Netflix recommender system

IMPLEMENTED 2015 ONWARDS · MEDIA AND PUBLISHING · UNITED STATES · BAND C · CLAIMED ONLY

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Netflix ranks titles, rows and artwork for each member with machine learning. Two Netflix executives estimated in 2015 that personalisation and recommendations save the company more than $1 billion a year by reducing cancellations. Since 2025 it has added generative AI to search and recommendations.

ABOUT THIS SYNOPSIS

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AT A GLANCE

AI used: Predictive machine learning recommender system, with generative AI search built on an OpenAI model added from 2025.

Implemented: 2015 onwards. Grade: band C, Process change, Claimed only.

Headline result, as reported: Personalisation and recommendations "save us more than $1B per year", by two Netflix executives' 2015 paper

1 · The case

The facts, as reported by the 6 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

Netflix, Inc.. US streaming service available in more than 190 countries, per Business Insider in 2016. It describes its business as a subscription service that offers personalised recommendations. 2026 revenue forecast of $50.7 billion to $51.7 billion, by its April 2026 shareholder letter. Canvas block: 3. Customers and proposition. Also 6. Data and technology, 4. Operations and process.

Business challenge

The challenge. Keeping members from cancelling. Netflix's executives wrote that a typical member loses interest after perhaps 60 to 90 seconds of choosing, having reviewed 10 to 20 titles, after which the risk of abandoning the service rises, as reported by Business Insider.

How it was addressed. Netflix estimates how likely each member is to enjoy each title from their viewing history and ratings, members with similar tastes, and title information, and personalises the choice of rows, the titles in them and their order. It does not use demographic information such as age or gender, by its own account. It also personalises the artwork shown for each title. In December 2015 it released its first global recommendation engine. In 2025 it announced generative AI search based on an OpenAI model and recommendations that respond to trailers watched and searches made, and in April 2026 it said it uses generative AI to improve recommendations through deeper content understanding. [1] [2] [3] [4] [5] [6]

Who implemented it

In-house (In-house): Built and runs the recommendation system.
OpenAI (Model or cloud provider): Supplied the base model for generative AI search announced in 2025, per TechRadar.

Technology (SEAM pillar E)

SEAM types: T8 Predictive / ML models, T3 API integrations. Deployment: Not reported. Vendors and products: OpenAI, Netflix recommendations system, Netflix generative AI search.

Where it was built in: Built into the Netflix homepage (choice of rows, titles and order), artwork and search; generative search combines an OpenAI model with Netflix's own member context, per TechRadar.

What changed

Before: members choosing from popular titles or by search. After: about 80% of choices come from recommendations and 20% from search, by the 2015 paper as reported by Business Insider; the take-rate on top personalised recommendations was three to four times that of a list of the most popular titles, per The Motley Fool. [1] [2] [3] [4] [5] [6]

What it cost

Not reported. Technology and development spending, which includes the recommendation system among much else, was $651 million in 2015, per The Motley Fool.

What it saved

More than $1 billion a year, by the 2015 paper's own estimate of the combined effect of personalisation and recommendations on cancellations. The paper notes retention is already high enough that even a 0.1% retention difference takes a very meaningful improvement, per The Motley Fool. No later figure is published. [1] [2] [3] [4] [5] [6]

Governance and control

Netflix says its recommendations do not use demographic information such as age or gender, and in 2018 a spokesperson said it does not ask members for race, gender or ethnicity and uses only viewing history for artwork. It updates its algorithms continually from member feedback,

S2 · Accountable owner · Not reported
Not reported.

A1 · Safe use · Claimed
Netflix says its recommendations system does not use demographic information such as age or gender; in 2018 a spokesperson said it does not ask members for race, gender or ethnicity. [3] [4]

A2 · Human in the loop · Not reported
Not reported. Members can search the full catalogue if recommendations do not suit them, by Netflix's account. [3]

A3 · Monitoring and assurance · Claimed
Netflix says it takes feedback from every visit and continually updates its algorithms; its executives measured take-rates against a popularity list. [2] [3]

A4 · Vendor AI · Not reported
Generative search is based on an OpenAI model, per TechRadar; controls over the vendor model are not reported. [5]

A5 · Agent controls · Not reported
No agents described.

