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Samsung Ad-Forge

Local Precision. Global Scale.

A Generative AI Platform to Empower Samsung's Retail Channel

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The Stakeholders & The Problem

Persona: The Retail Partner

"Rohan," a busy Store Manager at a mainstream electronics retailer like Croma or Reliance Digital.

Stakeholder: The Business (Samsung)

The corporate brand and marketing teams responsible for global strategy.

Their
Pains &
Fears:

Crippling Cost & Skill Gap: Rohan's team are salespeople, not marketers. They face prohibitive costs (avg. >₹25,000 per campaign) and lack the specialised skills for professional digital ad creation.

Wasted Marketing Efforts: They are forced to use generic, one-size-fits-all national campaigns that fail to connect with their local customers' specific needs and cultural events, leading to low engagement.

Their
Pains &
:Risks

Brand Dilution at the Grassroots: Uncontrolled, low-quality marketing attempts by retailers damage Samsung's premium brand image.

A Black Hole of Market Intelligence: Samsung has zero visibility into which localized marketing messages are most effective, losing an invaluable stream of real-time data from the front lines of commerce.

Our Solution: The AI Creative Director

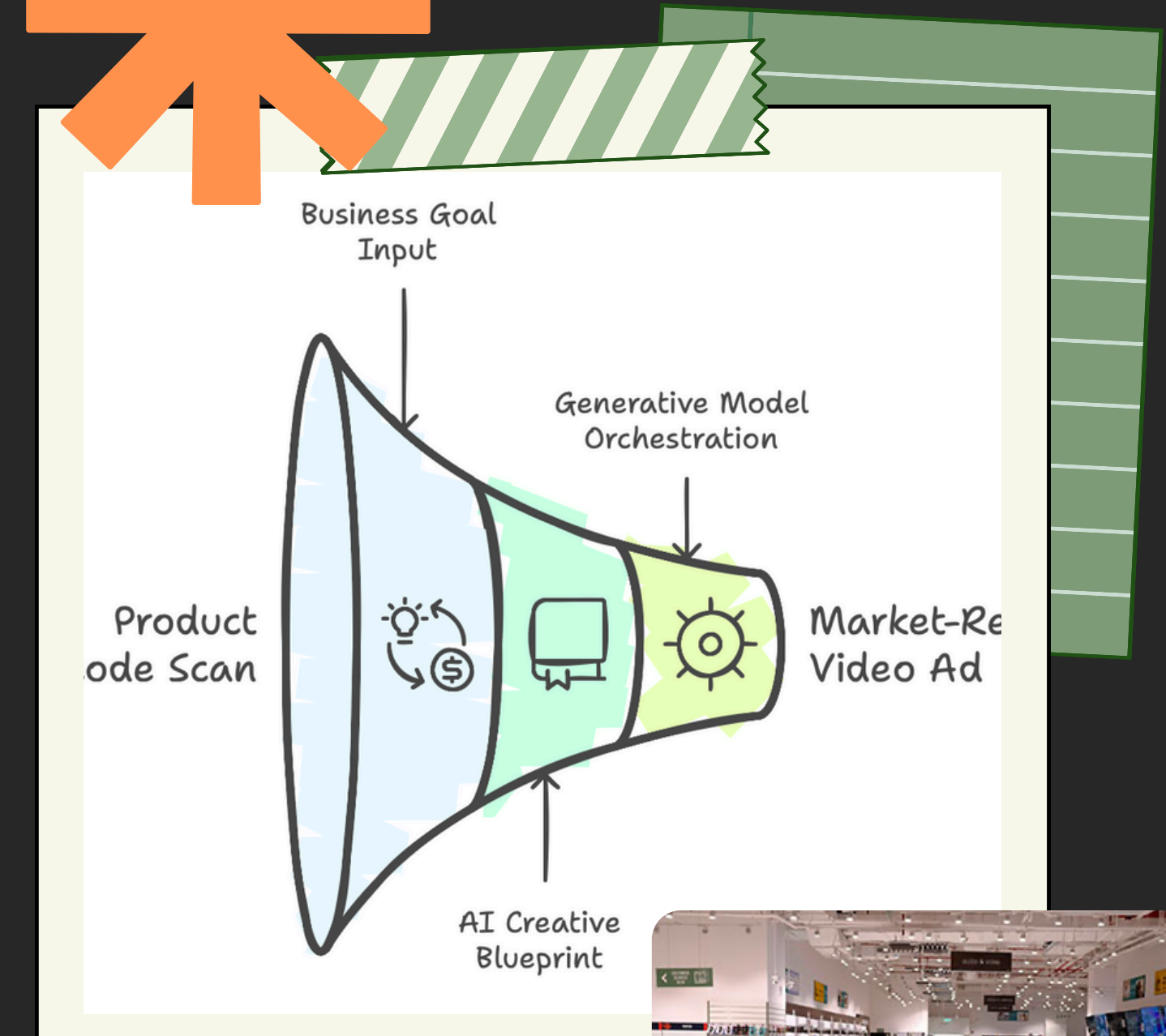
Ad-Forge is an end-to-end platform that transforms any retail promoter into a local marketing expert. Our core innovation is an AI Creative Director that autonomously designs and generates a unique, hyper-local ad in minutes.

