Food Systems Leadership Institute (FSLI) – Leadership Project Impact Report

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Project Title: *Entomology+AI: Building a Future-Ready Food Systems Workforce*

PROJECT OVERVIEW

This project advances a transformation of the Department of Entomology's education, research, and extension mission through an integrated Entomology+AI framework. The North Star is to position Purdue Entomology as a global leader in preparing a workforce skilled in AI-enabled discovery, predictive entomology, and data-driven entomology applications for food systems impact.

The work aligns to institutional priorities, and responds to constrained budgets, enrollment pressures, workforce gaps, and evolving R/T/E models, alongside the rapid integration of AI into disciplinary practice. It applies systems thinking and adaptive leadership to evolve traditional teaching, research, and extension structures toward predictive, data-driven entomology supported by AI, sensor technologies, and emerging autonomous systems.

This transformation is organized around three strategic initiatives: (1) co-creating a shared strategic vision aligned with workforce demand and stakeholder input, (2) embedding AI and applied experiential learning across teaching, research, and extension, and (3) strengthening workforce pipelines through industry partnerships and extension innovation.

Early progress includes expanded undergraduate access pathways, initiation of curriculum redesign focused on AI integration and experiential learning, approval of an internship program (Fall 2026), advancement of a 4+1 accelerated BS/MS program (Fall 2027, pending approval), and establishment of an external advisory group. Visioning workshops have been completed with faculty and are in progress with staff and graduate students to support shared alignment.

STRATEGIC OBJECTIVES

Shared Entomology+AI strategic vision alignment.
Co-create and align a unified vision across faculty, staff, students, and external partners to ensure departmental direction reflects workforce demand, stakeholder input, and long-term disciplinary relevance.

AI-embedded curriculum and learning ecosystem transformation.
Redesign curriculum and educational pathways through AI integration and experiential learning, embedding applied data science, predictive approaches, and real-world problem solving across undergraduate and graduate programs. In parallel, develop and exploit AI-enabled research and extension infrastructure, including decision-support tools and predictive dashboards.

Workforce pathways and partnership ecosystem development.
Strengthen workforce pipelines through structured industry engagement and extension innovation, including internships, accelerated degree pathways, and advisory partnerships that connect students, research, and practice.

IMPLEMENTATION & TIMELINE (3-Year Horizon)

Phase 1: Co-Creation of a Shared Vision (Underway)

- Visioning workshops across faculty, staff, and students
- Co-creation of a shared strategic vision grounded in institutional and personal values and the "why"

• External advisory group established for workforce alignment
• Each stakeholder group identified 3–5 actionable initiatives aligned to the shared vision

Phase 2: Strategy Development, Alignment and Prioritization (Underway)

• Internal "A-Team" synthesizing stakeholder input with external advisory feedback
• Refinement into 3–5 strategic priority areas for immediate investment
• Development of a concise strategic vision plan (~5 pages) aligned to curriculum and teaching priorities

Phase 3: Teaching-Focused Early Implementation and Pilots (Remainder of 2-Year Horizon)

• Curriculum revision, including redesigned and new courses aligned to AI learning outcomes (in progress)
• Pilot testing of new and revised courses and learning pathways
• Applied AI portfolio requirement for all graduating students
• Launch of internship program (Fall 2026) supporting applied learning
• Continued progression of 4+1 BS/MS program (Fall 2027, pending approval)

Parallel initiatives include exploration of online courses and stackable credentials with community colleges (pathway to the degree program), development of predictive extension tools and digital data assets and learning systems, and targeted hiring aligned with instructional and curriculum transformation priorities.

TRANSFORMATION INDICATORS (3-YEAR SMART TARGETS)

Curriculum Transformation

• 50% of courses redesigned with AI/data integration
• 100% of undergraduates graduate with applied AI portfolios
• All programs incorporate AI foundational learning outcomes through revised or new coursework

Research & Innovation Impact

• 50% of research programs integrate AI-enabled methods
• Target 25% increase in research funding through expanded AI, applied research, and extension activity

Engagement and Growth

• Sustained >75% stakeholder engagement across faculty, staff, students, and advisory partners
• Target >25% increase in industry partnerships and external support
• Target 25% increase in undergraduate and graduate enrollment supported by program differentiation

KEY CONSTRAINTS

This transformation is intentionally designed within real institutional constraints, requiring adaptive, scalable solutions:

• Flat or declining budgets limiting new investment
• Contraction of traditional extension models and evolving delivery expectations
• Uneven digital readiness across faculty and infrastructure

WHAT WE WILL NOT DO

To maintain focus and feasibility, we will not expand programs without redesigning existing capacity, treat AI as a standalone add-on, rely on traditional extension models, centralize the transformation or outsource to other units, or advance initiatives without workforce alignment and external validation. These guardrails ensure coherence, scalability, and institutional alignment.

FSLI LEADERSHIP DEVELOPMENT REFLECTION

The Food Systems Leadership Institute (FSLI) provided a practical framework for leading in complexity and strengthened my capacity for adaptive leadership grounded in systems thinking, self-awareness, and stakeholder engagement. The three in-person sessions were especially valuable in reinforcing core leadership concepts (self→organization→food systems level), and the recommended readings helped deepen and extend those lessons. I also returned repeatedly to each of the 360-degree assessment instruments to identify and refine specific leadership skills requiring continued development.

A key shift in my leadership approach has been moving from managing individuals to activating talent, reframing the department as a system of capabilities aligned toward shared purpose (growth mindset!). FSLI reinforced three core areas: intentional culture shaping, leading in VUCA environments through clarity and communication, and distinguishing incremental change from transformational leadership. These insights have directly influenced how I structure engagement, align strengths, and facilitate collaboration pathways.

This learning has translated into practice through shifts from presentation-based faculty meetings to more co-creation workshops and the development of structured external advisory partnerships. The final in-person session in California served as a capstone experience, integrating all elements of the program from a systems-level perspective. The broader FSLI experience, including online sessions and presentations, and peer networking, has strengthened my professional network. The central takeaway is that transformational leadership requires facilitation over direction, engagement over management, and systems thinking over siloed approaches. These lessons are lasting and will continue to shape my leadership practice in complex food systems environments.