

# Project Iris - Stevens AI and BI Software

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## 1. Executive Summary (What the system does)

Project Iris is an AI-powered enrollment analytics and intelligence platform built for Stevens CPE. It unifies Slate funnel data and Census headcount data into a single dashboard, and adds a conversational AI assistant for natural language exploration.

### Key Capabilities

- Enrollment funnel analytics : Applications -> Admits -> Offers Accepted -> Enrollments
- NTR tracking : Goal progress, category and degree breakdowns, gap to goal
- Program intelligence : Heatmaps, top programs, YoY trends, comparisons
- Corporate cohorts : Partner headcount, distribution, and top cohort tracking
- Historical YoY : 3-year trends, conversion/yield trends over time
- Ask Navs AI assistant : Page-aware chat available as a floating widget and a dedicated page

## 2. System Architecture Overview (High level)

Aligned with Section 3 of `AI\_SYSTEMS\_TECHNICAL\_DOSSIER.md`.

At a high level, the platform has four layers:

- Ingestion : Slate API + Census sources (including snapshot files)
- Analytics : Funnel metrics, program stats, NTR calculation, cohort summaries
- AI layer : Gemini-powered assistant grounded with structured context and guardrails
- UI : Streamlit pages plus an always-available floating chat assistant

## 3. Data Engineering Pipeline (Ingestion + snapshots + caching)

Aligned with Section 4 of `AI\_SYSTEMS\_TECHNICAL\_DOSSIER.md`.

### **Data Sources**

- Slate CRM : Application funnel data via API or snapshot
- Census : Headcount and credit-based attributes (used for continuing/returning and NTR)

### **Snapshot-first design**

The app prioritizes `data/snapshots/` so local and cloud deployments are deterministic and do not depend on local file paths.

### **Caching and refresh**

Data is cached to avoid repeated fetch and heavy processing, with explicit refresh controls and a periodic refresh window.

## **4. Analytics Layer (Funnel, yield, NTR, cohorts, YoY)**

Aligned with Section 5 of `AI\_SYSTEMS\_TECHNICAL\_DOSSIER.md`.

### **Core metrics**

- Admit rate : admits / applications
- Yield rate : enrollments / admits
- Offer accept rate : offers accepted / admits
- YoY change : percent change vs prior year

### **NTR model**

NTR is calculated using census attributes and credit load, producing:

- Total NTR and progress to goal
- New vs continuing components
- Category and degree breakdowns (where available)

## **5. AI Assistant System (Ask Navs, persona: Naveen)**

Aligned with Section 6 of `AI\_SYSTEMS\_TECHNICAL\_DOSSIER.md`.

### **Naming and roles**

- Ask Navs : The feature name and tab label
- Naveen : The assistant persona inside Ask Navs

