

Google Cloud

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Agentic AI Day

Build the next generation of intelligent agents

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Team Details

- a. **Team Name:** Nirvana1
- b. **Team Leader Name:** Dev Soni
- c. **Problem Statement:** (6) Let AI speak to your money

A Brief on the Idea

Project Artha: The Financial Brain That Actually Knows You

Beyond Generic AI: While other AIs give textbook advice, **Artha knows you** spent ₹1L extra last Diwali, that you're disciplined with SIPs but impulsive with gold purchases, that your cousin's wedding is draining your emergency fund, and that your choice on winning stocks is spot on.

Our Breakthrough: Artha deploys **10 specialized AI agents** in a revolutionary 3-tier architecture:

Foundation Tier: Your Financial Foundation

1. **Data Integration Agent:** Unifies your scattered financial life across 18+ sources
2. **Core Financial Advisor:** Translates your life dreams into actionable strategies
3. **Trust & Transparency Agent:** Explains every recommendation with complete transparency

Intelligence Tier: Your Behavioral Foundation

1. **Risk Profiling Agent:** Detects when you're about to make emotional financial decisions
2. **Anomaly Detection Agent:** Spots unusual patterns before they become problems
3. **Regional Investment Agent:** Knows Pune real estate outperforms Mumbai rental yield

Strategic Tier: Your Wealth Orchestrator

1. **Debt Management Agent:** Optimizes loans considering your grandmother's medical needs
2. **Wealth Transfer Agent:** Plans inheritance while you're building wealth
3. **Cultural Events Agent:** Budgets for Diwali, weddings, and family obligations
4. **Illiquid Asset Agent:** Turns your dormant gold into working capital

The Magic:

These 10 agents work together like a **financial orchestra** - when you ask "Can I afford a ₹50L home loan?", all 10 agents analyze simultaneously, **considering everything from your risk psychology to upcoming festival expenses, delivering a decision that is both mathematically sound and culturally intelligent.**

Opportunities

- How different is it from any of the other existing ideas?

Traditional Apps	Artha Intelligence
"You spent ₹50K this month"	"You spent ₹15K extra due to anchoring bias when gold prices spiked"
"Save more for retirement"	"Liquidate 100g gold, invest in ELSS - saves ₹45K tax + ₹2.1L growth"
"General risk assessment"	"You panic-sell during 10%+ drops but hold winners too long"
"Budget for emergencies"	"Your cousin's wedding in 6 months needs ₹80K - start RD now"

- How will it be able to solve the problem?

Multi-Agent Synergy in Action

Example: Home Loan Query

- Foundation Agents** verify your ₹52L net worth, ₹1.8L income, 742 credit score
- Intelligence Agents** detect your high EMI discipline but anchoring bias tendency
- Strategic Agents** find ₹30L real estate collateral, plan around Diwali expenses
- Result:** Not just "yes/no" but "₹42K EMI manageable, delays education goal 8 months, alternative: ₹40L + ₹10L down payment"

Opportunities

❑ How will it be able to solve the problem?

Behavioral Intelligence That Actually Works

- **Pattern Recognition:** "You increase SIPs after bonuses but reduce during market volatility"
- **Bias Prevention:** "Detected herding behavior - 47% of users bought this fund last week"
- **Emotional Coaching:** "Your stress spending increased 40% - suggest automated savings"

Cultural Intelligence No One Else Has

- **Festival Forecasting:** Auto-budgets ₹35K for Diwali based on your 3-year pattern
- **Family Dynamics:** Considers joint EMIs with spouse, elderly parent support
- **Regional Wisdom:** "Ahmedabad real estate appreciation beats Delhi rental yield for your profile"

❑ USP of the proposed solution

- **Proactive Intelligence:** Alerts you *before* problems occur
- **Behavioral Mastery:** Prevents financial mistakes caused by cognitive biases
- **Cultural Fluency:** Understands Indian family dynamics and social obligations
- **Generational Thinking:** Plans wealth transfer while building current wealth
- **Synergistic Agents:** 10 specialists working together > 1 generalist working alone

