


MICHIGAN STATE UNIVERSITY

# Project Plan Presentation

## AI-Powered Video Creator Tool

### The Capstone Experience

Team HAP

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*From Students…*
*…to Professionals*

# Project Sponsor Overview

- Based in Michigan as a non-profit health insurance company
- Subsidiary of Henry Ford Health
- Over 50,000 providers and 470k members
- Originated in 1956 as an alternative to traditional health insurance for union members



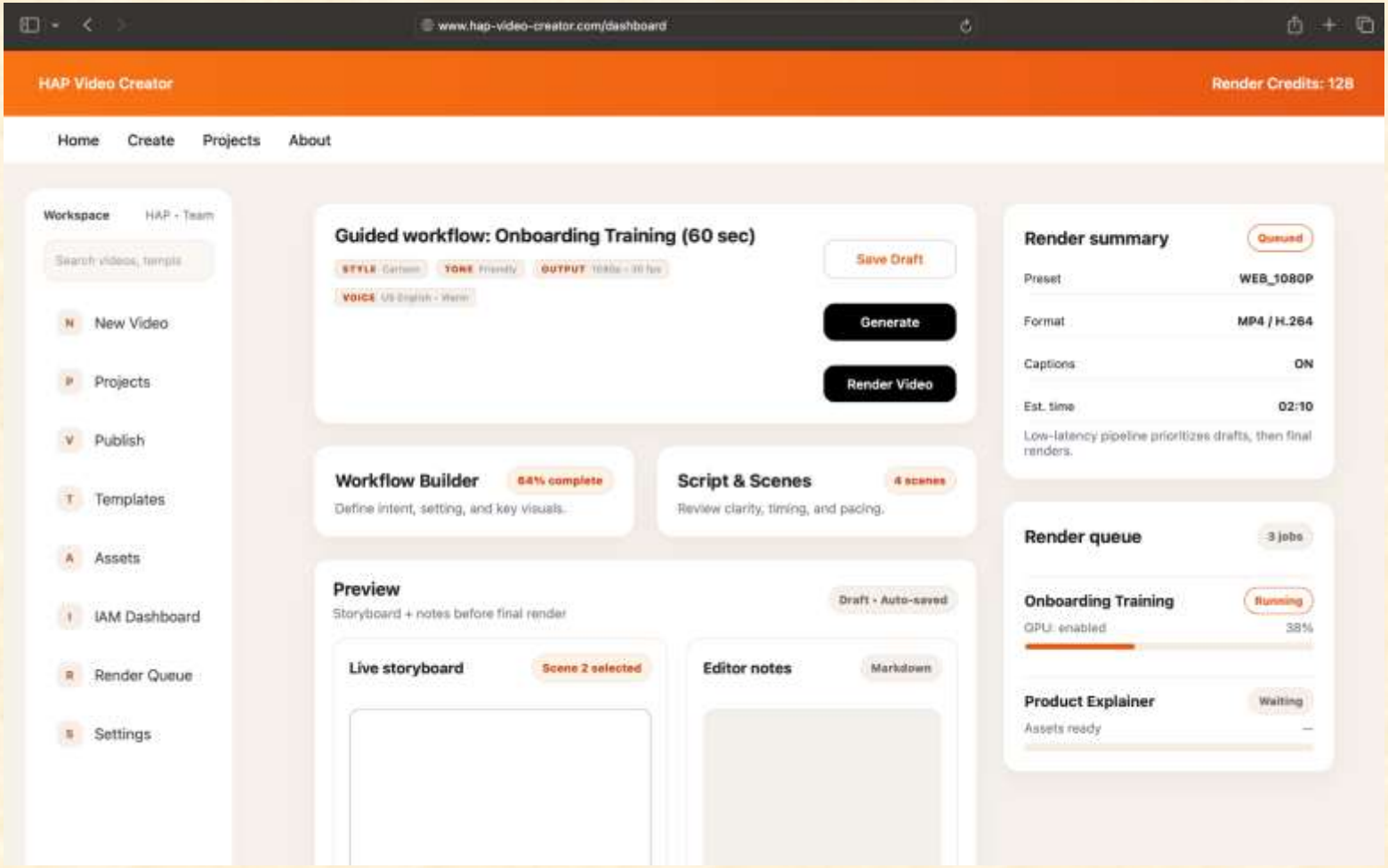
# Project Functional Specifications

- Help regulated enterprise teams create compliant videos with
  - AI-assisted script editing and generation
  - Approval workflows and safe-language enforcement
  - Secure publishing and internal sharing
- Provide significant reduction in time and cost for professional video production
- Ensure governance and audit-ready oversight through role-based access control and compliance filtering
- Support collaboration through draft reviews, version tracking, and controlled team access