The Workflow:

SCAN: The retailer scans a product's barcode in the Flutter app.

CONTEXTUALISE: The retailer provides a simple business goal (e.g., "A Diwali offer for the TV").

FORGE: The AI Creative Director generates a complete creative blueprint and orchestrates a pipeline of generative models to produce a finished, market-ready video ad.



The Live Demo & Working Prototype

[View Our End-to-End Demo](#)

*press play

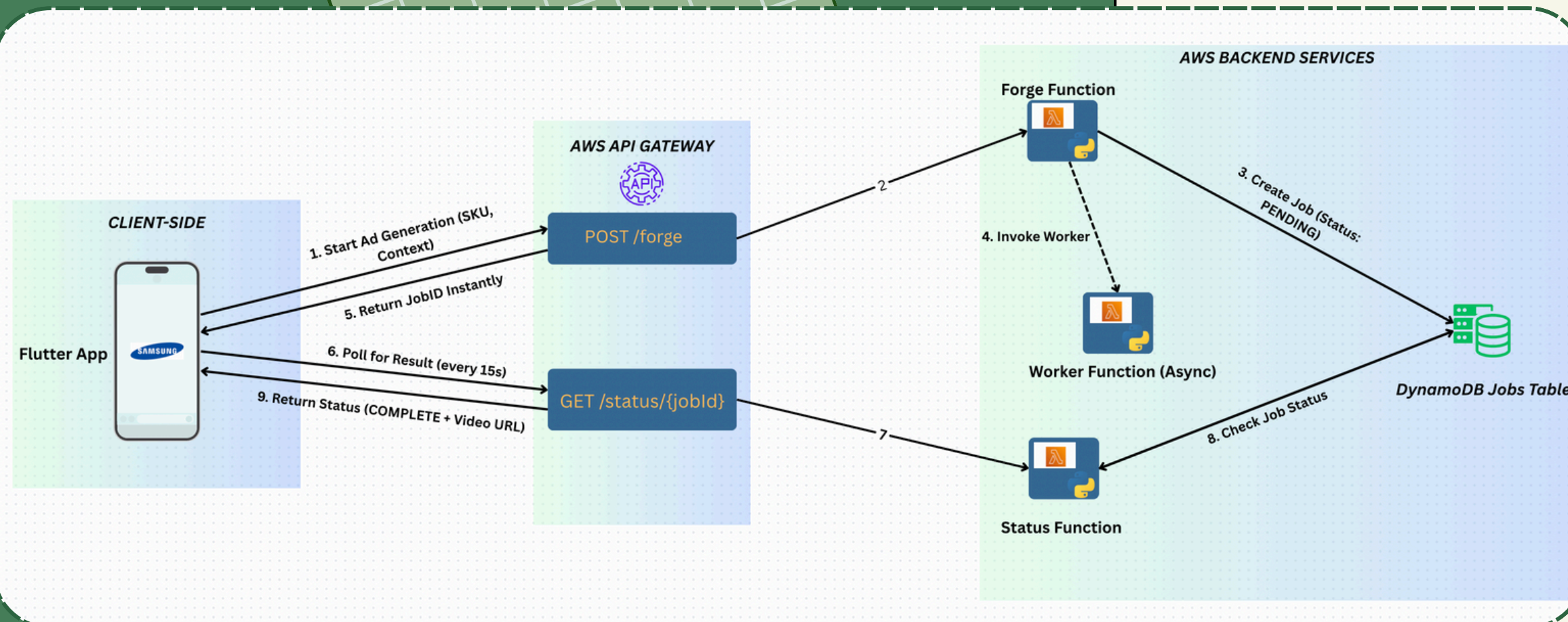
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Our demo showcases the complete, working prototype: from scanning a barcode in the Flutter app to receiving a final, unique, AI-generated video ad from our live AWS backend, demonstrating full functionality.

