



Business Plan

August 6, 2025

Executive Summary

Introduction

New Engineering Solutions for Tomorrow (NEST) is an annual Tau Beta Pi competition that challenges students to develop proof-of-concept solutions addressing a broad theme selected by the Convention body. These submissions—called Engineered Gadgets for Good (EGGs)—are created by student teams and pitched at Convention to peers, alumni, and industry sponsors as compelling investments in innovation. A panel of alumni selects the most practical and innovative EGG(s) to receive funding for further development. Winning teams return the following year with enhanced prototypes that demonstrate what their ideas made possible.

Mission Statement

NEST extends the outreach and member involvement of the Tau Beta Pi Association through a portfolio of projects, called Challenges, in which members develop engineering solutions to problems which benefit humankind. At each Tau Beta Pi Convention, a topic for NEST is selected to pursue through the next academic year. Engineered Gadgets for Good (EGGs) are the student proof-of-concepts developed throughout the year and presented at the following Convention.

Why NEST Works for TBP

TBP brings together the top engineering students from all accredited disciplines. NEST taps into this diverse talent to form high-performing, multidisciplinary teams—just like those found in real-world engineering.

Unlike single-focus organizations, TBP is uniquely positioned to solve complex problems through collaboration across fields. NEST shifts students from theory to action, letting them apply their skills to meaningful, real-world challenges that no textbook can match.

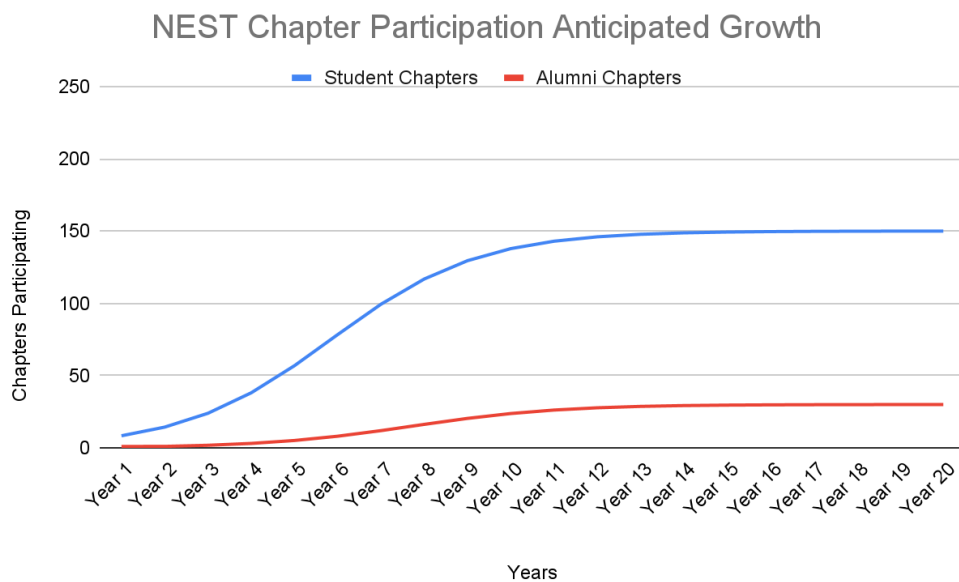
By connecting motivated students with sponsors and mentors, NEST delivers value on both sides: students gain feedback and career insight, while mentors engage with top talent and shape future leaders. TBP's vast alumni network expands this reach, offering new ways for alumni to give back and guide the next generation of engineers.

Just as successful companies evolve to meet customer needs, TBP can grow by aligning its programs around a new opportunity for our members. NEST brings together several of TBP's strongest programs under a unified vision—delivering purpose, engagement, and growth for members at every level.

3 Year Vision Statement

As a renewing trial program, the next three years will complete the following:

- 3 new NEST topics
- 20+ schools competing (~10% of active chapters)
- 8+ alumni chapters involved (~15% of active chapters)
- 15+ active Development Committee members
 - Subcommittees for IP Generation support, Industry Outreach, NEST templates, etc
- Revenue across sponsorships and donations of \$25,000+ annually
- Board of advisors established
- 2+ new industry partnership services (e.g. laser cut materials discount, CAD software licensing)



In year one, focus on expanding alumni engagement across Districts to support new schools locally. Solicit broad feedback from domestic and international chapters. Target 25-30% year-over-year growth, with projections reevaluated annually after surpassing 15% chapter participation. Begin fundraising efforts from alumni and community sponsors. Establish IP-sharing guidelines via the Development Committee. Align NEST with other TBP programs, including Engineering Futures.

