

AI vs. Humans

in U.S. Retail Banking

Customer Satisfaction & Service Excellence

Sifat Mahmud · BACON 2026

THE BIG QUESTION

Can AI replace the human touch?

Banking runs on trust. Trust runs on people.
But AI is everywhere — so what actually works?

3 Research Papers. 1 Big Question.

How do we make banking better for every customer?

2023



Research 1

Connecting With Consumers

What customer service elements drive satisfaction, growth & profitability in retail banking?

2025



Research 2

CFPB Complaint Analysis

Analyzing 5M+ consumer complaints — where the system is failing & how AI+humans can fix it.

2025



Research 3

AI vs Humans Pilot Study

When should banks use AI? When do humans win? The data answers it.

The 7 Elements That Drive Bank Success

Wright State University · Wright Patt Credit Union · PNC Bank · Chase Bank



CRM & Digital Marketing

Personalized customer journeys via data-driven relationship management



One-Stop Solutions

All services in one place — convenience drives loyalty



Easy Policies & Procedures

Simplified processes reduce friction and customer frustration



Employee Training

Skilled staff deliver consistent, high-quality service every time



User-Friendly Instructions

Clear guidance increases customer confidence and satisfaction



Feedback Management

Collect, review, act — turn complaints into improvements



Referral Identification

Find your promoters via NPS — they grow your business for free

From Service Elements to Profit




Net Promoter Score (NPS)

Introduced by Fred Reichheld (2003) — asks customers: "How likely are you to recommend us?" (0–10 scale)

Detractors
0–6

Passives
7–8

Promoters
9–10

 *Controversy: NPS focuses on scores, not root causes. Pierre-Nicolas Schwab (2022) argues deeper feedback is needed to truly understand customer sentiment.*

Referral Generation Strategy

- 1** Identify Promoters via NPS surveys & behavioral data
- 2** Target them with personalized CRM outreach & incentives
- 3** Convert referrals into new customers through follow-up
- 4** Track conversion rates — measure business generation ROI

Goal: Turn satisfied customers into your best salespeople at zero acquisition cost

THE STUDY

Pilot Research at Wright State University

100+

Participants

University community

3

Age Groups

18–22 · 22–29 · 30–39+

5

Methods

Descriptive · ANOVA · Regression · t-test ·
Predictive

WHERE AI WINS

AI excels at scale & consistency

Fraud Detection

Real-time blocking, 24/7

KYC & Onboarding

Doc scanning + face recognition

Chatbots

Balance checks, disputes, card blocks

Credit Scoring

Instant decisions, no underwriter

AML Compliance

Auto-flagging suspicious patterns

Payments

Instant routing, clearing, settlement

WHERE HUMANS WIN

Humans excel at empathy & judgment

Relationship Mgmt

High-value advisory & retention

Complex Mortgages

Unusual cases needing judgment

Wealth Advisory

Personalized portfolio guidance

Complaint Resolution

Escalated, sensitive cases

Financial Counseling

Debt, hardship, rehabilitation

SME Banking

Complex deals & negotiations

THE VERDICT

4.14

Human
Satisfaction Score

3.56

AI
Satisfaction Score

$p < 0.05$ · Statistically significant · $n = 50$

These are the exact questions that gave us 4.14 vs 3.56

SECTION 1 — Demographics

Age group: 18–22 / 22–29 / 30-39+

Gender: Male / Female

★ SECTION 2 — Rate 1 to 5 (1 = Strongly Disagree · 5 = Strongly Agree)

Q1a AI is efficient in handling banking queries

Q1b Human reps provide personalized service

Q1c AI responses are consistent

Q1d Human reps demonstrate empathy

Q2 I am satisfied with AI interactions overall

Q3 I am satisfied with human interactions overall

Q4a Human interactions offer convenience and speed

Q4b Human interactions provide personalized service

Q4d Human interactions demonstrate empathy & understanding

Q5a AI response time is satisfactory

💬 OPEN-ENDED — "Describe your experiences with AI and human banking interactions"

Q2 gave us AI score · Q3 gave us Human score → Result: 🤖 AI = 3.56 vs 🧑 Human = 4.14 ($p < 0.05$)

WHO PREFERS WHAT

One group bucks the trend

Demographic Group	AI Score	Human Score	Observation
Males 22–29	4.00	3.50	<i>Only group preferring AI</i>
Females 22–29	3.33	4.22	Strongest human preference
Males 30–39+	3.59	4.29	Strong human preference
Females 30–39+	3.71	4.18	Consistent human preference

KEY DRIVERS

What actually moves the needle?

