

# Project Iris - Stevens AI and BI Software

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## Table of Contents

1. Executive Summary (What the system does)
2. System Architecture Overview (High level)
3. Data Engineering Pipeline (Ingestion + snapshots + caching)
4. Analytics Layer (Funnel, yield, NTR, cohorts, YoY)
5. AI Assistant System (Ask Navs, persona: Naveen)
6. UI Walkthrough (Screenshots by page)
7. Security and Deployment
8. Demo Script (Recommended flow)

## 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

The screenshot shows the Executive Summary page of a college's website. At the top, there's a navigation bar with the College of Professional Education logo, a back arrow, and links for Executive Summary, Enrollment Funnel, NTR Tracker, Program Intelligence, and three more items. On the right are icons for Stop, Share, and a profile picture.

**Executive Summary**

**AI Insights**

Enrollments up 24% YoY with 381 new students. NTR at 82% of \$9.8M goal. CPE has only 18% yield despite 145 applications

**Enrollment Funnel (Spring 2026)**

APPLICATIONS	ADmits	ENROLLMENTS
878 +32% vs 2025	798 +49% vs 2025	381 +24% vs 2025

**Headcount Breakdown (Spring 2026)**

NEW (SLATE)	CONTINUING (CENSUS)	RETURNING (CENSUS)
381	1,087	56

**Enrollment Funnel (2026)**

By Application Category

Applications 878 100% Stevens Online (Corporate) [Message Naveen... Press Enter to submit form] Send

**Ask Navs**

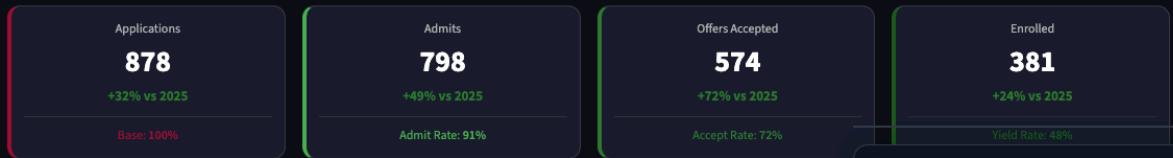
tell me what are top yield performers

Thinking...

- \*\*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

## Enrollment Funnel



Ask Navs X

### Complete Enrollment Flow (Spring 2026)

▼ Click to Expand & See Category Breakdowns

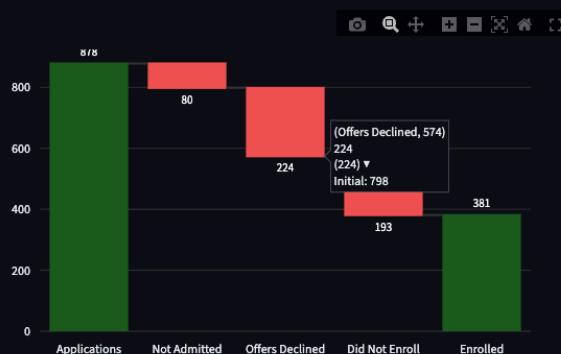
Hover over flows to see conversion rates. Green = progression, Gray = drop-off.