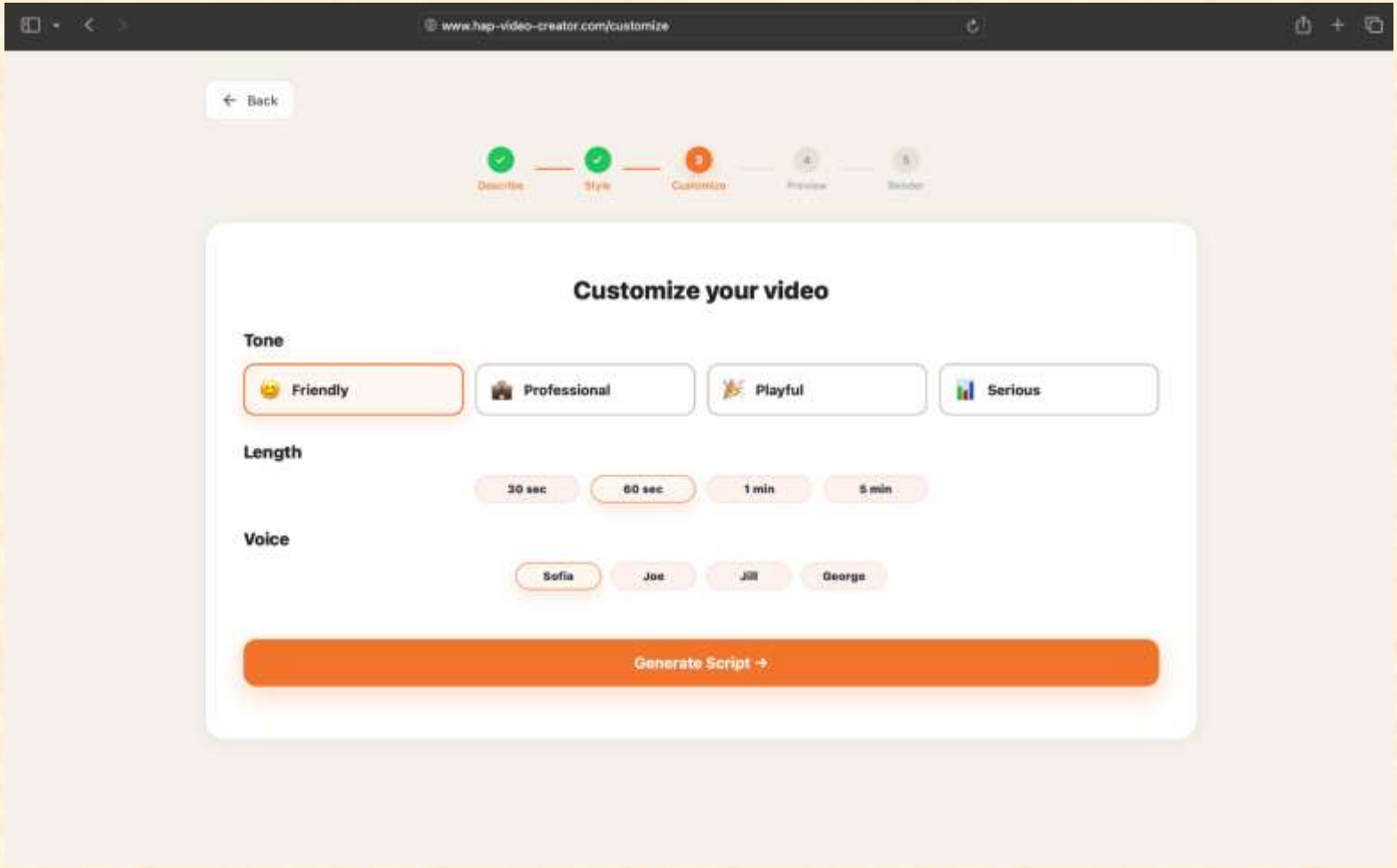
# Project Design Specifications

- Primary function: Generate compliant enterprise training and marketing videos for regulated industries
- Workflow: Dashboard → New Video → Guided Creation → Preview → Review & Approval
- AI-assisted script editing with tone adjustment, simplification, and compliance-aware prompts
- Modular interface for guided workflow
- Published video content library enabling invitation-based sharing
- Support PDF/text with compliance at both org and team levels

