Experian ModelOps report 2024

Overcoming the barriers which inhibit the acceleration, maintenance and deployment of the next generation of predictive analytical models in financial organisations.

experian

Introduction

Our research, both here in the UK and around the world looks at how financial organisations are designing, developing and implementing modelling – hereafter referenced to as ModelOps. Their overriding objective is to accelerate and improve their predictive analytics and, ultimately, to continually redefine their decision-making business.

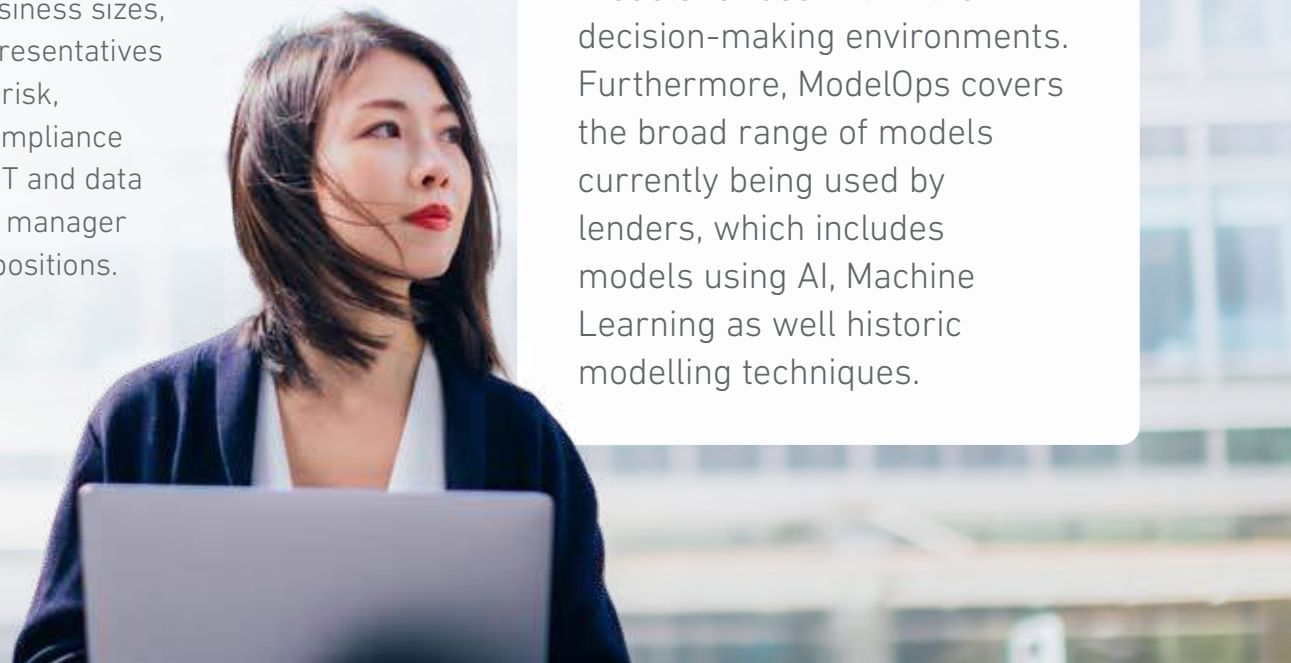
The research aimed to uncover the key trends and business challenges in data ingestion and model building across a wide selection of use cases – including marketing, credit risk and fraud detection – as well identifying the bottleneck that companies face in this data assessment and model development life cycle.

The survey involved conversations with multiple senior risk and analytical individuals with deep insights into the multiple model building and associated operational activities. Not only did the research confirm that changes are needed to remove the numerous blockers, but it revealed important insights regarding the maturity of the modelling industry. It also revealed a series of common analytical and data ingestion challenges.

Methodology

The ModelOps research took place in early 2023 across the UK and wider globe.

We surveyed 106 UK lenders focusing on consumer lending across a span of business sizes, asking representatives in finance, risk, lending, compliance and other IT and data roles from manager to C-level positions.



What is ModelOps?

'ModelOps' is a term which covers the end-to-end governance and lifecycle management processes that financial organisations follow when ingesting data, and when designing, maintaining and deploying predictive analytical models for use within their decision-making environments. Furthermore, ModelOps covers the broad range of models currently being used by lenders, which includes models using AI, Machine Learning as well historic modelling techniques.