Behavioral Finance Mastery

- **Real-time Bias Detection:** This gold purchase seems emotion-driven
- **Personality-Aware Recommendations:** Adapts to whether you are a conservative saver or aggressive investor
- **Emotional State Recognition:** Detects financial stress and adjusts communication accordingly
- **Habit Formation Coaching:** Aims to improve investment discipline

Proactive Wealth Orchestration

- **Zero-Query Intelligence:** Background timely checks to monitor any opportunity in current assets (passive monitoring)
- **Opportunity Detection:** SBI reduced home loan rates by 0.25% - refinancing saves ₹3.2L over 15 years
- **Risk Prevention:** Unusual spending spike detected - reviewing your autopay schedules
- **Goal Drift Alerts:** Wedding savings off-track by 3 months - suggesting course correction

Impactful Features**Conversational Financial Intelligence**

- **Natural Language Mastery:** Should I buy the flat in Whitefield?
- **Context Continuity:** Remembers your goals, constraints, and previous decisions across conversations
- **Multi-modal Understanding:** Analyze bank statements, investment documents, property papers
- **Scenario Simulation:** Show me what happens if I lose my job for 6 months

Specialized Agent Expertise

- **Dormant Asset Activation:** ₹8L idle in savings account - liquid fund migration recommended
- **Credit Optimization:** Balance transfer from ICICI to HDFC saves ₹45K interest over 3 years
- **Hyperlocal Market Intelligence:** Pune metro extension makes Hinjewadi properties undervalued
- **Anomaly Protection:** Multiple small transactions from unknown merchants - investigating fraud pattern

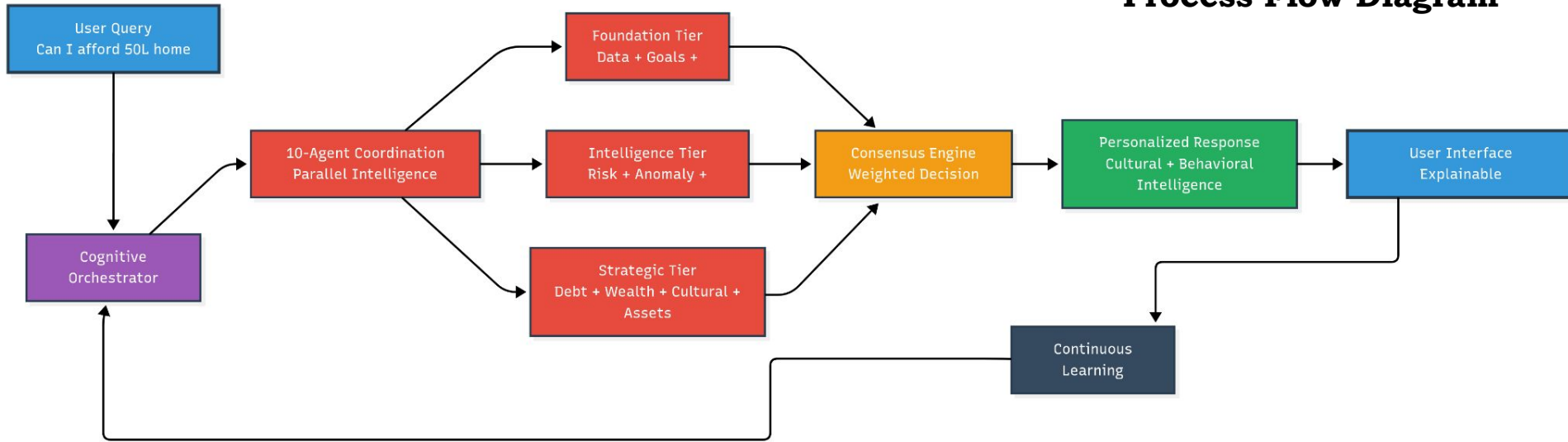
India-First Cultural Intelligence

- **Festival Financial Planning:** Auto-budgets for Diwali, Eid, Christmas based on your spending patterns
- **Family Dynamics Modeling:** Considers joint decisions, elderly parent support, children's education
- **Regional Economic Insights:** Chennai IT corridor properties appreciate faster than Bangalore outskirts
- **Traditional Asset Integration:** Optimizes gold, real estate, family loans alongside modern investments