In year two, strengthen NEST's visibility at Convention by spotlighting EGG teams and ensuring project completion. Sustain growth in student and alumni involvement. Empower chapters to send more Convention attendees, boosting engagement. Highlight student-driven innovations to extend TBP's reach and appeal.

By year three, secure external sponsorship for the annual challenge, with sponsors helping to select both the theme and winning team. Drive interest in NEST through expanded donations and partnerships, positioning the program to achieve financial sustainability

TBP Alignment with NEST

TBP is the premier engineering honor society, uniting top students across all accredited engineering disciplines. NEST harnesses this talent by forming high-achieving, multidisciplinary student teams.

NEST aligns with TBP's mission by:

- Advancing leadership and professional development
- Encouraging lifelong member engagement
- Promoting a spirit of liberal culture

It builds on Engineering Futures (EF) by applying EF skills in real-world challenges. Promoting NEST and EF together reinforces both programs and boosts student career readiness.

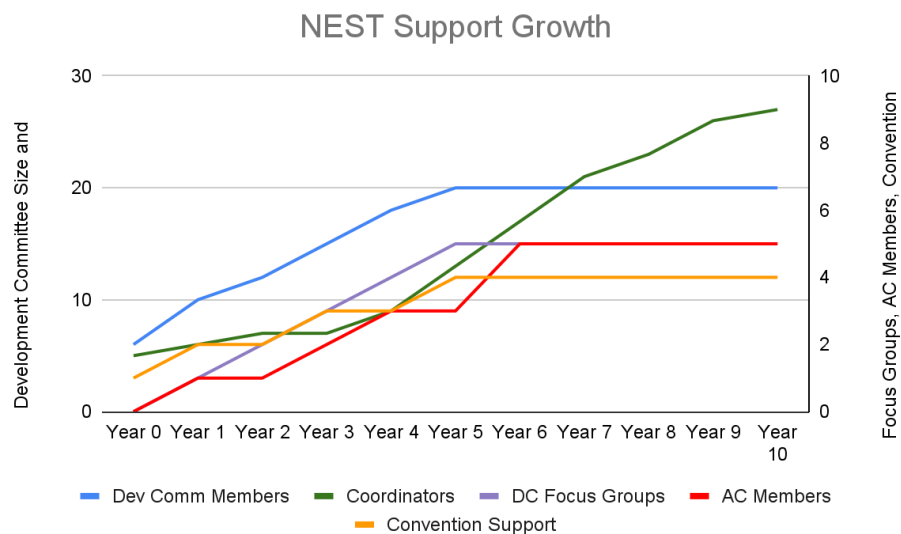
NEST also gives District Directors a powerful way to engage chapters beyond standard activities—enhancing reports, collaboration, and member involvement.

Support Needed from TBP

- Endorsement from national leadership
- Sponsor and partner outreach
- Promotion across TBP platforms
- Near term financial to scale sustainably

Benefits to TBP

- Re-engaged alumni & greater involvement
- New funding streams
- Practical skills for future engineers
- Greater visibility through real-world impact



Market Research

NEST Competitive Environment for Student Members

NEST is competing for a handful of things that are very near and dear to the hearts of the members of each TBP student chapter: time and money.

TIME – how much time will this require of TBP juniors and seniors who want to maintain their GPA's, which is crucial their job searches or applications for graduate schools

NEST offers students the opportunity to do a project that is multi-disciplinary, focusing on the technical deliverable and the challenges associated with undefined projects supported by TBP alumni and their peers. Working like a startup, chapters have to define what success looks like while performing accelerated and focused project management in a low-pressure and well-supported environment. These all revolve around giving students real career-building experience early in their career, supporting their understanding of applied engineering.

MONEY – how will they be able to obtain the supplies necessary to fully developing their project and/or being able to model it for a competition

Students and colleges at large are where most uninhibited innovation occurs, and it is without a doubt the best way for Tau Beta Pi to advertise itself and bring alumni and industry to support chapters in developing projects. TBP already offers seed funding to chapters at the end of year 1 toward building their EGGs. Future scholarships and funding will be targeted to constantly provide avenues for chapters to continue to innovate and identify the funding required from the organization to develop their project.

NEST is also competing against other professional organizations – SWE, IEEE, ASME, ASCE, NSBE, etc. These student organizations have larger and more major homogeneous memberships that lend themselves to more focused project teams core to those engineering disciplines. To distinguish itself, NEST utilizes the entire membership that is inclusive of all ABET engineering programs' students to develop a project. To solve the time and money competitive environment, here are some of the focused NEST advantages.