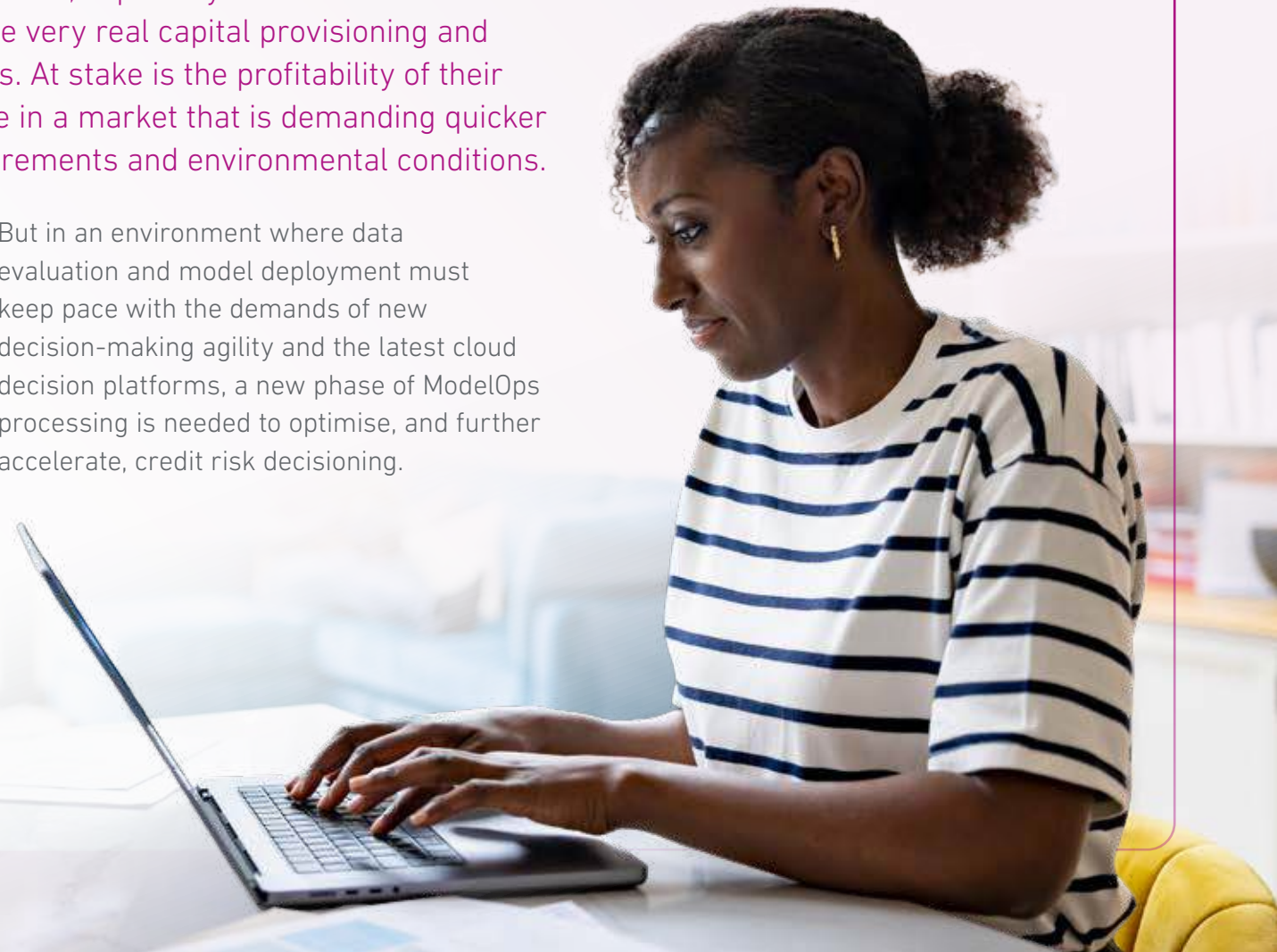
The context: the importance of accelerating predictive analytical models in financial organisations

The decisions that financial organisations make, especially those based on predictions about customer behaviour, have very real capital provisioning and revenue consequences for their businesses. At stake is the profitability of their portfolio, as well as their ability to compete in a market that is demanding quicker responses to new consumer product requirements and environmental conditions.

The assessments of – or continual transition through – new data and analytical models now necessitates equal, or even greater, priority be given to legacy software upgrades. This is critical if forward thinking, innovative companies are to operate efficiently within the credit risk environment, and thus remain competitive.

Historically, the ability to evaluate new data, develop new models or simply fine-tune existing ones, has often been a fragmented and time-consuming process.

But in an environment where data evaluation and model deployment must keep pace with the demands of new decision-making agility and the latest cloud decision platforms, a new phase of ModelOps processing is needed to optimise, and further accelerate, credit risk decisioning.



Models predict the behaviour of individuals

Although there is a need to accelerate data ingestion and model development, the essential objectives of modelling remain the same. At its simplest, analytical decision making aims to enable lenders to optimise the decisions they make by making highly accurate predictions about the behaviour of applicants and later their customers.

These insights guide the short- and long-term judgements that lenders make about consumers. They enable them to onboard healthier and more profitable applicants and to optimise the profitability of the customers they already have.

These insights also enable lenders to refine their go-to market strategies. They can inspire innovative products which help lenders to become more pro-active, competitive and cost-effective.

Inevitably, perhaps, credit scores – whether taken from external sources or developed within the models – play a significant role in the development of these models. Increasingly, granular scores, and optimal cut-offs, are being used to develop models which can analyse and predict the behaviour of segments currently outside a lender's typical risk appetite and acceptance criteria.

Although such models often work by interrogating new datasets, they can then be used to refresh and update legacy data-marts. They can even be used to challenge and refine existing models, many of which will have been developed using legacy sample data and performance metrics.

One of the key benefits of the new modelling capabilities, therefore, is how they enable lenders to diversify into new, niche, market segments. In a competitive environment where the cost of borrowing to lend has increased considerably, the necessity to diversify – by identifying and quickly seizing new windows of underserved and growth opportunities – has become paramount.

