

AI Innovation for the Future of Education



AiBrewery Inc.
AiB Ventures Inc.

Empowering Minds and Transforming Tomorrow

Manny Kandola
2025 Connects Unconference
Monday February 3rd, 2025

About me: Manny Kandola



*'Wartime and
Peacetime leader'*



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- 24 years of Tech leadership experience
- Marketing, Insurance, Finance, and Education
- Comp Sci, Exec MBA and Masters in AI

- CTO, Ontario Tech University
- CAIO, AiB Ventures Inc.
- Fractional CTO, AI Brewery Inc.

- **Growth stories;**
 - Generali Insurance B2B2C Platform: from \$5M to \$400M
 - Viral Nation Tech platform: \$250M raise at \$1B valuation
 - 10+8+6 Tolerance

- **Oakville, Toronto, KW and Oshawa**



Topics to cover

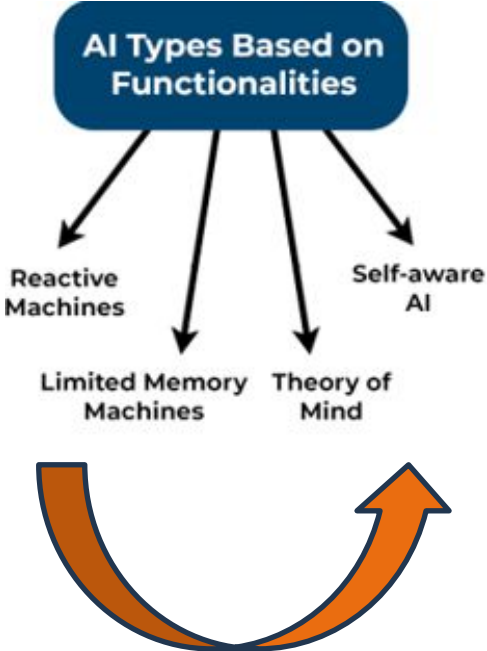
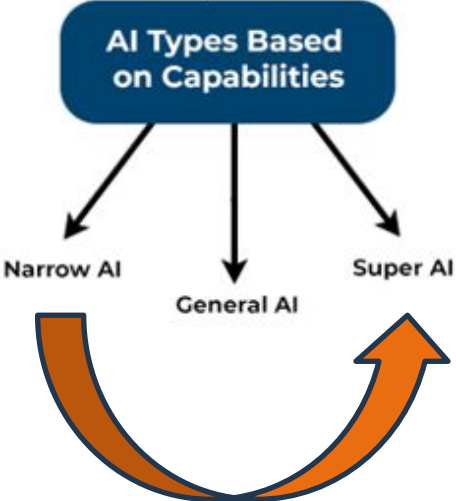
1. Current and future state of AI in Education
2. Ethical responsibilities
3. Strategic development and integration with AI



