



EUROPE

Future of the Credit Information Market

Final report

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CENTRE FOR FUTURES
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Preface

RAND Europe was commissioned by the Financial Conduct Authority (FCA) to conduct forward-looking research to understand how the credit information market might evolve in the future. The research was undertaken between July 2019 and December 2020. This report forms part of the Credit Information Market Study (CIMS) undertaken by the FCA.¹

A **rigorous, structured and expert-led approach** was adopted to identify several plausible scenarios of how the credit information market might develop in five to ten years' time.

Using a structured scenario methodology and an extensive, iterative expert and stakeholder consultation, this project identified the factors influencing change, built an understanding of how the market might evolve in the future and the implications of different scenarios. The findings published in this report form part of the overall evidence base for the Credit Information Market Study.

This report contains the findings from:

- Phase 1 – Identifying and prioritising key factors that could shape the future of the market; and
- Phase 2 – Developing a number of potential coherent scenario narratives.

It also contains details of the underpinning methodologies we used to arrive at the final scenarios.

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¹ See FCA 2020b.






Summary

RAND Europe was commissioned by the Financial Conduct Authority (FCA) to conduct forward-looking research to understand how the credit information market might evolve in the future. This report forms part of the Credit Information Market Study (CIMS) undertaken by the FCA.

The credit information market involves a diverse range of stakeholder groups, extending beyond the core relationship between financial institutions and customers to include credit reference agencies (CRAs), regulators, consumer representatives and FinTech companies, among others. In the UK, the Financial Conduct Authority (FCA) plays a key regulatory role in the market.

The credit information market is closely linked to the lending markets but can also be influenced by factors that are external to these markets. CRAs could potentially face a wider range of competitors who use new and emerging technology to process vast datasets. Consumers' attitudes to sharing data may be shaped by experiences in other sectors, which in turn may be influenced by changes in regulation, such as GDPR. In this study, key factors were identified across five areas that could influence the evolution of the credit information market. The five thematic areas and corresponding key factors are depicted in Figure S1 below. Interactions across these five areas were identified as critical in determining the future development of the credit information and lending markets.

Figure S1 Thematic areas and key factors that influence the credit information market

 Demographics & Economy	 Technology	 Consumer	 Market	 Regulation
1. Health of the economy	2. Credit industry infrastructure 3. Opening up of new data sources 4. Application of AI/ML	5. Demand for credit 6. Confidence in credit providers 7. Attitudes to privacy and data sharing	8. Role of traditional CRAs 9. Role of new and emerging credit providers 10. Wider use of credit information 11. Cross-border data sharing	12. Control of consumer data 13. Data sharing between CRAs and lenders 14. Regulation of the credit market 15. Ethical and regulatory considerations

Uncertainty in these factors and how they interact could lead to different paths over the next ten years. Scenarios are long-standing tools that are used to explore this uncertainty.

The scenario development was underpinned by a structured, expert-led approach

In this study a structured-scenario development methodology was used. A key feature of this approach is that the scenarios take account of a range of interrelated factors from both within the credit information

market and other influencing areas exogenous to it. They therefore provide an internally consistent and plausible picture of what may happen both in the credit information market, and within wider society.

Structured engagement with experts was a key component of the research approach. To ensure the study was balanced and did not over-represent one group's interests or a narrow point of view, the project team identified a wide range of relevant disciplines and sectors from which to draw expertise. Inputs from experts and stakeholders have been used in a structured way throughout the project to develop the key factors that describe the credit information market, understand how these interact and could develop in the future (factor projections) and select the scenario clusters. Stakeholder consultation was comprised of the following activities: scoping interviews, remote survey exercises, workshops, consistency analysis, cross-impact analysis and multiple feedback sessions.

Four future scenarios have been developed for the credit information market

Four scenarios have been developed in the study. These scenarios represent a wide spectrum ('envelope') of possible futures and are sufficiently differentiated from each other, in terms of credit information and wider societal developments, to provide a broad test for future policies. The scenarios are written from the vantage point of 2030; this timeframe was adopted to reflect both the five- to ten-year horizons of interest for the wider Credit Information Market Study, and a sufficient timespan for the scenarios to be informative from a policymaking perspective.

Four future scenarios for the credit information market

	WIDENING CREDIT GAP By 2030, the pace of innovation in new data sources and advanced analytics has slowed due to mounting concerns about data security, ethics and transparency, and a lacklustre economy. Innovative new CRAs and lenders have also struggled to gain traction. As a result, the anticipated benefits of innovation have not materialised – credit information has not continued to become cheaper and the effectiveness of lending decisions has not materially improved. Instead, the credit gap has widened, and more consumers have little or no information held about them at the CRAs and, as a result, are struggling to access credit on terms that reflect their risk.	CONSUMER CENTRIC CREDIT Consumers recognise the value and risks associated with sharing data in 2030 and feel empowered to choose what data they share and with whom. Within lending markets, consumer-consented data is widely used in decision-making, with CRAs and lenders increasingly competing to build strong brands, maintain consumer trust and articulate the benefits of sharing data to consumers. Whilst lending decisions are, in general, better informed, the reliance on consumer-consented data presents challenges. Some individuals also pay a ‘privacy premium’ for either not allowing anyone to access information about them, or for entrusting their data to a ‘one stop’ shop for financial decisions.	BIG DATA DRIVEN By 2030 there has been a proliferation in Big Data and advanced analytics across the credit information sector, retail lending markets and the wider economy. CRAs combine information from an ever-increasing range of financial and non-financial sources and use sophisticated analytical techniques to provide insights to a diverse range of customers including lenders, landlords and employers. The overall effectiveness of decision-making has improved but, as credit is increasingly offered on personalised terms, some higher-risk individuals face significantly higher costs and fewer options for credit. Consumer understanding of how data is used is low.	LENDERS LEAD Lenders have led the way in using credit information from a wider range of sources. In 2030 they increasingly use credit information from smaller CRAs, consumer-consented data and other sources to supplement or substitute information from large CRAs. This has generated greater competition in both the credit information and retail lending markets. But there is also greater consumer confusion over how their data is collected and used. This has led to an increased focus within industry on developing a code for data collection and use, including factors such as ethics and transparency.
Economy	The economy is stagnating	Strong growth	Moderate growth	Strong growth
Technology	Application of AI and ML is limited Limited use of new data sources Credit industry legacy platforms remain	Application of AI and ML is extensive Wider use of new data sources New credit industry infrastructure emerges – allowing new capabilities	Application of AI and ML is extensive Greater use of new, unstructured and non-traditional data sources New credit industry infrastructure emerges – allowing new capabilities	Application of AI and ML is extensive Wider use of new data sources New credit industry infrastructure emerges – allowing new capabilities
Consumer	Consumer demand for credit declines Low confidence in credit providers Scepticism around data sharing	Consumer demand for credit grows strongly High confidence in credit providers Highly open to data sharing	Consumer demand for credit grows strongly Moderate confidence in credit providers Highly open to data sharing	Consumer demand for credit grows strongly High confidence in credit providers Highly open to data sharing
Market	Role of traditional CRAs continues as now New and emerging credit providers play a limited role Credit information is mainly used for credit decisions in financial services Limited/no cross-border data sharing	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Greater market consolidation: small number of existing / alternative credit providers Credit information is increasingly used for non-credit decisions in financial services Limited data sharing with select countries	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Market fragmentation: high number of small-medium credit providers alongside large providers Credit information is increasingly used by non-financial services sectors Widespread data sharing	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Market fragmentation: high number of small-medium credit providers alongside large providers Credit information is increasingly used for non-credit decisions in financial services Limited data sharing with select countries
Regulation	Lower demands on credit information Data sharing arrangements between CRAs and lenders remains the same Consumers have limited control over their data	Increased demands on credit information Data sharing arrangements between CRAs and lender improve Consumers exercise significant control over their data	Lower demands on credit information Data sharing arrangements between CRAs and lenders improve Consumers exercise limited control over their data	Increased demands on credit information Data sharing arrangements between CRAs and lenders improve Consumers exercise significant control over their data

The four scenarios provide insights into the implications for the credit information market, the lending markets, consumers and wider society. Below we highlight some of the key observations and lessons.



The scenarios play out against a range of economic backdrops. These indicate that, while **economic circumstances play a role in consumer demand for credit** and that this may differ between population segments, consumer demand is also influenced by the cost of credit and the willingness and ability of consumers to engage with the markets.



Competition and innovation – in both the credit information and lending markets – is a key driver in enabling lenders to access a wider variety of better-quality credit information at a lower cost. However, where competition is driven by more players in the credit information or lending markets, consumers may find the markets more confusing or more difficult to engage with, making it harder to understand how their data is being used and by whom.



While the use of a **wider variety of data** can improve financial inclusion for those with ‘thin’ files, it could also increase the ability of lenders to deliberately promote credit to consumers that may be unsuitable or unaffordable, and increase the potential for errors that could have wide-ranging repercussions.



The use of a **wider variety of data and more sophisticated analytical techniques** in decision making should increase the overall quality of lending decisions, as lenders are able to better-price risk and offer consumers credit products on the most appropriate terms. Although some population segments might benefit, those who have less data available about them, or those who are considered less creditworthy, could face more expensive products or less choice.



Consumers are more likely to be able to access credit on appropriate terms when they have a higher level of **confidence** in CRAs, and lenders are more willing to share additional data.



Technology is both a key enabler and a potential barrier to development in the credit information market. While innovation may lead to lower costs and more varied, better-quality data being used, a lack of transparency in decision making or low investment in data security could have a negative impact on consumer confidence.

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Abbreviations

AI	Artificial Intelligence
APR	Annual Percentage Rate
CIMS	Credit Information Market Study
CMA	Competition and Markets Authority
CRA	Credit Reference Agency
DPA	Data Protection Act 2018
FCA	Financial Conduct Authority
FinTech	Financial Technology
GDPR	General Data Protection Regulation
HMG	Her Majesty's Government
ICO	Information Commissioner's Office
ML	Machine Learning
NGO	Non-Governmental Organisation
OFT	Office of Fair Trading
PoR	Principles of Reciprocity
PSD2	(Revised) Payment Services Directive
SCOR	The Steering Committee on Reciprocity

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Most importantly, however, we are indebted to the host of external experts who gave their time, enthusiasm and expertise to help us identify the key factors that influence the provision of credit information and its use in retail lending markets, and to explore how these might develop in the future. A list of experts can be found in Annex B.

We emphasise that the views reflected in the report are those of the project team, who remain responsible for any errors or omissions herein.

1. Introduction

Credit information typically refers to information relevant to the financial standing of an individual. It is most commonly used by lenders when assessing whether to offer credit to an individual and on what terms. Credit information impacts a significant number of consumers; a third of the UK adult population have a mortgage while the majority (approximately 78 per cent) hold at least one credit or loan product.²

The credit information market involves a diverse range of stakeholder groups, extending beyond the core relationship between financial institutions and customers to include credit reference agencies (CRAs), regulators,³ credit information service providers, consumer representatives and FinTech companies,⁴ among others. In the UK, the Financial Conduct Authority (FCA) plays a central role in the market. From 1 April 2014, the FCA took over the regulation of the consumer credit industry from the Office of Fair Trading (OFT). The Information Commissioner's Office (ICO), set up to uphold information rights in the public interest, is another important authority in the realm of data privacy for individuals.⁵

This study sets out to understand how the credit information market might develop in the future and explore potential benefits and risks to consumers. The purpose of this report is to:

- Identify and analyse key factors influencing change;
- Design a small number of coherent, plausible and internally consistent scenarios; and
- Explore key, policy-relevant implications of these scenarios.

The study team carried out these objectives in a structured and expert-led way, using a future scenarios methodology that incorporates both internal and external influences on the future development of the credit

² FCA 2018.

³ Regulatory technology comprises the use of new technology to facilitate the delivery of regulatory requirements and compliance, and seeks to provide user-friendly, easy to integrate, secure and cost-effective regulatory solutions (Deloitte 2019).

⁴ FinTech ('financial technology') – encompassing the increasing use of Big Data and artificial intelligence by technology giants – offers customers easier and more intuitive access to financial services, including in developing countries where traditional banking networks are scarce (DW 2019).

⁵ ICO 2020.

information market.⁶ This report forms part of the Credit Information Market Study (CIMS) undertaken by the FCA.⁷

1.1. Factors influencing the credit information market

The credit information market involves interactions between actors who may be users, contributors or recipients of credit information. These actors include CRAs, who aggregate the data; lenders, who can be both users and contributors of credit information; contributors and users outside of financial services (e.g. telecoms, utilities and the government); credit information service providers; and consumers, who have different needs when it comes to credit products.

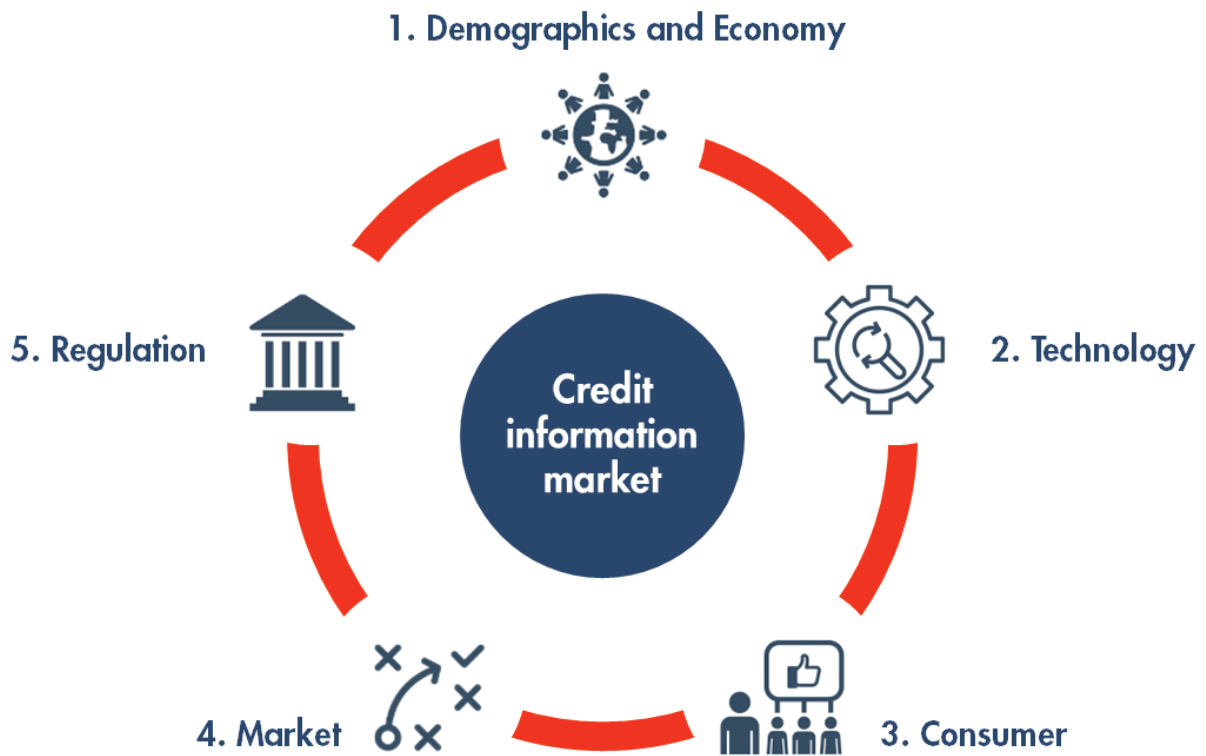
The credit information market is closely linked to the lending markets but may also be influenced by areas or themes that are external to these markets. CRAs may also potentially face a wider range of competitors who use new and emerging technology to process vast datasets. Consumers attitudes to sharing data may be shaped by experiences in other sectors, which may in turn be influenced by changes in regulation, such as GDPR. New opportunities and challenges to both users and contributors are continuously evolving due to innovation, political uncertainty and socio-economic trends.

Following the initial desk research and scoping interviews, factors across five key areas or themes were identified as being relevant to the future development of the credit information market (see Figure 1-1).

⁶ The scenario development was completed in 2019 before the onset of the Covid-19 pandemic. The effect of such shock to the system could be captured in more extreme projections for some of the factors. While some lessons may be drawn, responses to extreme events were not within the scope of this study.