Models deliver competitive advantage

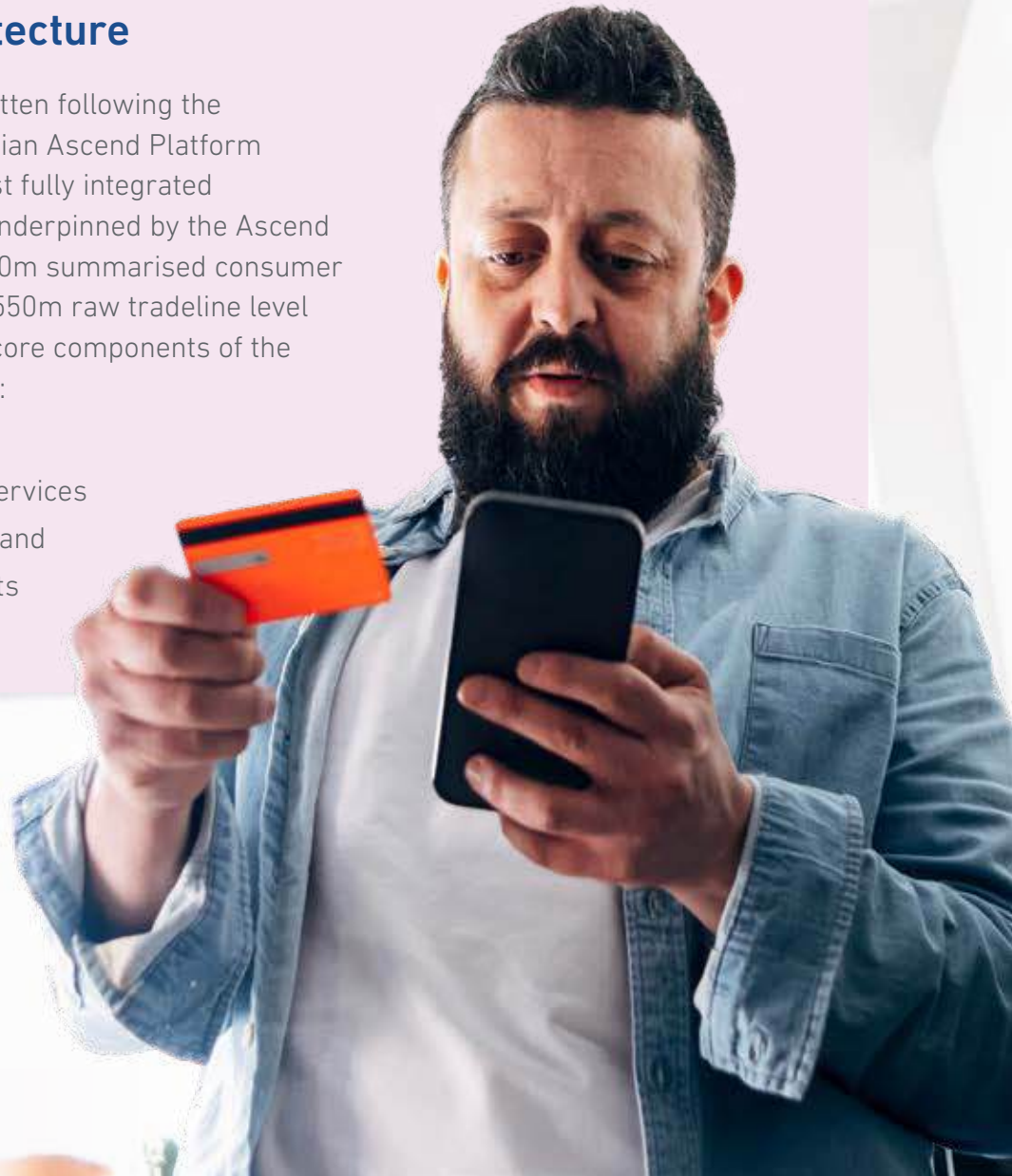
Increasingly, organisations need to predict the behaviour of customers in ever more detail. Rather than creating a model and product for the new near or sub-prime segment, lenders today are typically looking for opportunities in much smaller niche segments, as in our example below. As a result, instead of having a single model that predicts the behaviour of a general near, or Prime segment, advances in model techniques and improved data mean they now want to create multiple models within that segment to predict behaviour at a more granular level.

For lenders who wish to remain competitive in the market, then, it is imperative that they can ingest new data, and can create, and iteratively monitor or fine-tune, increasingly granular models for use within their decisioning environments. What's more, they also need to be able to produce these faster to identify, and respond, to new windows of opportunity within an ever-changing consumer lending environment.

Our fully integrated analytical ModelOps architecture

This report has been written following the introduction of the Experian Ascend Platform capability. This is our first fully integrated ModelOps architecture underpinned by the Ascend data lake of more than 80m summarised consumer records as well as over 550m raw tradeline level consumer records. The core components of the Ascend Platform include:

- Ascend Sandbox
- Ascend Intelligence Services
- Ascend Retro on Demand
- Ascend Market Insights
- AscendOps



Optimising ModelOps for diversification

Consider a Prime lender that is intending to launch a new credit card aimed at individuals with a near or sub-prime rating.

Before launching a new product such as this, it is important for the lender to model the behaviour of the target customers in order to predict basic information such as performance, value, limits, and propensity to spend and transact. But although lenders will have performance data on their existing Prime book, they will almost certainly lack the necessary performance and thus predictive data on the new target segment.

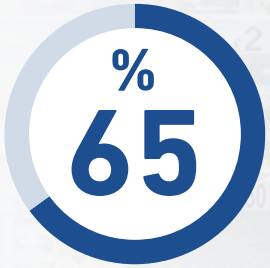
In order to efficiently and safely diversity in this example, the lender will need to ingest new data and optimise their intended model using new sources of external or internal information.

Predictive analytic models take far too long to develop and deploy

To remain competitive, lenders need to be able to rapidly pivot in order to find, and take advantage of, new windows of decisioning opportunity. But 65% of lenders say that it takes too long to develop and deploy the models that are needed to enable them to do this safely and efficiently.

The cost-of-living crisis, coupled with fluctuating interest rates and rising mortgage rates, has inevitable implications for consumer affordability and changes in disposable income. It seems that at the moment, the only constant across consumer lending is change.