A6 · Standards and regulation · Not reported
Not reported.

What worked, what did not, what is unproven

WORKED

– Higher take-up of recommended titles than a popularity list, by the 2015 paper as reported by The Motley Fool.

– Most viewing choices come from recommendations, by the 2015 paper as reported by Business Insider.

– Recommendations remain central to the service: the April 2026 letter calls its discovery experience best-in-class and is adding generative AI to it.

DID NOT

– In October 2018 some Black subscribers criticised personalised artwork that featured minor Black characters, and some raised the prospect of racial profiling, per Deadline. Netflix said it uses only viewing history.

UNPROVEN

– The $1 billion a year estimate: it is Netflix's own, dates from 2015 and Netflix no longer reports churn, per The Motley Fool.

– The effect of the 2025 generative AI search and recommendation changes on engagement or retention: Not reported.

Timeline

Dec 2015 Netflix releases its first global recommendation engine [1]

Jun 2016 Press reports two Netflix executives' paper estimating personalisation and recommendations save more than $1 billion a year [1]

Oct 2018 Subscribers criticise personalised artwork; Netflix says it uses only viewing history [4]

May 2025 Netflix announces a redesigned TV homepage and generative AI search built on an OpenAI model [5]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: B. Grade: C, Process change. Proof: Claimed only. Level of change: Process change.

Process change (Level 2, band C), claimed as an operating model effect (band B) through retention. Discovery runs on machine learning ranking; the business value is an internal estimate.

Graded C, claimed B. Title discovery was redesigned around machine learning ranking, which Netflix says drives engagement and retention. The $1 billion estimate is Netflix's own, dates from 2015 and cannot be checked from outside; Netflix no longer reports churn.

The SEAM view and lessons learnt

Netflix is an early example of machine learning built into the product itself, judged on retention rather than cost. The headline value comes from the company's own estimate, made a decade ago, so the scale of benefit is plausible but unverified. For a larger organisation, the transferable point is to tie a model to a business measure such as cancellations and to test it against a simple alternative, as Netflix did with a popularity list.

1. Tie recommendation models to a business measure such as cancellations.
2. Test personalisation against a simple baseline before claiming value.
3. Explain what data drives personalisation before customers question it.

Evidence

Score 1 of 4. Self-reported: Netflix executives' 2015 paper, relayed by Business Insider and The Motley Fool, plus Netflix's own help page and shareholder letter.

Evaluation method. Self-reported company figures: an internal estimate of business value and comparisons with a popularity list, published by Netflix executives; no independent evaluation.

Sources disagree. Netflix says artwork personalisation uses only viewing history; some subscribers read the images they were shown as racial targeting, per Deadline in 2018.

Status. Ongoing: Netflix's April 2026 shareholder letter describes personalised recommendations as part of its strategy and says it is using generative AI to improve them.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/netflix-recommender-system

[1] Business Insider: Why Netflix thinks its personalized recommendation engine is worth $1 billion per year (June 2016)
https://www.businessinsider.com/netflix-recommendation-engine-worth-1-billion-per-year-2016-6

[2] The Motley Fool: How Netflix's AI saves it $1 billion every year
https://www.fool.com/investing/2016/06/19/how-netflixs-ai-saves-it-1-billion-every-year.aspx

[3] Netflix Help Center: How Netflix's recommendations system works
https://help.netflix.com/en/node/100639

[4] Deadline: Netflix's use of artwork personalization attracts online criticism (October 2018)
https://deadline.com/2018/10/netflixs-artwork-personalization-attracts-online-criticism-1202487598/

[5] TechRadar: Your Netflix home page is getting its biggest update ever, and yes, it includes generative AI (May 2025)
https://www.techradar.com/streaming/your-netflix-home-page-is-getting-its-biggest-update-ever-and-yes-it-includes-generative-ai

[6] Netflix: Form 8-K with letter to shareholders, first quarter 2026 (April 2026)
https://d18rn0p25nwr6d.cloudfront.net/CIK-0001065280/02e11080-ea38-41f8-ba90-f6f02f37ef12.pdf

Netflix, Inc. website: https://www.netflix.com

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