⁷ FCA 2020b.

Figure 1-1 Areas influencing the future development of the credit information market



Demographics and economy

Trends in employment, access to the housing market and credit may influence the ability of different sections of the population to establish a credit history. There has been increased political and public interest in whether some consumers with no – or limited – credit history (e.g. recent immigrants or young people who have not previously held credit products) may have limited access to credit products.⁸ Economic factors have a role in shaping the financial services sector and consumer demand for credit, as well as in influencing general consumption trends. Interest rates may affect the amount individuals wish to borrow, while expectations about the economy and particularly employment could influence both the types of credit consumers choose to access and lenders' appetite for risk. The ability or willingness of firms to invest and innovate in the credit information and lending markets – or other sectors may also depend on the state of the economy. External, global factors – such as the financial crisis of 2008 – inevitably shape the lending market and consumer behaviour and have a lasting impact.



Technology

Technology encompasses existing technologies that currently underpin the credit information market, and new and emerging technology. Such technologies could shape how consumers, CRAs and lenders interact, the way credit information is processed and even which data points could contribute to credit decision-making in the future. Within the industry, the

⁸ FCA 2017a; FCA 2017b.

potential implications and challenges of developments such as Big Data, advanced analytics and open data are actively being considered.⁹ There has also been considerable debate about the impact of new data sources that are not currently shared via CRAs.¹⁰ These include rental payments where, for example, Experian has been working with Big Issue Invest and other social housing providers to populate a rental dataset (Rental Exchange) with data on tenants' payment histories.¹¹



Consumer trends and preferences

Credit information is widely used to inform lending decisions.¹² It impacts the daily lives of consumers by affecting how likely they are to be able to access a range of financial services, including mortgages, loans and credit cards.¹³ However, a large proportion of consumers have limited understanding of credit information (scores and reports) and the role of CRAs. For example, the 2016 Which? survey found that just over half of respondents¹⁴ have never checked their credit report, 60 per cent incorrectly thought that CRAs made lending decisions, and 36 per cent incorrectly thought that checking their credit score regularly would damage their credit rating.¹⁵ Consumer attitudes to sharing personal data or appetite for borrowing may also influence the functioning of the credit information market.



Credit information and lending-market trends

CRAs play a critical role in the provision of credit information. The three main CRAs in the UK – Equifax, Experian and TransUnion – are authorised and regulated by the FCA to provide credit references.¹⁶ Traditional CRAs aggregate data received from a range of contributors – including lenders, telecoms and utility companies – and also use publicly available data, such as County Court Judgements. In compliance with the General Data Protection Regulation (GDPR), CRAs collect and process this information under 'legitimate interest'.¹⁷ The key role of the CRAs is to consolidate and make this information accessible to credit information users. The latter pay the CRAs for information and services to help them assess the creditworthiness of individuals applying for credit, or to manage the accounts of existing customers. There are also a number of smaller CRAs, many of which are recent entrants to the market. Some smaller CRAs are seeking to use advanced analytical techniques, such as machine-learning or artificial intelligence, to provide alternative credit-scoring models. Some are developing business models that complement traditional credit information with alternative data sources, including Open Banking, social networks or interviews with consumers.

⁹ For example: Experian 2018a; Experian 2018b.

¹⁰ Responsible Finance 2018.

¹¹ Experian 2020b.

¹² Ferretti 2010.

¹³ EBA 2019.

¹⁴ Survey included 1,067 people.

¹⁵ Goodman 2016.

¹⁶ FCA 2020a.

¹⁷ See the Legitimate Interest exemption to GDPR (Experian 2020a), under Art6(1) GDPR (Intersoft Consulting 2020).

Lenders are typically both contributors and users of credit information. Lending markets are made up of a diverse range of firms offering a wide range of different products – including mortgages, credit cards, personal loans and high-cost products (such as high-cost short-term credit, or logbook loans). Lenders can vary considerably by size, the products they offer, the distribution channels they use and the types of consumers whom they seek to serve.



Regulatory tools and initiatives

From 1 April 2014, the FCA took over the regulation of the consumer credit industry from the Office of Fair Trading (OFT), including regulating the provision of credit references and credit information services. The Information Commissioner’s Office (ICO) also plays an important role in regulating CRAs and their use of personal data. The ICO is responsible for enforcing compliance with the General Data Protection Regulation (GDPR) and the Data Protection Act 2018 (DPA). The industry has also developed data sharing arrangements, setting out the basis upon which data may be accessed and used. An industry forum, The Steering Committee on Reciprocity (SCOR), has played a key role in developing these ‘Principles of Reciprocity’.

Wider regulatory developments can also have an impact on the market – for example, Open Banking and PSD2 ((Revised) Payment Services Directive) are enabling firms who provide account information services to access and share online bank account data, with explicit customer consent. PSD2 is a directive that regulates payment services throughout the EU and came into force in January 2018. It is implemented through the Payment Services Regulations 2017, which the FCA enforces. PSD2 aims to promote innovation and data-sharing by allowing third-party providers (TPPs) to share payment account information, subject to customer consent. Open Banking is a set of measures mandated by the Competition and Markets Authority (CMA). It requires the nine largest banks in UK to provide access to current account data in a single standard format (application programming interface, or API).

From these five thematic areas, key factors were identified that were considered important in shaping the future of the credit information market, although there was uncertainty about their future values (projections) over the next ten years. These factors were then used to generate scenarios for the credit information market in 2030.

1.2. Report outline

This report is organised as follows. The approach to the study – including the scenario methodology and stakeholder consultation strategy – is outlined in Chapter 2. The scenario narratives and their implications are presented in Chapter 3 and broader lessons learnt in Chapter 4. More details of the methodological approach for scenario development and stakeholder engagement are provided in Annex A and Annex B respectively. A glossary of terms is included in Annex C.

2. Approach

This chapter provides a brief introduction to the scenario methodology and outlines the project implementation approach and stakeholder consultation strategy.

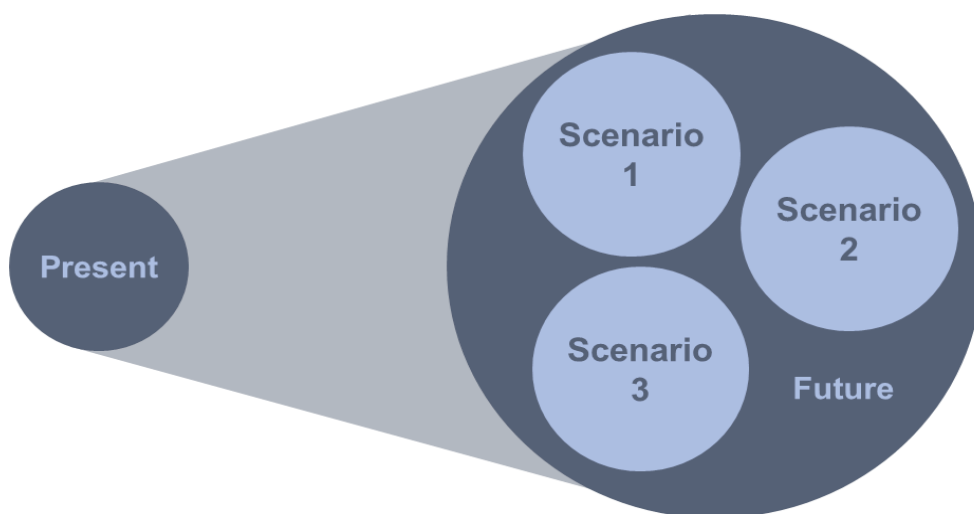
2.1. Scenario methodology

While the credit information market is the focus of this study, it is influenced not only by internal factors but also by external factors. These include demographic, economic and technological factors – for example, the use of artificial intelligence and machine learning, access to data sources, the health of the economy and consumer behaviour. The future development of all these factors may be subject to different degrees of uncertainty; further, they may interact in complex ways. Hence, exploring possible futures for the credit information market involves substantial uncertainty. **Scenarios** are long-standing tools that are used to explore this uncertainty.¹⁸

Scenarios are not forecasts. They do not predict a most-likely future based on knowledge of current trends but are designed to be representative of a wide spectrum of possible future states. Figure 2-1 illustrates how the spectrum (or ‘envelope’) of possible future states expands as we move further from the known present. The scenario approach uses a small number of distinct scenarios to represent the key characteristics, from a policy-analysis perspective, of the many possible futures that could arise. It is important that scenarios should be **plausible** – in other words that the combination of factors and the future values of the factors (projections) that characterise a scenario could reasonably occur together. Hence plausibility implies that scenarios are not only possible but also internally **consistent**, i.e. that the scenario makes sense overall. It says nothing however about the probability of the future state.

¹⁸ Scenarios were first used to evaluate multiple potential futures by RAND researchers in the 1960s (Kahn & Wiener 1967), and techniques to develop scenarios have been considerably modified and expanded since then. While early techniques mainly focused on qualitative intuitive approaches (Kahn & Pepper 1980), scenarios are now developed with more quantitative approaches that enhance the ability to address system complexity and make the resulting scenarios less arbitrary (see, for example, Gausemeier et al. 1998; Gerst et al. 2013; Lempert et al. 2003; Pilkahn 2008; Rozenberg et al. 2014; Schweizer & Kriegler 2012).

Figure 2-1 Plausible future scenarios should reflect a wide range of possible future states



In this study, we used a structured scenario-development methodology. A key feature of this approach is that the scenarios take account of a range of interrelated factors from both within the credit information market and other influencing areas that are external to it. They therefore provide an internally consistent, and plausible picture of what may happen, both in the credit information market and for wider society. The methodology is described in detail in Annex A.

2.2. Systematic project implementation

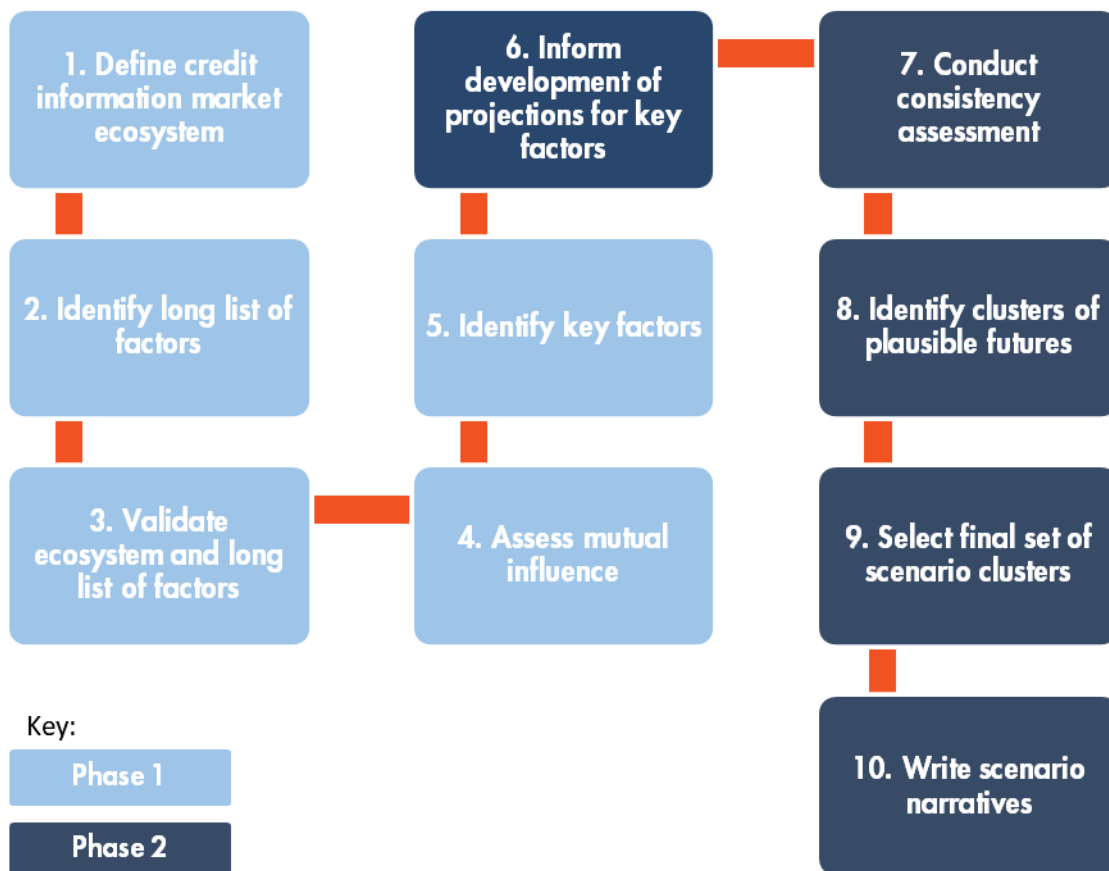
The project team adopted a structured and expert-led approach to understand how the UK credit information market might evolve over the next decade. This timeframe was adopted to reflect the five- to ten-year period that is of interest for the wider Credit Information Market Study, and as a sufficient timespan for the scenarios to be informative from a policymaking perspective.

The project is divided into two phases:

1. Identifying and prioritising key factors that could shape the future of the market; and
2. Developing coherent and consistent scenario narratives.

Based on this, the project team developed a ten-step implementation methodology (see Figure 2-2).






Figure 2-2 Overview of project implementation steps, by project phase



The purpose of the **first phase** of the project was to **identify key factors** that could influence the future of the market. To do this the study team identified five broad areas (themes) influencing the credit information market, namely: demographics and economy; technology; consumer; market; and regulation (**Step 1**).¹⁹ The next step was to develop a longlist of factors influencing the credit information market within those areas (**Step 2**). The research team conducted desktop research and a document review to understand the current landscape of the credit information market with respect to lenders, regulation, data sources and analytical processes, and the use of technology. The influencing areas and longlist of factors (see Figure 2-3) were validated and further refined through scoping interviews with experts and stakeholders covering all five themes (**Step 3**).

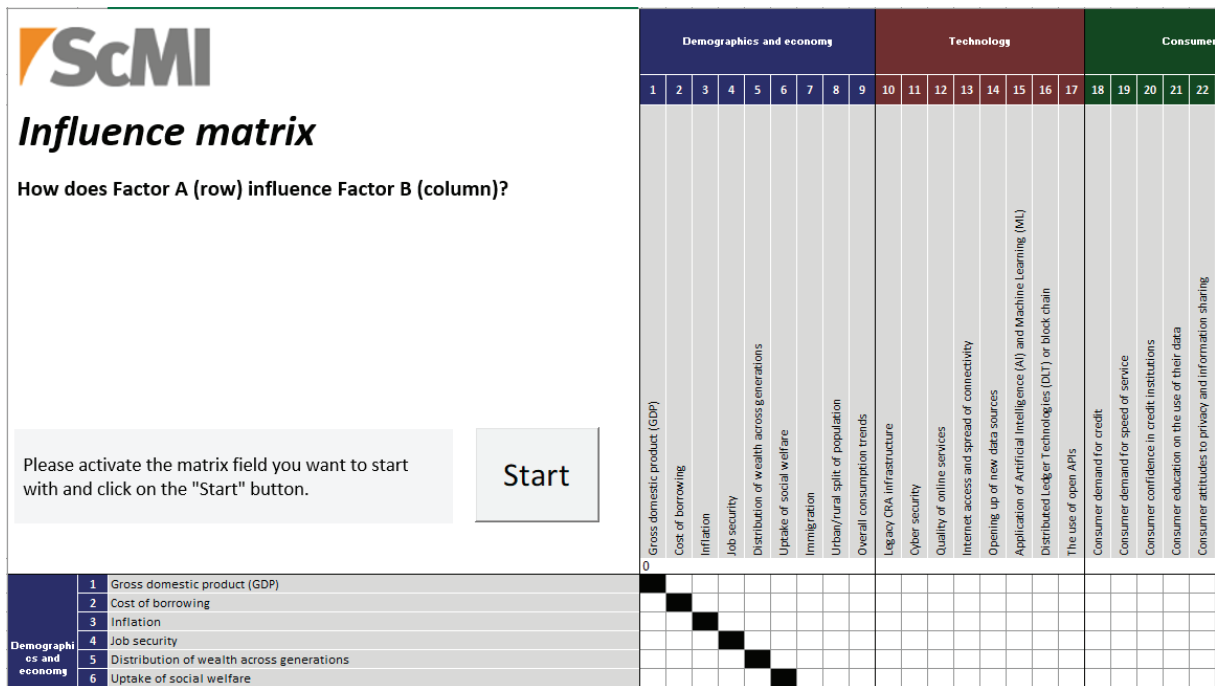
¹⁹ See Chapter 1, Section 1.1.

