CASE STUDY

NatWest innovates their fraud detection with Featurespace

NatWest, a leading UK bank, provides retail, commercial, institutional, and private banking services to over 19 million people and businesses[1]. In the competitive and highly regulated financial services landscape, NatWest and Featurespace have been working together since 2019 to optimize fraud and scam detection on payment and card transactions—improving the customer experience and reducing fraud losses across the bank's products and services.

> We selected Featurespace as a strategic partner as the team and their technology gave us the best understanding of NatWest's requirements to protect our customers from the harm of fraud. This award win is testament to Featurespace's excellence in this area. With Featurespace's integration to our existing customer communication platform, we've seen a significant improvement in customer handling and complaints. And the financial return on our investment has outstripped our expectations.
>
> Peter Tully
> Fraud and Customer Authentication Strategy Lead, NatWest

THE CHALLENGE

NatWest first engaged with Featurespace, a Visa solution, in 2019, when its incumbent fraud detection system was struggling to identify fraud and scams efficiently. Wanting a more effective way to identify existing and new scams and fraud, the bank sought a real-time fraud detection platform that incorporated adaptive machine learning models to keep pace with fraudsters' evolving tactics and behaviors.

Improving APP scam detection

NatWest's particular focus was to improve detection of authorized push payment (APP) scams, which were leading to high fraud losses. With its previous solution, the bank was achieving:

- A fraud value detection rate (VDR) of 47%
- A scam VDR of 15%

Day one impact

Within 24 hours of going live with The Featurespace Platform solution for account-to-account payments in 2020[2], the bank saw:

- A 50% increase in the value of fraud and scams detected, leading to reduced fraud losses
- A 25% decrease in false positive rates, improving the customer experience
- Customers able to resolve 85% of alerts generated—enhancing the customer experience and taking the strain off the bank's operations team

Ongoing improvements

The bank continued to see improvements in account-to-account fraud and scam detection. By 2022[3], it was experiencing:

Decrease in false positive rate in fraud and scams detected	Increase in scam value detection rate	Decrease in false positive rates	Fraud value detection rate increase
91% ↓	247% ↑	56% ↓	34% ↑

Transforming debit card fraud detection with deep learning

Building on the significant improvements in APP scam detection, NatWest turned to Featurespace to help enhance real-time debit card transaction fraud detection by replacing its previous fraud risk score and transaction monitoring platform.

Following a successful proof of concept in 2022, NatWest went into production with a groundbreaking solution on The Featurespace Platform. This delivers an ensembled risk score by combining the following capabilities:

- Adaptive Behavioral Analytics (ABA)—Featurespace's advanced concept that analyzes all transactions and recognizes patterns of 'normal' or 'good' payment behavior, as well as 'bad' behavior, to detect changes as they happen and address new and evolving fraud tactics
- Automated Deep Behavioral Networks (ADBN)—Featurespace's pioneering deep learning algorithm, which automatically learns novel complex features to capture new and less obvious relationships and patterns in the data

NATWEST LEADS THE WAY

NatWest is the first Featurespace customer to:

- Use Featurespace's ADBN deep learning algorithm in production
- Have access to an ADBN-generated and ensembled risk score that significantly improves analytic performance compared with using an ABA-generated risk score alone

The bank has incorporated the ABA, ADBN and ensembled risk scores into its overall rule set for handling debit card transactions. The solution integrates directly with the bank's customer communication platform that sends SMS alerts to customers to approve or decline transactions.

CASE STUDY
NatWest

The bank is now preventing fraud sooner as they can identify and block potentially risky card-related behavior at an earlier stage—even as a card is being registered on a merchant's site and the first transaction is attempted.

The Featurespace solution enables NatWest to[4]:

Reduce the number of customers falling victim to fraud **by 28%** (year on year) with a corresponding 16% reduction in gross fraud

Improve the fraud account detection rate (ADR) **by +3%** (so fewer customers experience fraud losses)

Detect cards being added to file and wallet enrolments for the first time—reducing the number of customers experiencing fraud losses to around **3,000 per month**

Reduce false positives from **11:1 to 8:1** on average (with a best performing strategy of **3.7:1**), as ABA detects potential false positives sooner and enables earlier intervention
Catch fraud at an earlier stage,

reducing the number of fraudulent transactions per case from **three to two**

See an **improved** Net Promoter Score (NPS) of **above 70%** positive

Initial results from the application of Adaptive Behavioral Analytics and Automated Deep Behavioral Networks together show an uplift in fraud caught across the majority of transaction types. By applying ADBN, NatWest caught 11% more fraud at a 0.25% decline rate, and 22% more fraud at a 0.05%[5] decline rate with a lower false positive ratio.

NatWest expects to see further improvements over time through the application of the ABA, ADBN and ensembled risk scores.

Enhancing the customer and user experience
In addition to improvements in fraud and scam detection, The Featurespace Platform helps NatWest deliver a better experience for customers and users. The bank's Fraud Operations team report increased trust with customers as the solution helps them handle calls more efficiently with easier navigation and faster access to relevant information. As well as being more reliable with lower latency than the previous system, the Featurespace solution displays more information to support and facilitate conversations with customers, including:

- Markers on customers' accounts that indicate any special support needs they have owing to, for example, a disability
- Pertinent data relating to each transaction, including authorization information and decline reason codes, such as insufficient funds or incorrect PIN

For members of the Fraud Prevention Centre of Excellence (CoE) team, The Featurespace Platform helps streamline fraud analytics rule writing, deployment, and maintenance processes.

Among the features making a positive difference to the user experience and providing an increased level of control over working with rules, the CoE team leader calls out:

- Rule deployment—when a user changes a rule, the screen shows the syntax pre- and post-change, highlighting which line has been amended.
- The ability to use multi-variable lists to refresh a rule, which means users don't have to amend the syntax directly.

THE FEATURESPACE PLATFORM: NATWEST'S PRIMARY FRAUD SYSTEM

In early 2025, NatWest transitioned to The Featurespace Platform as its primary fraud system to detect anomalies and help to protect the bank and its customers in real time across products and services globally:

Payments
(personal, commercial, and wealth)

Cards

Mettle
(a mobile business banking solution for sole traders)

Boxed
(a banking-as-a-service offering)

Since the transition to the Featurespace solution, the bank's Net Promoter Score (NPS) has improved to **above 70% positive**, garnering positive customer comments.

Let's connect.

Book a demo to discover how The Featurespace Platform can help reduce fraud, business risk and operational costs.

Get in touch

Website

[1] NatWest Group plc 2024 Annual Report and Accounts, page 5
[2] NatWest data, 2020
[3] NatWest data, 2022
[4] NatWest data, 2025 & 2026
[5] NatWest data, 2025

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