

Gold Standard TVET: Examining SENAC Brazil's AI Adoption

A Strategic Blueprint for Integrating AI into Institutional Strategy and Immersive Training

Across the global Technical and Vocational Education and Training (TVET) landscape, institutions stand at varying stages of AI adoption. While many are successfully navigating the early rollout of individual administrative productivity tools, a critical question remains: What does a fully integrated, future-ready, "gold standard" AI vocational institution actually look like in practice?

SENAC Brazil provides a definitive answer. Rather than treating artificial intelligence as a collection of isolated software pilots, SENAC has approached AI as an opportunity to fundamentally redesign how vocational education is built, updated, and delivered nationwide. By systematically embedding AI into student learning sandboxes, teacher development, and back-end institutional planning, SENAC has created an operational model where hands-on practice is scaled through smart automation.

To inform and scale this national transformation, SENAC connected with the **Microsoft Global AI for TVET Community of Practice**. Participating in this cross-border network allowed SENAC to benchmark its digital roadmap against international models while sharing its own strategies for bringing AI into diverse learning environments—from bustling metropolitan campuses to floating boat schools in the Amazon rainforest.

Central to SENAC's strategy is the core conviction that vocational learning must remain deeply practice-driven, iterative, and aligned with real-world work. For TVET decision-makers globally, SENAC's journey provides a concrete, evidence-based reference point for moving past small-scale experimentation and stepping into system-level transformation.

Driving National Strategy with Local Market Realities

A primary friction point for large-scale educational systems is maintaining consistency across diverse regions while remaining responsive to local employer needs. SENAC solves this by utilizing AI as a strategic tool to analyze and align its massive training portfolio.

By applying intelligent models to analyze national course plans alongside emerging technology trends, SENAC can instantly pinpoint where a specific trade curriculum needs to evolve to remain competitive. Rather than leaving these data insights in a silo, they are continuously cross-referenced with structured feedback from employers via regional sectoral forums. While this systemic alignment spans industries like hospitality, healthcare, and culinary training, it comes to life vividly in sectors like hotel reception and tourism. In these programs, rather than relying on static coursework, instructors utilize Hermes—an AI-powered virtual simulation tool—to instantly generate dynamic, real-

Elements of the Gold Standard Model



Strategic Curriculum Alignment

Using AI models to map course design directly against national occupational frameworks.



Immersive Training Environments

Deploying AI-powered simulators that enable students to practice workplace situations in a safe, interactive environment.



Pedagogical Co-Pilots

Providing educators with custom-built tools to generate multi-modal classroom activities.

world workplace scenarios. Students then practice managing unexpected guest situations or hospitality demands in real time, receiving immediate, automated feedback until they master the competency. This responsive approach ensures that whether a student is training in an urban industrial hub or a remote rural community, their daily coursework directly reflects real-time corporate hiring requirements.

Building the Virtual Sandbox: Scaling Practice Through AI

The definitive marker of SENAC's "gold standard" status is its shift from theoretical learning to active, immersive simulation. Vocational training thrives on hands-on repetition, but physical machinery, lab spaces, and raw training materials are expensive and difficult to scale.

To bridge this gap, SENAC integrates advanced AI-driven simulators and technical environments that mirror corporate production settings. Within these virtual sandboxes, students engage in realistic workplace scenarios where they interact with virtual clients, make professional decisions, solve authentic problems, and receive immediate feedback in a safe, repeatable, low-cost digital environment that promotes competency development.

For example, on Lab S, Senac's AI-powered Occupational Simulation Platform, the AI acts as an invisible tutor within the simulator, analyzing the student's choices, introducing adaptive real-world challenges on the fly, and providing immediate feedback.

Empowering Instructors with Custom Pedagogical Architecture

Widespread institutional adoption fails if educators are forced to use generic AI solutions that do not understand vocational pedagogy. To solve this, SENAC moved beyond basic public chatbots and engineered a custom internal solution built on the Microsoft Azure OpenAI Service.