Figure 2-3 Longlist of factors influencing the credit information market

 Demographics & Economy	 Technology	 Consumer	 Market	 Regulation
<ol style="list-style-type: none"> 1. GDP 2. Cost of borrowing 3. Inflation 4. Job security 5. Distribution of wealth across generations 6. Uptake of social welfare 7. Immigration 8. Urban/rural split of population 9. Overall consumption trends 	<ol style="list-style-type: none"> 10. Legacy CRA Infrastructure 11. Cybersecurity 12. Quality of online services 13. Internet access and spread of connectivity 14. Opening up of new data sources 15. Application of AI and machine learning 16. Distributed Ledger Technologies or block chain 17. The use of open APIs 	<ol style="list-style-type: none"> 18. Consumer demand for credit 19. Consumer demand for speed of service 20. Consumer confidence in credit institutions 21. Consumer education on the use of their data 22. Consumer attitudes to privacy and information sharing 23. Consumer digital literacy 24. Consumer attitudes to risk 25. Consumer attitudes to owning versus renting or sharing 	<ol style="list-style-type: none"> 26. Role of traditional CRAs 27. Role of new and emerging credit providers 28. Role of traditional credit offerings 29. Role of new and emerging credit offerings 30. Role of intermediaries 31. Wider use of credit data 32. Credit market's attitude to risk 33. Cost to lender of access to credit information 34. Equality of financial inclusion 35. Cross-border data sharing 36. Standardisation of CRA input data 	<ol style="list-style-type: none"> 37. Ownership of consumer data 38. Data sharing 39. Regulation of the credit market 40. Ethical and regulatory considerations on open data

The team then carried out a cross-impact analysis to assess the extent of influence of different factors in the credit market system (**Step 4**). The influence matrix (see Figure 2-4) ranks each factor based on its influence on others ('activity') or dependence on others ('passivity'). A cross-section of stakeholders and experts that participated in this study completed the scoring. Every influence relationship between two factors was given a score of either 0, 1, 2 or 3; 0 represents no impact at all, whereas 3 represents a high degree of influence. This is a qualitative judgement provided by a balanced selection of individuals with relevant expertise in one or more of the subject areas (themes). The results from the influence matrix informed the discussions of the first expert workshop and fed into a Delphi exercise. Based on the outcomes of these activities, 25 factors were shortlisted (see Annex A).

Figure 2-4 Influence matrix used to conduct cross-impact analysis



The 25 short-listed factors were then assessed by a range of experts (**Step 5**) using a modified version of the Delphi methodology to quantify the importance and uncertainty of each factor. The (modified) Delphi methodology consisted of three key steps: initial questions on the importance and uncertainty of each factor by survey; presentation of the results and a facilitated discussion in a workshop format; and, finally, repetition of the survey. After analysing inputs from the workshop the study team selected what were judged to be the 15 most important and most uncertain factors impacting the credit information market (these factors are set out in Table 2-1).²⁰

Phase 2 focused on developing **projections** (future states) for the 15 key factors. As the future path of a factor is uncertain, a small number of projections are developed for each factor that represent possible divergent future states. For example, when thinking about opening up new data sources, plausible projections included limited use of new data sources, wider use of new data on payments (e.g. council tax, rental), or greater use of payments data and unstructured, non-traditional data. A targeted literature review was conducted to inform how factors might change in the future and what could influence these changes (**Step 6**). Projections for the key factors are summarised in Table 2-1 below. It is these projections that differentiate the scenarios.

²⁰ The number of factors was reduced from 25 for several reasons. Firstly, based on experience, given that each factor on average has three projections, 12–15 factors are optimal for developing distinct scenarios for which the factor projections are internally consistent and can be built into the narrative. Secondly, analysis of the 25 factors revealed where factors were correlated and would have the same impact on the credit information market. Finally, a maximum of 21 factors can be implemented in the ScMI software.

Table 2-1 Key factors and projections

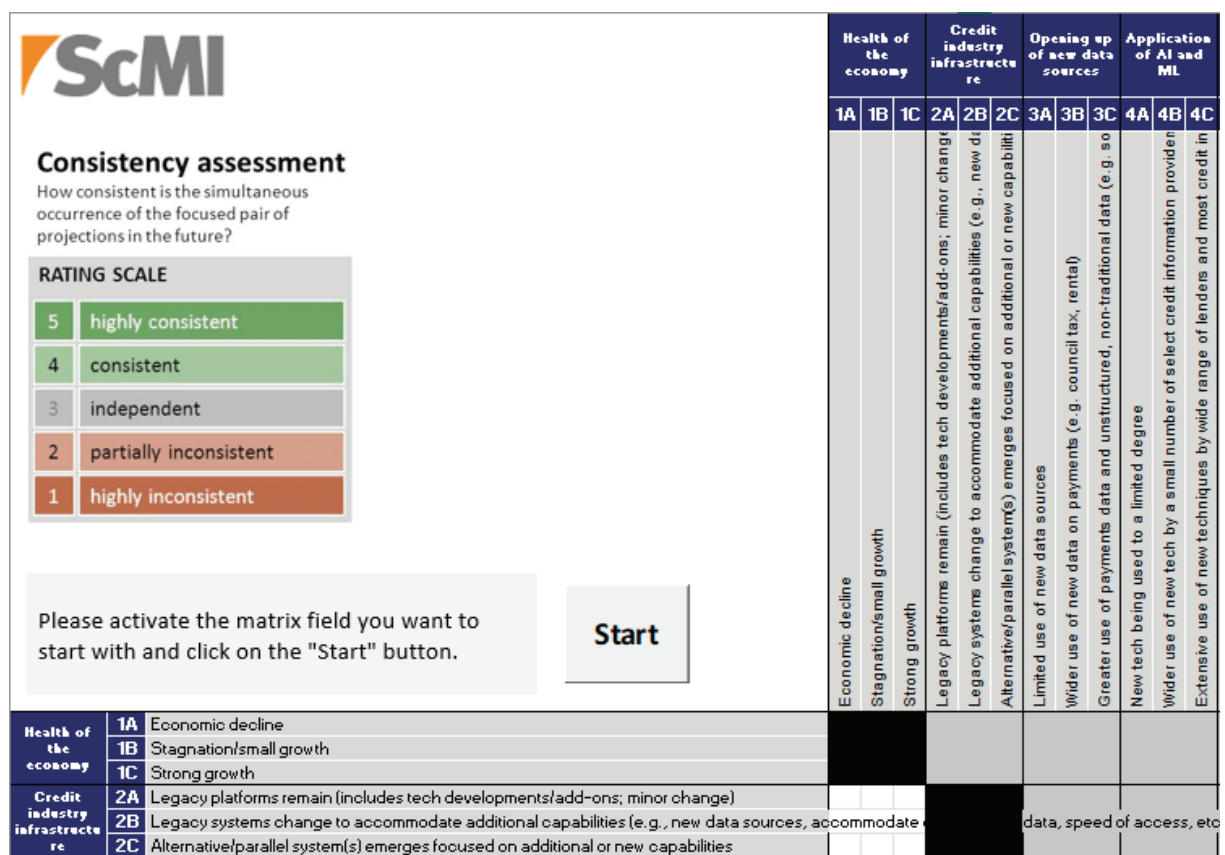
Nr.	Factor	Projections		
1	Health of the economy	Economic decline	Stagnation/small growth	Strong growth
2	Credit industry infrastructure	Legacy platforms remain (includes tech developments/add-ons; minor change)	Legacy systems change to accommodate additional capabilities (e.g., new data sources, accommodate cross-border data, speed of access)	Alternative/parallel system(s) emerges focused on additional or new capabilities
3	Opening up of new data sources	Limited use of new data sources	Wider use of new data on payments (e.g. council tax, rental)	Greater use of payments data and unstructured, non-traditional data (e.g. social media data)
4	Application of AI and ML	New tech being used to a limited degree	Wider use of new tech by a small number of select credit information providers and lenders	Extensive use of new techniques by wide range of lenders and most credit information providers
5	Consumer demand for credit	Decline	Stagnation/small growth	Strong growth
6	Consumer confidence in credit providers	Low	Medium	High
7	Consumer attitudes to privacy and data sharing	Highly open to data sharing with everyone	Open to data sharing with certain trusted partners	Sceptical of data sharing
8	Role (function/market share) of traditional CRAs	maintain current function and market share as credit info providers	CRAs become one of many credit info providers and diversify their function (e.g. to provide analytics)	Non-traditional providers enter, gaining significant market share from existing CRAs
9	Role (function/market share) of new and emerging credit providers	Maintain existing mix and function of traditional and new lenders	Market fragmentation (1): large number of small and medium-size specialist providers of traditional credit alongside large providers Market fragmentation (2): mix of actors as above, offering non-traditional credit	Greater consolidation: Small number of existing and/or alternative providers
10	Wider use of credit information	Mainly used for credit decisions in financial decisions	Used additionally for non-credit decisions in financial services	Used more widely in non financial services (e.g. by landlords and employers)
11	Cross-border data sharing	Limited/no-cross border data sharing	Limited data sharing with select countries	Total data sharing
12	Control of consumer data - level of control consumer have over their data	consumers exercise limited control over who is able to access their data	consumers exercise more control over their data (who can access it and what they can access)	consumers exercise significant control over their data and how it can be used
13	Data sharing between CRAs and lenders	data sharing arrangements and data accessibility, timeliness, consistency etc. stays largely the same (or with very incremental changes)	Data contributors become significantly less willing to share data	changes to data sharing arrangements lead to significant increase in data accessibility, timeliness, consistency etc.
14	Regulation of the credit market	Regulation of credit provision leads to increased demands on credit information	Regulation of credit provision leads to lower demands on credit information	
15	Ethical and regulatory considerations on personal data	Little/no change to existing regulation	Increased, more stringent regulation	Decreased, less stringent regulation

The next step was to assess the consistency of projections; this determines which projections can occur together in future scenarios. Experts provided their assessment of projection consistency through remote consultation by rating the plausibility of two projections co-existing (**Step 7**). This was undertaken for all

pairs of factor projections in a matrix (see Figure 2-5). The results of the consistency analysis were used to generate hundreds of consistent bundles of projections, across all the factors. Cluster analysis was then undertaken to identify clusters of bundles that have similar characteristics (Step 8). The team selected four scenario clusters that were distinct in terms of the set of key factor projections that characterised them. These were discussed and finalised in the final expert workshop (Step 9), which enabled the study team to develop the narratives for these four plausible versions of the future of the credit information market (Step 10).

Additional detail on the methods used in Phase 2 – including consistency assessment, cluster analysis and the workshop methodology – is provided in Annex A.

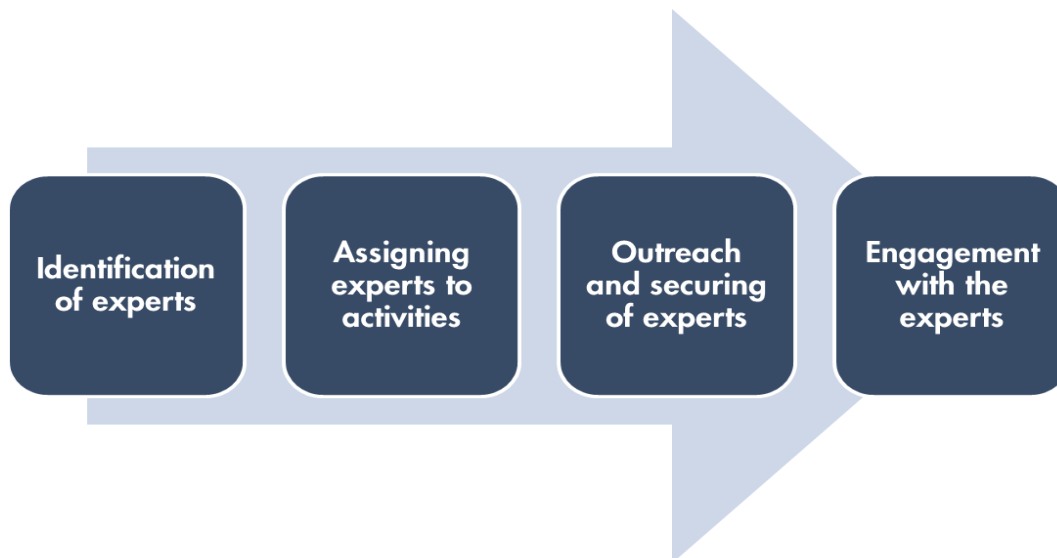
Figure 2-5 Consistency assessment matrix



2.3. Stakeholder consultation

Structured engagement with experts was a key component of the research approach. Figure 2-6 illustrates the mechanics of engaging stakeholders at different stages of the project. To ensure the study was balanced and did not over-represent one group’s interests or a narrow point of view, the project team identified a wide range of relevant disciplines and sectors from which to draw expertise. Inputs from experts and stakeholders were used in a structured way throughout the project. Stakeholder consultation covered the following activities: scoping interviews, remote survey exercises, workshops, consistency analysis, cross-impact analysis and multiple feedback sessions.

Figure 2-6 Stakeholder consultation methodology overview



Experts were identified from the FCA networks (including via the FCA website), RAND Europe networks, and by conducting desk research and snowballing of interviews and included experts from the following categories:

- Credit Reference Agencies;
- Users of credit information and data contributors;
- Regulators;
- Emerging technologies representatives;
- Consumer representatives;
- Trade associations; and
- Academics.

Further details of stakeholder consultation methodologies are outlined in Annex B.

3. Future scenarios for the credit information market

This chapter presents the four scenarios developed for the future of the credit information market in 2030.

3.1. Future scenarios

The study team focused on developing scenarios for 2030. This timeframe was adopted to reflect the five- to ten-year horizons of interest for the wider Credit Information Market Study, a sufficient timespan for the scenarios to be informative from a policy making perspective. Using the scenarios methodology, four scenarios were identified that represent a wide spectrum of possible futures and that are sufficiently differentiated from each other, in terms of credit information and wider societal developments, to be informative from a policy-making perspective.

The four scenarios are:

1. Widening credit gap;
2. Consumer-centric credit;
3. Big-Data driven; and
4. Lenders lead.

Each scenario has a subset of key factors that are the most important in determining the characteristics of that scenario. The effects of these factors are developed differently across the scenario narratives in an internally consistent way. Each scenario is defined by the projections for the most important factors affecting the credit information market. It is the projections that differentiate the scenarios. They are displayed in Figure 3-1 below.