- \*\*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

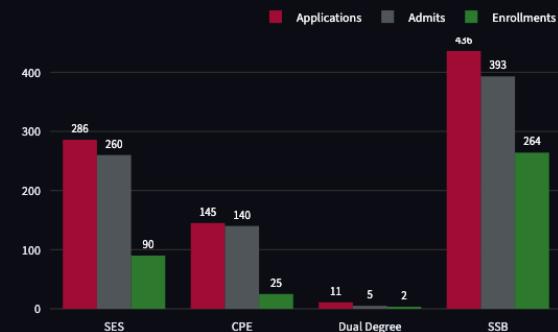
Student loss at each stage



## 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%	—	—

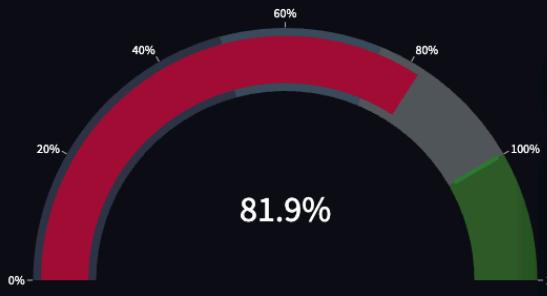
## By School



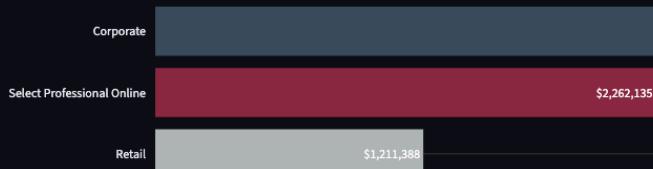
- \*\*Conversion waterfall\*\*: Where students drop at each stage
- \*\*YoY table\*\*: Quick comparison across 2024, 2025, 2026
- \*\*By school\*\*: Funnel volume by school

## 6.3 NTR Tracker

## NTR Tracker



### NTR by Category



Ask Navs

best levers for growing NTR ?

It is great to be working with you. I have analyzed the Spring 2026 data to identify the most effective levers for driving Net Tuition Revenue. Here are the actionable insights based on our current performance.