This matters, because it means that the data samples on which many legacy (or even relatively new) models are based, are somewhat out of date. The financial status or demographic of people applying for credit in 2024 will no doubt be different from those applying years earlier. This is clearly a problem when attempting to predict the behaviour of today's consumer lending applicants and existing customer behaviour. It means that lenders find themselves pivoting in different directions to rapidly fine-tune, correct or even rebuild models as each financial, or even economic cycle, progresses.



of lenders say it takes too long to develop and deploy models.

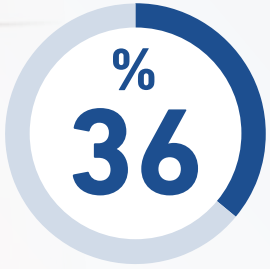
In order to remain profitable and compete successfully in such a rapidly moving financial environment, lenders should be able to ingest data efficiently, and be able to create, develop and deploy new models rapidly. They should also have the ability to pro-actively refine them iteratively with data that is not only relevant, but which is also constantly kept up to date, thus creating the often used term of 'Data Ready Analytics'.

Unfortunately, it is taking organisations up to 24 months to deploy a new predictive model. This is simply not fast enough.

In discussing these challenges and the current data and analytical market environment with our clients, the biggest recurring theme – and one which appeared prevalent across many industry sectors – was how the model development process is still governed and restricted by lenders' ability (or otherwise) to consume new data sources.

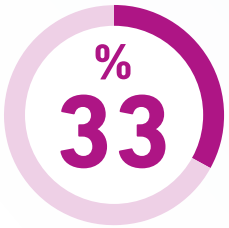
Modelling techniques and scorecards have been used in banking for many decades. Despite this, many organisations still appear to be at a crossroads with their modelling techniques. 36% of lenders said their model building processes as a whole were still evolving, and most aspects of their development and deployment processes were disparate and ad-hoc in nature.

These companies acknowledged the need to accelerate the modelling process, to make it more iterative and, therefore, to enable them to become more agile and competitive as a business.



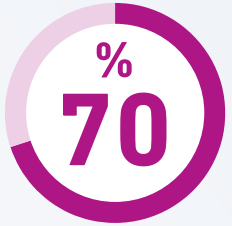
of lenders recognise they need to evolve their modelling processes.

However, as the use of additional data and widespread adoption of machine learning techniques grow, financial institutions face unique challenges

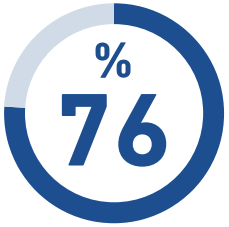


of organisations take 7-12 months on average to develop and deploy a model into production.

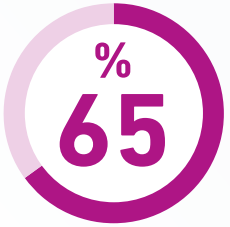
need to make lending decisions in real-time or near real-time.



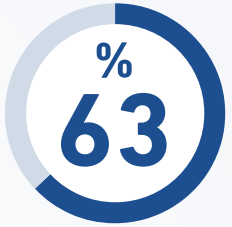
of institutions recognise ModelOps will shape the industry's future over the next five years.



of institutions admit to grappling with explaining their models and model outcomes.



of organisations reported takes too long for us to develop and deploy models.



lenders expect to use both traditional statistical approaches and newer ML approaches for decisioning in the future.

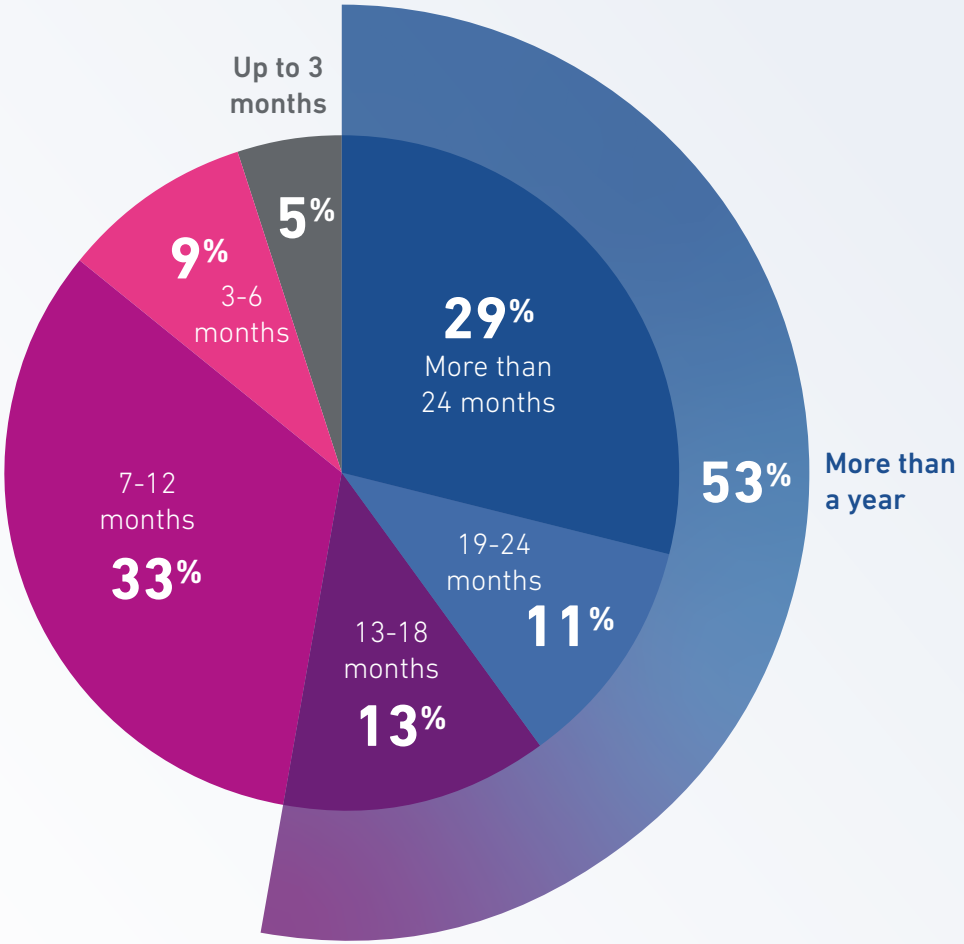
It can take years to develop models

The predicted behaviour of both individuals and segments can change significantly over a period of just a few months or quarters. Our research shows, however, that more than 50% of lenders take more than a year to develop and deploy their models. Furthermore, 29% said that they typically take more than 2 years.