Figure 3-1 Factor projections for the scenarios

	WIDENING CREDIT GAP	CONSUMER CENTRIC CREDIT	BIG DATA DRIVEN	LENDERS LEAD
Economy	The economy is stagnating	Strong growth	Moderate growth	Strong growth
Technology	Application of AI and ML is limited Limited use of new data sources Credit industry legacy platforms remain	Application of AI and ML is extensive Wider use of new data sources New credit industry infrastructure emerges – allowing new capabilities	Application of AI and ML is extensive Greater use of new, unstructured and non-traditional data sources New credit industry infrastructure emerges – allowing new capabilities	Application of AI and ML is extensive Wider use of new data sources New credit industry infrastructure emerges – allowing new capabilities
Consumer	Consumer demand for credit declines Low confidence in credit providers Scepticism around data sharing	Consumer demand for credit grows strongly High confidence in credit providers Highly open to data sharing	Consumer demand for credit grows strongly Moderate confidence in credit providers Highly open to data sharing	Consumer demand for credit grows strongly High confidence in credit providers Highly open to data sharing
Market	Role of traditional CRAs continues as now New and emerging credit providers play a limited role Credit information is mainly used for credit decisions in financial services Limited/no cross-border data sharing	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Greater market consolidation: small number of existing / alternative credit providers Credit information is increasingly used for non-credit decisions in financial services Limited data sharing with select countries	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Market fragmentation: high number of small-medium credit providers alongside large providers Credit information is increasingly used by non-financial services sectors Widespread data sharing	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share Market fragmentation: high number of small-medium credit providers alongside large providers Credit information is increasingly used for non-credit decisions in financial services Limited data sharing with select countries
Regulation	Lower demands on credit information Data sharing arrangements between CRAs and lenders remains the same Consumers have limited control over their data	Increased demands on credit information Data sharing arrangements between CRAs and lenders improve Consumers exercise significant control over their data	Lower demands on credit information Data sharing arrangements between CRAs and lenders improve Consumers exercise limited control over their data	Increased demands on credit information Data sharing arrangements between CRAs and lenders improve Consumers exercise significant control over their data

The factors and their projected future development provide only the bare bones of the scenarios; the role of the scenario narratives is to bring them to life. Presented from the vantage point of 2030, the narratives describe a future that is consistent with the factor projections and provide insights, as needed, into the plausible pathway that led to this future state. Each scenario explores the details behind the factors; the key economic, demographic and regulatory trends, including technological development; how credit information is provided and then utilised in retail lending markets; and the evolving role of the consumer. The scenario style is less formal than normal report writing, conveying a snapshot of the future with sufficient detail to both sensitise the reader to the possibility that divergent futures could occur, and to facilitate policy analysis. They are not intended to provide an exhaustive explanation of the evolution of the credit information market over the next decade.

As outlined in Chapter 2, the information used in the scenario descriptions is derived from background research and extensive structured engagement with experts and the FCA. This included in-depth interviews and workshops. However, it should be noted that the qualitative factor projections reflect future uncertainty

and the scenarios are designed to be representative of a wide range of futures. They are all plausible, but they are not equally likely, and none of them is a firm prediction of future events.

The scenarios have been written in broad terms and it is recognised that this could mask underlying disparities. Not every potential change affects every sector or even every segment of the population. The following sections also do not cover every factor for every scenario in detail. Rather, they identify key trends and how they might lead to a future that differs from the present. For each scenario, the implications for regulators, consumers, markets and wider society have been explored. Taken together, key policy-relevant lessons can be drawn from the scenarios. These are presented in Chapter 4.

3.2. Scenario 1: Widening credit gap

By 2030, the pace of innovation in new data sources and advanced analytics has slowed due to mounting concerns about data security, ethics and transparency, and a lacklustre economy. Innovative new CRAs and lenders have also struggled to gain traction. As a result, the anticipated benefits of innovation have not materialised – credit information has not continued to become cheaper and the effectiveness of lending decisions has not materially improved. Instead, the credit gap has widened, and more consumers have little or no information held about them at the CRAs and, as a result, are struggling to access credit on terms that reflect their risk.

Demographic, regulatory and economic trends

The pace of technological change and investment in Big Data and advanced analytics have been considerably more limited and slower paced than anticipated. At the start of the decade, many had expected that there would be a significant increase in the volume of data available and the sophistication of analytical tools, both of which would fundamentally reshape the economy and society. However, while many areas of daily life have experienced change – including transport, retail and public services – this has been evolutionary rather than revolutionary.

There has been a greater focus on data ethics, transparency and security following several data breaches across different sectors of the economy that impacted a significant number of consumers. Several practices also came to light, including data being captured in ways consumers were not aware of (such as geolocation data from mobile phones and data from household devices connected to the Internet), data being used in unexpected ways and automated decisions being made based on algorithms that appeared unfair. This heightened consumer concerns with many people feeling that digitalisation had led to an unacceptable decline in privacy. Whilst there has been some investment by businesses to make their processes more efficient, many have been very reluctant to gather and use large volumes of consumer data, fearing that this would be perceived negatively by consumers and therefore undermine rather than

Economy	The economy is stagnating
Technology	Application of AI and ML is limited
	Limited use of new data sources
	Credit industry legacy platforms remain
Consumer	Consumer demand for credit declines
	Low confidence in credit providers
	Scepticism around data sharing
Market	Role of traditional CRAs continues as now
	New and emerging credit providers play a limited role
	Credit information is mainly used for credit decisions in financial services
	Limited/no cross-border data sharing
Regulation	Lower demands on credit information
	Data sharing arrangements between CRAs and lenders remain the same
	Consumers have limited control over their data

enhance their market competitiveness. The level of investment has also not been helped by an economy that has remained sluggish throughout the 2020s.

Globalisation and technology have continued to impact how people live and work. Across the economy, the number of people in secure employment has continued to decrease, while zero-hour contracts have become commonplace in an increasing range of jobs, including education, technology and financial services. Migration has continued to increase, and many people find themselves unable to get onto the housing ladder until later in their life. While some older people are well provided for in retirement, others find themselves unable to make ends meet and, increasingly, are relying on credit. These trends have led to many people having less disposable income and making fewer discretionary purchases. They have also led to increased financial exclusion as more and more people find it challenging to access credit on reasonable terms, given that little or no information is held on them at CRAs.

The provision of credit information

The way in which credit information is used and shared has not changed significantly over the past decade. Data continues to be shared according to industry agreements, such as the Principles of Reciprocity. Whilst these agreements have been updated over time, they have not fundamentally changed. CRAs continue to collect data through monthly batch updates, with data typically only being accessible to those who contribute. CRAs have had limited incentives to gather and use alternative data sources, such as rental data, as lenders are reluctant to consider such data when making lending decisions. While consumer-consented data – such as Open Banking – had been expected to have a significant impact on the sector, its use has been limited, largely as too few consumers have been willing to provide consent. There has also not been significant investment in using advanced analytic techniques (such as AI and Machine Learning) given widespread concerns about ‘black-box’ decision-making, algorithmic biases and perceptions of unfairness.

There continues to be a small number of large CRAs who dominate the sector. Smaller CRAs have struggled to gain traction in a climate of slow economic growth and mounting risk-aversion amongst lenders and consumers, and the growing importance of having a trusted brand. The focus of competition between CRAs has been on providing products and services based on traditional data sources, as well as improving their cybersecurity. CRAs have also been reluctant to diversify into providing credit information to customers outside of lending markets. Limited competition and innovation have meant that the cost of credit information has not continued to fall over the decade. In addition, changing socio-demographic trends, such as increased migration and consumers increasingly renting rather than owning property, mean that an increasing number of consumers have little or no information held about them at the CRAs. This has created a widening credit gap as many of these individuals have a restricted ability to access credit.

The use of credit information in retail lending markets

In most retail lending markets, the focus has been on building and maintaining consumer trust by investing in cybersecurity and improving transparency about how data is used. Many lenders see the potential value of new data sources in allowing them to get deeper insights into the financial standing of consumers and, particularly, to provide information about the growing number of individuals who have little or no information held about them at CRAs. However, most lenders have been reluctant to embrace new data sources partly because they fear that it could erode already fragile consumer trust, and partly due to the

uncertain economic environment. In the absence of new data sources, lenders have been reacting to growing commercial incentives to serve ‘thin-file’ consumers by offering a greater volume and variety of products tailored to this segment, including ‘low and grow’ credit products and higher cost products.

Lenders also recognise the potential for advanced analytics, including machine learning and AI, to automate decisions and ultimately reduce costs. However, whilst these approaches are deployed in some areas, such as fraud prevention, they are far less widely utilised for risk-based decisions due to widespread consumer distrust of decisions being made by algorithms.

Across the economy demand for credit has been relatively low as a growing number of consumers, lacking confidence in the economy and lending markets, have sought to limit their credit usage. This, combined with consumer reluctance to trust new brands and the relatively high cost of credit information, has contributed to new lenders struggling to gain traction in many lending markets.

Role of the consumer

Consumer trust in lending markets, lenders and CRAs is low. The media and regulatory focus on data breaches and ethics has meant that many consumers prefer to use brands that they trust and are unwilling to engage with new propositions or innovations. Consumer willingness to share additional information about themselves is also very low. Consumers have become distrustful of algorithmic decision-making due to widespread perceptions that it lacks transparency and potentially has built-in unfair bias.

Many consumers check their credit files (including through credit information service providers), mainly to ensure that the information held about them is accurate or to identify potential fraud. Consumers with few alternative options are forced to borrow. However, the lacklustre economy combined with growing distrust of the sector has led to some consumers trying to use less credit, preferring instead to borrow from friends and family or to save up for goods and services.

Implications

CRAs and lenders have been focused on the consumer and there have been considerable efforts to build and maintain consumer trust, which has somewhat improved data transparency and cybersecurity.

However, the pace of innovation across the industry has been slow – particularly in identifying and utilising new data sources and exploiting new analytical methodologies – and new, innovative CRAs and lenders have struggled to gain traction. This has meant that the benefits of innovation and competition have been slow to materialise. Lenders have been unable to take advantage of insights from different data sources to ensure that consumers can access credit that is affordable and appropriate. The cost of credit information has not changed significantly as lenders have been unable to take full advantage of more cost-efficient analytical techniques, and impairment costs from ineffective lending decisions have not fallen. The consequences of credit not being allocated as effectively or cheaply as it could be to consumers and SMEs are potentially far-reaching, impacting the overall competitiveness of the UK.

Many consumer groups have highlighted that due to changing socio-demographic trends, there are a growing number of individuals who find themselves unknown to CRAs. As a result, these individuals may struggle to access credit, have fewer credit options available to them or face less favourable terms (such as higher interest rates). This has meant that not only is ‘bank of mum and dad’ still important, but a growing

segment of the elderly population also faces financial exclusion. Having successfully paid everything off over their working lifetime, they now have no recent credit history. Hence the ‘bank of son and daughter’ plays an increasing role and leads to additional family pressures.

3.3. Scenario 2: Consumer-centric credit

Consumers recognise the value and risks associated with sharing data in 2030 and feel empowered to choose what data they share and with whom. Within lending markets, consumer-consented data is widely used in decision-making, with CRAs and lenders increasingly competing to build strong brands, maintain consumer trust and articulate the benefits of sharing data to consumers. Whilst lending decisions are, in general, better informed, the reliance on consumer-consented data presents challenges. Some individuals also pay a ‘privacy premium’ for either not allowing anyone to access information about them, or for entrusting their data to a ‘one stop’ shop for financial decisions.

Demographic, regulatory and economic trends

The volume and variety of available data on consumers has continued to grow over the course of the decade, as consumers increasingly engage with service providers and retailers through digital channels. These data sources include browsing history, social media and purchasing data. Despite economic uncertainty earlier in the decade, the economy has rebounded. This has enabled businesses in a variety of sectors – including financial services, energy and transport – to invest in developing their advanced analytics and data capabilities. The growth of data across the economy has propelled data security and ethics into the public consciousness and triggered a broader debate on who ‘owns’ data about consumers.

In parallel, a key priority for government and regulators has been to maximise the consumer benefits from Big Data, whilst managing the potential risks. GDPR has now become very well-established – indeed, regulatory oversight and continued consumer concerns about firms paying lip service to their data security and ownership rights has meant that firms proactively ensure they comply with the letter and spirit of the legislation. In addition, initiatives such as Open Finance and Smart Data have gained significant traction, enabling consumers to more easily access and share data about themselves from a range of sources, including investments, pensions, telecommunications and energy providers.

The culmination of a generational shift and increasing media and regulatory focus on consumer empowerment over data has translated into a marked increase in consumer engagement and a change in attitudes and expectations. Across different markets, consumers play a more active role in deciding who can access data about them and what they can use it for. While they increasingly expect to receive some benefit from their data being used – including in the form of discounts, personalised offerings and greater

Economy	Strong growth
Technology	Application of AI and ML is extensive
	Wider use of new data sources
	New credit industry infrastructure emerges – allowing new capabilities
Consumer	Consumer demand for credit grows strongly
	High confidence in credit providers
	Highly open to data sharing
Market	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share
	Greater market consolidation: small number of existing / alternative credit providers
	Credit information is increasingly used for non-credit decisions in financial services
	Limited data sharing with select countries
Regulation	Increased demands on credit information
	Data sharing arrangements between CRAs and lenders improve
	Consumers exercise significant control over their data

convenience – this is balanced against the perceived need to minimise the risk of sharing data. Trust remains an issue and many consumers prefer to minimise the number of companies they share data with.

The provision of credit information

There has been a significant increase in the range of consumer-consented data that are used to inform lending decisions. This includes financial services information (including about investments, pensions and bank accounts) as well as information about wider payment behaviour (e.g. online subscription accounts). Initially the use of these datasets was limited, due in part to low levels of overall consumer consent and the value of these data being unproven. However, they have steadily increased in popularity. Traditional credit information continues to be shared by lenders with the CRAs, but consumers and consumer representatives play a significantly greater role in determining how this data is collected and used.

CRAs compete to offer raw data – and products derived from this – to lenders and other users. In addition to price, coverage and predictive power, CRAs have also been competing on identifying, collecting and extracting value from consumer-consented data. In order to gain consumer consent, CRAs have been seeking to build consumer trust (by developing their brands and investing in cybersecurity), developing strong user-interfaces and providing clear benefits to consumers of sharing data with them. Over the decade, CRAs have continued to diversify into other markets (such as gaming, insurance and rental markets). But this has been limited by the fact that most consumers do not provide consent for new and emerging data sources to be used for these purposes.

There continues to be a relatively small number of large CRAs who operate in the sector. This is partly due to the existence of significant fixed costs, switching costs and network effects, as well as the increasing need to have a strong consumer brand. However, new entrant CRAs have established themselves by, for example, using consent-based models to interact directly with consumers and build trust. There has been much industry debate about whether the increasing importance of consumer-consented data sets could provide the conditions for more significant disruption in the market. This includes the potential of entry by existing firms who have not traditionally operated in the credit information sector but who have unique data sets, established analytics capabilities and/or strong consumer brands.

The use of credit information in retail lending markets

The availability of a greater volume and variety of consumer-consented data has increased the overall effectiveness of lending decisions, informing creditworthiness and affordability assessments. This has been particularly valuable for consumers who previously had little or no traditional information held about them at the CRAs. However, lenders often face situations where consumers have not provided them with consent to access their data, or where they think a consumer may have only provided them with access to selected information. Whilst many lenders try to use other data sources for these consumers, including from another CRA – this may ultimately lead to them deciding to extend less credit or offer credit on less favourable terms to these individuals.

Whilst some lenders continue to access all their data through CRAs, others collect consumer-consented data themselves. Some innovative lenders began obtaining consumer-consented data before it was widely available at CRAs, and find it easier to continue doing so, whilst others leverage their strong brands to attain higher consent rates.

The consumer focus on data protection and ownership has meant that while innovative, small new firms were the main challengers to traditional lenders at the turn of the decade, there are now a smaller number of lenders who compete to be the ‘one stop’ shop, offering a complete range of financial services, to whom consumers entrust their data.

Recognising the importance of maintaining and building consumer trust, lenders have also invested significantly in improving their cybersecurity, ensuring compliance with GDPR and making their data processes more transparent.

The cost of credit information has continued to decrease due to a multitude of factors, including the growth of new entrant CRAs and the increasing ability of lenders to collect more credit information themselves.

Role of the consumer

Consumer engagement has increased rapidly over the decade, and the number of consumers making informed positive choices about how much information to share with whom, and for what purposes, has increased. Many consumers recognise the value of data held about them and expect to derive benefits from sharing their information. These benefits include being able to attain improved access to credit or securing credit on more favourable terms. To enable them to make informed choices, many consumers favour lenders and CRAs who can provide information about how their data will be used in a clear, timely and easy-to-understand way. Trust also plays a vital role and consumers trade-off benefits against data protection, and are only willing to share additional data with organisations who they think are trustworthy and who they perceive as having appropriate safeguards and security in place. For some consumers, this can mean only sharing data with a single CRA or lender.

Some individuals do not consent to sharing further information about themselves for lending decisions. However, this has been decreasing dramatically throughout the last decade, mainly due to greater consumer engagement and growing use of consumer-consented information across the sector. At the same time, some consumers feel obliged to share additional information because if they do not, lenders might feel they have something to hide.