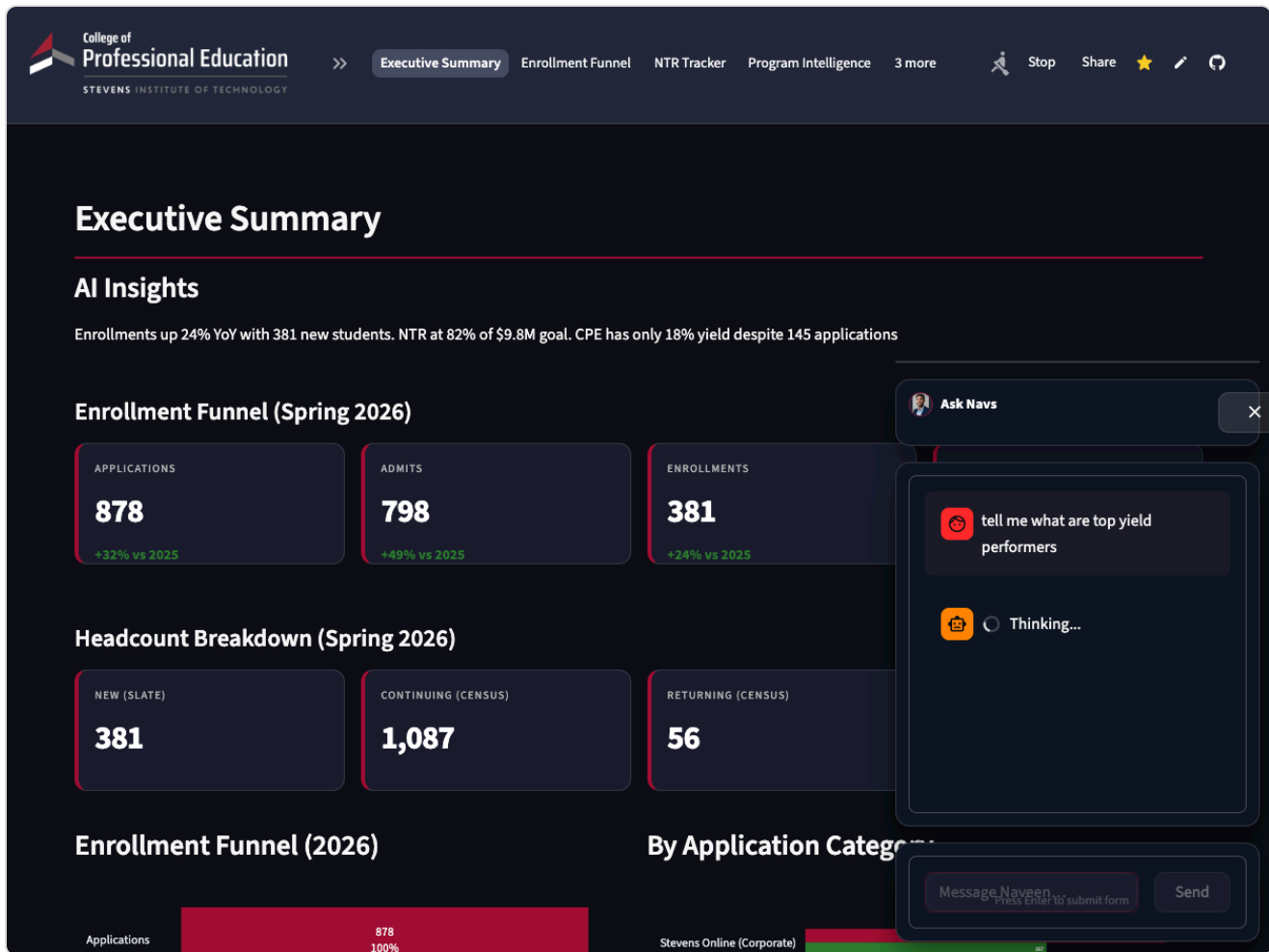
### **How it works (high level)**

- Uses Google Gemini as the LLM
- Uses structured, data-grounded context with guardrails to avoid fabrication

- Uses a two-stage approach: first select relevant context categories, then build the final context and answer
- Maintains conversation memory via summarization

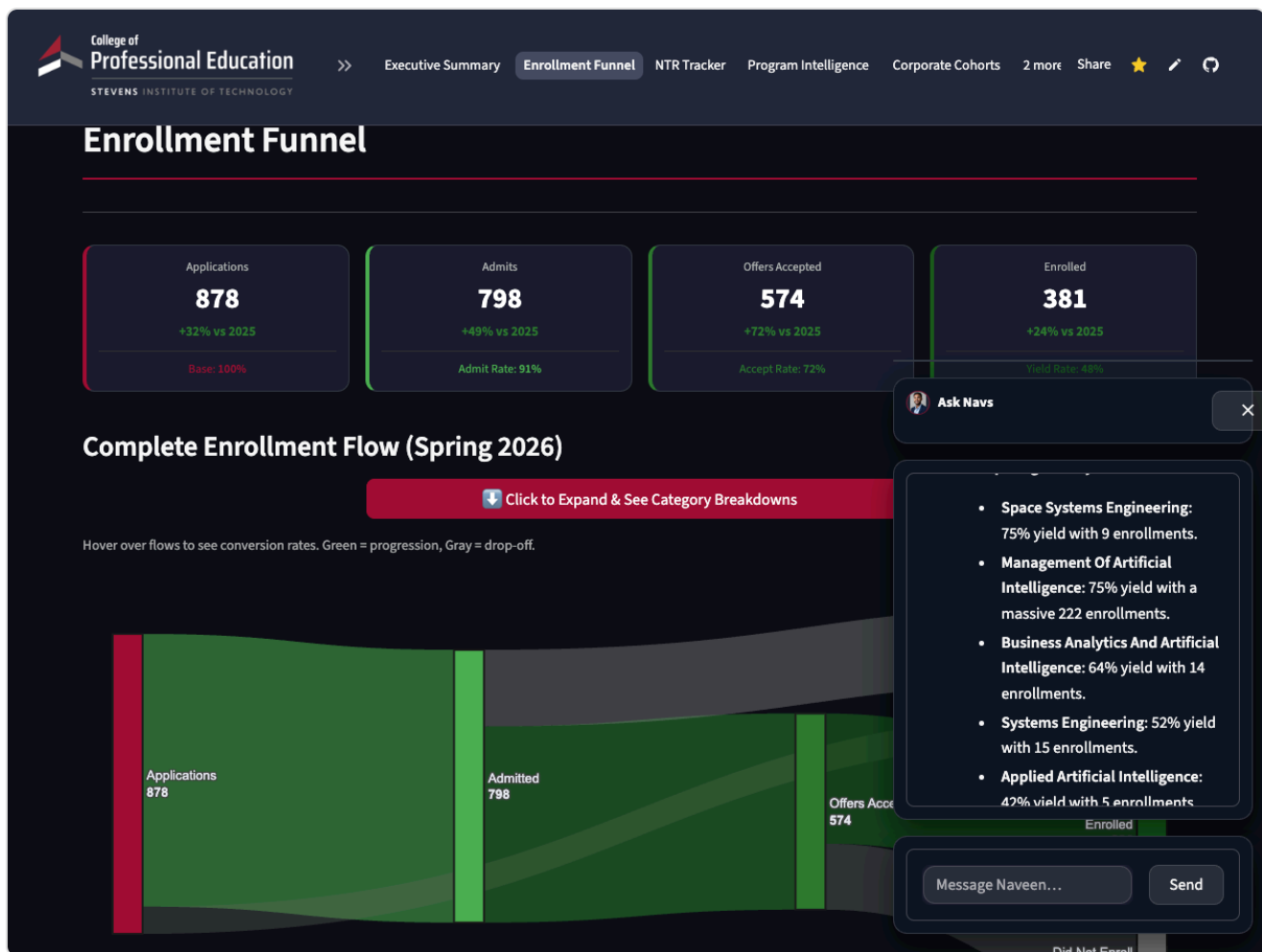
## 6. UI Walkthrough (Screenshots by page)