A Reconnection Opportunity for Alumni

TBP alumni represent a vast, talented, and largely untapped resource. However, many alumni chapters currently struggle to maintain meaningful connections with student chapters. NEST offers a powerful solution—an avenue for alumni to re-engage by directly supporting student-driven, multidisciplinary engineering challenges that are sought after by students.

Alumni face their own barriers to engagement: lack of visibility into student needs, unclear opportunities for involvement, and limited connection points beyond mentoring or job referrals. NEST changes that dynamic by creating a shared mission between students and alumni—real projects, real problems, and real impact.

Just as students weigh their investment of time and money in NEST, alumni can see clear value in giving back:

TIME – Alumni are busy professionals that are typically significant contributors within their respective fields as tends to be a natural path for some of the brightest engineers. With that, there is a significant portion of our alumni that are eager to support but not clear on what is the most effective use of their time and the student's is.

NEST enables alumni to lend their expertise through short, focused mentorship, acting as technical advisors, project reviewers, or guest speakers. This offers low-effort, high-impact engagement—helping students define project goals, navigate ambiguity, and build professional habits early.

MONEY – Alumni who are established in their careers often enjoy greater financial stability than they did during their college years. With that financial freedom often comes a desire to give back. The NEST model provides a clear and tangible way for alumni to see exactly how their contributions make a meaningful impact, reinforcing the value and purpose behind their support.

Alumni can also contribute by helping fund or source materials, connecting chapters with industry contacts, or sponsoring specific teams. These contributions directly support student innovation and make it easier for chapters to deliver impressive results.

Through NEST, alumni aren't just spectators—they become collaborators, mentors, and champions for the next generation of engineers. It's a revitalized vision for alumni involvement that's rooted in purpose, connection, and meaningful impact.

Detailed Description of Customers

Customers



- **Our Communities / Sponsors**
 - Benefit from innovations coming out of the competitions
 - Engage with students in applied engineering
 - Identify hiring opportunities
- **Student TBP Members**
 - Experience organizing and working within a project team
 - Engagement and interacting with alumni and sponsors
- **Prospective TBP Members**
 - Discover and learn about Tau Beta Pi
 - Support and learn through projects mentored by Tau Bates
- **Alumni of TBP**
 - Increased interaction with student chapters and teams
 - More alumni chapter activity and coordination

In detail, those customers are:

Communities:

They seek practical solutions to real problems but are largely unaware of Tau Beta Pi due to limited outreach.

Sponsors:

They aim to support real-world problem solving or student development through affiliation. Outside of Convention, TBP offers few opportunities for sponsors to engage with students directly.

Student Members:

They want to win competitions, gain real engineering experience, and strengthen their résumés. However, TBP currently lacks consistent avenues for project-based learning that students could leverage beyond roles as officers and other limited chapter roles.

Future Student Members:

They're drawn to engaging, skill-based projects that are fun and collaborative. Yet TBP's image as an academic honor society can make it seem disconnected from hands-on engineering and continually resonates as a social fraternity - something we can adjust and bring forward additional opportunities.

Alumni:

They want to grow chapter involvement but often lack direct links to student chapters. While TBP promotes alumni-student connections for job searches (e.g., Engineering Futures), it rarely does so for collaborative, skill-building projects.

Student Outreach and Engagement Strategy

Tau Beta Pi's strong campus presence provides a powerful foundation for scaling NEST. By embedding NEST into the existing TBP ecosystem and promoting it both internally and externally, chapters can drive deeper engagement, higher visibility, and long-term impact. NEST also supports the goals of the **Interactive Chapter Exchange (ICE) framework**:

- **Membership** – NEST attracts interest from the broader engineering student body, introducing TBP to prospective members through hands-on, collaborative projects.
- **Activities** – NEST offers meaningful, long-term challenges—not one-off events—giving chapters a cornerstone activity that's relevant, engaging, and sustained.
- **Image** – By applying engineering to real-world problems, NEST enhances TBP's reputation as a society of action and reinforces that engineering is a discipline rooted in impact.
- **Leadership** – Student-driven projects offer organic leadership growth supported by alumni and faculty mentors. Chapters become incubators for team leads, project managers, and innovators.