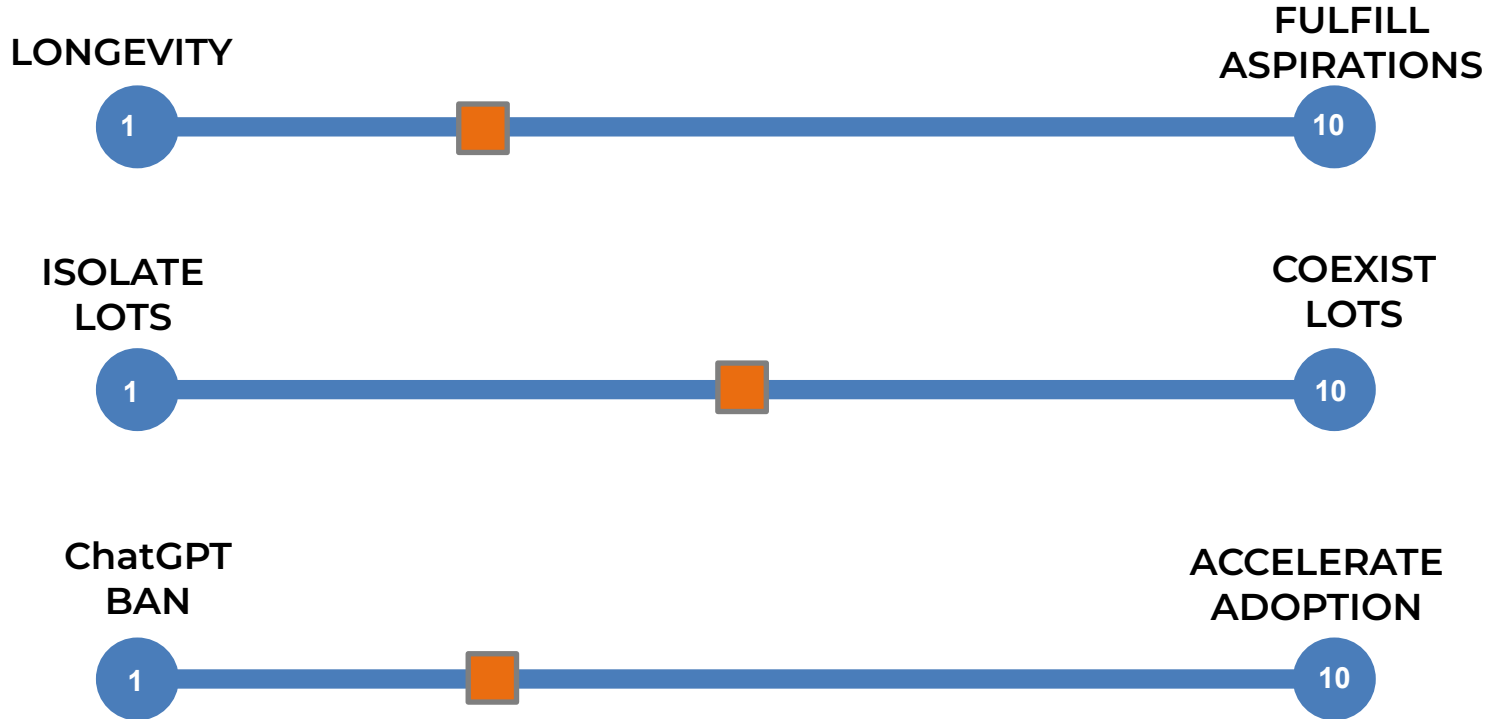
LEVEL SET



Types of AI



Who's in the room?



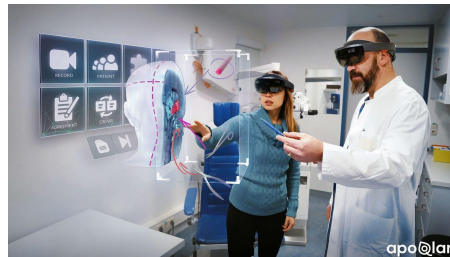
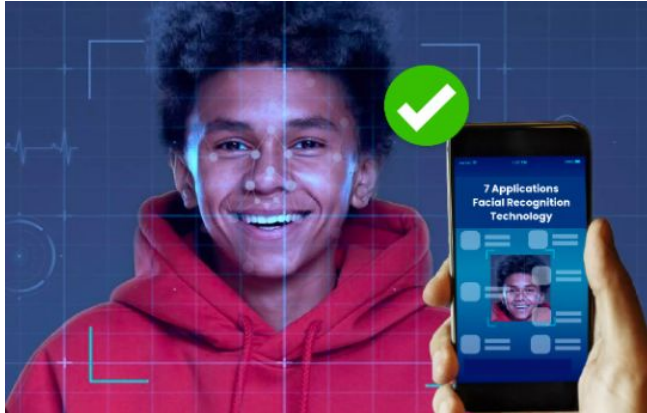
CURRENT AND FUTURE STATE OF AI IN EDUCATION

Learning toolset is radically changing

	E-Learning & Blended	Digital Learning	Skills-Based Learning	Learning For Growth	Intelligent Learning
Formats	Course Catalog Online University	Video, Self-Authored Mobile, YouTube	Skills Taxonomies Micro, Macro Learning	Skills Taxonomies Micro, Macro Learning	Copilot For Learning
Philosophy	Instructional Design Kirkpatrick	Learning In The Flow Search & Discovery	Skills Taxonomies Academies, Credentials Coaching, Cohorts	Career Pathways Skills Adjacencies Talent Marketplace	AI-generated content Video and conversational Extraction
Features	Courseware, Video, Quizzes, Interactions Simulations	Video, search, Youtube, Microlearning Curated SME content	Skills engines, capability models, skills inference, skills assessment	Career aspirations, Career coaching, Mentors, experts	Automatic Assessment
Systems	LMS as E-Learning Platform	LXP As New Core for Learner	Capability Academies	Talent Marketplace Career Platforms	Intelligent agents and teachers
	2000s	2010	2020	Today	2023+