For AI Satisfaction

CONSISTENCY

$\beta = 0.176$ $p = 0.035$

$R^2 = 17.6\%$ of variance explained
AI model statistically significant

For Human Satisfaction

PERSONALIZATION

$\beta = 0.316$ $p = 0.010$

$R^2 = 22.0\%$ of variance explained
Human model statistically significant

Here's what's actually breaking U.S. banking

Millions of complaints. Four categories. All preventable.

#1 Incorrect Info on Credit Report

2,320,000
complaints

Banks and credit bureaus are filing wrong data — wrong balances, wrong late payments, wrong accounts. Customers can't get loans, mortgages, or jobs because of errors that should never exist.

✓ AI auto-detects & corrects reporting errors at scale

#2 Improper Use of Credit Report

1,280,000
complaints

Banks are pulling credit reports without permission, sharing data with unauthorized parties, or using reports for purposes customers never agreed to. A privacy violation at massive scale.

✓ AI monitors access patterns & flags misuse instantly

#3 Debt Collection Disputes

256,355 complaints

Customers being chased for debts they already paid, or don't owe at all. Aggressive tactics, wrong amounts, wrong people. A process failure that causes real financial distress.

✓ AI verifies debt validity before any contact is made

#4 Account Management & Fee Disputes

147,528 complaints

Hidden fees, unauthorized charges, accounts closed without notice, funds frozen without explanation. Customers losing money and access due to poor internal processes.

✓ Humans needed — trust & negotiation required here

THE REAL PROBLEM

U.S. Banking Has a Complaint Crisis

CFPB data 2011–2024

2.32M

Wrong credit info

1.28M

Improper report use

256K

Debt collection

147K

Billing disputes

112K

Loan modifications



WHERE IT HURTS MOST

3 states.

~60% of all complaints.

#01

Florida

891,752

complaints

#02

Texas

799,492

complaints

#03

California

770,452

complaints

Right Task. Right Handler. Fewer Complaints.

GIVE TO AI — Complaints will DROP

2,320,000 **Incorrect Info on Credit Report**

Rule-based errors — AI auto-detects & fixes at scale instantly

1,280,000 **Improper Use of Credit Report**

Pattern recognition — AI catches misuse humans miss at volume

256,355 **Debt Collection Disputes**

Procedural & repetitive — AI routing boosts accuracy by 40%

147,528 **Billing Disputes**

High-volume, rule-based — ideal for AI automation

VS

GIVE TO HUMANS — Complaints will DROP

112,306 **Loan Modification / Foreclosure**

Needs negotiation, judgment & empathy — AI fails here

High **Complex Fraud Cases**

63% of consumers demand human for high-risk issues

— **Wealth Management Disputes**

Personalization drives satisfaction — humans $R^2=22%$ vs AI 17.6%

— **Emotional / Distressed Customers**

Empathy cannot be automated — trust is rebuilt by humans

THE SOLUTION

The Caring Machine

A hybrid AI-human model



AI handles

High-volume, rule-based
tasks at scale



Humans handle

Complex, empathy-driven
interactions



Seamless handoff

Context passed, no
customer left behind

3 Steps from Complaint to Happy Customer

1



AI Takes the Volume

Instant responses, fraud detection, KYC checks — AI handles thousands of routine complaints fast and consistently.

2



Humans Handle Heart

Complex issues, emotional customers, and edge cases get routed to a real person with real empathy — every time.

3



Customer Satisfied

Complaints resolved faster. Trust rebuilt. Satisfaction scores rise by 15–20%. Everyone wins.

Simple idea. Powerful outcome.

T A R G E T S

What success looks like



20–30%

Complaint Reduction



15–20%

Satisfaction Increase

Based on benchmarked AI automation (40–70% ticket reductions) + human process improvements, with 20% integration discount applied

4 things to remember

01 Optimize AI for Consistency

Reliability = trust. Focus AI improvements there.

02 Invest in Human Personalization

Train staff on empathy. That's your differentiator.

03 Build a Hybrid Model

AI does the routine. Humans do the meaningful.

04 Segment Your Service

Younger males → AI. Older customers & women → Human.

LIVE SURVEY

Your turn.

Scan the QR code & share your
banking experience in real-time



The future of banking is not AI or human.

It's both. Working together.

Sifat Mahmud

M.S. Marketing Analytics & Insights · Master of Professional Banking

Wright State University · mahmud.21@wright.edu

DOI: 10.15421/cims.4.321