Implications

The increased volume of credit information available to lenders at lower cost has, in general, enabled lending decisions to be more effective – particularly for those consumers who previously had little information held about them at the CRAs.

However, there has been a growing debate about the challenges of using more consumer-consented data sources to make lending decisions, and the nature of the consent provided. Many lenders view with suspicion those consumers who do not consent to share additional data. Conversely, many consumers feel compelled to consent to share additional data in order to be able to obtain credit. There is also a growing concern that some consumers could be ‘cherry picking’ which information to share, only consenting to that which presents them in the strongest light, such as online subscription accounts for which they are up-to-date with payments.

High consumer engagement with credit information has led to consumers making positive choices about their information, who can access it and for what purposes. This has driven a more consumer-centric

approach to the credit information sector, with a strong focus on investing in data ethics, transparency and security, and consumer confidence in the sector has been growing as a result. However, there have been some concerns that the need to maintain consumer trust has led to some CRAs and lenders becoming more risk-averse, and that this may slow the pace of innovation in the use of AI and Machine Learning. In addition, many new entrant CRAs and lenders face more significant challenges in trying to build their brand and consumer trust, in order to gain consumer-consented data.

There are concerns that consumers who do not share data or, to a lesser extent, those who only share data with selected brands face a significant ‘privacy premium’ through, for example, having fewer credit options available to them or only being able to access credit on less favourable terms.

3.4. Scenario 3: Big-Data driven

By 2030 there has been a proliferation in Big Data and advanced analytics across the credit information sector, retail lending markets and the wider economy. CRAs combine information from an ever-increasing range of financial and non-financial sources and use sophisticated analytic techniques to provide insights to a diverse range of customers including lenders, landlords and employers. The overall effectiveness of decision-making has improved but, as credit is increasingly offered on personalised terms, some higher risk individuals face significantly higher costs and fewer options for credit. Consumer understanding of how data is used is low.

Demographic, regulatory and economic trends

Big Data and advanced analytics (including machine learning and AI) have become ubiquitous across the economy and society. Within almost every industry, including retail, transport, telecommunications and financial services, businesses are leveraging data-driven strategies to innovate and compete, including to develop deeper insights into consumer behaviour, optimise complex supply chains and predict future market developments.

The volume and variety of data about consumers has increased exponentially. This has in part been fuelled by consumers continuing to live ever more digital lifestyles, relying on the Internet to do everything from working from home, making purchases, finding entertainment and keeping in touch with others. The growth of the ‘Internet of Things’, whereby an increasing number of household objects are connected to the Internet, has also expanded the quantity of data available about consumers. Organisations have been investing in machine learning, AI and advanced data infrastructures in order to collect, store and analyse increasingly complex and unstructured datasets. Whilst some have been seeking to build their own capabilities in-house, many outsource this to specialist third-party commercial providers.

Regulatory initiatives, such as GDPR and Open Finance, had been designed to give consumers enhanced rights over their data. However, the reality is that many consumers find it almost impossible to engage with

Economy	Moderate growth
Technology	Application of AI and ML is extensive
	Greater use of new, unstructured and non-traditional data sources
	New credit industry infrastructure emerges – allowing new capabilities
Consumer	Consumer demand for credit grows strongly
	Moderate confidence in credit providers
	Highly open to data sharing
Market	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share
	Market fragmentation: high number of small-medium credit providers alongside large providers
	Credit information is increasingly used by non-financial services sectors
	Widespread data sharing
Regulation	Lower demands on credit information
	Data sharing arrangements between CRAs and lenders improve
	Consumers exercise limited control over their data

terms and conditions about data privacy across the myriad of digital interactions they have every day. Increasingly there is also a growing expectation, particularly amongst younger generations, that data about them will be used by different organisations in most transactions, and that the cost of opting out of this is unacceptably high.

The adoption of Big Data technologies has led to some economic benefits. However, despite this, the economy has only been performing moderately well overall, and societally there are fears as to what a data-driven economy might mean for the stability of employment.

The provision of credit information

The focus of competition between CRAs has been on leveraging new data sources, building analytical capabilities and innovating and diversifying across different markets. In the first half of the decade, the traditional CRAs faced competition from a growing range of firms. These included many FinTech firms who were quick to develop innovative approaches. They also increasingly began to compete with established firms outside of the credit information sector who had accumulated proprietary data and strong analytical capabilities by operating in other markets, and were seeking to exploit these to provide insight to lenders and others.

After a period of very intense competition, there has now been significant consolidation in the market, driven by a combination of mergers, acquisitions and firms exiting the market. The market now contains a few large players who operate alongside a small number of niche providers. CRAs collect data from an ever-increasing variety of sources, combining a range of payments and expenditure data with more novel data, including from social media, mobile or wearable technology and virtual interviews or surveys. They apply sophisticated analytical techniques, including machine learning and AI, to derive insights from this data.

Over the course of the decade, the CRAs started diversifying significantly, responding to the growing demand for data analytics across the wider economy. Today they provide significantly more data and products and services derived from these sources to an ever-increasing range of customers – both within and outside of financial services – including employers, landlords, retailers and the public sector. The extent of this diversification has been so significant that today, their revenue from selling traditional credit information data to lenders forms only a relatively small part of their total business.

The use of credit information in retail lending markets

Retail lending markets have been significantly impacted by a greater pool of data – much of which goes beyond what was traditionally considered to be credit information – that is largely used with limited consumer understanding or consent. This data, coupled with greater use of advanced analytical techniques, has enabled lenders to gain a much more detailed and better understanding of an individual's situation, including their spending patterns, ability to manage general financial commitments and other behavioural patterns. This has helped lenders to make more effective decisions about who to lend to and on what terms, as well as helping them manage their existing customers. This has had a particularly significant impact on individuals who many lenders previously had little or no information about. Further, there have also been significant advances in the ability of lenders to identify potential fraud at an early stage. The availability of Big Data has also helped to increase automation (and the speed of lending decisions) and support lenders in being able to market products to different types of customers. In recent years, across different retail

lending markets, there has also been a general move towards more personalisation in lending, particularly in the terms on which credit is offered, including greater use of tailored annual percentage rates (APRs) on credit cards.

While CRAs continue to be important providers of credit information, today's lenders have diversified their data sources. Furthermore, over the decade lenders have continued developing their own analytical capabilities or have sought to utilise other third-party providers. Many now also collect more data directly themselves, including from consumer-consented sources.

The costs faced by lenders have decreased significantly in recent years, due to factors including the availability of more detailed information to inform fraud and creditworthiness decisions, the increase in automation and more intense competition between CRAs. This has led to greater competition in retail lending markets, including the emergence of new entrants, many of which have very sophisticated data-handling tools. Lenders have passed some of these savings onto consumers and this has contributed, in part, to consumer demand for credit remaining high, despite the benign economic environment.

Role of the consumer

Many consumers accept that data about them will be used by different organisations in order to make decisions, including about lending. Most consumers do not check their credit files and use of credit information service providers has been falling. Consumers are also not particularly engaged with who uses data about them and for what purposes and, when asked, most readily provide consent to share data. Some consumers believe that the benefits of sharing their data (e.g. ability to get credit or access other services) overrides any data privacy concerns they may have, while others think that sharing data is normal in most economic transactions. However, consumer research has shown that many are very surprised and a little concerned to learn how data about them is used.

Implications

In general, the use of a wider range of data sources and advanced analytical techniques has led to more accurate and effective lending decisions and reduced levels of fraud. It is argued that this has had benefits for the overall economy. The increase in the effectiveness of lending decisions also means that some consumers (e.g. low risk consumers) benefit from access to a greater variety of products at lower prices. But those who have less data available about them or who are considered less creditworthy may face more expensive products or less choice, with some consumers potentially only being served by social lenders. There is also a small segment of consumers who are less willing to share their data with lenders and, as a result, find it harder to get credit, or must pay more for it.

The move towards the greater automation of decisions and reliance on AI and machine learning has also provoked mixed views. Some have argued that these developments mean that credit decisions are made more quickly and consistently. However, the increased use of these algorithms has made it harder for consumers to understand how lenders make decisions and how they can improve how they are perceived by lenders. Relatedly, these developments could increase the scope for bias in decisions made by lenders and other users who do not always fully understand their models. The use of alternative data sources has led to complex questions about fairness, particularly when aggregated data is used to derive insights about an individual or when data sources are not widely considered as being relevant to an individual's financial

standing. Consumer groups are also concerned that the use of more data can create risks around data security and the potential for cybercrime.

The increased targeting and personalisation of credit products have also stimulated much debate in the industry. While these practices benefit consumers by offering more customisable products and services, credit being targeted to certain consumer groups poses certain risks: for example, if lenders were to deliberately promote credit to consumers that may be unaffordable or unsuitable for them. In addition, greater product personalisation increases the scope for discrimination based on factors other than the underlying risk of an individual. The growing use of credit information to inform non-lending decisions could create risks and potentially foster consumer mistrust. For example, individuals who have an error in the data held about them or who make a small mistake, such as inadvertently missing a payment, can be impacted by this, not only in the retail lending market, but also in a wide range of other settings, including employment and housing. Similarly, some individuals might be reluctant to take certain actions or express certain views, for example on social media, due to fears that the data footprint left behind might be misinterpreted or otherwise jeopardise their credit score – raising wider questions about freedom and social control in an age of pervasive real-time digital surveillance.

3.5. Scenario 4: Lenders lead

Lenders have led the way in using credit information from a wider range of sources. In 2030 they increasingly use credit information from smaller CRAs, consumer-consented data and other sources to supplement or substitute information from large CRAs. This has generated greater competition in both the credit information and retail lending markets. But there is also greater consumer confusion over how their data is collected and used. This has led to an increased focus within industry on developing a code for data collection and use, including factors such as ethics and transparency.

Demographic, regulatory and economic trends

In the late 2020s, the economy is performing much better than a decade ago and there has been accompanying growth in the demand for credit. FinTech is one sector that has grown strongly over the decade. Indeed, technology has continued to be increasingly prevalent, including in the workplace and at home, where consumers typically have online subscriptions for many aspects of their lives including media, retail and energy.

The way in which people live and work in the UK has continued evolving. Businesses have been keen to attract global talent to work in technology-based sectors; this workforce is both well remunerated and mobile, moving frequently between international locations. This has contributed to a growing trend towards individuals leasing products, such as cars and electric appliances, rather than owning them. At the same time, an increasing proportion of the population is able to take

Economy	Strong growth
Technology	Application of AI and ML is extensive
	Wider use of new data sources
	New credit industry infrastructure emerges – allowing new capabilities
Consumer	Consumer demand for credit grows strongly
	High confidence in credit providers
	Highly open to data sharing
Market	Role of traditional CRAs diminishes as non-traditional CRA entrants take significant market share
	Market fragmentation : high number of small-medium credit providers alongside large providers
	Credit information is increasingly used for non-credit decisions in financial services
	Limited data sharing with select countries
Regulation	Increased demands on credit information
	Data sharing arrangements between CRAs and lenders improve
	Consumers exercise significant control over their data

advantage of more flexible working patterns that suit their lifestyle. For a significant minority, however, work flexibility is synonymous with zero-hour contracts, which means less control and predictability of work. The rental market has also continued to expand with more households renting and fewer owning homes than any time in history.

In the past decade, there has been an increased political and regulatory focus on financial inclusion. Initiatives have ranged from taskforces targeting banking provision and access, to schemes in schools and adult education outreach programmes aimed at improving financial literacy. These have proven to be largely successful with the proportion of unbanked individuals at a historic low. For lending markets, the growth in international mobility, the rental market and insecure employment resulted in an increasing number of consumers with thin-files from the early 2020s. This has led to commercial as well as regulatory pressure to service this consumer group.

The provision of credit information

By 2030 there are a few large CRAs operating alongside many smaller ones. The big firms have been steadily increasing the range of products and services they offer, and have invested substantially in analytical capabilities, infrastructure and cybersecurity. The smaller CRAs, on the other hand, focus on specialist expertise and services – for example, some have capabilities in exploiting certain data sets, some provide insights for specific sectors, whilst others focus on providing credit information about certain types of customers.

There has also been innovation – particularly by smaller CRAs – to identify and collect a wider range of non-traditional data to help inform lending decisions. These include new sources of data on payment obligations (such as rental and online subscriptions) and consumer-consented Open Finance data, as well as more lifestyle-related data from social media. Initially these data sources, and the firms providing them, were viewed with a certain degree of scepticism, and there were concerns about their usefulness and quality. Hence, at first these data sources were only used on a small scale and only by a small number of lenders. However, over time the value of these data has been proven and the smaller CRAs have managed to gain traction in the market and grow in popularity.

As a result of increased innovation and investment the cost of credit information has fallen consistently throughout the decade, in part as a result of the availability of new data sources and increased competition between CRAs.

The use of credit information in retail lending markets

Over the last decade, lenders have been seeking to develop greater flexibility in their ability to decide what credit information to use and where to obtain it. Today, for any given decision, it has become considerably easier for lenders to access information from any of the large CRAs and supplement or substitute this with information from consumer-consented sources, smaller CRAs or other external sources. Where previously most lenders chose the source and nature of credit information to use for a cohort of decisions, this now increasingly varies according to the type of decision they are making.

Lenders have also been investing heavily in in-house analytical systems so that they can combine information from the different CRAs and other sources or to more easily switch between them. This was initially triggered by a number of factors, including their desire to access a more complete set of credit information,

concerns about operational resilience and the ability to do this more easily and cheaply, due to better technology. Lenders also recognised that being able to access credit information from multiple CRAs may enable them to more effectively negotiate cheaper prices for credit information and drive greater innovation and quality amongst CRAs.

Lenders have also become more willing to use non-traditional data sources, in part because of their proven value, but also due to the growing commercial and regulatory pressure to address financial exclusion issues.

The availability of cheaper, better quality and more bespoke credit information has also facilitated more competition and innovation in lending markets. In addition, there has also been greater diversification as specialist lenders have emerged who serve specific consumer segments or offer innovative types of products.

Third-party technology providers and decisioning platforms have also become more popular as they have designed propositions to enable lenders to more easily gather credit information from a wider range of sources and combine or switch between them.

Role of the consumer

Consumers have become more accepting of sharing additional information about themselves with CRAs, lenders and others. The main reason for this change in consumer attitude to sharing their data is the perceived likelihood of getting credit or improving the terms on which they can do so. Indeed, a growing number of consumers feel that not consenting to share information about themselves would result in them not being able to access credit. However, as the credit information sector has developed, and a much wider range of data sources are now used in lending decisions, many are starting to feel that they do not have a good understanding of how their data will be used and the implications of this for them.

Implications

Competition and innovation have led to significant downward pressure on the price of credit information. As lenders are able to access a wider variety of better-quality credit information at a lower price, they are able to make more informed decisions that, ultimately, benefit consumers.

However, consumer groups have expressed concern that the greater diversification in credit information sources has made it harder for them to engage with lenders and CRAs and to understand how to exert control over their data. Their research has shown that over the course of the decade consumers have become less able to understand what information is held about them and by whom, and how to challenge or correct any erroneous information. In addition, consumers who are turned down for credit are often unsure of the reason for the decision, the information and sources a lender has used to make this decision and the credit options available to them.

These factors have fuelled a growing realisation amongst CRAs and lenders that maintaining transparency and high standards for how credit information is collected and used is integral to ensuring consumer trust in the system, and to continue being able to obtain consent from consumers to access their information. This has led to increased efforts within industry to develop and maintain a code for data collection and use, considering factors such as ethics and transparency.

More widely, the large number of firms and products in the credit and credit information markets has given rise to concerns about cybersecurity risks and fraud. Although consumers are generally aware of the role

their data plays in lending markets, they are reliant on the commercial incentives of both the credit and credit information markets to maintain the security of their information. Given the rapid growth of both markets, it is not clear that data security technology has kept pace with the FinTech expansion, and the reputational risk from data breaches and data misuse is a concern for many firms.

4. Broader implications

The four scenarios presented in chapter 3 provide insights into the possible implications for the credit information market, the lending markets, consumers and wider society if the factors influencing the future of the credit information market develop in different ways. Although the scenarios are only a small subset of the many plausible futures that could come to pass, and consider interactions and impacts at an aggregate level, some key lessons can be drawn.



