Case Study: Simplifying Credit Card Applications for Every Customer

Role: Associate Product Manager, Financial Services Division
Duration: 6 months
Team: Product Manager, Risk & Compliance, Backend & Frontend Engineers, DevOps, UX/UI Designer, QA, Operations

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1. The Challenge

Our bank's long-standing Loan Origination System (NetOxygen) was designed for mortgages and consumer loans. It handled complex underwriting, bulky paperwork, and multi-party approvals—but it wasn't built for credit cards or modern digital channels. Key pain points:

- **Lengthy Applications:** Customers faced 20+ fields in one page, causing mobile users to abandon at >60%.
- **Slow Approvals:** Manual underwriting and batch bureau pulls took minutes or hours.
- **Low Approval Rates:** Hard declines at first failure, approval stuck at ~23%.
- **Heavy IT Dependencies:** Each new card offers required weeks of backend coding and legal review.

We needed a system that felt fast and intuitive to everyday customers—while still satisfying regulators and risk teams.

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2. Project Objectives

1. **Instant Eligibility:** Deliver a "yes/no" check in under 30 seconds using a soft credit inquiry.
2. **Tiered Approvals:** Move beyond simple pass/fail by grouping customers into Tiers A–D, so more people see relevant offers.

3. **Alternative Paths:** Provide tailored fallback options (e.g., secured cards) instead of flat declines.

4. **Rapid Launches:** Empower product teams to add or update card offers in under 5 days, with no coding.

5. **Regulatory Compliance:** Automate TILA, FCRA (U.S.) and FCAC (Canada) disclosures, plus PCI-DSS data handling.

Success Metrics: Approval rate ≥40%, decision latency <15 s, application abandonment <50%, launch time <5 days.

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3. Understanding Our Users

3.1 Customer Survey & Interviews

- **150 survey respondents:** 70% mobile users, 30% desktop.

- **Top frustrations:** Long forms (53%), fear of credit score hits (40%), unclear outcomes (35%).

3.2 Personas

- **Taylor, First-Time Applicant:** College graduate, wants a student rewards card; worried about credit score.

- **Morgan, Busy Professional:** Prefers mobile, expects completion in under 5 minutes.

- **Alex, Credit-Builder Seeker:** Thin credit file, needs clear path to qualify for a secured card.

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4. High-Level Solution

We designed a **Modular Origination Platform** that sits on top of NetOxygen, exposing new microservices to handle credit-card-specific logic—without disrupting existing mortgage/loan workflows.

1. **Lightweight Front-End App:** Progressive web app (PWA) or iframe widget embeds on bank site/mobile app.

2. **Eligibility Gateway:** JSON-driven form schema, validates minimum criteria (age ≥18, residency).

3. **Soft Credit Pull:** Pre-qualification check, invisible to credit bureaus, yields a risk signal.

4. **Decision Engine:** Combines soft pull data, bureau score (with a hard pull upon consent), and eight risk attributes into a Tier (A–D).

5. **Offer Personalization:** CMS-driven rules expose 1–3 tailored card offers, sorted by fit and issuer priority.

6. **Alternative Routes:** Cross-sell Engine proposes secured or credit-builder products for Tiers C–D.

7. **E-Sign & Disclosures:** Docutech integration generates a one-page summary and required legal PDF, with click-to-sign flow.

8. **LOS Integration:** Approved apps push to NetOxygen via secure REST API; underwriter jobs created for exceptions.

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5. Detailed Flow Walkthrough

5.1 Entry & Form Rendering

- **Single-Page Experience:** On mobile, only 3 questions show initially (name, DOB, address).

- **Smart Prefill:** For existing customers, bank login preloads name and contact.

- **Progressive Disclosure:** Additional questions appear only if needed (e.g., income, employment).

5.2 Eligibility Gateway

- **Age & Residency Check:** Blocks under-18 or out-of-jurisdiction upfront.

- **Blacklist Filtering:** Checks OFAC sanctions, internal fraud lists.

- **Rate Limiting & CAPTCHA:** Prevents abuse and bots.

5.3 Soft Credit Inquiry

- **Risk Signals:** From bureau's soft-pull endpoint: credit score range, recent inquiries, utilization.

- **No Score Impact:** Customer peace-of-mind messaging: "This won't affect your credit."

5.4 Decision Engine & Tiering

[Insert Decision Engine Workflow Diagram here]

To ensure consistency, transparency, and rapid decisioning, our Decision Engine follows a multi-stage rule pipeline. Each stage applies distinct filters and scoring models, culminating in a final decision and suggested credit limit. Below are the detailed rules and logic:

5.4.1 Preliminary Eligibility Filters

1. **General Rules**
    - **Age Check:** Must be ≥18 years old.
    - **Residency Check:** Valid residential address in the U.S. or Canada.
    - **Blacklist Check:** Screen against OFAC/PEP/Sanctions and bank's internal fraud watchlist.
2. **Fraud Rules**
    - **Deceased Check:** Auto-reject if bureau or internal data indicates deceased.
    - **Velocity Check:** No more than 3 credit applications attempted in past 30 days.