This dedicated tool is trained on SENAC's National Framework of Courses. When an instructor logs in, the platform already understands the exact pedagogical parameters, national compliance laws, and skills-first objectives required for that specific trade.

Instead of wasting hours typing vague prompts into public engines, an instructor can select a module and instantly generate tailored lesson plans, localized technical case studies, multi-level student rubrics, and interactive class exercises. By automating these heavy documentation tasks through a secure, institution-specific tech stack, SENAC turns AI into an accessible pedagogical partner that gives hours back to direct student support. This focus on practical utility directly addresses a key finding shared across the Community of Practice: educators are often more apprehensive about AI adoption than their students. By pairing custom tools with structured live workshops and peer learning, SENAC helped faculty view AI not as an intimidating technical requirement, but as a practical ally that reduces administrative workload.



Artificial intelligence allows us to bring innovative vocational education to every corner of Brazil. From remote communities in the Amazon to the country's largest metropolitan areas, we are using AI to ensure that every learner has access to meaningful, practice-based education that prepares them for the future of work.

Arthur William Santos

National Coordinator of Educational Technologies, SENAC National Department

Responsible Innovation through Structured Governance

An advanced digital ecosystem requires proactive safety boundaries. SENAC's implementation is guided by an explicit commitment to ethical, responsible technology use.

Rather than banning AI out of fear or ignoring it until challenges arise, the institution established clear, board-level data privacy guardrails and algorithmic transparency guidelines. This protective framework ensures that student performance data remains entirely secure within the Azure cloud environment while giving faculty members clarity on how automated insights are generated.

By establishing secure, privacy-protected AI environments behind the scenes, SENAC gives teachers and students a safe sandbox to explore. Instructors can experiment with AI lesson plans and interactive student simulations with complete peace of mind, knowing institutional and personal data remains protected.

What This Means for the Global TVET Community

While few institutions possess the initial resources to launch a nationwide, multi-layered AI architecture overnight, SENAC's mature model proves that the underlying operational principles are entirely transferable.

The critical takeaway is that transformation is not achieved by chasing the latest viral app; it is achieved through deliberate alignment. By picking a singular entry point—whether that is optimizing teacher workflows or refreshing curriculum data models—and anchoring it to clear pedagogical goals, any vocational institution can begin building its own pathway toward a future-ready, gold-standard ecosystem.

Ultimately, SENAC's active participation in the Community of Practice demonstrates how global collaboration accelerates institutional growth. By engaging with international peers, SENAC validated its use of custom AI simulation agents, refined its data governance strategy, and gained critical insights on overcoming teacher apprehension. In turn, SENAC provided the global TVET network with a proven blueprint for system-wide scale—proving that true digital transformation is built when institutions share frameworks, ground technology in local market needs, and empower educators to innovate with confidence.

Access Ongoing AI Training & Resources

Ready to empower your team with certified AI skills?

Microsoft Elevate for Educators provides school leaders and teachers with community access, credentials, and capacity building to confidently integrate AI into teaching. In partnership with IYF, these courses are available in English, Spanish, Portuguese, and French.

**To learn more: [Microsoft Elevate for Educators](#)
[Explore the Global AI for TVET Training: AI Training Courses](#)**

The Pathway to the Gold Standard

- 1. Isolated Utility**
Equipping faculty to independently adopt tools like Copilot for basic writing and administrative tasks.
- 2. Custom Platform Integration**
Building secure, custom architectures (like Azure OpenAI) trained on institutional curriculum frameworks.
- 3. Immersive Simulations**
Expanding the classroom through AI-powered occupational simulators and interactive learning environments.
- 4. Systemic Sync**
Connecting real-time labor market trends directly to automated institutional course planning.

This case study series was developed by the International Youth Foundation (IYF) in collaboration with the Microsoft Global AI for TVET Community of Practice. Together, they equip workforce development leaders across Africa, Latin America, and Asia with scalable, human-centered frameworks to integrate AI into technical education.



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