### 6.1 Executive Summary



- AI Insights : A concise, data-grounded narrative of the current state
- Funnel KPIs : Applications, admits, enrollments, and yield with YoY context
- Headcount Breakdown : New (Slate) plus continuing and returning (Census)
- Ask Navs widget : Floating assistant for quick questions without leaving the page

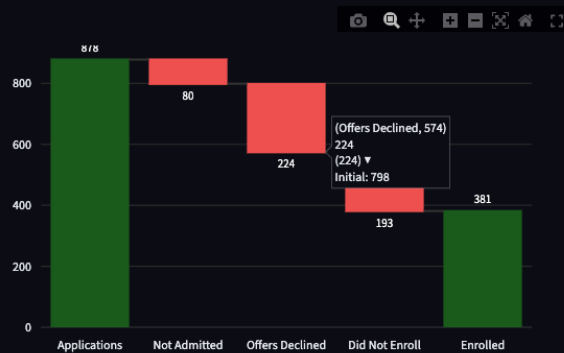
### 6.2 Enrollment Funnel



- Stage cards : Applications, admits, offers accepted, enrolled
- Sankey flow : Visual progression and drop-off through the funnel
- Expandable category breakouts : Drill down by category when expanded

## Conversion Waterfall

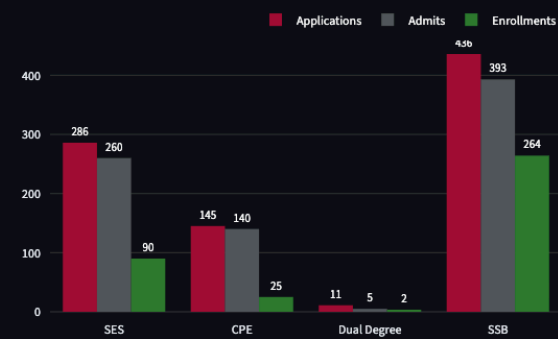
Student loss at each stage



## Year-over-Year

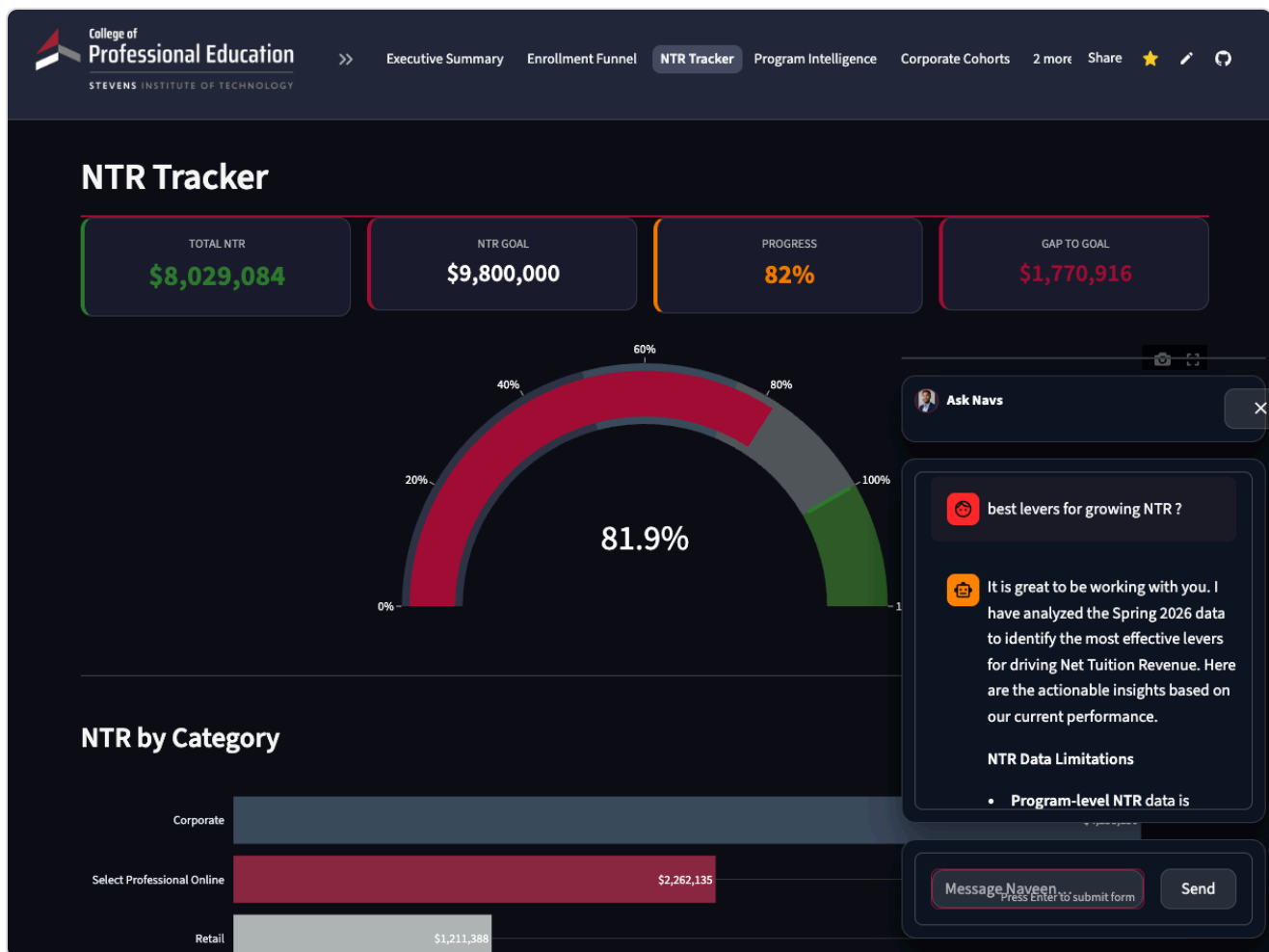
Year	Applications	Admits	Offers Accepted	Enrolled	Admit Rate	Yield Rate
2024	365	311	191	102	85%	33%
2025	667	534	334	308	80%	58%
2026	878	798	574	381	91%	48%
YoY	+32%	+49%	+72%	+24%	—	—

## By School



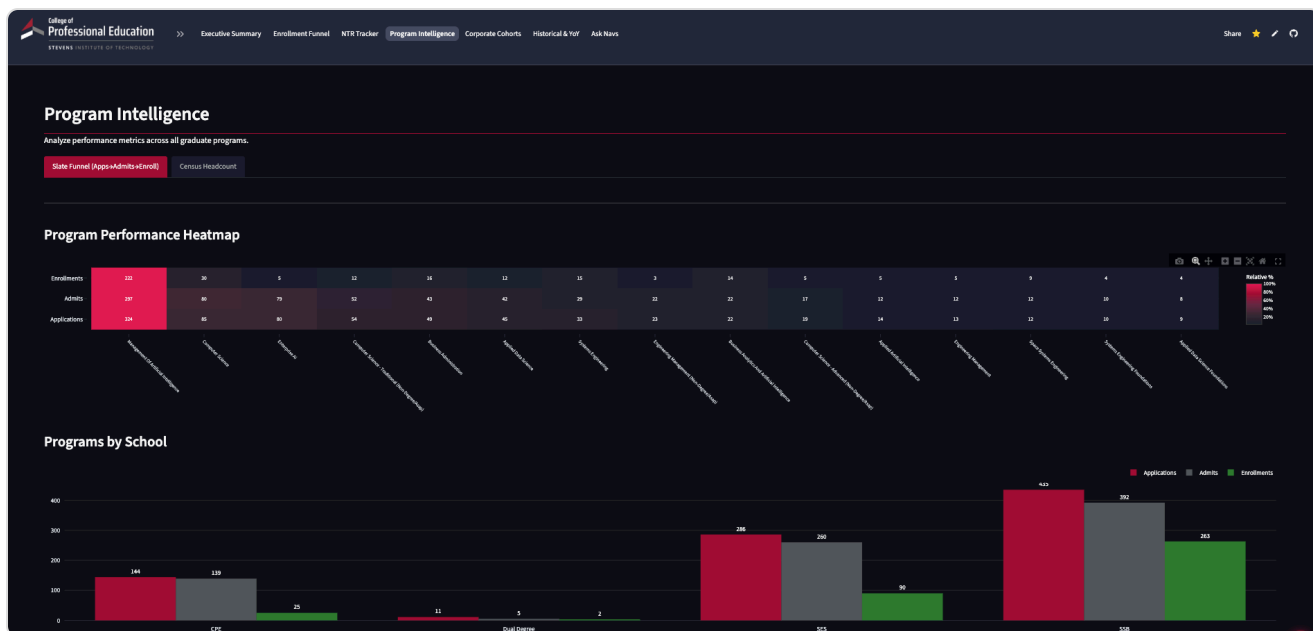
- Conversion waterfall : Where students drop at each stage
- YoY table : Quick comparison across 2024, 2025, 2026
- By school : Funnel volume by school