Immerse physical environments and visuals



Demand for a complete education

Learning: the process of gaining understanding through **study** and **experience**

Intelligence: the ability to **acquire** and **apply** knowledge and skills

In all disciplines, a complete education needs to include:

Experience

- Discovery
- Reflection
- Action

Meaning

- Generalizing
- Personalizing
- Relevance

Connections

- Integration
- Context
- Perspective

Feelings

- Awareness
- Empathy
- Relationships

Applications

- Novelty
- Creativity
- Divergence



Analytical Thinking

(Systematically and logically)

Creative Thinking

(find novel and practical methods to address challenges)

Resilience, flexibility, and agility

(ability to recover from setbacks)

Motivation and self-awareness

(ability to change with new conditions)

Curiosity and lifelong learning

(ongoing, voluntary, and self-motivated pursuit of knowledge)



OECD Learning Compass 2030

Cognitive and meta-cognitive skills

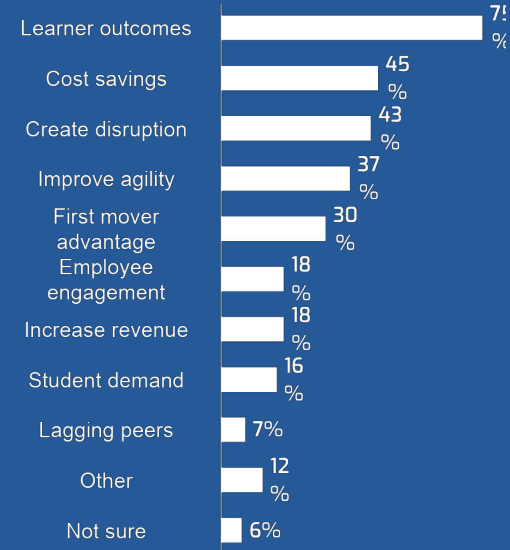
Social and emotional skills

Practical and physical skills



Realities creating the urgency

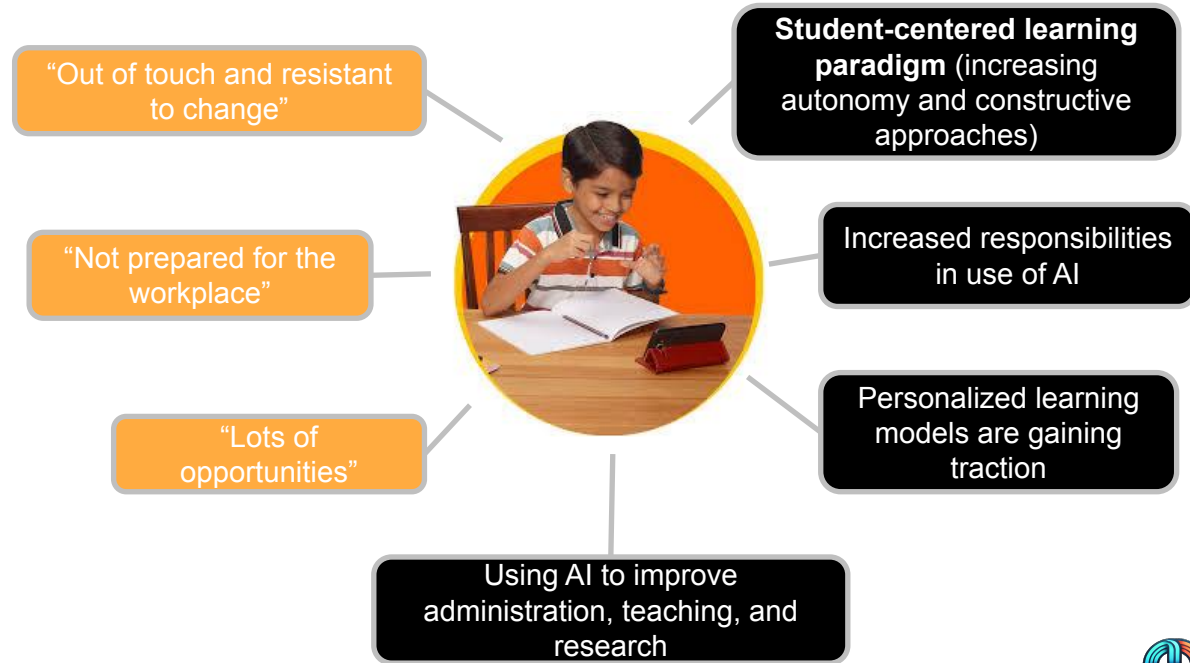
Reasons for AI Adoption in Education



N=464, respondents can choose multiple options

(HoloniQ)