The scenarios play out against a range of economic backdrops. These indicate that, while economic circumstances play a role in consumer demand for credit and that this may differ between population segments, consumer demand is also influenced by the cost of credit and the willingness and ability of consumers to engage with the markets.



Competition and innovation in both the credit information and lending markets play a key role in enabling lenders to access a wider variety of better-quality credit information at a lower cost. However, where competition is driven by more players in the credit information or lending markets, consumers may find the markets more confusing or more difficult to engage with, making it harder to understand how their data is being used and by whom. In a scenario where consumers exert greater control over more of their data, they may prefer to share data with a smaller number of actors and pay a higher cost for credit (a ‘privacy premium’).



The use of a wider variety of data can improve financial inclusion for those with ‘thin’, traditional credit-information files, and can enable lenders to provide consumers with credit products on more appropriate terms. However, several risks to the wider use of data are identified in the scenarios. Using a wide range of data sources – including non-financial data – in credit-lending decisions and to access products and services more widely could enable lenders to deliberately promote credit to consumers that may be unsuitable or unaffordable for them. It could also increase the potential for errors that may have wide-ranging repercussions for consumers, and potentially infringe on personal freedoms. Where a wider variety of consumer-consented data is used in the credit information market, consumers may feel pressure to share data in order to access credit; those who do not share data because they strongly value privacy are likely to be penalised in terms of the range and pricing of products available to them.



The use of a wider variety of data and more sophisticated analytical techniques in decision making should improve the overall quality of lending decisions. This is because lenders are able to better-price risk and offer consumers credit products on the most appropriate terms. However, whilst some consumers (e.g. low-risk consumers) benefit from access to a greater

variety of products at lower prices, those who have less data available about them or those who are considered less creditworthy may face more expensive products, or less choice.



Trust is a key theme across all scenarios. Consumers are more likely to be able to access credit on appropriate terms if they have a higher level of confidence in CRAs and lenders, as they are more likely to share their additional data. They may be willing to trade-off data privacy and security against improved access to credit or credit on more favourable terms; the extent to which consumers do this depends both on their awareness of how their data is used and how empowered they feel to control it through consumer-consented mechanisms. Consumer empowerment may be facilitated through education, regulation or market initiatives that enable informed engagement. However, consumers playing a greater role in controlling data flows may lead to sub-optimal pricing if lenders suspect that consumers are cherry-picking the data they share.



Technology, including advanced analytics, is both a key enabler but also a potential barrier to development in the credit information market. Technology can drive innovation in the collection, aggregation and analysis of data to support lending decisions and in data flows between consumers, CRAs and lenders. This can have a positive impact on the cost of credit information and the quality of data used in decision making. However, negative impacts arise if technology is perceived to lead to a lack of transparency in decision making, and where these decisions may have wide ramifications with little consumer recourse for errors. There is also a risk that if investments in data security and fraud prevention do not keep pace with data analytics, a loss of consumer trust may impact future data access and consumer demand.

The above scenarios illustrate how the roles of consumers, CRAs and lenders develop in different futures in which both internal factors – that are within the sphere of influence of the FCA – and external factors – which need to be taken into account from a policymaking perspective – play a role. The impact of a range of measures – such as consumer education, market-led initiatives and changes in data protection regulations – has been examined, as well as the influence of the economy, and developments in data analytics initiated from other sectors and within the credit system. Further, although most implications relate to consumers in general, it has been possible to draw out some implications for different consumer segments. In particular, financial exclusion remains a key issue across all the futures but could be mitigated by policy intervention.

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Annex A. Methodological approach

This chapter describes the overall methodological approach and is organised into sections based on the ten steps of the project's implementation (see Figure A.1).

Figure A.1 Overview of project implementation steps by project phase



Each of the steps used a particular method, which are described in detail in the sections below. An overview of project steps and relevant methodologies is summarised in Table A-1.

Table A-1 Overview of project steps and deployed methodologies

Step	Description of activity	Method
1	Define areas influencing the credit information market	Internal workshop #1
2	Identify longlist of factors	Document review (Phase 1)
3	Validate influencing areas and longlist of factors	Scoping Interviews
4	Assess mutual influence	Cross-impact analysis through remote external-expert consultation
5	Identify key factors	Modified Delphi (Round 1: survey; Rounds 2, 3: external workshop #1)
6	Inform development of projections for key factors	Document review (Phase 2)
7	Conduct consistency assessment	Internal workshop #2
8	Identify clusters of plausible futures	Consistency analysis through remote external-expert consultation
9	Select final set of scenario clusters	Discussion of scenario clusters through external workshop #2
10	Write scenario narratives	Finalise scenarios

Step 1: Determine influencing areas

In this first stage, the key influencing areas were identified.

The study team performed a preliminary online document scan of a number of themes pertaining to the credit information market, such as the nature and trends of the retail lending market, relevant regulation in the credit and credit information space, emerging technologies and Big Data. Following this preliminary scan, the study team held an internal brainstorming workshop with RAND internal experts on scenario methodology. The workshop was organised in two parts: firstly, researchers presented the reviewed topics and comments on how these related to credit information and possible future trends. In the second part of the workshop, the study team discussed possible categories of system-level themes during an interactive white-board session. As a result of the discussion, the study team produced a list of preliminary system-level themes (see Figure A.2 below), namely:

- **Demographics and economy** – this theme refers to general demographic and economic trends, such as the structure of the population and the wellbeing of the economy. This theme is relevant to establishing the future trends of the credit information market as there is likely to be a degree of variability within the different sectors of society when it comes to accessing credit, sharing

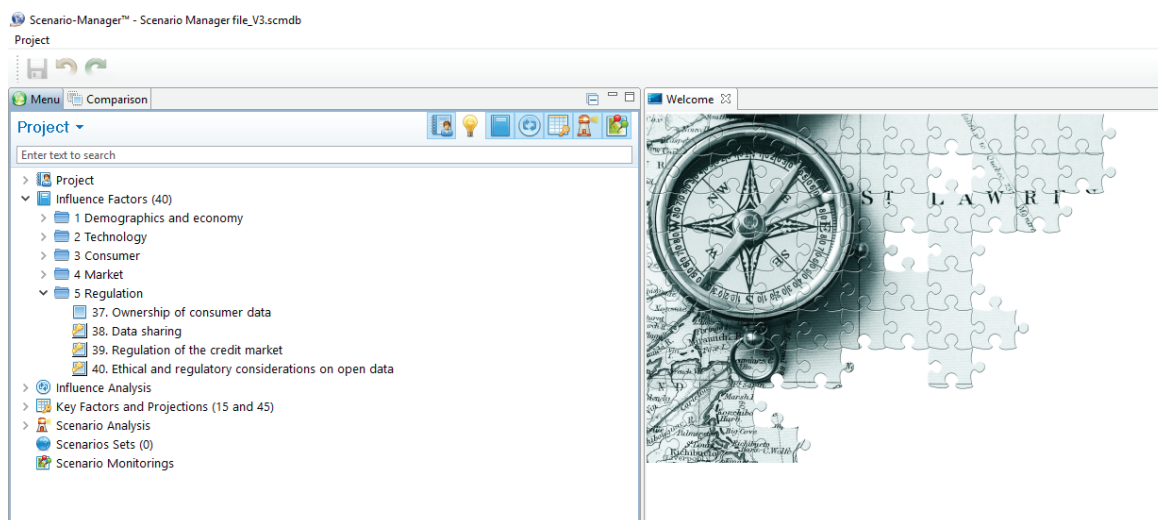
information, using technology and so on. Furthermore, the health of the economy could also affect the credit market and consumer trends.

- **Technology** – this theme encompasses existing technologies that currently underpin the credit information market – such as online platforms – and connectivity; it also includes new and emerging technology such as AI and machine learning that could shape the quality and accuracy of data in the future. The technology theme also intersects with consumer use and regulation in the areas of Open Banking, for example.
- **Consumer** – the importance of this theme lies in consumer trends and preferences in relation to all aspects surrounding credit information, from consumers’ appetite for borrowing money to the willingness to share personal data.
- **Market** – this theme relates to both credit information and lending trends given the close interconnection between the two. This theme also considers how what we perceive as credit information could change in the future.
- **Regulation** – this theme comprises relevant regulatory tools that could directly or indirectly affect the credit information market, such as data protection and payment service regulations. It will consider the possible future trends of these mechanisms, and whether they are likely to become more flexible or more stringent. In addition, ethical treatment of data and its subjects is also considered under this theme.

Step 2: Identify longlist of factors

This step focused on identifying factors for each of the influencing areas from Step 1 that could substantially influence the evolution of the credit information and lending markets, prioritising those that are critical and uncertain. This was done through a more targeted document review, guided by the themes and initial factors discussed in the internal workshop. This step generated a longlist containing 40 factors. Carrying forward too many factors is not conducive to a meaningful analysis, as there is a limit to the number of factors that can be used both in the ScMI software and to differentiate scenarios narratives. Hence the factors were cut down and edited in subsequent steps.






Figure A.2 System-level themes and relating factors entered in Scenario Manager



The research team conducted **desktop research and document reviews** to understand current state-of-the-art in the credit information market with respect to regulation, data sources and analytical processes and use of technology. Throughout this task we used **data exploration** – an informative search technique used to form the analysis of the information gathered. Data exploration is a methodology in which manual techniques are used to navigate and absorb a data set and bring important aspects of that data into focus for further analysis. Though such a methodology can be applied to data sets of any size or type, its manual nature makes it more reasonable for smaller data sets, especially those in which the data has been carefully gathered and constructed. The study team explored data in academic and grey literature as well as existing legal and regulatory documents. Using searches in Google and Google Scholar allowed the study team to explore factors pertaining to the credit information market, and also wider factors. This data exploration exercise helped to scope what is already known about the nature of the credit information market and to gather a range of factors shaping the market today and in the future.

Figure A.3 depicts the longlist of factors that was identified during the workshop and through the document review.

Figure A.3 System-level themes and longlist of factors

 Demographics & Economy	 Technology	 Consumer	 Market	 Regulation
<ol style="list-style-type: none"> 1. GDP 2. Cost of borrowing 3. Inflation 4. Job security 5. Distribution of wealth across generations 6. Uptake of social welfare 7. Immigration 8. Urban/rural split of population 9. Overall consumption trends 	<ol style="list-style-type: none"> 10. Legacy CRA Infrastructure 11. Cybersecurity 12. Quality of online services 13. Internet access and spread of connectivity 14. Opening up of new data sources 15. Application of AI and machine learning 16. Distributed Ledger Technologies or block chain 17. The use of open APIs 	<ol style="list-style-type: none"> 18. Consumer demand for credit 19. Consumer demand for speed of service 20. Consumer confidence in credit institutions 21. Consumer education on the use of their data 22. Consumer attitudes to privacy and information sharing 23. Consumer digital literacy 24. Consumer attitudes to risk 25. Consumer attitudes to owning versus renting or sharing 	<ol style="list-style-type: none"> 26. Role of traditional CRAs 27. Role of new and emerging credit providers 28. Role of traditional credit offerings 29. Role of new and emerging credit offerings 30. Role of intermediaries 31. Wider use of credit data 32. Credit market's attitude to risk 33. Cost to lender of access to credit information 34. Equality of financial inclusion 35. Cross-border data sharing 36. Standardisation of CRA input data 	<ol style="list-style-type: none"> 37. Ownership of consumer data 38. Data sharing 39. Regulation of the credit market 40. Ethical and regulatory considerations on open data

Step 3: Validate influencing areas and longlist of factors

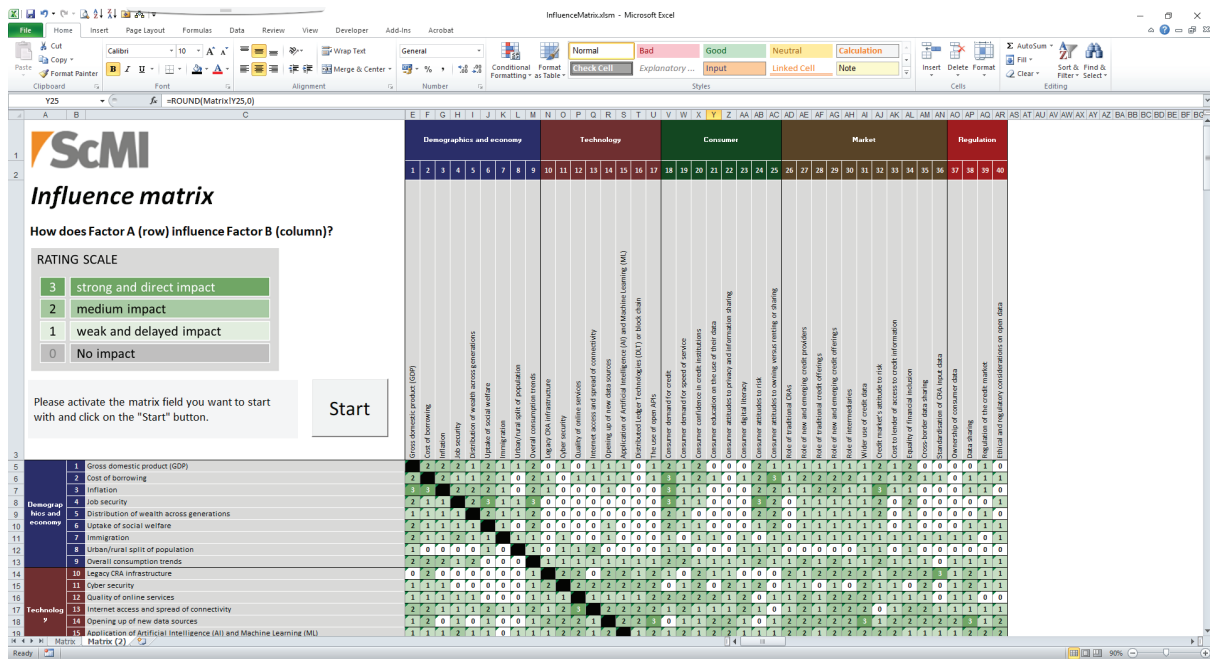
The influencing area and the longlist of factors was validated and further refined through **scoping interviews**.

The scoping interviews consisted of a limited number of engagements with experts to gather initial perspectives on areas that could influence the future development of the credit information market. The study team conducted **ten semi-structured scoping interviews** with the identified stakeholders and experts. Semi-structured interviews combine specific questions with the flexibility to ask unplanned follow-up questions. This allowed the interviews to explore issues that fell beyond the confines of the questions we initially set out, which is particularly important for a study such as this with a high level of uncertainty. The interviews helped to gather initial perspectives that (together with data-gathering insights) were subsequently used to prepare an annotated visual describing the areas influencing the credit information market, highlighting the relationships between different components.

Step 4: Assess mutual influence

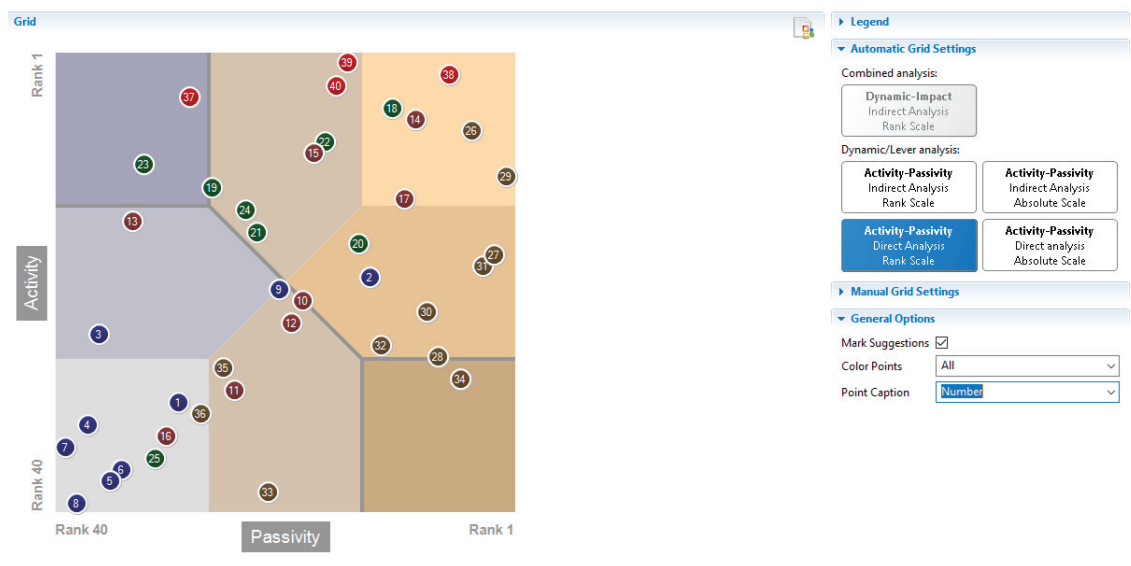
The cross-impact analysis was expert-led by means of remote consultations through the influence matrix depicted below.