## 6.3 NTR Tracker

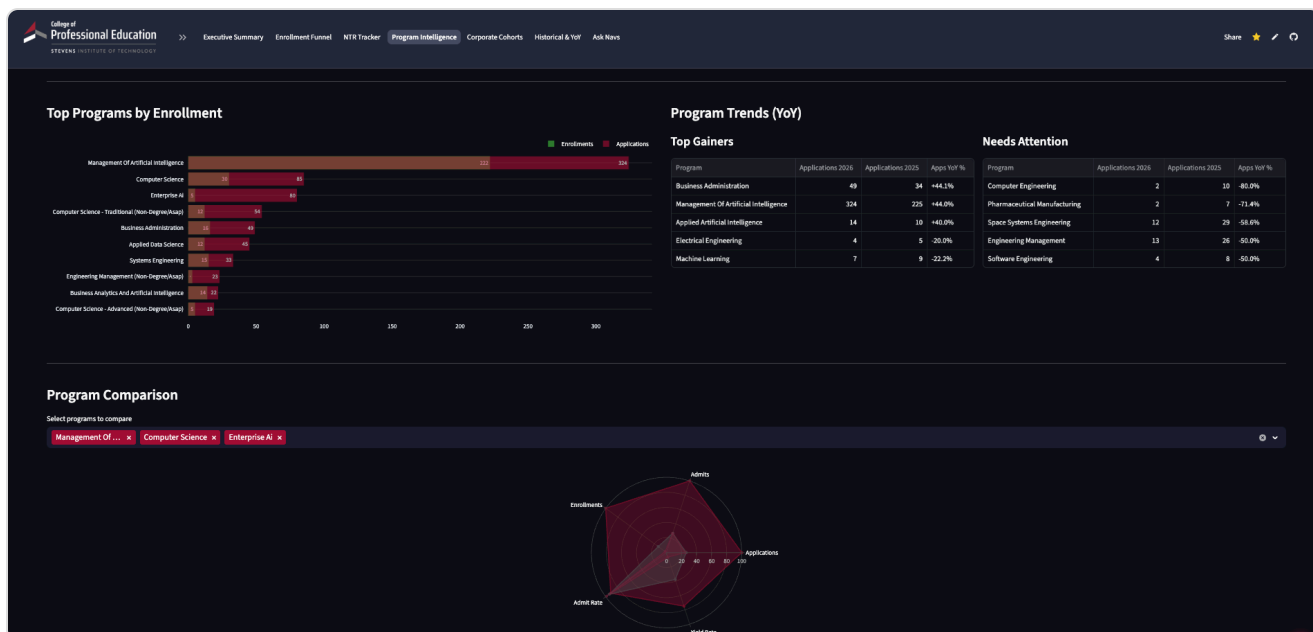


- Goal tracking : Total NTR, goal, progress percentage, gap to goal
- Category breakdown : NTR composition across enrollment categories
- Ask Navs : Ask for levers and action plan grounded in the current data