Inevitably – and possibly to the detriment of the consumer – this means that by the time models are deployed they are frequently (perhaps even usually) out of date. This compromises their accuracy because they will be based upon, and typically will use, out-dated, historic data of past consumer behaviours and performance which will not reflect the current population their model is trying to predict.

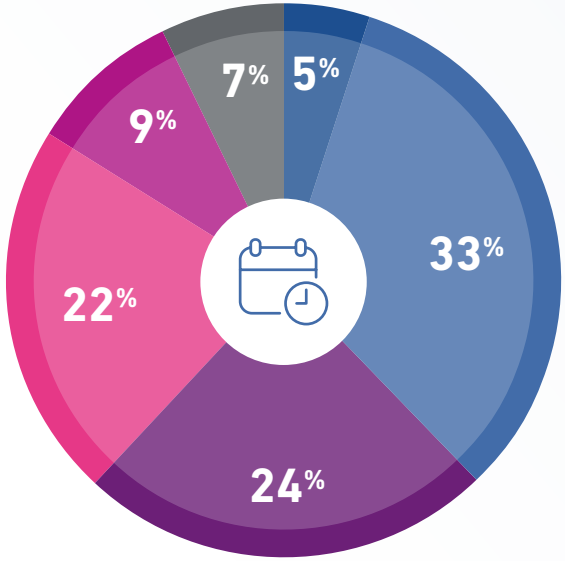
> **Over half** of the companies surveyed said it took over a year to develop and deploy models. **29%** said that it typically takes more than 2 years.

Thinking about all these stages and elements, what would you estimate as the total time spent on the overall process (from development through deployment in production)?

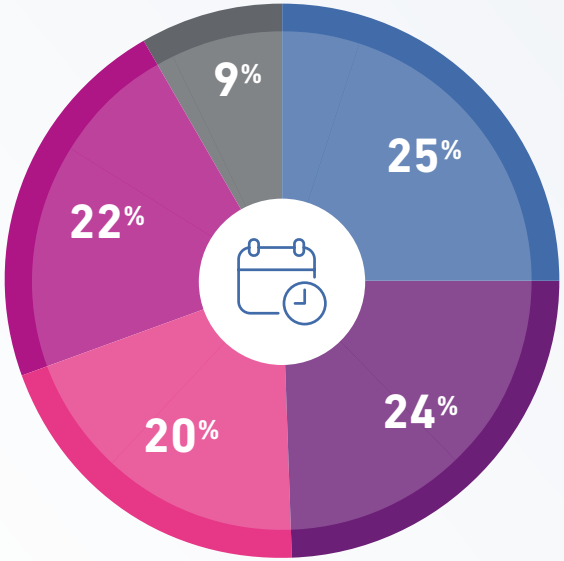


When your organisation last created a brand-new model for credit decisioning, approximately how long did it take?

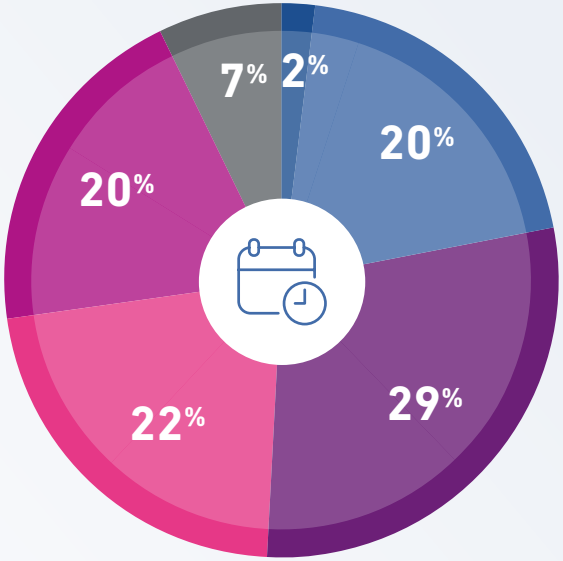
Acquiring and preparing data for model development



Feature engineering and model development



Model validation and testing



Less than 2 weeks | 2-5 weeks | 1-2 months | 3-6 months | 7 months-1 year | More than a year

Many models are out of date before they are deployed. The average development time including engineering, validation and testing is well over 12 months.

Speed and Data Agility: the hallmarks of the next generation of predictive models

To a large extent, financial organisation thrive – or not – based upon the quality of the decisions that they make. It is imperative, therefore, that they are based upon data which is trustworthy, accurate, and appropriate. Many – over 50% – also say that it is becoming increasingly important for them to be able to make these decisions in real or near real time.

It sounds obvious: lenders need to be able to make informed decisions based on data and models that they fully trust. However, the research showed very clearly that, for many organisations, this trust is lacking.

One of the concerning trends to emerge from the research was that, for many organisations, instead of using data which would be most appropriate and useful for their predictive decision-making purposes, many models are instead based upon whatever data is accessible within their modelling solution or decisioning architecture. This clearly restricts their ability to make optimal lending decisions.