Trust Through Transparency

- **Complete Explainability:** This recommendation comes from Debt Agent + Risk Agent consensus
- **User Control Mechanisms:** Override any recommendation, set custom constraints, pause specific agents
- **Audit Trail Access:** Full visibility into how every decision was reached

Process Flow Diagram



Cognitive Orchestrator (Gemini Pro) triggers **10 parallel agents** across 3 intelligent tiers:

1. **Foundation Tier:** Processes financial data (income, EMI, credit score).
2. **Intelligence Tier:** Evaluates risks, patterns, and behavior.
3. **Strategic Tier:** Assesses long-term goals and trade-offs.

Consensus Engine fuses agent outputs into a personalized, behavior-aware recommendation.

Key Innovation: Unlike sequential AI, **Artha's parallel agent system** delivers full-stack analysis quickly, with real-time learning.

Here is a **link to a more detailed version**. It shows each of the **10 agents working in tandem** through parallel activation.

[\(Link\)](#)

Enabling Technologies

The Brain: Cognitive Reasoning & Language Mastery

- **Gemini Pro:** Natural language understanding with cultural context awareness
- **Gemini CLI:** Command-line development environment for agent reasoning workflows
- **Google ADK (Agent Development Kit):** Framework for building and deploying our 10 specialized agents
- **Vertex AI:** ML model hosting for behavioral analytics and vector embeddings
- **Vertex Agent Builder:** Orchestrates our 10-agent ecosystem with seamless coordination

The Backbone: Scalable Infrastructure

- **Cloud Run:** Auto-scaling agent services from zero to thousands of concurrent users
- **Google Kubernetes Engine:** Orchestration platform for complex multi-agent workflows
- **Cloud Functions:** Real-time event processing for salary credits and market alerts
- **Firebase:** Powers real-time UI with instant updates as agents complete analysis

The Innovation Layer: Google Meets India

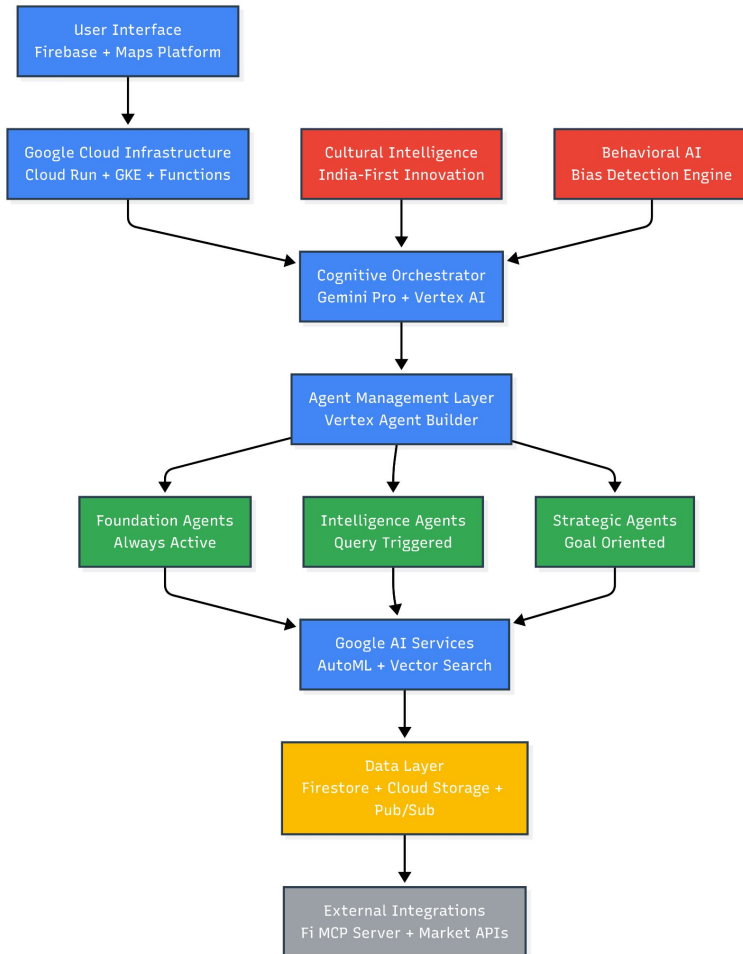
- **Maps Platform:** Geospatial intelligence for regional investment analysis
- **AutoML:** Continuous behavioral model improvement
- **Natural Language AI:** Multilingual support for Indian financial conversations
- **Translation API:** Seamless Hindi-English financial dialogue support