Figure A.4 Influence matrix used to conduct cross-impact analysis



As part of the analysis to finalise the factors for the scenarios, we carried out a cross-impact analysis to quantify the strength of influence of different factors. This supported the identification of the key drivers in the system as a whole.²¹ We recorded the impacts that the different descriptors had on each other in a cross-impact matrix using a scale from 0 (no impact) to 3 (strong impact). The outcome of this analysis is illustrated in Figure A.5 below, which ranks each factor based on its influence on others (activity) or dependence on others (passivity).

Figure A.5 Visualisation of key factor selection



²¹ See Gausemeier et al. 1998 for a further description of this type of analysis.

Step 5: Identify key factors

The shortlisted factors were then assessed by a range of experts using a modified version of the Delphi methodology, which consisted of three key steps: the initial questions by survey, our presentation of the results and the facilitated discussion in a workshop format, followed by repetition of the survey.

Modified-Delphi method

The Delphi method is a systematic, interactive method that relies on a panel of experts. It is particularly suited to issues where it is desirable to achieve consensus, and which cannot be addressed through a purely analytical method but can be assessed through a ranking or scoring exercise. One of the benefits of Delphi is that it is particularly effective at articulating the logic and reasoning behind a stated answer as the rationale and logic for experts' judgements are collected, anonymised and fed back to participants at each round of the process. Experts are then encouraged to revisit their earlier answers in light of the replies from other members of the panel.

In the context of this study, the Delphi method was deployed in three rounds (i.e. initial survey, round of feedback and discussion, final survey) during a workshop. Compared to the traditional approach, which uses the same method of engagement and the same expert group throughout the process, to maximise the benefits achievable with the available time and resources, we deployed a modified version that combines an electronic survey for the first round with in-person workshop for the feedback discussion and final round of scoring.

This modification of the Delphi approach allowed us to include more experts in the workshops. Workshop attendees came from a variety of backgrounds, including representatives from regulatory and HMG departments, credit providers, credit reference agencies, technology representatives and consumer interest/trend representatives.

The sections below describe the three steps of the modified Delphi (survey, workshop, repetition of the survey questions) and their respective methodologies.

Survey questionnaire methodology

The survey was administered electronically to a pool of experts from different stakeholder groups, as agreed with the FCA. The survey aimed to assess each 'first cut factor' by its **relevance** (defined as the extent to which each factor, in its current state and possible future variations, is likely to impact the credit information market); by its **timeliness** (defined as the time each factor, in its current state and possible future variations, will require before effecting the credit information market – considering that the time horizon for this project is set to 5–10 years); and by its **uncertainty** (defined as the extent to which each factor is predictable).






Workshop methodology

When the results of the survey were analysed, the study team prepared a short, anonymised briefing that was presented at the opening of an expert workshop exploring both the range of scores for each factor and any qualitative comment provided by experts. The workshop then allowed for a facilitated discussion among experts informed by the results of **Round 1**. Breakout groups and plenary sessions were used to encourage active participation of all attendees (**Round 2** of the modified-Delphi methodology). At the end of the workshop, experts were asked to answer the survey questions again (modified-Delphi – **Round 3**), based on

the information gathered during the discussions. This final round gave experts the opportunity to change their minds from their initial scores, if they wished to, as a result of hearing other points of view during the workshop.

Following these activities, 25 factors were shortlisted. After further analysis, 15 critical factors were selected by the study team from these.

Table A.2 Shortlist of 25 important and uncertain factors

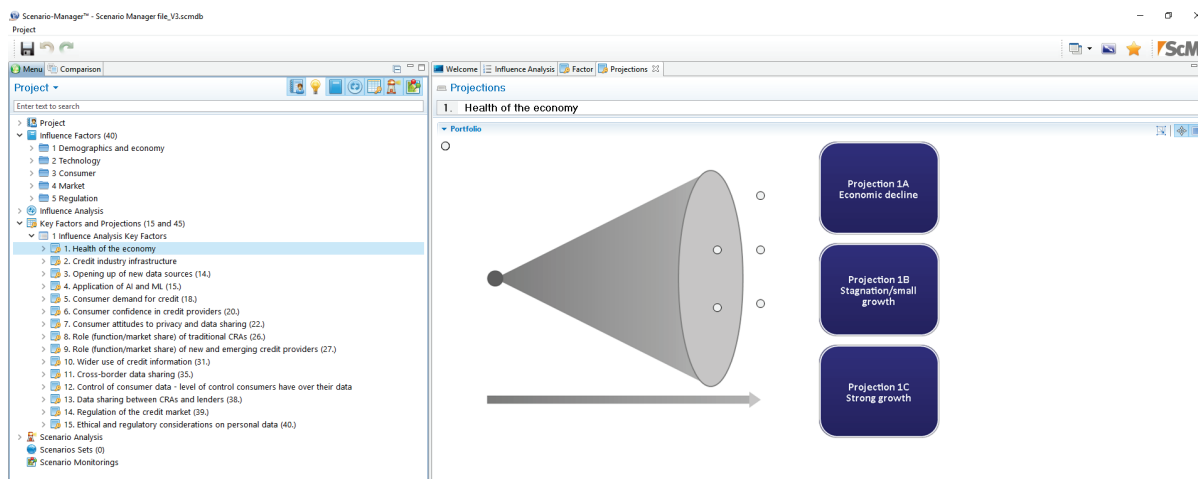
 Demographics & Economy	 Technology	 Consumer	 Market	 Regulation
<ol style="list-style-type: none"> 1. Cost of borrowing 2. Employment patterns 3. Overall consumption trends 4. Health of the economy 	<ol style="list-style-type: none"> 5. Credit industry infrastructure 6. Access to and quality of online services 7. Opening up of new data sources 8. Application of AI/ML 9. The use of open APIs 	<ol style="list-style-type: none"> 10. Demand for credit 11. Demand for speed of service 12. Confidence in credit institutions 13. Education on the use of their data 14. Attitudes to information sharing and privacy 15. Digital literacy 	<ol style="list-style-type: none"> 16. Role of traditional CRAs 17. Role of new and emerging credit providers 18. Role of new and emerging credit offerings 19. Role of intermediaries 20. Wider use of credit data 21. Cross-border data sharing 	<ol style="list-style-type: none"> 22. Ownership of consumer data 23. Data sharing 24. Regulation of the credit market 25. Ethical and regulatory considerations on new data

Step 6: Inform development of projections for key factors

The purpose of this step was to define multiple differing projections for the final set of key factors. While projections can be quantitative (e.g. GDP increases by 5 per cent), often qualitative projections are better suited to be integrated in the analysis (e.g. GDP increases, GDP remains stable, GDP decreases).

For each selected key factor resulting from the modified-Delphi exercise, the study team conducted a targeted literature review to inform the generation of projections. These projections were then finalised in an internal workshop, before being uploaded to the Scenario Manager software.

Figure A.6 Development of projections in Scenario Manager



Step 7: Conduct consistency assessment

The purpose of this step was to assemble the projections into distinct scenarios by clustering them based on their consistency. ‘Consistency’ in this context means how well two projections for different factors ‘fit together’ and how realistic it would be for both of them to happen simultaneously. The consistency assessment was done in a matrix of projections for all factors by experts through remote consultation and by RAND Europe in an internal workshop. The completed consistency assessment was used to form the final scenarios, as presented in Figure A.7.

Figure A.7 Consistency assessment in Scenario Manager

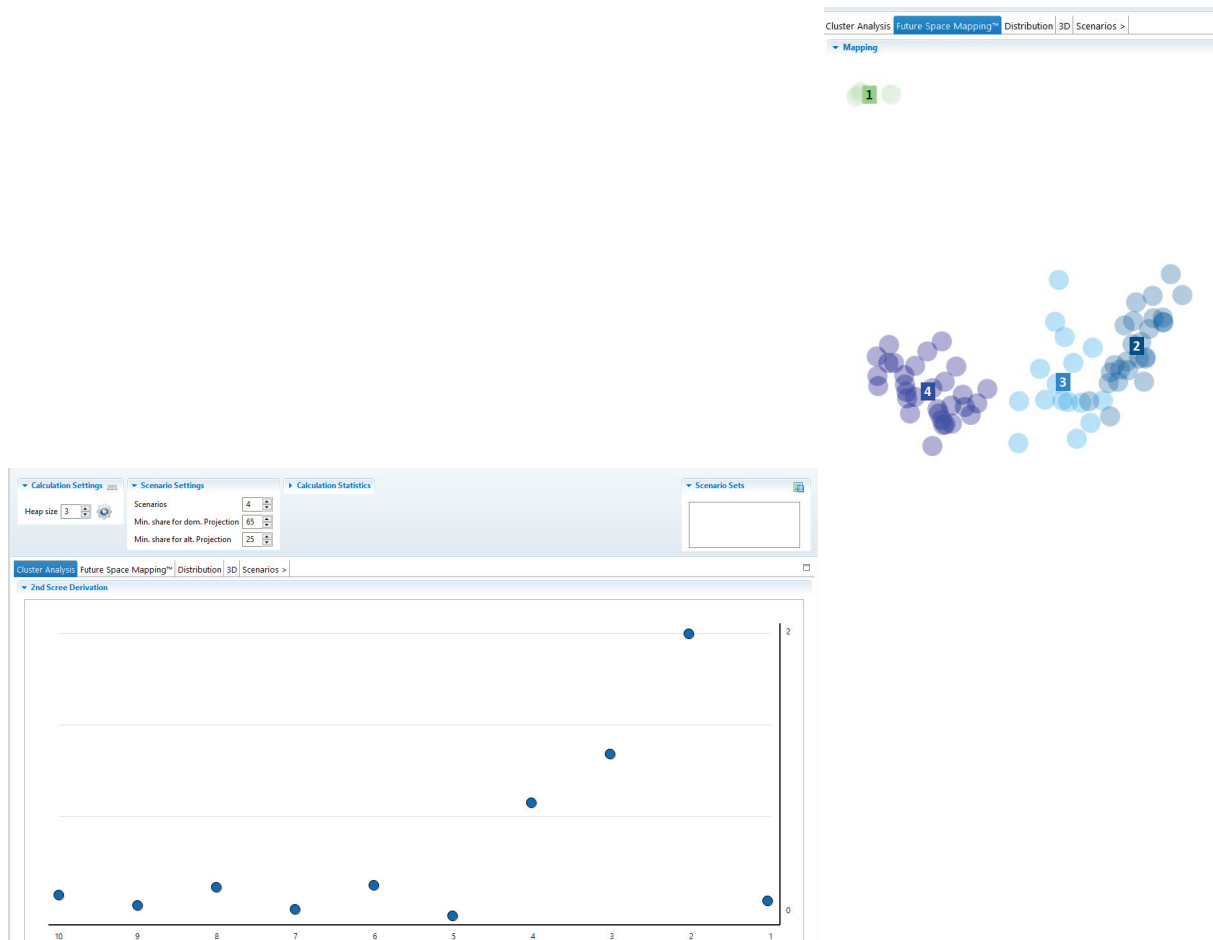
The screenshot displays the ScMI Consistency assessment interface. It includes a 'RATING SCALE' with five levels: 5 (highly consistent), 4 (consistent), 3 (independent), 2 (partially inconsistent), and 1 (highly inconsistent). A 'Start' button is visible. The main part of the image is a large matrix with 150 scenarios (rows) and 150 scenarios (columns). The scenarios are grouped into categories: Economic decline, Strong growth, Credit information, Opening up of new data, Application of AI and ML, Consumer confidence, Consumer attitudes to data sharing, Role of financial institutions, and Wider use of credit information. The matrix cells contain numerical consistency ratings from 1 to 5.

Step 8: Identify clusters of plausible futures

Once the consistency assessment was completed, quantitative analysis was undertaken with the support of scenario management software (Scenario Manager), which analyses all mathematically possible pairs of

projections for the factors to eliminate the pairs deemed inconsistent. This quantitative process isolates clusters made up of homogeneous groups of descriptors and makes projections based on the consistency analysis results. Figure A.8 shows some of the Scenario Manager analysis.

Figure A.8 Cluster analysis in Scenario Manager



Based on the results of the consistency analysis, we selected four scenario clusters to take to the final external expert workshop. This number was determined with a view to balancing the distinction between scenarios in terms of factor projections and loss of accuracy/data.

Figure A.9 presents a high-level view of six plausible futures, outlining factors within each scenario that are unique, partially unique or overlapping with other scenarios. Such an overview allows for a more informed scenario selection, outlining distinctions amongst scenarios that make the final selection.

Figure A.9 Cluster analysis and selection in Scenario Manager

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
1 Health of the economy	Stagnation/small growth / Slowing growth		Strong growth			Economic decline
2 Credit industry infrastructure	Alternative(parallel) systems emerge based on additional or new capabilities				Legacy platforms remain (includes tech development/add-ons; minor change)	Alternative(parallel) systems emerge based on additional or new capabilities
3 Opening up of new data sources	Greater use of payments data and unstructured, non-traditional data (e.g. social media data)				Limited use of new data sources	Greater use of payments data and unstructured, non-traditional data (e.g. social media data)
4 Application of AI and ML	Extensive use of new techniques by wide range of lenders and most credit information providers			Wider use of new tech by a small number of select credit information providers and lenders / Extensive use of new techniques by wide range of lenders and most credit information providers	New tech being used to a limited degree	Extensive use of new techniques by wide range of lenders and most credit information providers
5 Consumer demand for credit	Strong growth					Decline
6 Consumer confidence in credit providers	High					Low
7 Consumer attitudes to privacy and data sharing	Highly open to data sharing with everyone	Open to data sharing with certain trusted partners		Highly open to data sharing with everyone / Open to data sharing with certain trusted partners	Sceptical of data sharing	Highly open to data sharing with everyone
8 Role (function/market share) of traditional CRAs	Non-traditional providers enter gaining significant market share from existing CRAs				Maintain current function and market share as credit info providers	Non-traditional providers enter, gaining significant market share from existing CRAs
9 Role (function/market share) of new and emerging credit providers	Greater consolidation; small number of existing and/or alternative providers				Maintain existing mix and function of traditional and new lenders	Greater consolidation; small number of existing and/or alternative providers
10 Wider use of credit information	Used more widely in financial and non financial services (e.g. by landlords and employers)	Used additionally for non credit decisions in financial services		Mainly used for credit decisions in financial services		Used more widely in financial and non financial services (e.g. by landlords and employers)
11 Cross-border data sharing	Widespread data sharing			Limited data sharing with select countries	Limited/no-cross border data sharing	Widespread data sharing
12 Control of consumer data - level of control consumers have over their data	Consumers exercise limited control over who is able to access their data and how it is used	Consumers exercise significant control over their data and how it can be used			Consumers exercise limited control over who is able to access their data and how it is used	
13 Data sharing between CRAs and lenders	Data contribution become more willing to share data between each other and with CRAs leading to significant increases in data accessibility, timeliness, consistency etc.		Data contribution become significantly less willing to share data		Data sharing arrangements and data accessibility, timeliness, consistency etc. stays largely the same (or with very incremental changes)	Data contribution become more willing to share data between each other and with CRAs leading to significant increases in data accessibility, timeliness, consistency etc.
14 Regulation of the credit market	Regulation of credit provision leads to increased demands on credit information				Regulation of credit provision leads to lower demands on credit information	Regulation of credit provision leads to increased demands on credit information
15 Ethical and regulatory considerations on personal data	Decreased, less stringent regulation	Little/no change to existing regulation	Increased, more stringent regulation		Little/no change to existing regulation	Decreased, less stringent regulation

Every scenario has a list of key factors that characterise it (Figure A.10), and which were used to inform the second external-expert workshop.