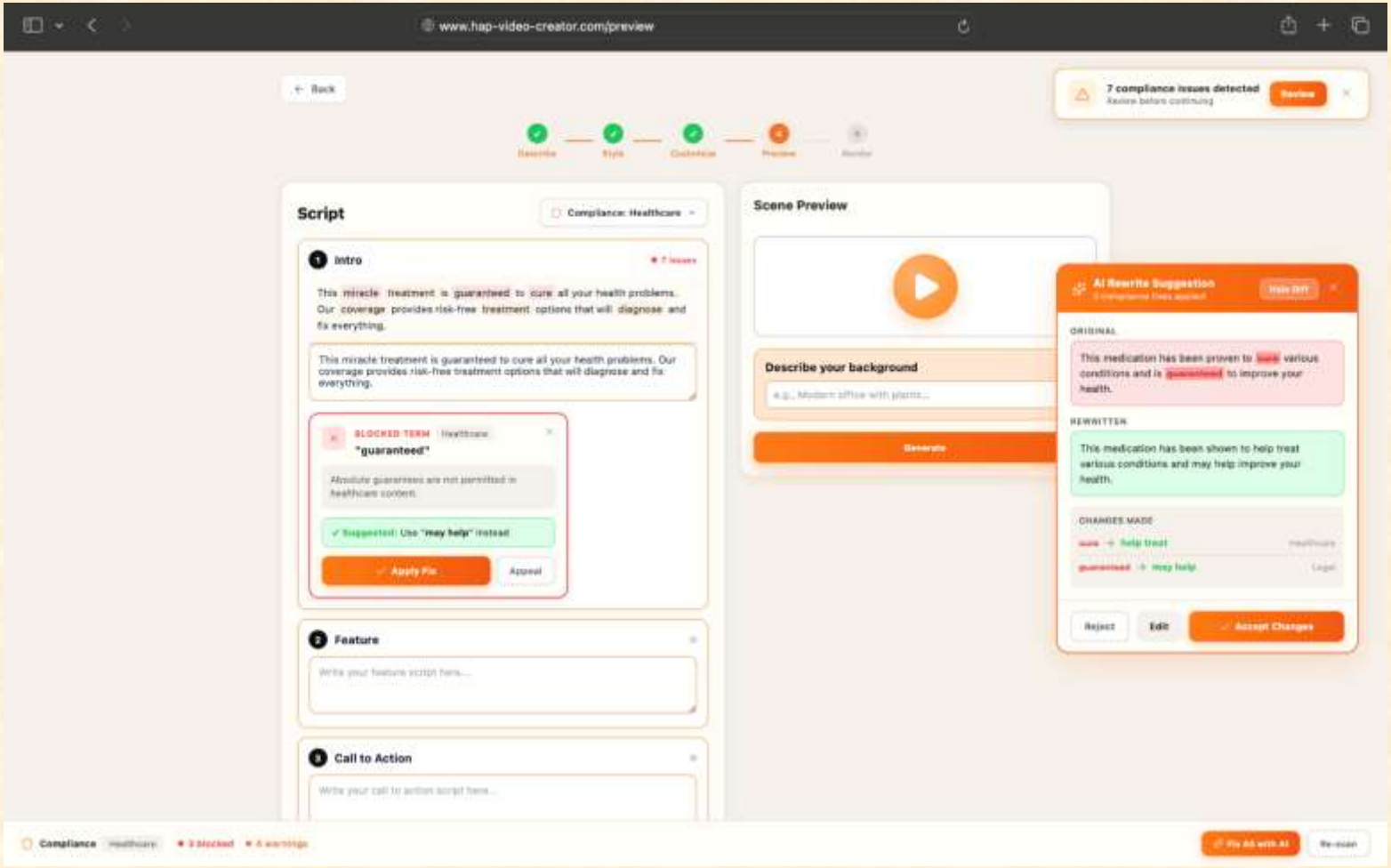
# Screen Mockup: Main Dashboard



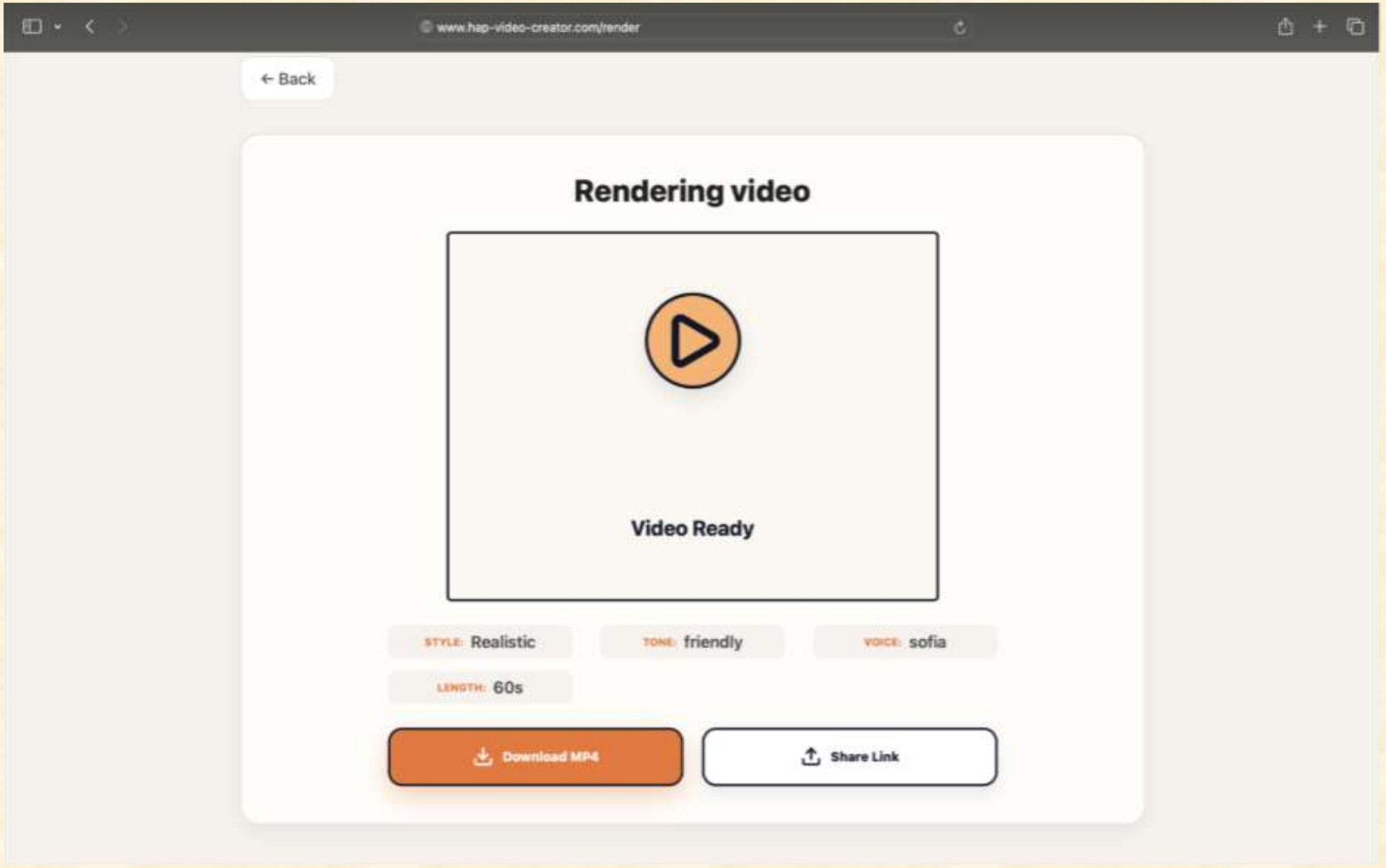
# Screen Mockup: Guided Workflow



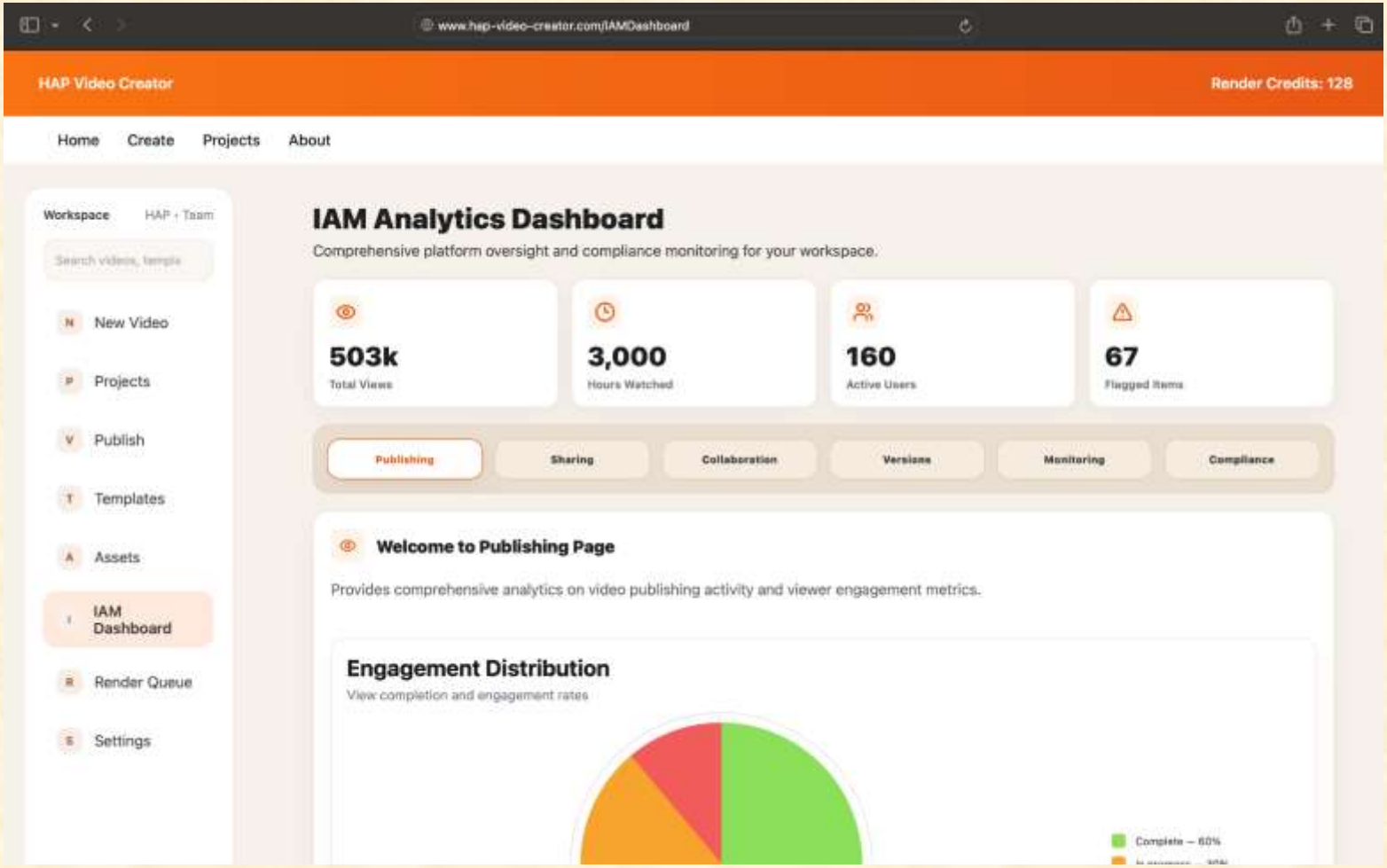
# Screen Mockup: Preview



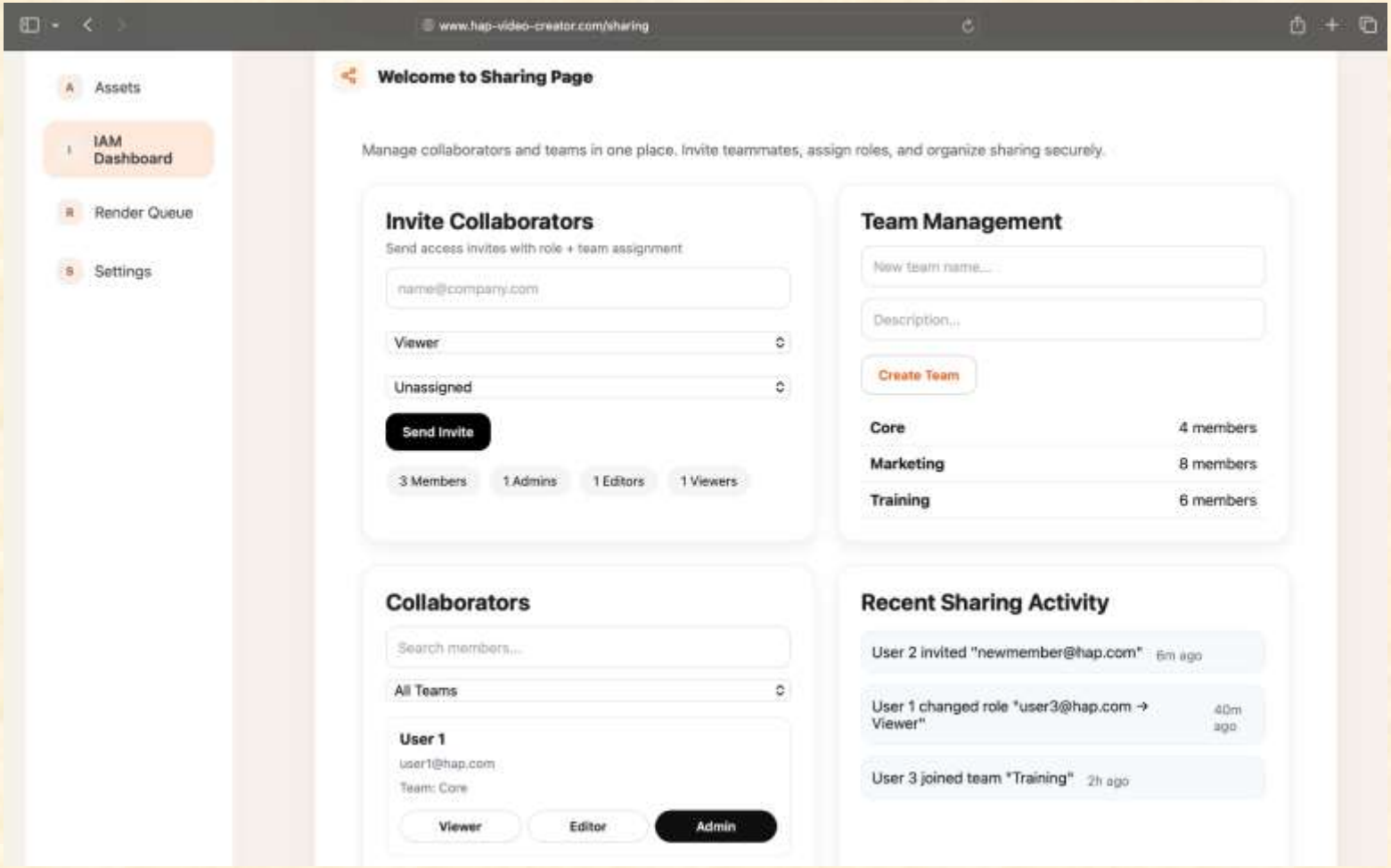
# Screen Mockup: Rendering



# Screen Mockup: IAM Dashboard



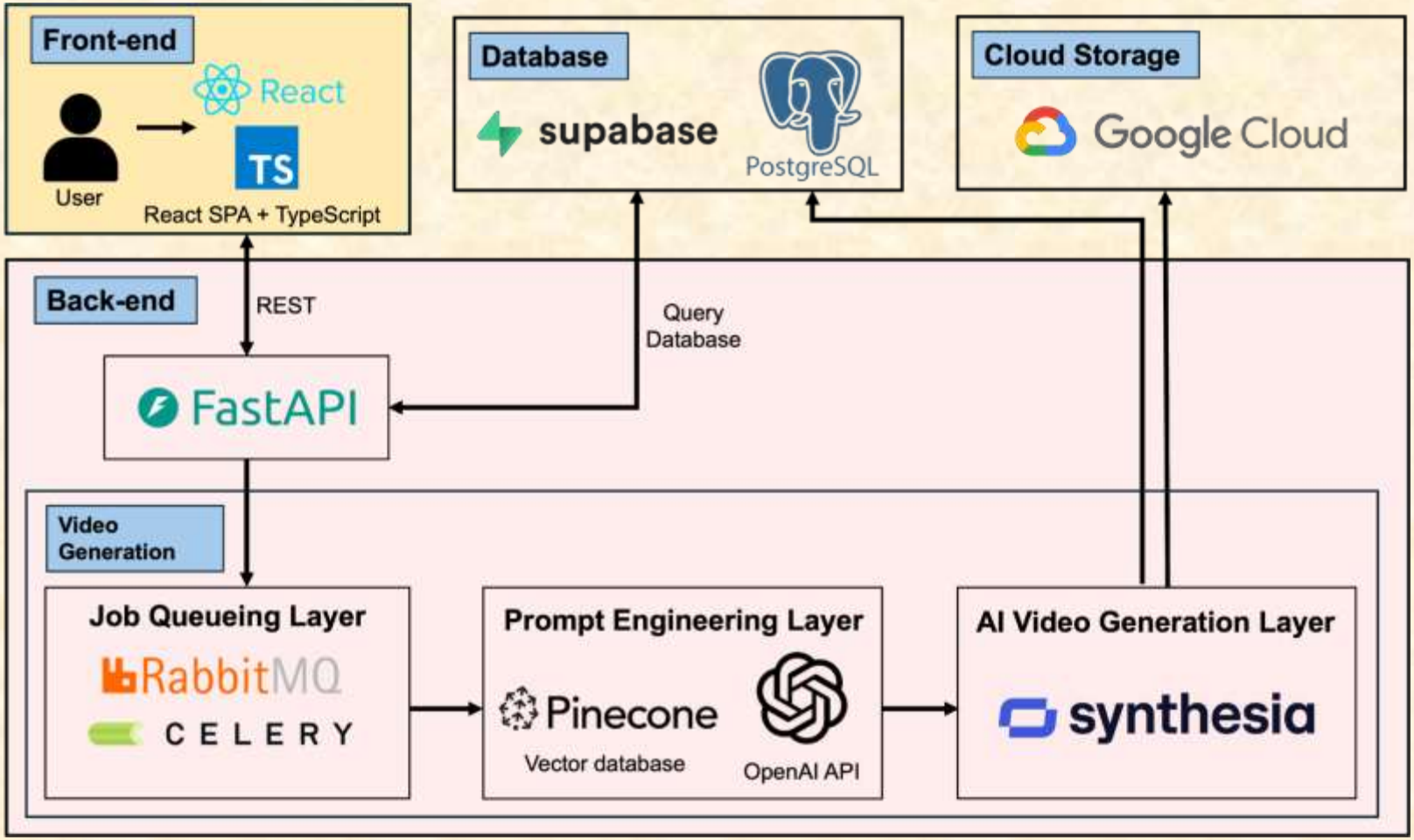