NTR Data Limitations

- Program-level NTR data is

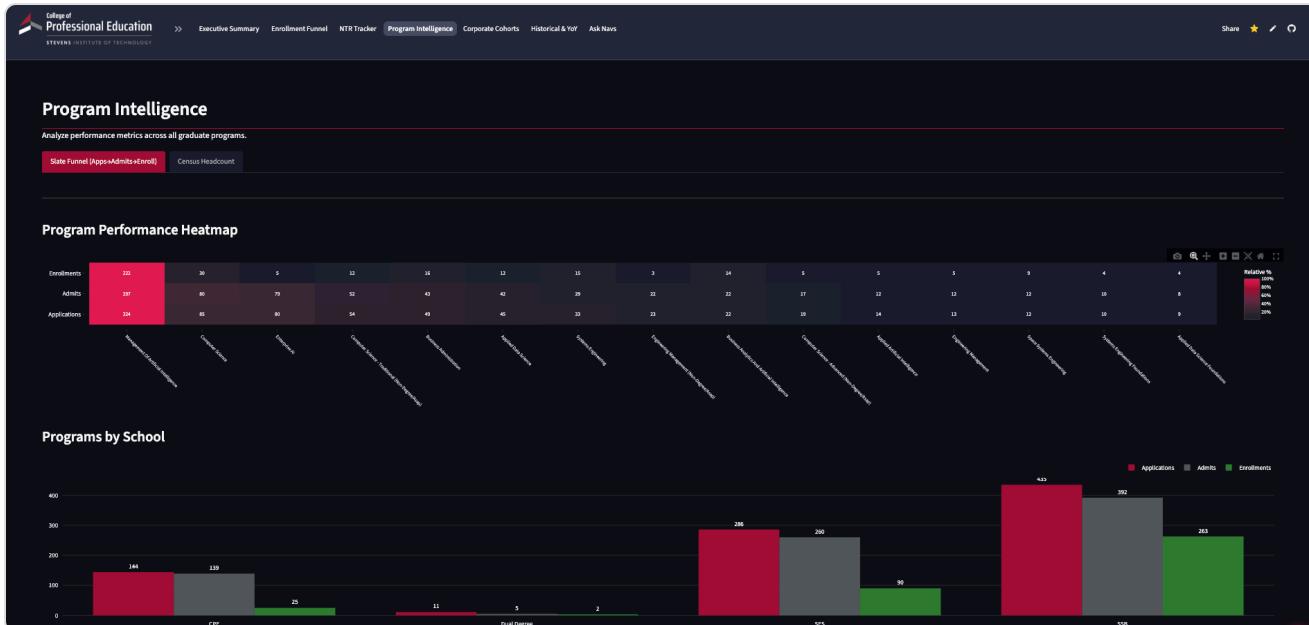
✉️ Message Naveen

Press Enter to submit form

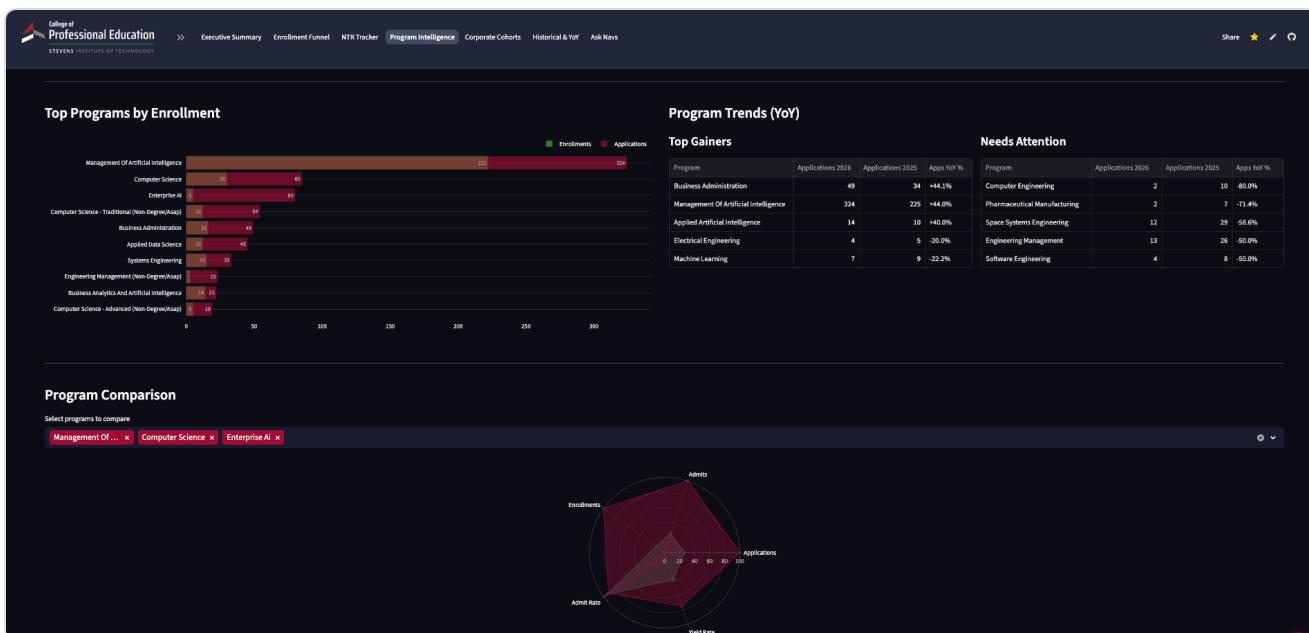
Send

- \*\*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