One of the reasons for this is that acquiring, formatting, and incorporating data from other sources can be technically highly challenging. Even with those resources, however, it can still often take a long time to get data into a modelling domain.

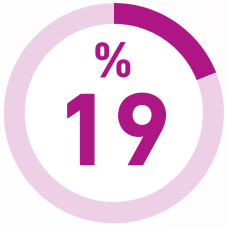
Current ModelOps processes are disparate – as well as extremely time and resource hungry

Our research shows that 17% of lenders use data from external sources such as credit agencies in order to build and develop their models. However, the time needed to get that data into a modelling domain and then deployed means that many organisations are actively using models that have been built on sample data that is two or three years old. Again, considering just how much consumer spending and behaviour has changed in just the past 12-36 months, it is clear that in the absence of proactive monitoring and fine-tuning with new and accelerated data, these models cannot be fully trusted to reflect the behaviour of today's consumers. As a result, their predictive power diminishes.

Not surprisingly, therefore, most lenders wish to update their models on a more regular basis. But every time they do so, they face an intimidating period of intense activity in terms of resources, cost and time. It is an especially daunting prospect when they notice that one of their models has failed to make predictions with the accuracy tolerance that is required. When this happens, large scale changes to the model might have to be made; in some cases, entirely new models will need to be created.

We asked lenders which aspects of ModelOps (currently being used to support existing models), consume the most amount of time and resources? The answers provide an insight into the continuous, ongoing burden of current ModelOps:

said monitoring their models or gathering data for producing reports for management.



said updating or refreshing their models.

said reacting to model related failures in production.

Inevitably lenders are looking to optimise ModelOps to reduce the time taken to develop and deploy models

Beyond development, the deployment and maintenance of models usually requires significant time and resources. Efforts can be complicated by the need to automate new credit decisions and to respond to customers in real time (or near real time).

Because of the current length of time it takes to ingest data and then develop and deploy such models, many organisations are focusing on improving their ModelOps activities. The research shows that more than two-thirds of lenders (67%) say ModelOps will play a key role in shaping the industry over the next five years, reflecting the importance of modelling and how decisions will be made moving forward.

67%

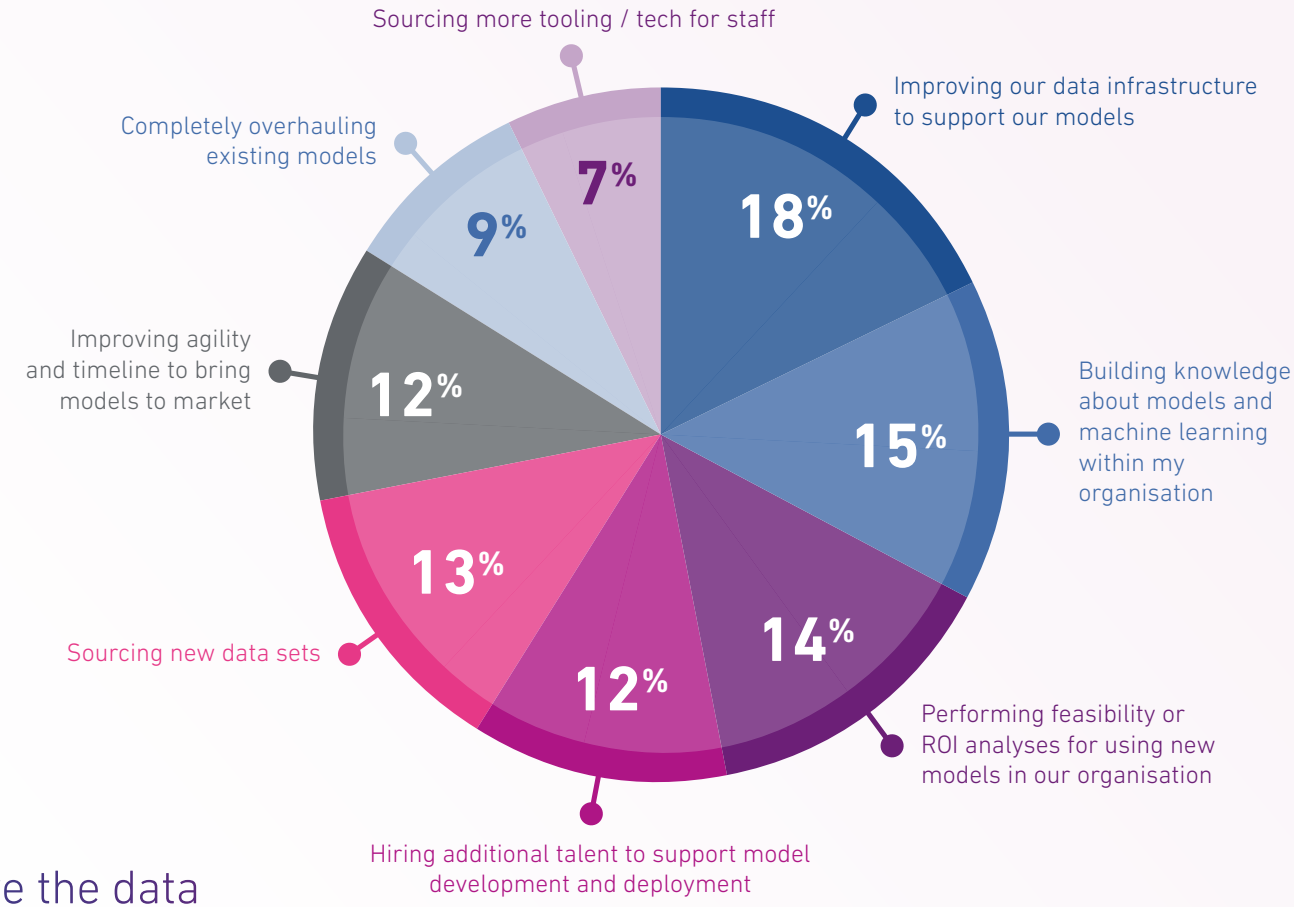
Two-thirds of institutions recognise ModelOps will shape the industry's future over the next five years.