Internal and External Forces



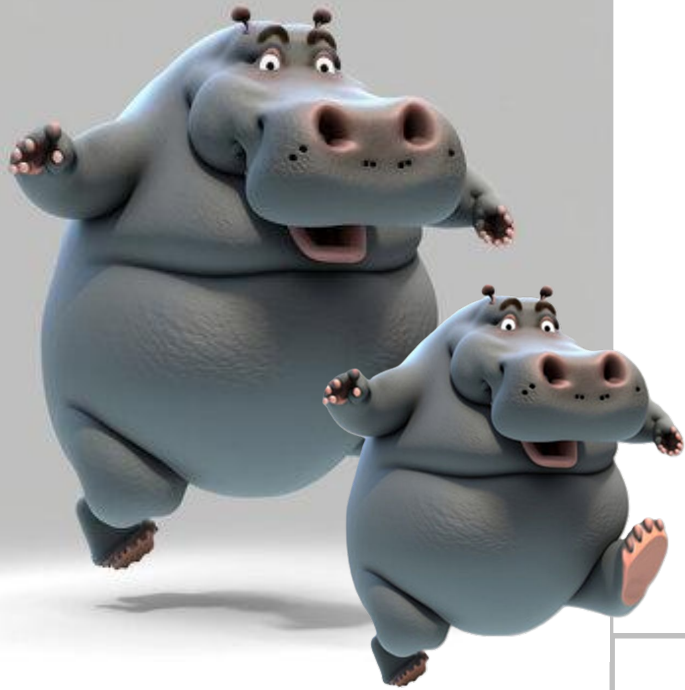
Human career values are transforming



Make Something

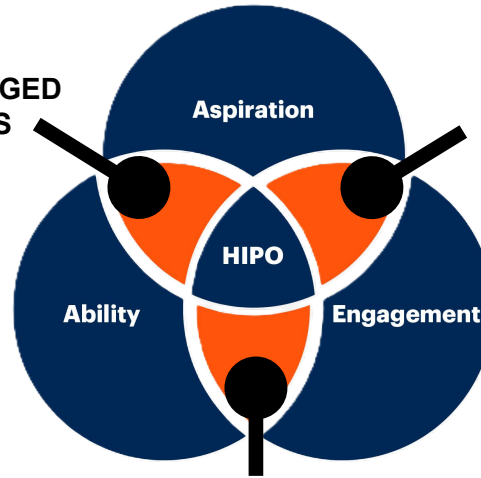
Make Anything





DISENGAGED STARS

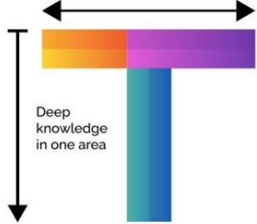
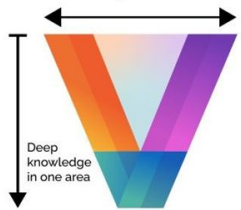
ENGAGED DREAMERS



MISALIGNED STARS

Gradually broadening knowledge in adjacent areas

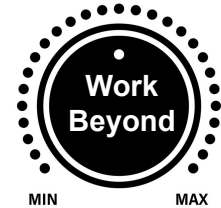
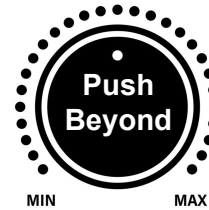
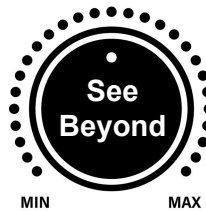
Shallow knowledge in a broad range of areas