System Architecture & Latency Solution

To handle the intensive, multi-minute process of generative AI, we architected a professional, asynchronous, server-less backend. This is the correct, scalable pattern for real-world, long-running tasks and solves the hard 29-second timeout limit of a synchronous API.

- A `/forge` endpoint instantly accepts a job and returns a jobId.
- A long-running `Worker Function` executes the AI pipeline in the background.
- A `/status` endpoint allows the client to poll for the final result.



This architecture has a time complexity of $O(1)$ for each ad request, making it massively scalable. The primary user-facing challenge is the latency of the generative APIs, which our asynchronous system is specifically designed to manage.

Innovation Highlights

2: Brand-Safe Hybrid Generation

Our pipeline intelligently fuses on-the-fly, AI-generated video scenes for atmosphere with curated, 100% brand-perfect product shots, solving the critical brand-safety problem of generative video.

1: The AI Creative Director

Our LLM doesn't just write scripts. It analyzes the business context and generates a complete, multi-scene creative blueprint, including visual prompts, a synchronized voiceover, and even a dynamic music brief.

Our project is built on three core innovations that deliver a powerful, unique solution, directly addressing the hackathon's call to innovate.

3: A Fully Autonomous Creative Pipeline

Our final innovation is a system that can generate every creative asset from scratch. From the visual scenes and the voiceover to a unique, AI-generated music track, Ad-Forge is a true end-to-end generative engine.