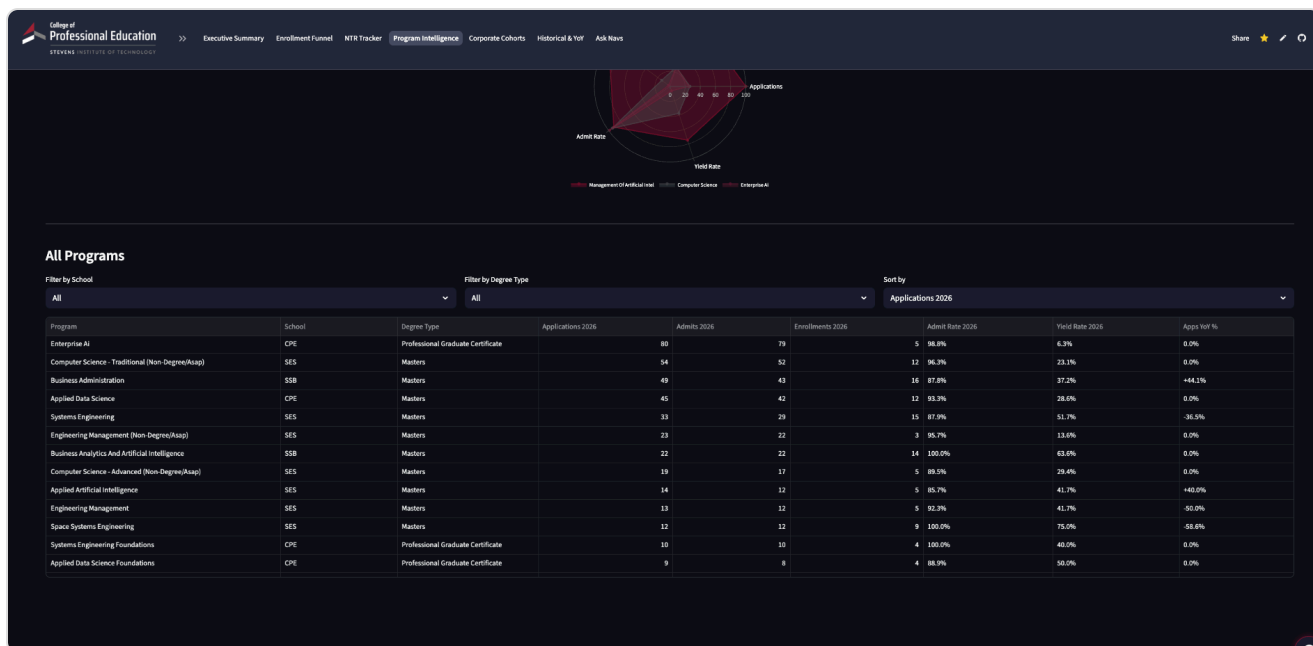
## 6.4 Program Intelligence



- Heatmap : Program performance across apps, admits, enrollments
- Programs by school : Distribution across schools

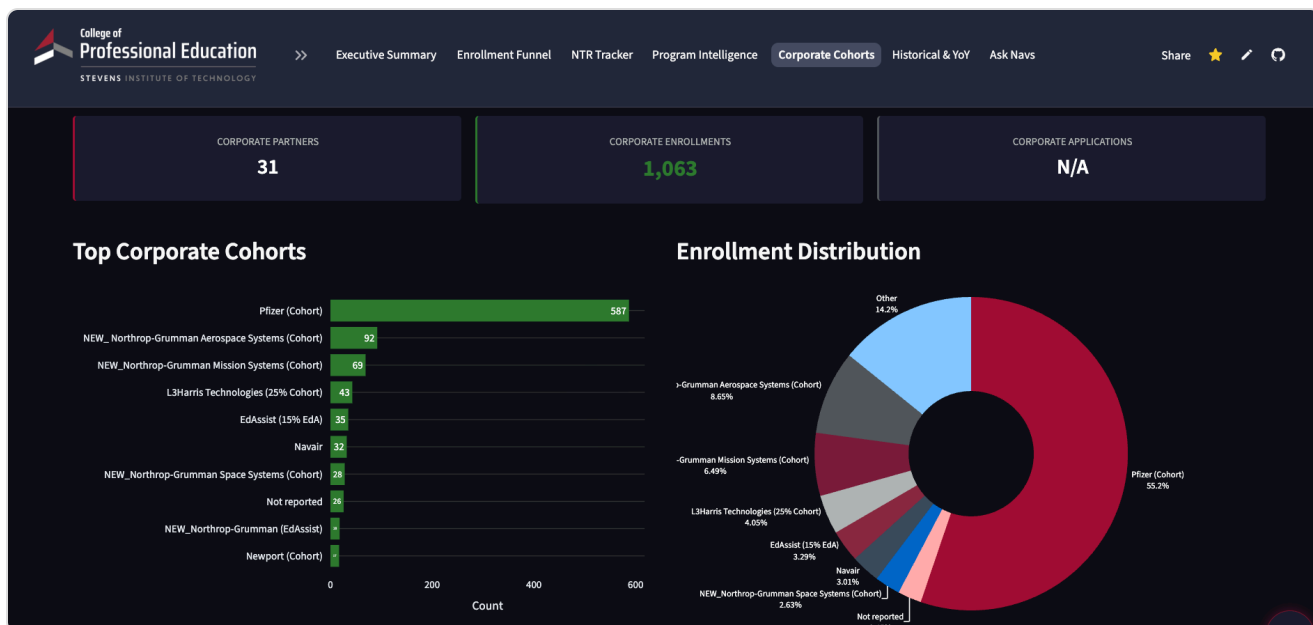


- Top programs : Highest enrollment contributors
- Top gainers / needs attention : YoY deltas for quick prioritization
- Program comparison : Radar chart for side-by-side analysis



- Filters : School and degree type
- Sort and scan : Applications, admits, enrollments, yield, YoY