INTELLECTUAL CAPACITY

INTRAPERSONAL CAPACITY

INTERPERSONAL CAPACITY

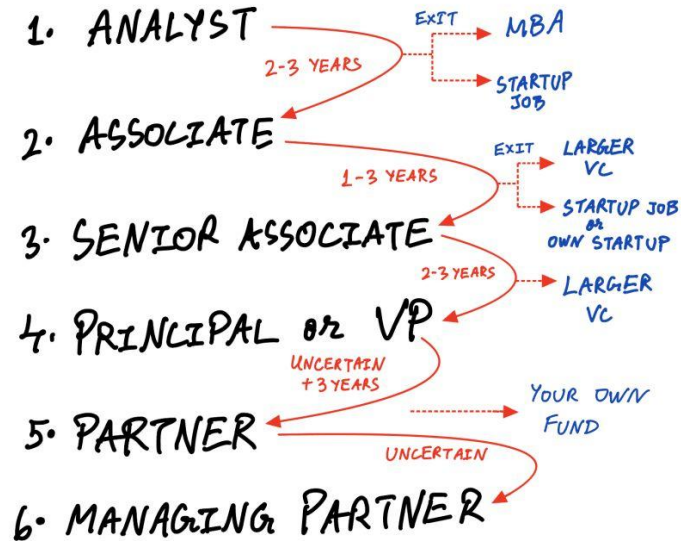


Grow growth

INDUSTRY MATURITY



WORKFORCE APPETITE



Khanamigo





Adopt an AI Education Platform

Evolution to the next generation learning ecosystem



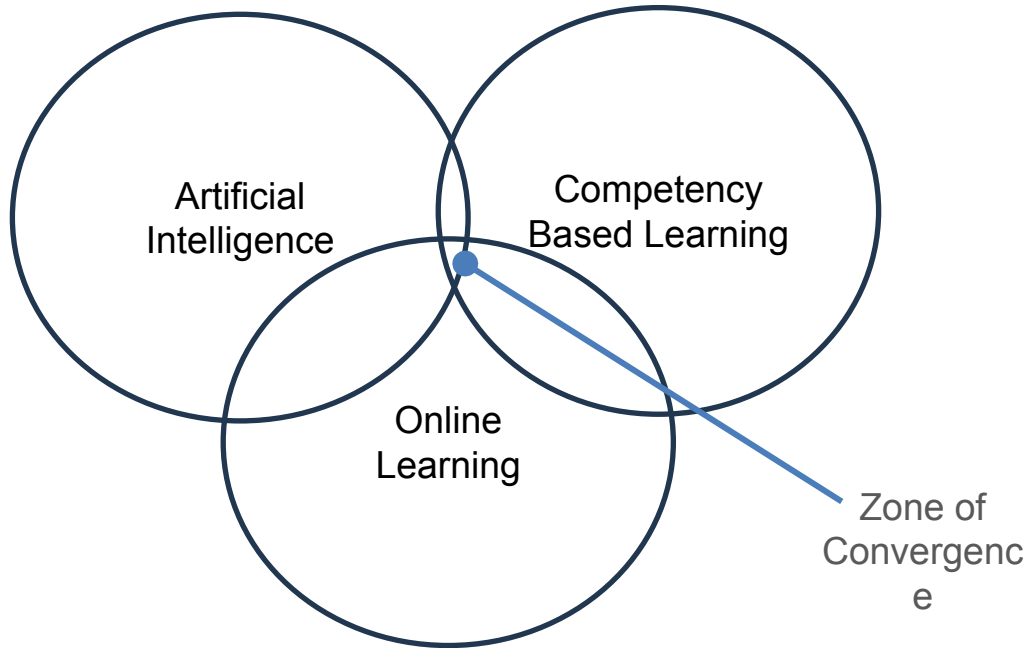
EdTech Solution Delivery

- 1. Learning Management Systems (LMS):**
Personalize learning paths, recommend resources, and analyze student engagement.
- 2. AI-driven Academic Advising:**
Personalized academic advising based on their strengths, career goals, and performance analytics.
- 3. Adaptive Learning Platforms:**
Adapt content delivery based on real-time assessments of student performance.
- 4. AI in Administrative Processes:**
Manage student queries, admissions processes, and administrative tasks, freeing up human resources for more complex duties.



