, such as the 'Data-as-a-Service' (DaaS) industry as illustrated in Figure 6.

THE IMPACT OF PSD2

The recent launch of the revised Payment Services Directive (PSD2) in January 2018 is also likely to act as a catalyst for data sharing and thus, a future data marketplace. The EU directive, which forces banks to share account data of consenting customers with other providers, will soon enable banks globally to shift from being one-stop-shops for financial services, to open platforms. In a data marketplace, customers can start to embrace a more modular approach to banking, by giving verified third-parties direct access to

their data. Other countries outside the EU are considering whether to implement similar legislation to PSD2, and we imagine they will be closely monitoring Open Banking to make that decision.

There are currently two schools of thought on the impact of PSD2:

1. Regulation and fear around data privacy is creating a universe where no one wants to share any information. With GDPR coming into play, everyone's suddenly going to delete their online footprint.
2. However, PSD2 could instead lead to people sharing more information about themselves in pursuit of more personalised services. Rather than simply choosing to share data with a few trusted third-parties, people are actively sharing private information as they see a clear benefit in doing so.

It is our belief that the second school of thought will become the norm. Once the initial hurdle of GDPR has passed, and customers start to see the benefits of legitimate information sharing through open banking success stories, the new marketplace will emerge.

WHAT IS THE IMPACT TO THE CUSTOMER?

If this predicted future becomes a reality this would, in theory, result in financial institutions using multiple open data sources to offer attractive, personalised, efficient products to customers. Examples of this could include:

- **Streamlined mortgage applications:** real-time access to a customer's statement information enables mortgage providers to make quicker, more informed credit decisions and reduce risks.
- **Integration with mobile and IoT devices:** robots or voice assistants making payments on behalf of customers, such as council tax, utilities or weekly groceries.
- **Smart switching:** there will be the development of a suite of smart switching services which can provide added value. An example is ING's Yolt, a smart money management app. Other personal finance solutions will no doubt be released into the market and enable customers to find and switch to the best deals across products such as energy, insurance, telecommunications, travel money and more.

WHAT NEXT?

Data continues to shape the world we live in, constantly aiding better decision-making and analysis, and creating new products and services from that new knowledge. Indeed, the adage that "knowledge is power" feels just as relevant today as when it was supposedly uttered by Francis Bacon in the late 16th Century. In these digital times, we are constantly seeing evidence of this, with data firmly at the core of more and more organisations' business models and strategies.

We are confident that the application of data commercialisation will soon be as commonplace in financial services as it is within the world's most powerful retail and technology businesses. We are also confident that the sooner banks embrace data commercialisation, the sooner they will realise its benefits and gain a competitive edge.

A bank's future, without making full use of its data seems untenable in today's challenging environment, especially when customers are increasingly gravitating towards digital-focused, personalised products and services, and this very market shows no signs of abating in offering such choice.

NEXT STEPS TO EMBRACING DATA COMMERCIALISATION

1. Start now. Don't play catch-up, be at the forefront
2. Deliver a set of use cases to demonstrate value from commercialisation
3. Embed a culture of fail fast and move on. Not all use cases will demonstrate value
4. Implement a process to move from use case to a industrialised solution
5. Add data commercialisation as an enabler to your group and business unit strategy.



This document was produced for information purposes only and is for the exclusive use of the recipient.

This document has been prepared for general guidance purposes and is indicative and subject to change. It does not constitute professional advice, nor does it constitute an offer, or recommendation, to enter into any products, services or any other transaction. You should not act upon the information contained in this document without obtaining specific professional advice. No representation or warranty (whether express or implied) is given as to the accuracy or completeness of the information contained in this document and, to the extent permissible by law, neither The Capital Markets Company BVBA and its affiliated companies globally (collectively "Capco") nor any member of the Lloyds Banking Group of companies globally, assume any liability or duty of care for any consequences of the acts or omissions of those relying on information contained in this document, or for any decision taken based upon it.

Copyright © 2018 The Capital Markets Company BVBA and/or its affiliated companies.

All rights reserved.

AUTHORS:

CAPCO

Chris Probert

Capco Partner

chris.probert@capco.com**Ian Hooper**

Capco Partner

ian.hooper@capco.com**Nikil Mathur**

Capco Managing Principal

nikil.mathur@capco.com**Werner Stender**

Capco Senior Consultant

werner.stender@capco.com

LLOYDS BANKING GROUP

Nicholas Mellish

Senior Manager, Payments Technical Services

nicholas.mellish@lloydsbanking.com**Scott Galley**

Manager, Payments Technical Services

scott.galley1@lloydsbanking.com

ABOUT CAPCO

Capco is a global technology and management consultancy dedicated to the financial services industry. Our professionals combine innovative thinking with unrivalled industry knowledge to offer our clients consulting expertise, complex technology and package integration, transformation delivery, and managed services, to move their organizations forward. Through our collaborative and efficient approach, we help our clients successfully innovate, increase revenue, manage risk and regulatory change, reduce costs, and enhance controls. We specialize primarily in banking, capital markets, wealth and investment management, and finance, risk & compliance. We also have an energy consulting practice. We serve our clients from offices in leading financial centers across the Americas, Europe, and Asia Pacific.

To learn more, visit our web site at www.capco.com, or follow us on [Twitter](#), [Facebook](#), [YouTube](#) and [LinkedIn](#).

WORLDWIDE OFFICES

APAC

Bangalore

Bangkok

Hong Kong

Kuala Lumpur

Pune

Singapore

EUROPE

Bratislava

Brussels

Dusseldorf

Edinburgh

Frankfurt

Geneva

London

Paris

Stockholm

Vienna

Warsaw

Zurich

NORTH AMERICA

Charlotte

Chicago

Dallas

Houston

New York

Orlando

Toronto

Tysons Corner

Washington, DC

SOUTH AMERICA

São Paulo

[WWW.CAPCO.COM](http://www.capco.com)**CAPCO**
THE FUTURE. NOW.