In short, NEST provides student chapters with a compelling, mission-aligned program that fosters community, builds skills, and reinforces TBP's role as a leader in engineering education and service. To that end, three priorities of NEST to get more consistent student engagement is the following:

Appoint NEST Chapter Leads - Encourage chapters to make a new role and elect a member as NEST Chapter Lead, responsible for:

- Promoting the competition during meetings and events
- Coordinating the team formation and project proposals
- Serving as the point of contact with alumni mentors and TBP HQ until the team takes over

This creates ownership and momentum within chapters while giving emerging leaders a clear, impactful role. Momentum in chapters is more easily maintained when roles are in chapter constitutions and chapters know to expect a new NEST project with an officer that helps coordinate the project(s).

Integrate NEST into Chapter Recognition & Awards - Incentivize participation by:

- Recognizing NEST involvement in chapter project reports
- Creating local awards (e.g., "Best Project Pitch" or "Most Impactful Solution")
- Continue highlighting top-performing teams at District Conferences and Convention

This reinforces that NEST isn't just extra work—it's a prestigious, career-building opportunity.

Pair Chapters for Cross-Campus Collaboration - Encourage multi-chapter collaboration by pairing chapters:

- From different schools or districts
- With complementary engineering strengths
- To share resources, ideas, and mentorship especially for smaller chapters needing support

This builds community across TBP, models industry-style teamwork, and helps smaller chapters participate effectively.

Alumni Outreach and Engagement Strategy

The NEST Development Committee and Coordinators will change from core program development to greater alumni engagement and awareness through several opportunities listed below.

Create Targeted and Focused Engagement Roles - NEST will offer specific, time-bound opportunities for alumni to contribute, such as:

- Serving as a project mentor or technical reviewer
- Judging competition entries
- Hosting a virtual workshop or Q&A session

These roles should require minimal commitment but deliver high impact, making it easy for busy professionals to say “yes.”

Rebuild the Alumni–Student Chapter Connection - Facilitate structured partnerships between alumni chapters and student chapters:

- Pair local alumni with NEST teams from their former university or region
- Host joint events (virtual or in-person) focused on engineering problem-solving
- Encourage alumni to visit campus during project reviews or showcases

Highlight Alumni Impact Through Storytelling - Use TBP’s platforms (The Bent, social media, newsletters) to:

- Showcase alumni involvement in NEST and student projects
- Share mentor-student success stories
- Recognize standout contributions through awards or spotlights
- Showcase Tau Bates that are related to the Challenge

Offer Purpose-Driven Sponsorship Opportunities - Enable alumni to:

- Directly sponsor NEST teams or challenges
- Contribute to a NEST innovation fund
- Support awards for creativity, impact, or collaboration
- Tie these donations to visible outcomes like naming rights, alumni-sponsored awards, or recognition at Convention

Industry Outreach and Engagement Strategy

In addition to connecting with both past and present Tau Bates, NEST will also offer opportunities within industry to extend TBP's reach into previously unaffiliated businesses and organizations. Companies can use NEST to share how they do business, simultaneously informing students about ways to shape their skills, improving brand recognition in both academic and professional spheres, and potentially reducing the effort required to onboard new hires to their organization. NEST enables industry engagement through the following approaches:

Create Speaking and Seminar Opportunities - Businesses will be afforded a platform to engage with top-of-the-line future engineers by delivering presentations in areas such as:

- Project management
- Industry best practices
- Common toolsets and resources

Branding and Marketing Spaces - Companies can provide sponsorships to NEST EGGs, whether through time, money, or resources, providing space to brand in multiple areas and improve their ROI:

- At Convention as part of pitches
- Printed on physical proofs-of-concepts
- In press releases shared on social media

Industry Challenge Sponsorships - Invite companies to sponsor specific NEST Challenges aligned with their expertise or innovation goals. In return, they gain:

- Branding on all related materials and presentations
- Access to top-tier student solutions and talent
- An opportunity to guide real-world problem-solving while demonstrating commitment to engineering innovation and education

Technical Mentorship & Advisory Roles - Recruit engineers and technical leaders from industry to serve as mentors, project advisors, or judges. Their involvement:

- Provides students with applied engineering guidance
- Builds early pipelines to emerging talent
- Elevates the company's visibility within the TBP community

Strategic Innovation Partnerships - Develop long-term partnerships with organizations that want to support innovation through education. These partners can:

- Offer funding or in-kind resources (tools, software, lab access)
- Collaborate on NEST themes that reflect current industry challenges
- Participate in conventions or student showcases to evaluate and recruit talent

This strategy positions industry as a direct contributor to shaping the next generation of engineers.