AI meets Competency Based Learning

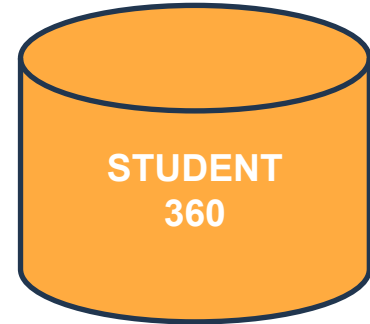
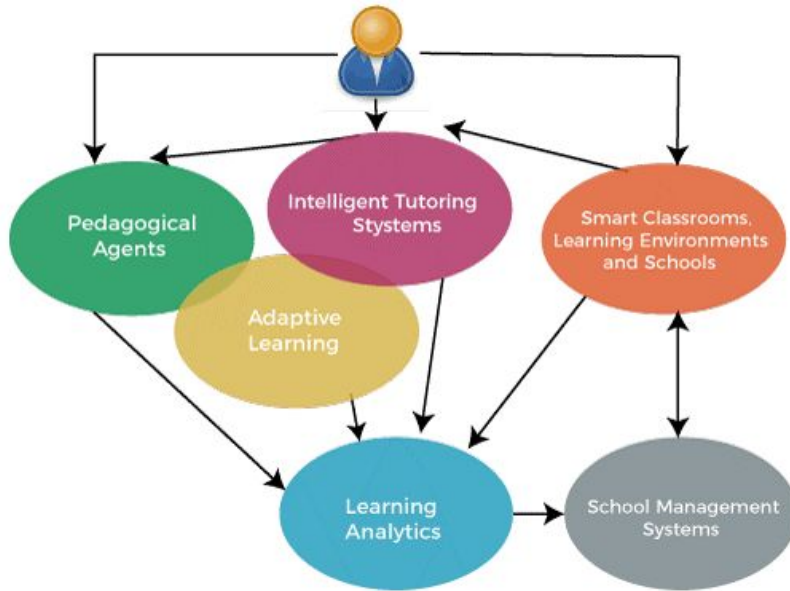
- CBL focuses on the mastery of specific skills, knowledge and abilities (competencies) rather than time spent in class.
- Students' progress at their own pace as they demonstrate proficiency in each area.
- CBL is more flexible and personalized, allowing for a more tailored educational experience.



- ✓ Ensures that students are continuously engaged and motivated to learn
- ✓ Higher completion rates and student satisfaction with more confidence to succeed.
- ✓ Instructors can more efficiently track and support student progress.



Emerging differentiator; HYPER-PERSONALIZATION



- **SIS/LMS Analytics**
 - Demographics, Enrollment Records, Academic Performance
- **Student Engagement and Extracurricular Activities**
- **Advising and Counseling Data**
- **Financial Aid and Billing**
- **Alumni Data**



The invisible teacher and the AI Classroom



AI knows your students better than you do, and AI is already teaching students—often better than humans—but are we still in denial?

Today: ChatGPT, Khanmigo, and AI tutors already surpass human teachers in explaining STEM concepts, diagnosing weaknesses, and adapting content.

Tomorrow: AI will act as continuous mentors, detecting emotional shifts and offering real-time interventions. Every moment is personalized and tracked

Challenge: Who should own the AI teacher experience—educators or tech companies?

Future vision: AI should augment, not replace, teachers. But will future teachers be "learning architects", curating AI-generated content rather than instructing?

“If AI can teach most factual knowledge, what is the new role of the human teacher?”

“Are we building an education system that nurtures students or optimize them?”



AI: Death of Standardized Learning



AI makes fixed curricula obsolete—what does learning look like when AI hyper-personalizes everything?

Today: Students follow a one-size-fits-all syllabus designed for the industrial era.

Tomorrow: AI will generate real-time, competency-based, personalized curricula, unique to every student.

Challenge: Will AI-driven learning still foster resilience, adaptability, and collaboration, or just optimize for fast content consumption?

Future: AI-driven "Learning Co-Pilots" will track cognitive patterns and tailor challenges dynamically, making standardized testing irrelevant.

“If AI already knows what a student is great at by age 10, do we still need grade levels?”



AI Transcript: A Lifelong Learning Passport



Tomorrow: AI will track, analyze, and certify every skill learned across a student's life.

AI will build a real-time, evolving transcript based on demonstrated skills, projects, and competencies.

Challenge: Will this reduce bias in hiring, or create an inescapable lifelong data trail for students?

Future vision: A global AI credentialing system that allows students to prove competencies without needing a university degree.

“Will students in 2035 need universities, or just an AI-verified skills portfolio?”



ETHICAL AND REGULATORY CONSIDERATIONS

AI-Driven Social & Emotional Learning Dilemma



AI can simulate empathy—but should it?

Today: Schools use AI to track student engagement, behavior, and well-being.

Tomorrow: AI tutors will become emotional companions, capable of offering advice, motivation, and even psychological support.