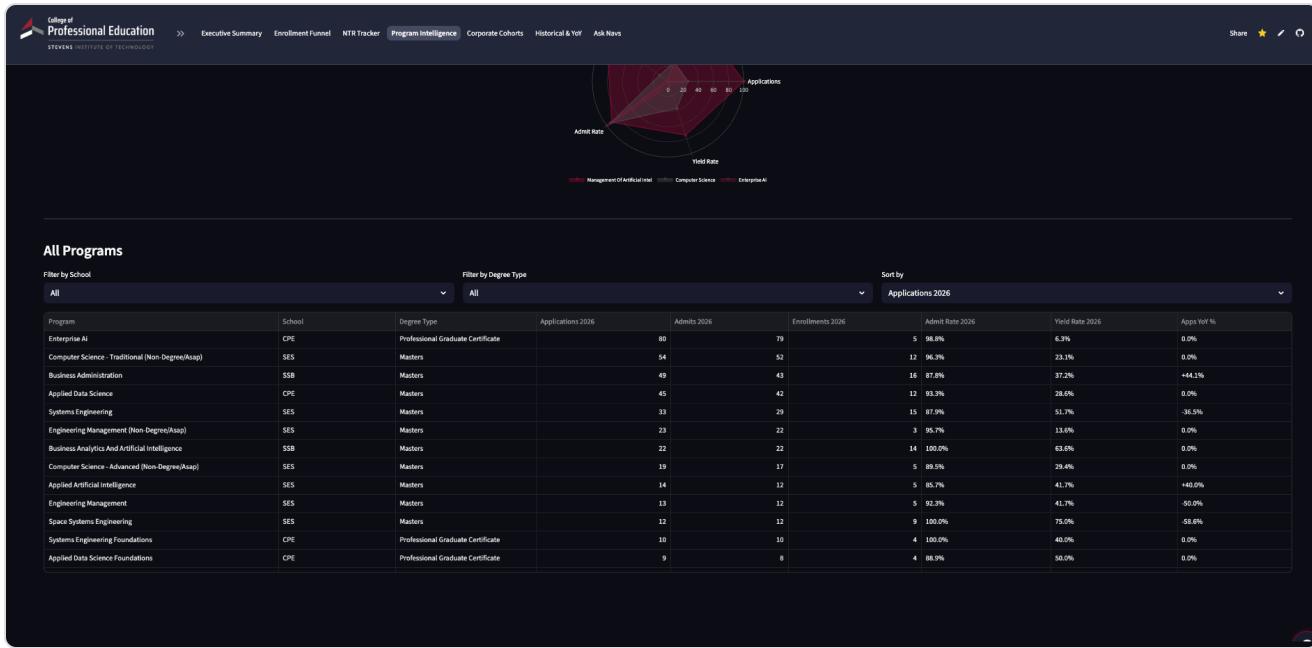
## 6.4 Program Intelligence



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

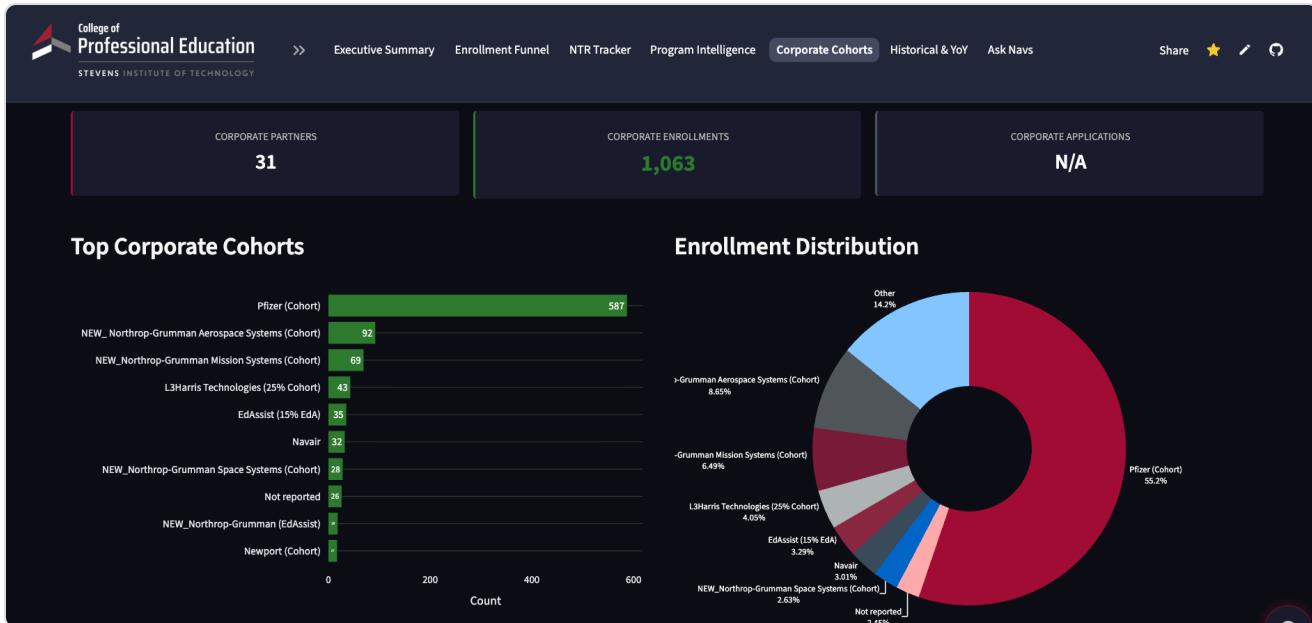


- \*\*Top programs\*\*: Highest enrollment contributors
- \*\*Top gainers / needs attention\*\*: YoY deltas for quick prioritization