NEST as a Catalyst for TBP Marketing

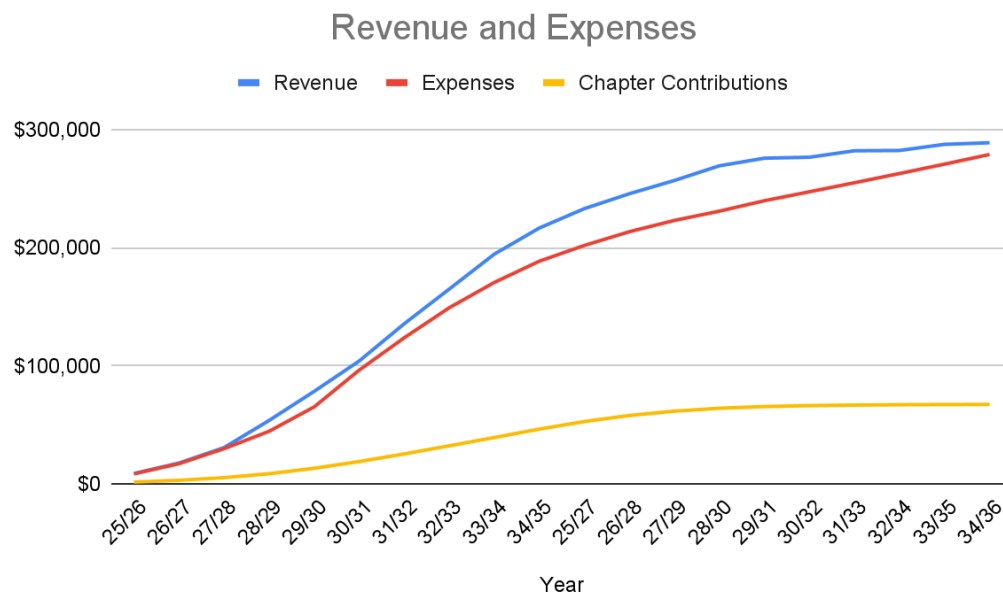
Tau Beta Pi has long elevated its brand by showcasing successful alumni who have made a mark on society. These stories inspire pride, reinforce the value of TBP membership, and attract top-tier students.

NEST offers a real-time marketing opportunity to highlight *current* student excellence, not just historical achievements. By documenting and promoting student-led engineering projects that solve real problems, TBP can:

- **Showcase relevance** – Demonstrate that TBP members are *actively* tackling global and local challenges, not just succeeding after graduation.
- **Highlight innovation** – Position TBP as a hub of creative, socially-conscious engineering—where members use their talent for tangible impact.
- **Engage new audiences** – Capture the attention of prospective members, industry partners, and media outlets with compelling project stories and results.
- **Create a pipeline of stories** – Feed TBP’s communication channels (magazine, social, Convention, district newsletters) with fresh, visual, shareable content.

Just like the success stories of prominent alumni, NEST can be the spark for telling today’s stories—about tomorrow’s leaders. It turns TBP’s brand into a living, evolving showcase of engineering excellence in action.

NEST Revenue and Expenditures Forecast



While not detailed here, increased student participation at Convention can boost the type, quality, and number of industry sponsors at the Recruiting Fair. As NEST projects gain visibility by addressing real-world challenges, they attract positive attention and goodwill—driving increased donations across all TBP programs and sponsor increased interest in the organization.

Fundraising is also a key growth area. Just as developing a project is central to NEST, so is a chapter's investment in securing its own support. TBP has already seen success with chapters raising funds to send non-delegate members to Convention. Building on this model, NEST chapters would gradually take on more responsibility—starting with a \$250 contribution and growing to \$500—helping sustain the program while reinforcing chapter commitment and belief in their project's value.

Revenue Assumptions

- Chapters contribute \$250 toward attendance through initial fundraising efforts, with future donations growing easier as NEST gains recognition in industry and communities—making larger contributions more attainable.
 - The NEST Development Committee and NEST Coordinators will provide materials and leadership to help students find innovative methods for obtaining funds
- 3% overall inflation added to each year
- Number of involved chapters is expected to grow to 138/year (~50%) over 10 years
 - Growth in chapters was shown as a logistical growth function where growth starts slow as NEST is gaining traction, accelerates once additional active chapters see others participating and the value proposition is realized, and then levels off with a few smaller chapters getting involved as either support from larger chapters or greater alumni

participation helps to get chapters involved that otherwise wouldn't.