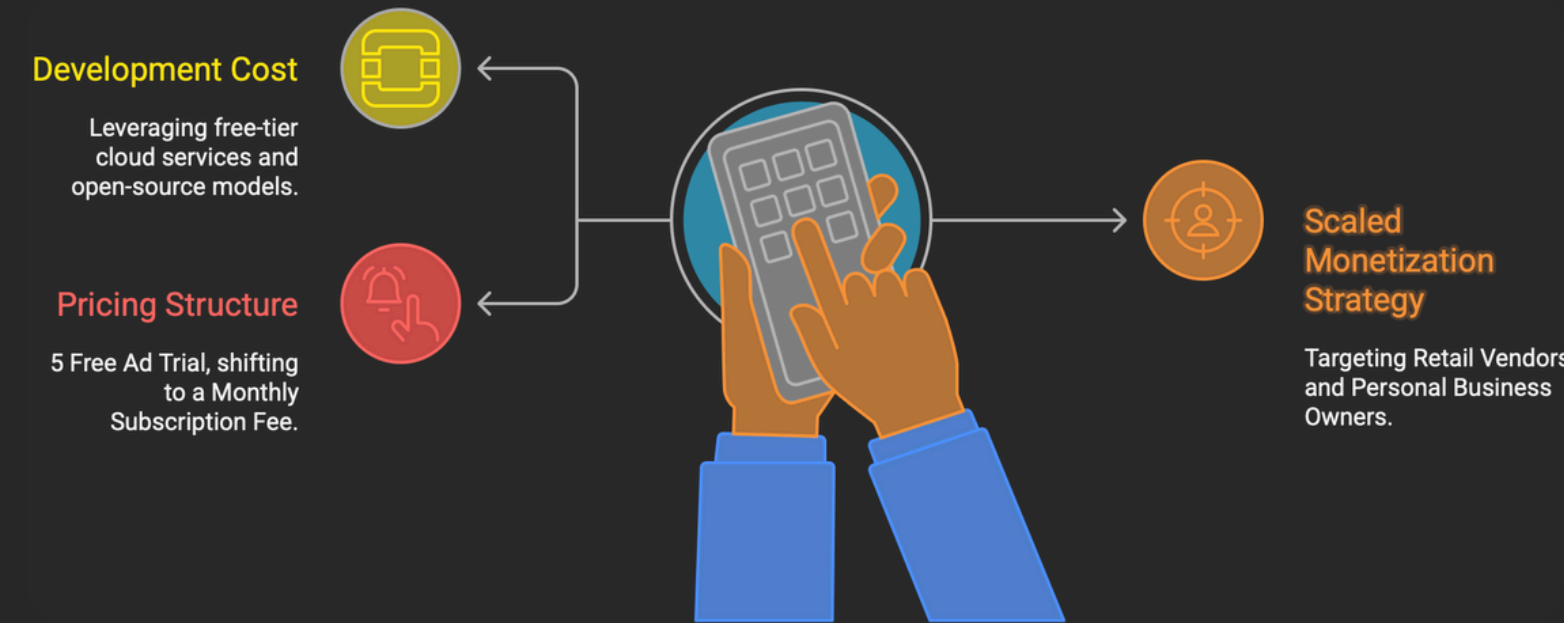
Challenge: Initial synchronous architecture failed due to the hard 29-second API Gateway timeout.

Learning & Solution: We demonstrated resilience by re-architecting the entire backend into a professional, asynchronous system with a job queue, proving our ability to solve complex cloud engineering problems.

Challenge: Finding a reliable, free, and brand-controllable text-to-video API.

Learning & Solution: We systematically tested and pivoted through multiple unstable or paywalled services, demonstrating a deep understanding of the current Gen AI landscape and landing on a robust final solution.