- \*\*Program comparison\*\*: Radar chart for side-by-side analysis



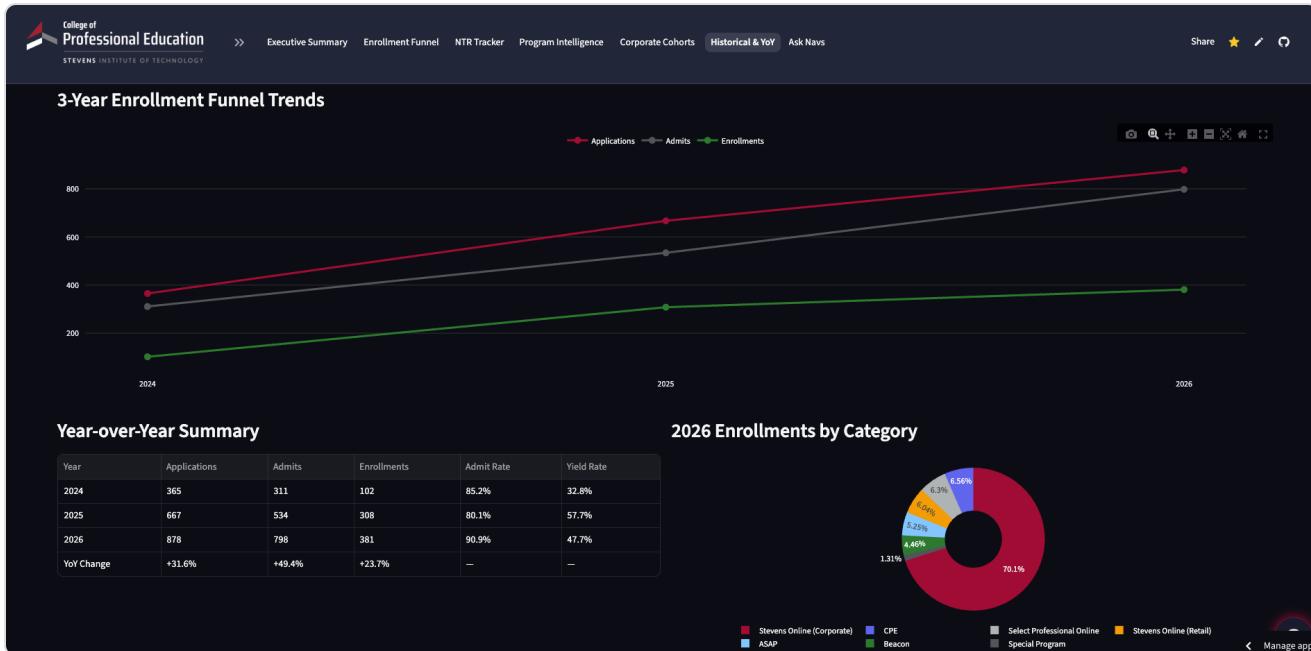
- \*\*Filters\*\*: School and degree type
- \*\*Sort and scan\*\*: Applications, admits, enrollments, yield, YoY