Figure A.10 Scenario clusters assessment and selection in Scenario Manager

Scenario	1	Scenario 1
Key Factors		Characteristic Projections
1 Health of the economy	A/B	Economic decline / Stagnation/small growth
2 Credit industry infrastructure	A	Legacy platforms remain (includes tech development/add-ons; minor change)
3 Opening up of new data sources	A	Limited use of new data sources
4 Application of AI and ML	A	New tech being used to a limited degree
5 Consumer demand for credit	A	Decline
6 Consumer confidence in credit providers	A	Low
7 Consumer attitudes to privacy and data sharing	C	Sceptical of data sharing
8 Role (function/market share) of traditional CRAs	A	Maintain current function and market share as credit info providers
9 Role (function/market share) of new and emerging credit providers	A	Maintain existing mix and function of traditional and new lenders
10 Wider use of credit information	A/B	Mainly used for credit decisions in financial services / Used occasionally for non credit decisions in financial services
11 Cross-border data sharing	A	Limited/no-cross border data sharing
12 Control of consumer data - level of control consumers have over their data	A	Consumers exercise limited control over who is able to access their data and how it is used
13 Data sharing between CRAs and lenders	A	Data sharing arrangements and data accessibility, timeliness, consistency etc. stays largely the same (or with very incremental changes)
14 Regulation of the credit market	B	Regulation of credit provision leads to lower demands on credit information
15 Ethical and regulatory considerations on personal data	A	Little/no change to existing regulation

Step 9: Select final set of scenario clusters

The final expert workshop was used to identify the most relevant clusters. In the context of the workshop, small groups and plenary sessions were formed to assess each cluster of projections by its relevance (defined as the extent to which each cluster represents a plausible – not probable or improbable – future for the credit

information market), by its impact (defined as the extent to which each cluster challenges the current state of the market), and by its likelihood (defined as the probability of each cluster to manifest itself in reality within the timeframe of this study).

Step 10: Write scenario narratives

Following the workshop, the project team analysed the results and, together with the FCA, arrived at a final set of four scenarios to be included in the final report. The final selection prioritised diversity over likelihood, selecting clusters that were representative of different futures (e.g. most relevant, most impactful, most likely, etc.). The study team developed full narrative descriptions for each of the four scenarios, using contextual information from the workshops and integrating analysis from the FCA, as well as making them accessible to a broader audience of different future contexts.

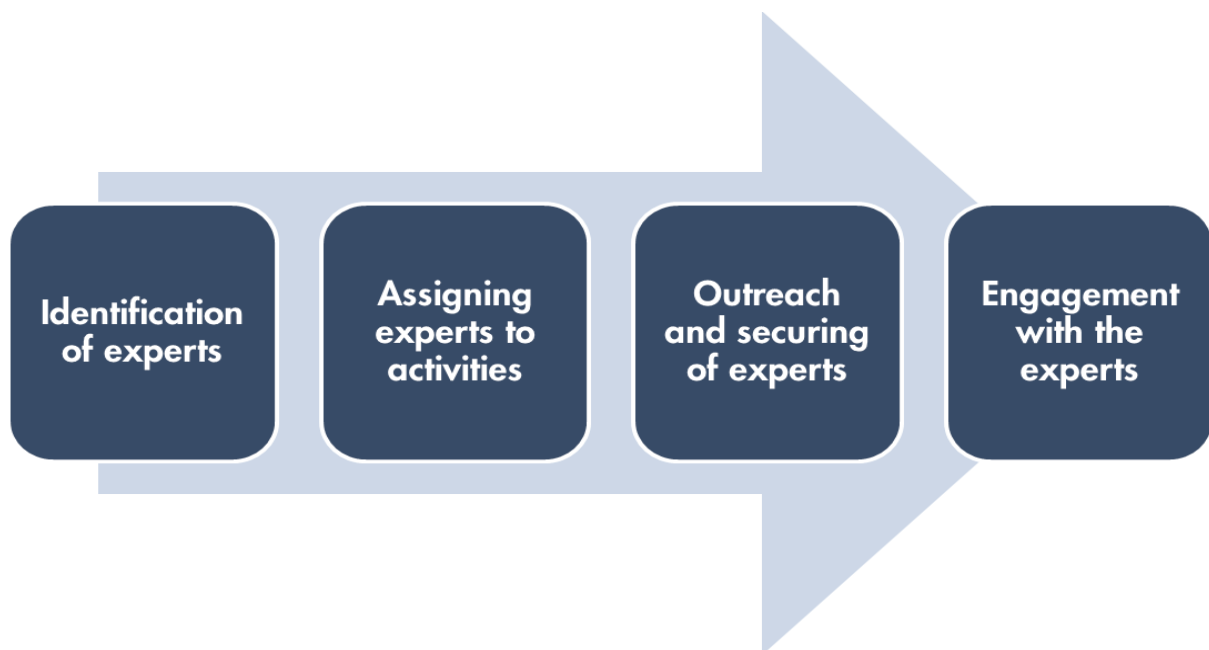
Annex B. Stakeholder engagement

Structured engagement with experts was foundational to the research approach taken by the study team. This section highlights the different stakeholder types that were engaged throughout the course of this study and illustrates the mechanics of engaging them at different stages of the project.

B.1. Stakeholder consultation methodology

The delivery of this study relied extensively on the structured engagement with a wide range of different experts. Stakeholder consultation process is depicted in Figure B.1 below with each individual stage described in more detail below.

Figure B.1 Stakeholder consultation methodology overview



Identification of the experts from relevant disciplines and sectors was the first step of the stakeholder consultation methodology. Experts were identified from three sources: desk research and snowballing of interviews; FCA networks (including via the FCA website); and RAND networks. The following stakeholder groups were included in the study:

- **Providers of credit information** including but not limited to: large credit reference agencies (such as Equifax, Experian and TransUnion) as well as smaller CRAs and former industry representatives or experts.
- **Users of credit information** including different types of lenders, ranging from those offering traditional banking products – such as credit cards and mortgages – to companies engaged in utilities, telecommunications, insurance and leasing.
- **Regulators**, such as representatives from the Financial Conduct Authority, Bank of England, European Banking Authority, Ofcom, SCOR, Centre for Data Ethics and Innovation, Department for Digital, Culture, Media and Sport, HM Treasury, Department of Work and Pensions, Ministry of Housing Communities and Local Government, Information Commissioners Office, Prudential Regulation Authority, Open Banking Implementation Entity, and legal counsel representatives from financial institutions responsible for adhering to relevant regulations, such as GDPR. (The highlighted bodies participated in the study.)
- **Emerging technologies representatives** from industries operating in the fields of AI, Big Data, block chain (and others as relevant); FinTech companies; and representatives with expertise in information security and cybersecurity.
- **Consumer representatives**, such as consumer rights groups (e.g. Citizens Advice, the Money Advice Service), as well as consumer business representatives from financial institutions.
- **Trade associations**, such as UK Finance, Finance and Leasing Association, Consumer Credit Association, Credit Services Association and British Retail Consortium.

The research of relevant non-finance sector experts was covered in the desk review stage as well as groups not clearly appearing in other sections, e.g. Big Issue Invest, Centre for Responsible Credit, Responsible Finance, and the Alan Turing Institute.

B.1.1. Assigning experts to activities

The next steps of stakeholder engagement consisted of reviewing the longlist of identified experts and allocating individuals to different project activities, namely scoping interviews, cross-impact assessment, involvement in Delphi (survey), first expert workshop, remote consistency assessment and the second expert workshop. Identified experts were mapped based on their field of expertise pertaining to system-level themes, and allocated against the type of project activity as demonstrated in Table B below.

Table B.1 Stakeholder mapping and activity allocation matrix

Personal details			Type of stakeholder							Type of engagement				
Name	Role	Organisation	Providers of credit info	Users of credit info	Regulators	Tech reps	Consumer reps	Trade associations	Other	Interview	Survey1	Workshop1	Survey2	Workshop2

Expert allocation was completed together with the FCA and took into consideration the following factors: differentiation amongst types of stakeholders to ensure a balance of expertise; granularity and representation within individual groups of stakeholders (e.g. regulators represent a wide number of institutions); and finally, stakeholder preference for the type of engagement and availability. Several tables were employed to map experts to activities in order to balance the allocation of experts and stakeholders to ensure that the methods were as well-informed and balanced as possible, as indicated in Table B to Table B. below.

Table B.2 Stakeholder mapping for the scoping interviews

Name	Role	Organisation	Email	Reason	Contacted?	Outcome	Follow-up

Table B-3 Stakeholder mapping for the first survey, workshop and projections

Name	Email	Reason	Contacted?			Outcome		
			Survey	Workshop	Projections exercise	Survey	Workshop	Projections Exercise

Table B.4 Stakeholder mapping for the second workshop

Name	Email	Reason	Contacted?	Workshop Response	Comments	Agenda sent?	Slides sent?

In total, 28 experts participated in interviews, workshops and analysis activities. The majority of these individuals were engaged at more than one stage in the study, which enabled them to track the progression of the analysis and take part with a more complete understanding of the end-to-end process.

B.1.2. Outreach

The following step of the process was stakeholder outreach. The study team conducted outreach activities in two phases: initial contact and follow-up activities. Initial contact was agreed between RAND and the FCA following internal consultations to ensure full compliance with GDPR and the most effective and impactful outreach strategy. RAND contacted stakeholders by introductory email, accompanied by a privacy notice outlining data collection, storing and sharing procedures for the project. Follow-up liaison was conducted by RAND as appropriate to ensure fulsome participation and attendance by stakeholders.

B.1.3. Engagement

Once contact with experts had been established, the study team engaged with the experts based on the type of activity they were allocated to. Interviews were conducted over the phone and were recorded with interviewee consent for the ease of transcribing and obtaining relevant data. Remote consultation was conducted by sending out matrix exercises to the experts and requesting a scoring. Workshops were conducted in person at the FCA premises and nearby. All expert engagement was done in full compliance with GDPR.

The RAND Europe study team engaged with 28 individuals from a range of organisations over the course of this study. The experts who provided consent to be included in this report are listed below.²²

²² Only experts who explicitly provided consent to be fully acknowledged are listed, alphabetically by organisation.

Table B.5 Experts engaged as part of this study

Name	Role	Organisation
Nick Beal	Chief Regulatory & Public Affairs Office	Amigo Loans
Natalie Wellings	Strategy Associate	Credit Kudos
Enrique Velasquez	Director General	Association of Consumer Credit Information Suppliers
Dan Kellett	Senior Director of Data Science	Capital One
Freddy Kelly	Founder & CEO	Credit Kudos
Neil Munroe	Director	CRS Insights Ltd
Ian Whitbread	Credit Data Consultant	Margian
Sara Williams	Blogger	Debt Camel
Jonathan Turner	Consultant	Fair4All Finance
Natalie Bunyer	Director	Global Debt Recovery Limited
Ansgar Walther	Assistant Professor of Finance	Imperial College London
Neil Williams	Managing Director & Chief Technology Officer	LendingMetrics
Tom Eyre	CEO & Co-founder	LOQBOX
Bernie Grady	Independent credit market consultant	n/a
Richard Koch	Policy Consultant	Open Banking Implementation Entity
Kelly Read-Parish	Chief Operating Officer	Credit Kudos
Greg Kraushar	Senior Manager	Bank of England
Adrian Cummings	Director	RS Data Tech
Laurence Hamilton	Managing Director Third Party Services	Services at Lowell
Adam Butler	Public Policy Manager	StepChange
Peter Tutton	Head of Policy	StepChange
Dave Webber	Data Strategy and Content Licensing Director	TransUnion UK

Annex C. Glossary of terms

This glossary comprises the final list of factors that may impact the credit information market in five to ten years' time. A longlist of factors initially arose during desk research and was further developed and refined during interviews and workshops with key stakeholders. In making each factor relevant to scenario development, each was assigned a set of 2–3 projections into the future. Projections were then subject to a consistency analysis, which was completed by experts. The consistency analysis was used to create our scenarios; using the consistency scores as inputs, cluster analysis was used to identify clusters of projections that consistently appeared together. For more information on the methodological approach, please see Annex A.

Below is the list of 15 shortlisted factors.

1. **Health of the economy** pertains to the broader economic trends and encompasses sub-factors, such as GDP, inflation and unemployment.
2. **Credit industry infrastructure** refers to the current technology used by CRAs and lenders, which is a system whereby lenders collect credit information and provide it to CRAs on a monthly basis. In the future, this could be augmented with additional capabilities such as new data sources, cross-border data sharing, and speed of access.
3. **Opening up of new data sources** refers to using non-traditional data sources (e.g. social-media data and council tax payments) for a variety of purposes including credit risk, affordability, identity verification, etc. This could include Open Banking, Open Finance and Smart Data and could enable the sector to make more precise decisions and contribute to greater financial inclusion.
4. **Application of Artificial Intelligence (AI) and Machine Learning (ML)** refers to the use of new and emerging technologies to process and analyse large datasets and novel data sources. This factor includes – but is not limited to – Artificial Intelligence (AI) and Machine Learning (ML) capabilities, which are modes of data analysis that allow computers to identify patterns and relationships through mathematical algorithms.
5. **Consumer demand for credit** refers to consumers' appetite for borrowing. Consumer attitudes toward spending and owing money also affect whether or not consumers will borrow, from which types of lenders, and how they handle debt when they borrow.
6. **Consumer confidence in credit providers** is an economic indicator that can impact economic decisions, such as spending activity. For example, the banking crisis of 2008 led many people to question the trustworthiness of credit providers and financial services more broadly.
7. **Consumer attitudes to privacy and data sharing** refer to consumers' willingness to concede a certain amount of privacy in favour of opportunities for greater access. Some of the determinants

of credit users' attitudes to data sharing could include age, perceived trustworthiness of organisations, and data skills. Further, consumers may be more or less willing to share their information with certain firms and bodies (i.e. established/trusted partners versus new and emerging credit providers).

8. **Role (function/market share) of traditional CRAs** refers to both the function and market share of the 'big 3' credit reference agencies (CRAs) – Experian, TransUnion and Equifax – who gather information about a consumer's credit history in order to provide aggregated information and products and services to lenders. Their market share may change in the future given the new participants who own and could use that data (e.g. Amazon, Google, FinTech companies) and their function may shift further in the future towards data-analytics provision, given the opening up of new data sources.
9. **Role (function/market share) of new and emerging credit providers** refers to the projected future market share and function of these providers, as well as the types of credit products that they will offer. This could include specialist providers of both prime and sub-prime credit offerings. These new offerings could also reflect the increasing consumer demand for 'using' versus 'ownership'.
10. **Wider use of credit information** refers to the use of credit information by financial and non-financial services for credit and non-credit decisions. This could include government users of credit information, prospective landlords, mobile companies, utility companies, etc.
11. **Cross-border data sharing** relates to a possible increase in demand for the internationalisation of the credit information market. Currently, the credit information market is largely confined to the territory of residence of the consumer.
12. **Control of consumer data** refers to the degree of control that a consumer has in practice over their own data (i.e. who can access it and what they can access).
13. **Data sharing between CRAs and lenders** relates to the data sharing agreements and data accessibility, timeliness, format and consistency. This includes relevant data protection legislation relating to obtaining consent for collecting, categorising, sharing and storing of the data (transparency). At present, data sharing arrangements are based on agreements such as the Principles of Reciprocity (PoR), which set out how personal credit performance is shared between lenders and the CRAs.
14. **Regulation of the credit market** relates to the regulation of lending, collections and debt management, which could focus on affordability or creditworthiness, and take either a more restrictive approach or one that is more relaxed. This factor interrogates the extent to which regulation of credit provision impacts demands on credit information.
15. **Ethical and regulatory considerations on personal data** relate to the principles of using new information sources (e.g. social media), as well as new ways of obtaining and processing data (e.g. by using ML/AI).