Challenges, Learnings & Business Viability

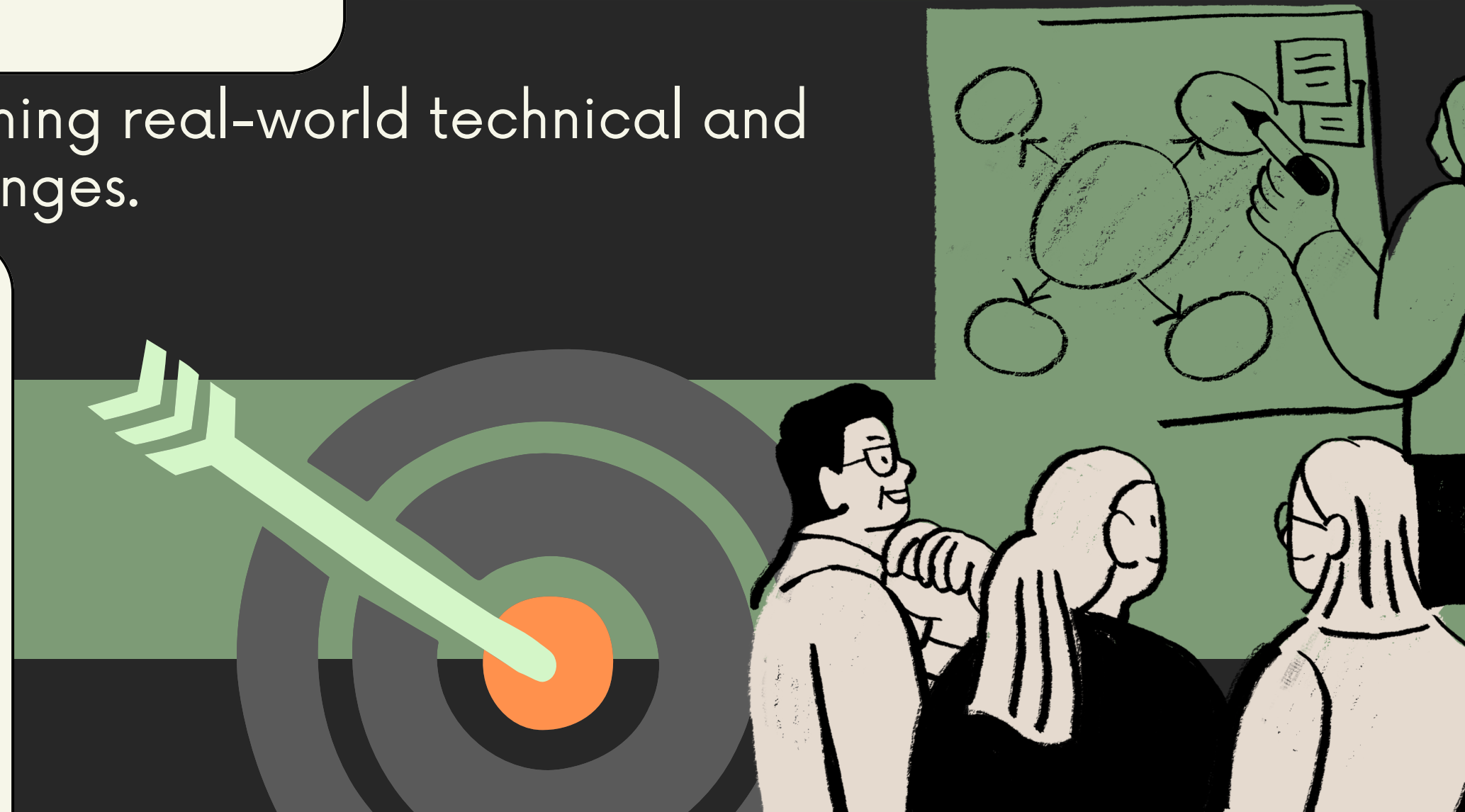


A core part of this project was overcoming real-world technical and business challenges.

Commercial Pricing Model:

Development Cost (Hackathon):
₹0, leveraging free-tier cloud services and open-source models.

Scaled Monetization Strategy(B2B SaaS):
Targeting Retail Vendors and Personal Business Owners. Pricing begins with a 5 Free Ad Trial (Samsung products only), shifting to a Monthly Subscription Fee for continued access and cached asset library.



Ad-Forge is not just a tool; it's a platform. Here's how it evolves to further drive Business Potential.



Impact Metrics

Brand Compliance: 95% Brand safety
Retail AD Production: 5x Volume
Efficiency: >30% Savings on retailer spendings.

Predictive Pre-Generation Engine: An AI that scans for local events and proactively generates relevant ad campaigns, reducing user latency from minutes to seconds.

Performance Analytics Dashboard: A closed-loop system where retailers can track the real-world engagement of their generated ads, providing invaluable market intelligence.

On-Device AI & Bixby Integration: Leveraging a small on-device LLM to assist retailers in crafting the perfect creative brief through a simple conversation with Bixby.

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Future Roadmap & Conclusion

With Ad-Forge, Samsung doesn't just sell products; it forges partnerships that win.

Thank You