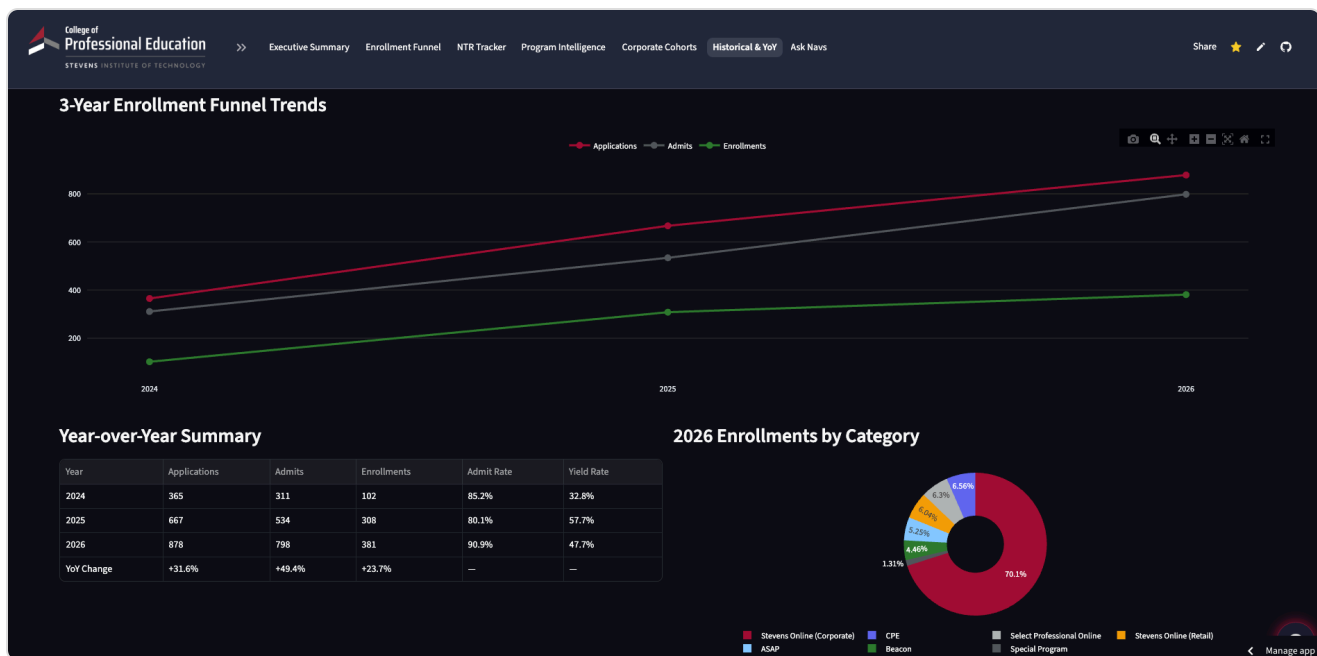
## 6.5 Corporate Cohorts



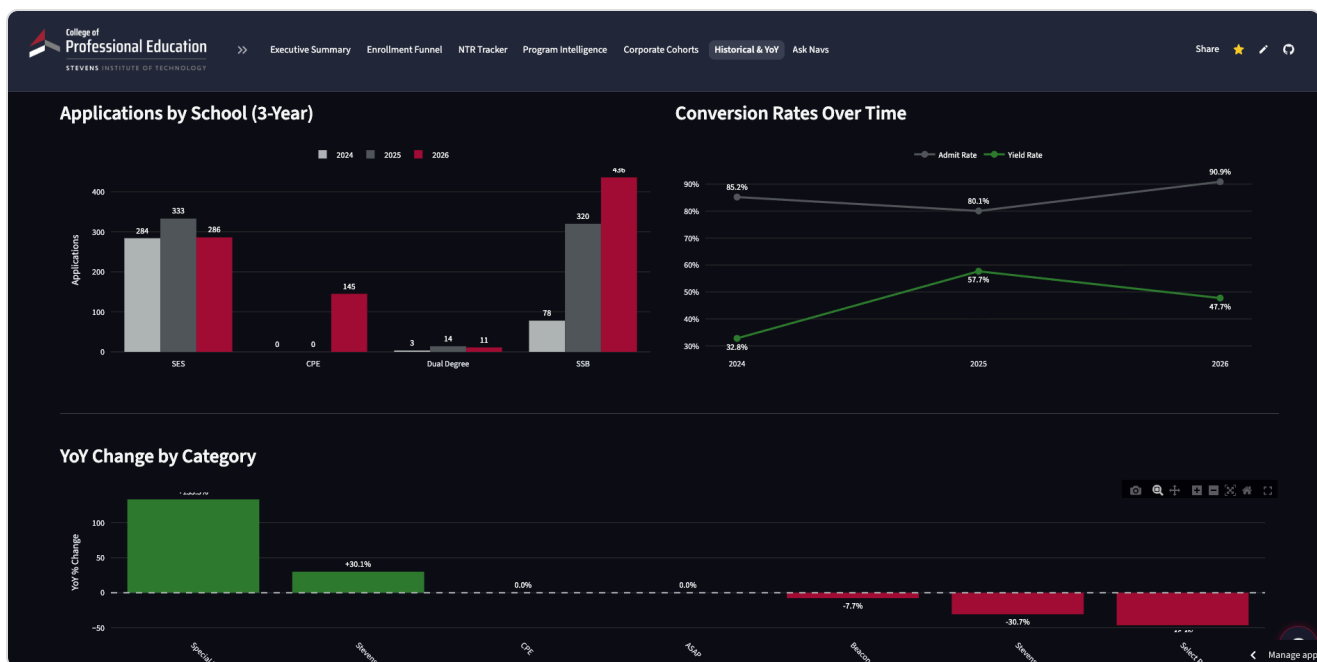
- Corporate partner view : Partners, enrollments, distribution
- Top cohorts : Who is driving corporate headcount