A clear need to improve data infrastructures

With a focus on improving ModelOps in general, then there is a clear focus within that on the data infrastructure upon which the models are based.

We asked lenders about the key short-term ModelOps priorities currently facing lenders. Many (14%) said that performing feasibility or ROI analysis for using new models was particularly important. This reflects the growing importance of modelling for the industry as a whole. 15% of lenders, meanwhile, said that building knowledge of models and machine learning within their organisations was the key priority. Significantly, however, the largest group (18%) said that their key priority was improving the data infrastructure to support their models.

What are your organisation's biggest priorities around models over the next 6-12 months?



Over the next 6-12 months, **18%** of lenders wish to improve the data infrastructure to support their models.

Next generation models should be constantly agile and based on data which is continuously updated

A next generation ModelOps solution would aim to eliminate all the problems of model development, including collating the appropriate data and ensuring that it is always up to date. In such an environment, a model would be created once, and then pro-actively, and iteratively, updated and fine-tuned, thus negating the need for wholescale model redevelopment every 3-5 years.

Moreover, its data would always be continuously updated/refreshed, creating a constant environment of current, model-ready data. Such a solution would, in other words, remain continuously fit for purpose despite the rapidly evolving financial landscape.

Many lenders acknowledge that next generation models make it easier to integrate and adopt new technology and improve productivity. This enables them to respond more rapidly to changing market conditions.

But many also noted that this is also good for consumers. When asked about the benefits of the new modelling environments, over 25% of the answers given talked about benefits such as more responsible lending and fairer decision-making.

In an improved ModelOps environment consumers would be able to work with lenders who are capable of making more nuanced, intuitive and tailored decisions which reflect the latest market conditions and consumer needs.

> Such a solution would, in other words, remain continuously fit for purpose despite the rapidly evolving financial landscape.

How we can help: a unique integrated ModelOps architecture

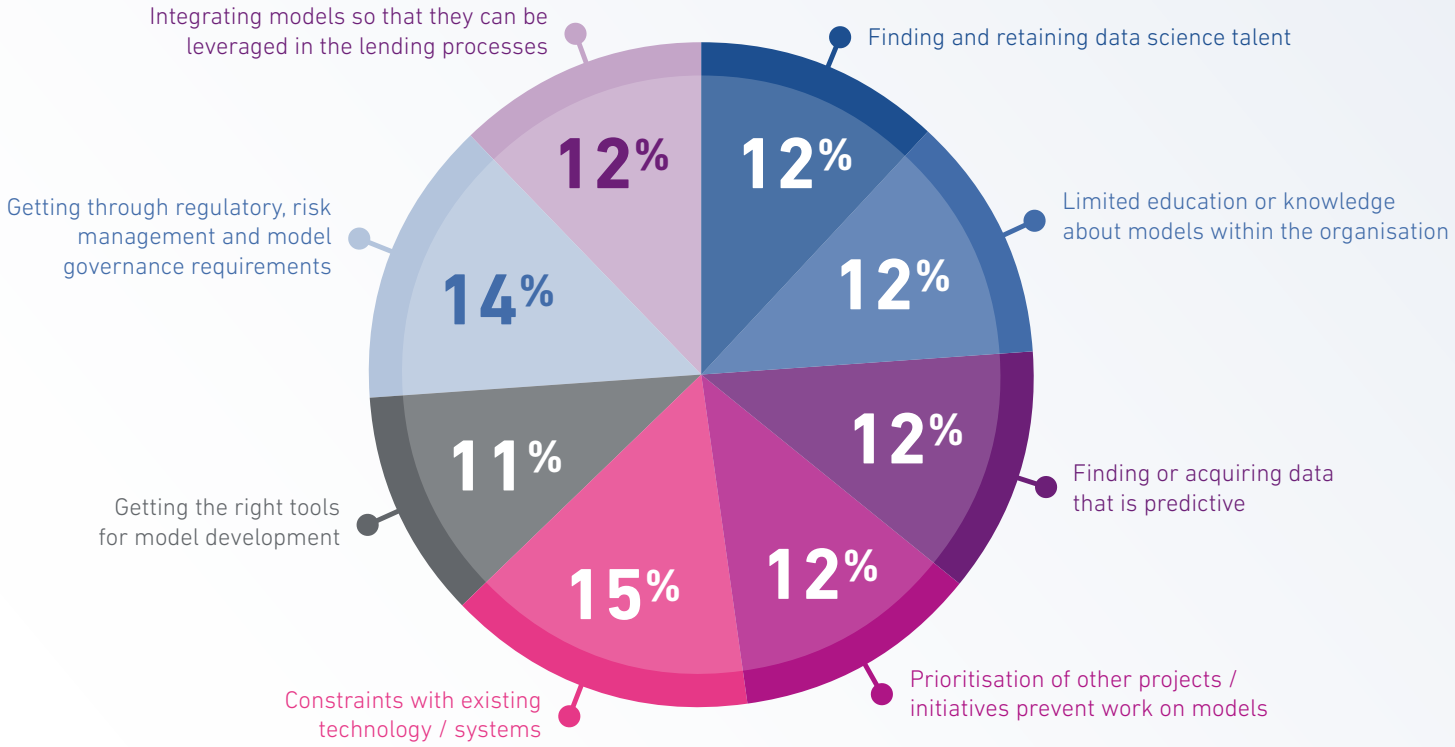
To remain competitive in a market which is continuously evolving to regulatory pressures and lending opportunities, making quick, accurate decisions is becoming increasingly important. Lenders want to be able to improve their ModelOps so that models are created and updated iteratively, and very much faster. Ultimately, after all, ModelOps is about enabling organisations to be able to assess the latest data quicker and bring more agility to their business.