Future: Will students form stronger bonds with AI than with their teachers or peers?

Challenge: AI will coach students on communication, empathy, and leadership—but should machines be teaching human emotions?

“If AI detects depression in a student before a teacher does, who should be responsible for intervening?”



AI and the Disappearance of Failure



AI will predict mistakes before they happen—but is failure necessary for learning?

Today: AI already suggests answers, corrects essays, and personalizes pathways to reduce struggle.

Tomorrow: AI will anticipate when a student is about to fail and adjust lessons instantly.

Challenge: Are we raising students who never experience failure, leaving them unprepared for real-world challenges?

Future vision: AI should engineer productive failure, designing learning experiences where struggling is intentional and meaningful.

“What happens when no student ever ‘fails’ a class again? Does education lose meaning?”



Increased responsibility



AI governance initiatives (re: AIDA, Bill C-27)

Three major initiatives to establish and improve AI governance:

1 DEVELOP AI EXECUTIVE COMMITTEE CHARTER

- Define auditing process.
- Define metrics.
- Define collaboration model.
- Build authority matrix.

2 TRAIN AND BRIEF AI GOVERNANCE COMMITTEE MEMBERS

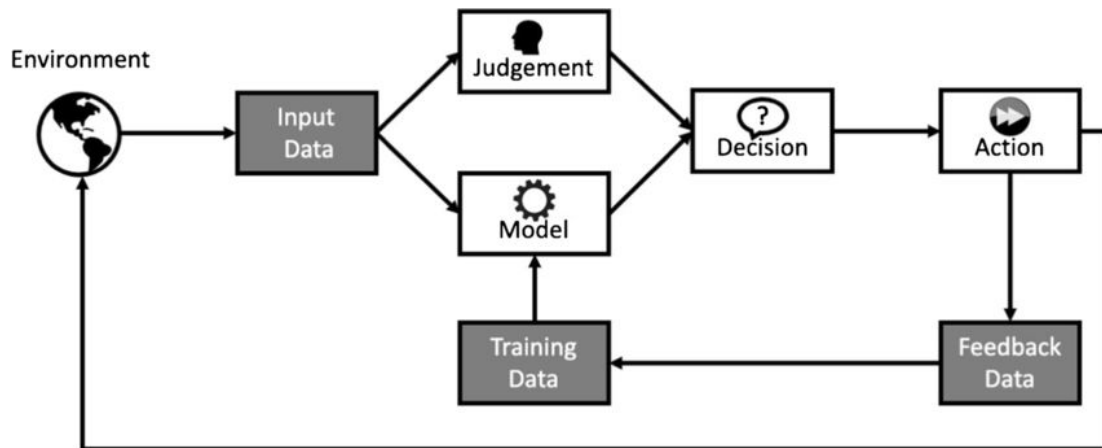
- Provide foundational AI training and expert insights to committee members.
- Create an AI resource center to support on-demand research and learning.
- Brief committee members on current use of AI within the organization.

3 ESTABLISH AI CENTER OF EXCELLENCE

- Assemble multidisciplinary team and define roles and responsibilities.
- Establish KPIs and metrics.
- Assign members to business units or initiatives to oversee implementation.