External Integrations

- **Fi MCP Server:** 18+ financial data source consolidation
- **Credit Bureau APIs:** Real-time CIBIL score and payment history
- **Market Data Services:** Live economic indicators and investment intelligence

The Memory: Intelligent Data Management

- **Google A2A Protocol:** Secure agent-to-agent communication for our 10-agent coordination
- **Firestore:** Real-time user state maintaining conversation context across sessions
- **Cloud Storage:** Secure financial document storage with complete audit trails



Architecture Diagram

Built on Google Cloud

Firebase UI, Cloud Endpoints, Cloud Run, GKE, Vertex AI, Google Maps

Cognitive Orchestrator

Gemini Pro + Vertex AI for reasoning and decision-making

Tiered Agent System

- **Foundation Tier:** Core financial logic + transparency
- **Intelligence Tier:** Bias detection, risk profiling
- **Strategic Tier:** Goal planning, cultural forecasting

India-First Innovation

- **Cultural Engine:** Festivals, family roles, regional context (Google Calendar)
- **Behavioral Engine:** Bias modeling, emotional insight

Key Advantage

Combines Google-grade infra with India-specific intelligence for contextual financial guidance


Here is the link to a **detailed version of the architecture diagram:** [\(Link\)](#)


Mock Diagram of the Solution


 **Artha**  **Insights**  **Profile**

Can I afford ₹50L home loan?

Analysis Complete (87% confidence)

 **Yes, you can afford the loan**

 **Monthly EMI:** ₹42,000 (manageable)

 **Total EMI ratio:** 36% (healthy range)

 **Impact:** Delays child education goal by 8 months

 **How we calculated this:**

- 10 AI agents analyzed your complete profile
- Real-time data from 18+ financial source
- Behavioral analysis shows 94% payment discipline

 **Alternative Options:**

1. ₹40L loan + ₹10L down payment (optimal)
2. Wait 6 months for better positioning

[\[Accept Recommendation\]](#) [\[See Details\]](#) [\[Modify\]](#)


Proactive Insights:

- ₹3.2L idle in savings - consider liquid fund
- Gold prices 8% above average - rebalance?
- Diwali in 4 months - budget ₹35K

 **Detailed Agent Analysis**


Data Integration:  Net worth ₹52L verified


Financial Advisor:  8-month goal delay


Risk Profiling:  High discipline score


Debt Management:  36% EMI ratio healthy


Anomaly Detection:  No risk flags

Trust System:  87% confidence level

Regional Analysis:  Favorable market timing

Wealth Transfer:  Family stability maintained

Cultural Events:  Diwali expenses upcoming

Illiquid Assets:  ₹30L collateral available

Consensus: 9/10 agents recommend approval

Confidence: 87% (high accuracy expected)

Risk Level: Moderate (manageable with planning)



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References:

1. <https://arxiv.org/abs/2504.05862>
2. <https://arxiv.org/abs/2411.04788>
3. <https://arxiv.org/abs/2405.14767>

Thank you!