## 6.5 Corporate Cohorts

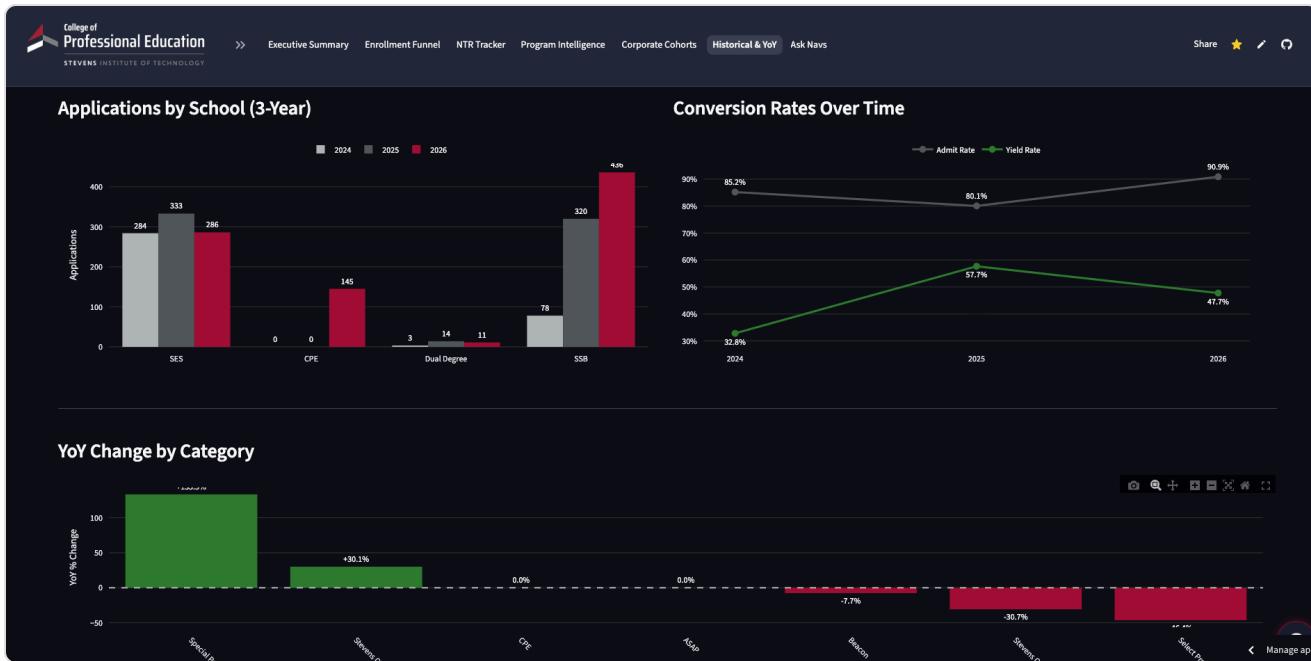


- \*\*Corporate partner view\*\*: Partners, enrollments, distribution
- \*\*Top cohorts\*\*: Who is driving corporate headcount

## 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)

The screenshot shows a dark-themed AI chat interface. At the top, there's a navigation bar with the college logo, 'College of Professional Education', and links for 'Executive Summary', 'Enrollment Funnel', 'NTR Tracker', 'Program Intelligence', 'Corporate Cohorts', 'Historical & YoY', and 'Ask Navs'. On the right of the header are 'Share', 'Star', and 'Edit' icons. Below the header, a sidebar on the left says 'Ask Navs' with a profile picture of Naveen and the text 'Naveen • Ask about enrollment, yield, NTR, and trends.' A 'New Chat' button is at the bottom of this sidebar. The main area has a dark background with white text. A message from Naveen asks 'What's driving enrollment growth?'. His response starts with 'Hey there! Great to see you. We have some solid momentum heading into Spring 2026. The 24% year over year growth in enrollments is a massive win for the team. Here is the breakdown of what is fueling that engine.' It then breaks down into two sections: 'Corporate Channel Dominance' and 'AI Program Momentum', each with a bulleted list of points. At the bottom of the main area is a text input field with placeholder text 'Ask about enrollment, yield, NTR, or trends...' and a small upward arrow icon.

- **\*\*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.