If any preliminary rule fails, the application is auto-declined, and the customer sees an immediate, plain-language explanation.

5.4.2 Risk Attribute Scoring

Once the application passes preliminary filters, eight key credit report metrics are extracted and scored individually on a 0–50 scale:

Attribute	Description

Average Age of Accounts	Measures credit maturity (longer = higher).
Inquiries in Last 6 Months (Excl. 14 Days)	Reflects recent credit-seeking behavior.
Utilization Ratio on Revolving Trades	% of credit used; >90% flags high-risk usage.
Months Since Most Recent Delinquency	Recency of negative behavior; more months = higher score.
Major Derogatory/Public Records	Bankruptcy filings or legal actions captured.
Balance-to-Credit Ratio	Overall credit utilization across all trades.
Times 30+ Days Past Due (Last 2 Years)	Payment reliability metric.
Total Credit Limit on Recent Trades	Indicates recent credit expansion capacity.

The **Total Risk Score** is the sum (max 400), then normalized to 0–100.

5.4.3 Credit Tier Assignment

The normalized risk score is combined with the applicant's FICO (or equivalent) score in a two-dimensional matrix to assign a Tier (A–D):

Normalized Risk \ FICO	≥800	760–799	740–759	720–739	<720
80–100	A	A	A	B	B
60–79	A	B	B	C	C
40–59	B	C	C	D	D
0–39	C	D	D	D	D

- **Tier A:** Prime applicants, highest likelihood of approval.
- **Tier B:** Near-prime, minor credit events.
- **Tier C:** Thin file or moderate risk.
- **Tier D:** Credit-building segment, fallback to secured or alternate products.

5.4.4 Credit Limit Calculation

For each Tier, a formula computes an **Assigned Credit Limit**:

```
Assigned Limit = Min(
  TierBaseAmount,
  IncomePercentage × Monthly Income,
  MaxExistingLine × HighestLinePercentage
)
```

Tier	TierBaseAmount	IncomePercentage	HighestLinePercentage
A	$15,000	30%	150%
B	$12,000	20%	120%
C	$8,000	15%	100%
D	$5,000	10%	75%

This ensures limits are proportionate to income and existing credit capacity.

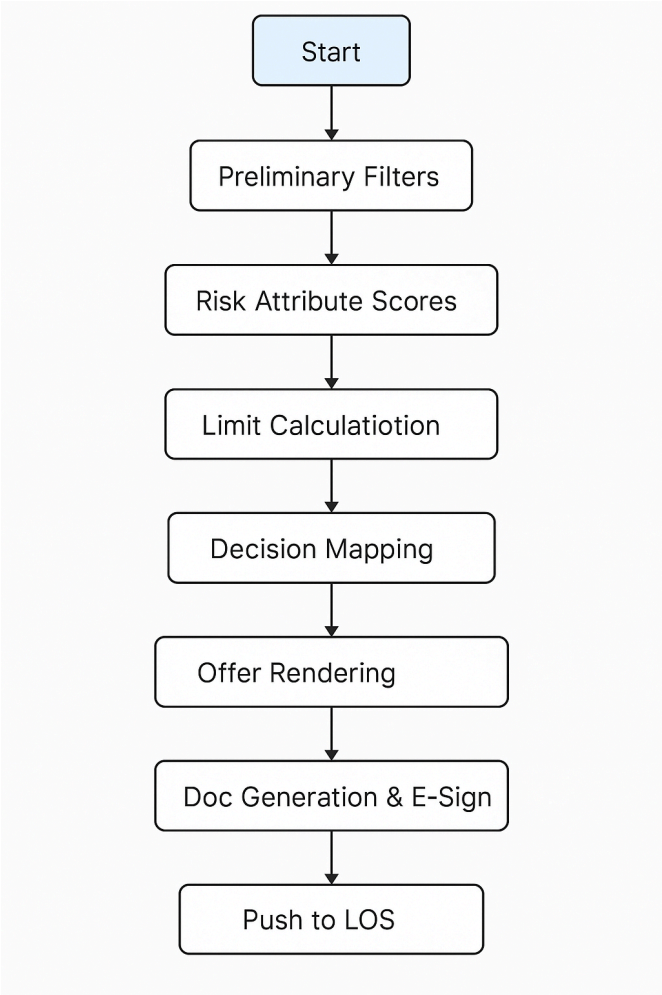
5.4.5 Final Decision Mapping

The final decision is determined by comparing the applicant's Tier and Assigned Limit against the selected card's required Tier and minimum limit:

Decision Type	Condition
Auto Approve (AA)	Applicant Tier ≥ Card Tier AND Assigned Limit ≥ Card Min Limit
Recommended Approve (RA)	Applicant Tier ≥ Card Tier AND Assigned Limit < Card Min Limit (referred to manual review)
Recommended Decline (RD)	Applicant Tier < Card Tier AND Applicant Tier > D (fallback offers available)
Auto Decline (AD)	Applicant Tier = D (Tier D sees fallback only)
Counteroffer	Alternative cards where Applicant Tier ≥ Alt Tier AND Assigned Limit ≥ Alt Min Limit

> If a counteroffer is accepted, the engine re-evaluates the application using the new product criteria.