## 6.6 Historical and YoY



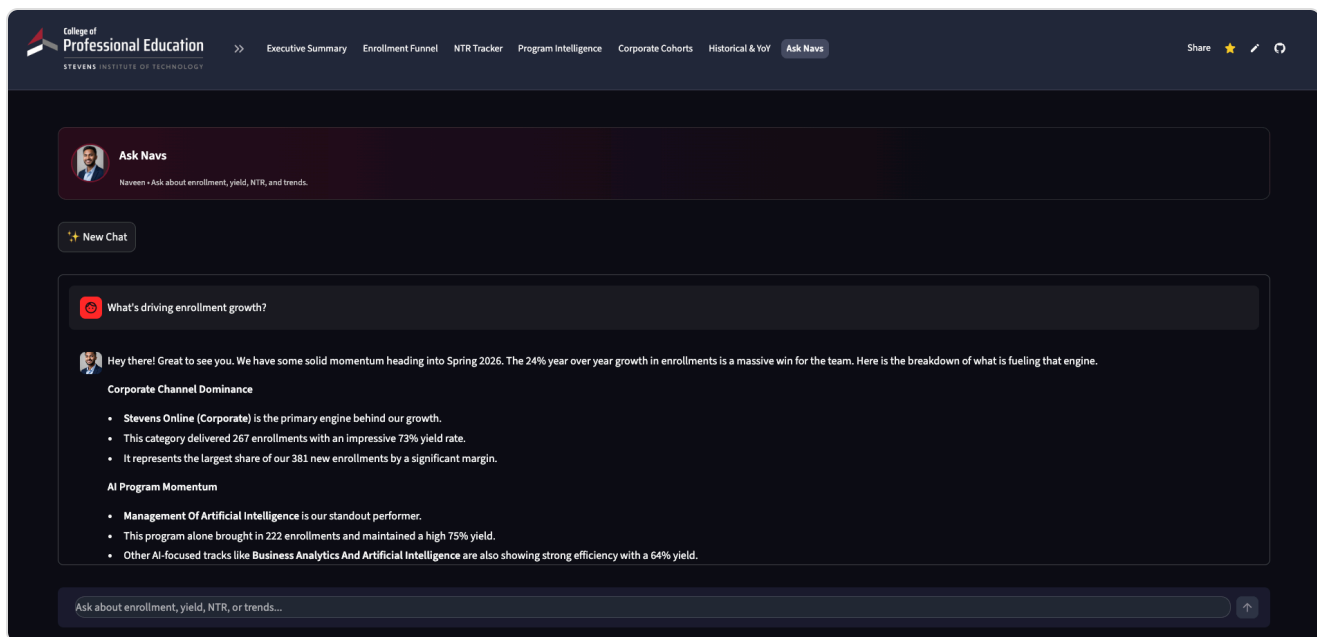


- 3-year trends : Applications, admits, enrollments
- YoY summary : Table view for quick reference
- Category mix : 2026 enrollment distribution by category



- School trend : Applications by school across 3 years
- Conversion rates over time : Admit rate and yield rate trends
- YoY change by category : Where growth and decline is concentrated

## 6.7 Ask Navs (Dedicated AI page)



- Natural language analytics : Ask questions and get grounded answers
- Actionable breakdowns : Responses structured into short sections and bullets
- Consistent voice : Friendly and confident, but professional

## 7. Security and Deployment

Aligned with Sections 9 and 10 of `AI\_SYSTEMS\_TECHNICAL\_DOSSIER.md`.

### Security

- Password-protected access via Streamlit secrets
- API keys stored in secrets, not in code
- Aggregate analytics only (no student-level PII displayed in the UI)

January 2026.