# Screen Mockup: IAM Sharing



# Project Technical Specifications

- **Front-end:** React SPA for guided video creation workflow
- **Back-end:** FastAPI validates requests, manages project and script versions, and initializes AI jobs
- **Database:** We store organizational roles data, project data, and versioned video content
- **AI Pipeline:** Background jobs validate inputs, refines scripts via an LLM, and renders the final videos
- **Collaboration:** Role-based access control with locking mechanism for serialized editing

# Project System Architecture



# Project System Components

- Software Platforms / Technologies
  - Front-end: React SPA, TypeScript
  - Back-end: Python FastAPI, RabbitMQ, Celery
  - Database and Storage: Supabase, PostgreSQL, Google Cloud, Pinecone
- External APIs / Services
  - Synthesia API
  - OpenAI GPT-3.5 API

# Project Risks

- System Latency
  - AI video generation can take several minutes, degrading user experience
  - Design asynchronous, queue-based backend with parallel rendering
- Cost and API Usage Limit
  - AI video generation APIs may be expensive or have usage limit
  - Enforce generation limits and use low-cost models for prototyping
- LLM Consistency
  - User inputs may not be fully reflected in the generated video
  - Validate intermediate outputs, let user preview/edit before final generation
- End-to-end Pipeline Reliability
  - A failure at any step can stop the entire video generation pipeline
  - Checkpoint pipeline stages and save intermediate outputs

# Questions?