5.5 Personalized Offers



5.6 Consent & E-Sign

- **CMS Data Model:** Card metadata (APR, annual fee, rewards) tagged by Tier, geography.
- **Sorting Weights:** Issuer margin, customer affinity, margin floor.
- **Disclosure Draft:** Summarized APR and fee bullets shown inline, with link to full PDF.
- **E-Sign Integration:** User cannot move past the page and submit the application until he agrees to the consent.

5.7 LOS Integration & Fulfillment

- **API Push:** `POST /applications` to NetOxygen with idempotency key.
- **Task Generation:** Underwriter queues triggered for any non-automated reviews.
- **Webhook Sync:** Listens for NetOxygen status updates (card printed, shipped), updates customer portal.

5.8 Cross-Sell & Recovery

- **Trigger Points:** Any decline or manual-review skip.
- **Secured Card Partner API:** Offers low-deposit cards; deposit refunded after good behavior.
- **Credit-Builder Offer:** BNPL-style reloadable card with on-time payment incentives.

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6. Customer-Friendly Features

- **Plain-English Explanations:** Instead of “auto–decline,” we say “Please consider our secured card.”
- **Visual Progress Bar:** Shows steps completed (e.g., 3 of 5).
- **Save & Return:** Email link lets customers pick up where they left off.
- **Live Chat Help:** Integration with in-app support if questions arise.

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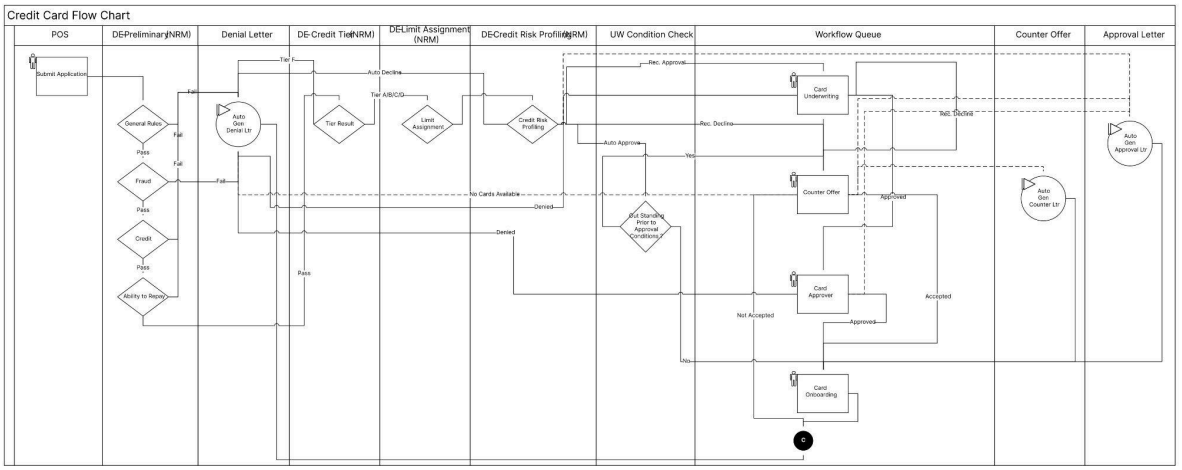
6. Workflow & Visio Flow Diagram



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7. Outcomes & Metrics

Metric	Before Launch	After Launch
Approval Rate	23%	42%
Decision Time	3 minutes	12 seconds
Abandonment Rate	62%	43%
Cross-Sell Uptake	N/A	38%
New Accounts (6 months)	N/A	+200 000
Time to Launch New Card Offer	3+ weeks	<5 days
Customer Satisfaction (CSAT)	3.2/5	4.6/5

- **Regulatory Passing Rate:** 100% audit success for TILA/FCRA disclosures.
- **Operational Efficiency:** 80% of applications fully automated.

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8. Lessons Learned & Best Practices

1. **Simplicity Drives Completion:** Reducing initial fields to three questions cut abandonment by 20%.

2. **Fallback Builds Trust:** Offering a next-best card option converted 38% of would-be declines.

3. **Leverage Existing Systems:** Extending NetOxygen—rather than replacing—saved months of development.

4. **Stakeholder Workshops:** Early sessions with compliance and risk teams prevented later rework.

5. **Continuous A/B Testing:** Ongoing experiments on button copy, color, and offer order drove incremental gains.

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9. Future Roadmap

- **Income Verification via Open Banking:** Reduce self-reported errors by pulling bank statements.

- **AI-Driven Personalization:** Use machine learning to tailor offers based on user behavior.

- **Multi-Language Support:** Spanish, French, and simplified Chinese.

- **Voice-First Applications:** Integrate with digital assistants for spoken-word applications.

Conclusion: By focusing on user simplicity, clear alternatives, and leveraging our proven loan system, we achieved dramatic improvements in approval, speed, and customer satisfaction—setting a new standard for digital credit card origination.