- Projecting a near-term \$5,000/year revenue growth in donations directly towards NEST as interest and involvement grows
- Over the next two years, NEST Leadership will begin fostering corporate relationships through our personal and TBP networks to provide corporate backing of the event and/or a challenge
- Excess Revenue from NEST is allocated towards the TBP General Fund
- As more chapters begin participating in NEST, the proportion of lesser-active chapters increases that want to participate. These chapters typically have less fundraising capacity, leading to an assumed 10% regression in average chapter-contributed funds. In effect, the more active chapters—with stronger networks and fundraising ability—are partially subsidizing participation costs for less active chapters, helping ensure broader program involvement.
- Additional revenue streams like IP royalties are too volatile and not a fair projection to include, but does have the potential to substantiate revenue significantly if there are amicable developments with chapters

Expense Assumptions

- A 3% annual inflation rate is applied to all expenses starting in Year 26/27 and onward, compounding year-over-year.
 - This accounts for rising costs in travel, lodging, materials, and services.
- The number of alumni supporting the Convention grows from 1 to 30 over the 20-year period.
- Their travel and lodging are partially or fully subsidized to incentivize participation, mentoring, and judging.
 - Alumni involvement becomes a key retention and engagement strategy as the program matures.
- Air travel and hotel/food costs increase proportionally with chapter and alumni participation. These costs are indexed to inflation and rise slightly faster than participation growth due to increasing geographic diversity and rising airfare/hospitality prices.
- Marketing expenses grow significantly as NEST scales and external visibility becomes critical for recruiting sponsors, judges, and industry partners.
- Awards scale moderately, reflecting both increased competition size and more refined prize structures (e.g., regional + national tiers).

Revenue and Expense 10-Year Forecasts

Revenues

	Value 25/26	Value 26/27	Value 27/28	Value 28/29	Value 29/30	Value 30/31	Value 31/32	Value 32/33	Value 33/34	Value 34/35
TBP General Fund Support	\$4,700	\$2,100	\$400	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Direct Donations	\$2,500	\$5,000	\$10,000	\$20,000	\$25,000	\$30,000	\$35,000	\$40,000	\$45,000	\$50,000
Chapter Solicited	\$1,800	\$3,240	\$5,490	\$8,820	\$13,410	\$19,080	\$25,560	\$32,400	\$39,420	\$46,530
Event Sponsors	\$0	\$2,500	\$5,000	\$10,000	\$15,000	\$20,000	\$25,000	\$32,500	\$40,000	\$45,000
Challenge Sponsors	\$0	\$5,000	\$10,000	\$15,000	\$25,000	\$35,000	\$50,000	\$60,000	\$70,000	\$75,000

Expenses

	Value 25/26	Value 26/27	Value 27/28	Value 28/29	Value 29/30	Value 30/31	Value 31/32	Value 32/33	Value 33/34	Value 34/35
Awards	\$500	\$2,000	\$2,500	\$3,000	\$3,500	\$4,000	\$4,500	\$5,000	\$5,000	\$5,000
Marketing Materials	\$1,000	\$2,500	\$5,000	\$5,000	\$5,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Chapters (# of paid)	8	14	24	38	57	78	99	117	129	138
Air Travel	\$4,000	\$7,180	\$11,966	\$19,047	\$28,428	\$39,193	\$49,686	\$58,406	\$64,742	\$68,911
Hotels/Food	\$2,400	\$4,308	\$7,180	\$11,428	\$17,057	\$23,516	\$29,812	\$35,044	\$38,845	\$41,347
Alumni (# of paid)	1	1	2	3	5	8	12	16	20	24
Air Travel	\$500	\$500	\$1,000	\$1,500	\$2,500	\$4,000	\$6,000	\$8,000	\$10,000	\$12,000
Hotels/Food	\$300	\$300	\$600	\$900	\$1,500	\$2,400	\$3,600	\$4,800	\$6,000	\$7,200
Total	\$8,961	\$17,810	\$30,864	\$46,005	\$67,220	\$99,237	\$127,412	\$153,595	\$175,606	\$194,140

Conclusion

NEST offers Tau Beta Pi a transformative opportunity to deepen student engagement, reenergize alumni involvement, and elevate the organization's visibility and impact. By empowering students to lead real-world, multidisciplinary projects—supported by mentors, sponsors, and chapter networks—NEST reinforces TBP's mission in a tangible, modern way. It builds leadership, drives innovation, and creates powerful stories that resonate far beyond campus. With a scalable model, proven alumni interest, and built-in fundraising potential, NEST is more than a competition—it's a strategic engine for growth, relevance, and long-term sustainability for TBP.