Until now, however, the research and feedback we have received from lenders, shows that they have typically had neither the joined up infrastructure, nor the access to the correct data soon enough.

Consequently, this has meant that many models are still created and fine-tuned based upon the data that can be easily ingested, instead of the most predictive data. As a result, their models are not being optimised or don't use the best data to accurately discriminate.

The barriers to model development

What do you see as key barriers for your organisation in developing new models or updating existing models in lending?



Some of the key barriers to model development include: finding and retaining the right kind of predictive data (12%); integrating models within the overall lending process (12%); and overcoming constraints within existing technology systems (15%). Our integrated ModelOps architecture helps lenders overcome these challenges.

Our integrated ModelOps architecture overcomes the industry challenges of data ingestion and modelling development

Having taken the client feedback and Industry research onboard, Experian's response to addressing these industry challenges of faster data ingestion and model development, is our Ascend Technology Platform and the Ascend suite of services.

Whether it's assessing and integrating unused and new datasets for modelling upgrade programmes, or deriving market insights and peer group benchmarking, the Ascend suite of services directly overcomes the business challenges across the market and those highlighted in the ModelOps research.

Industry challenges for our customers:

- The time taken to create and deploy new models is too long and uncompetitive.
- Current processes inevitably hamper the ability of lenders to compete with agility.
- Lenders need to include a broader range of datasets in data ingestion.
- Data preparation is too time consuming and new data is often not considered when developing models.
- It's a challenge to find or acquire data that is predictive.
- Lenders need to gain earlier visibility of next generation data/score(s).
- Models need to be integrated into the lending environment quicker.
- The cycle of wholescale model redevelopments needs to end.
- Lenders need to address the inconsistencies in current end-to-end modelling development and deployment processes.

Key benefits of an integrated ModelOps architecture

It is now widely acknowledged that, in order to compete in today's lending environment

– where margins are being eroded by the cost of funds, pricing and challenger competition

– faster data optimisation and the acceleration of model development have become critical.

That's why lenders are focusing less on wholescale banking platforms and technology infrastructures and are, instead, channelling their efforts towards the data and model development environment(s), known as ModelOps. As they are increasingly making strategic investment decisions to speed up the adoption of data and modelling roll-out, so this is now becoming recognised as the new frontier for digitisation.

Experian's suite of services within the Ascend Platform answers and delivers directly to this challenge. It delivers a fully integrated and modular Data, Analytics and Decisioning environment where a client (or Experian on behalf of a client), can gain a competitive edge by becoming Risk Agile.

The Ascend Platform delivers the following key benefits:

1. **Unique market insights**
   The Ascend Platform includes the full UK bureau data set, enabling lenders to analyse and benchmark their portfolio against peer groups.

2. **Faster model creation**
   Experian's ModelOps architecture accelerates access to 'model ready' data.

3. **Faster access to analytical-ready data**
   Retro on Demand enables lenders to run self-serve retrospective data appends.

4. **Advanced analytic techniques**
   These are used to create and update predictive models.

5. **Faster model deployment**
   Experian's Ascend Ops environment manages and deploys models directly into production.

Ascend Platform

Individually, and working collectively, the modular components of the Ascend Platform speed up data ingestion and model development.

Ascend Sandbox

The Ascend Sandbox simplifies data ingestion and model creation. It is a self-serve analytics development environment which provides access to the full UK bureau and client data. It is underpinned by the Ascend Data Lake of over 83 million summarised consumer records and more than 500 million raw level records.

Ascend Cloud to Cloud

Ascend Cloud to Cloud provides access to Experian data hosted on a lender's private cloud environment. Within Cloud to Cloud, Experian enables direct read access to a wealth of UK bureau data. It also includes a file linking service to enable internal data to be linked to the anonymous Ascend population.

Ascend Retro on Demand

Ascend Retro on Demand is a self-serve capability which enables lenders to run retro processing of samples as and when their ModelOps development requires it. This improved service accelerates retro processing to days/hours, instead of weeks/months.

Ascend Market Insights

Ascend Market Insights delivers gives lenders unique client insights as well as a 'whole of market' perspective. It is based upon analytics derived from credit and economic data which is used to identify the key drivers that are influencing the client and credit economy. This is a powerful tool to identify under and over-served segments and new niche lending opportunities. It also enables lenders to benchmark their products against their peers.

Ascend Ops

Experian's Ascend Ops environment manages and deploys models directly into production. Models can be ingested from Ascend services or from a client's own analytics environment with no necessity to recode. Similarly, Ascend Ops supports a variety of modelling and decisioning languages. It also enables lenders to accelerate the deployment of machine learning capabilities within their organisations; with Ascend Ops, the model data execution is not hindered or delayed by legacy system ingestion restrictions.

Find out more

Experian's next generation cloud based Ascend Platform is a unique solution to the problems of ModelOps. To discover more about our capabilities in this area, please visit the website. You can also contact us to discuss your specific analytic modelling, data collation/formatting, and retrospective analysis requirements.

Contact us on businessuk@experian.com

For more information on the research or to discover more about ModelOps from a global perspective, read our original report here: www.us-go.experian.com/accelerating-model-velocity-report

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