Responsible AI tooling



BIAS EVALUATION TOOLING

RECITATION & FACTUALITY

EMBEDDING SAFETY
ATTRIBUTES

CONTENT INPUT
& RESPONSE MODERATION



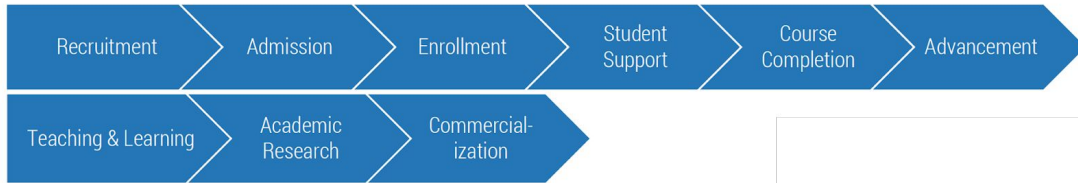
STRATEGIC DEVELOPMENT AND INTEGRATION OF AI

Formulating a Winning AI Strategy

Value and Feasibility Use Case Analysis

Core vs. Support Streams

The Eight Value Streams for Higher Education



The Four Value Streams for K-12 Education

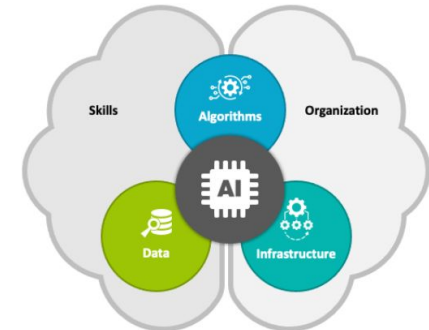


Readines

Top 3 Barriers to AI Adoption

Lack of talent with AI skills	53%
Under-resourcing for AI	50%
Lack of clear strategy	47%
Data infrastructure	52%

Investment and road mapping



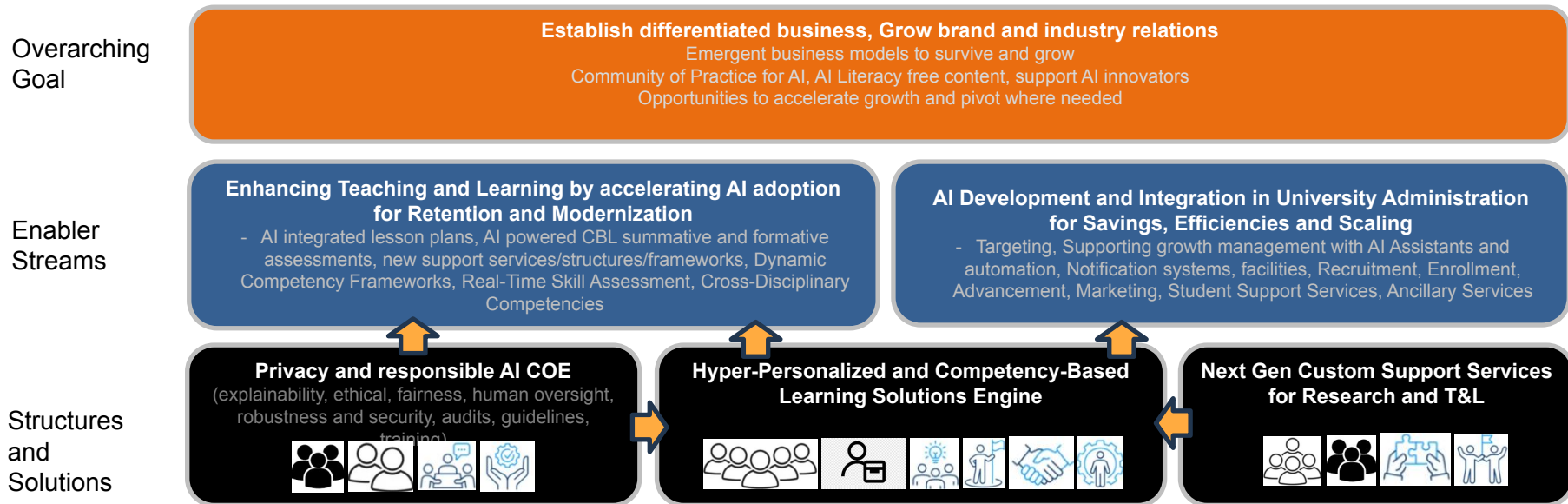
Executive Brief

*Ontario Tech University is at the forefront of **AI-Driven Innovation** and **Hyper-Personalization** in education. The strategy focuses on the seamless integration of AI to create a flexible, personalized, and competency-based learning environment that prepares students for real-world challenges, all while maintaining ethical considerations and fostering intellectual resilience.*

- 1. Ethical Vision for AI in Education**
- 2. Building Trust in AI Systems**
- 3. Hyper-Personalization and Competency-Based Learning**
- 4. Reinventing the Learner Value Chain**
 - Unbundling: Modular Courses and Services, Virtual Labs and Simulations, Flexible Tuition Models.
 - Disintermediation: AI-Powered CBL Tutoring and Mentoring, Direct Industry Connections, Access to Research and Learning Resources
 - Decoupling: Separate Content Creation/Delivery/Assessment, Outsource Non-Core Functions (e.g. Facilities Management), Variable Tuition Models (e.g. Micro-credentialing, nanodegrees)
- 5. Emerging Trends and Challenges in AI-Driven Education:**
 - Dynamic Competency Frameworks, Real-Time Skill Assessment, Cross-Disciplinary Competencies,

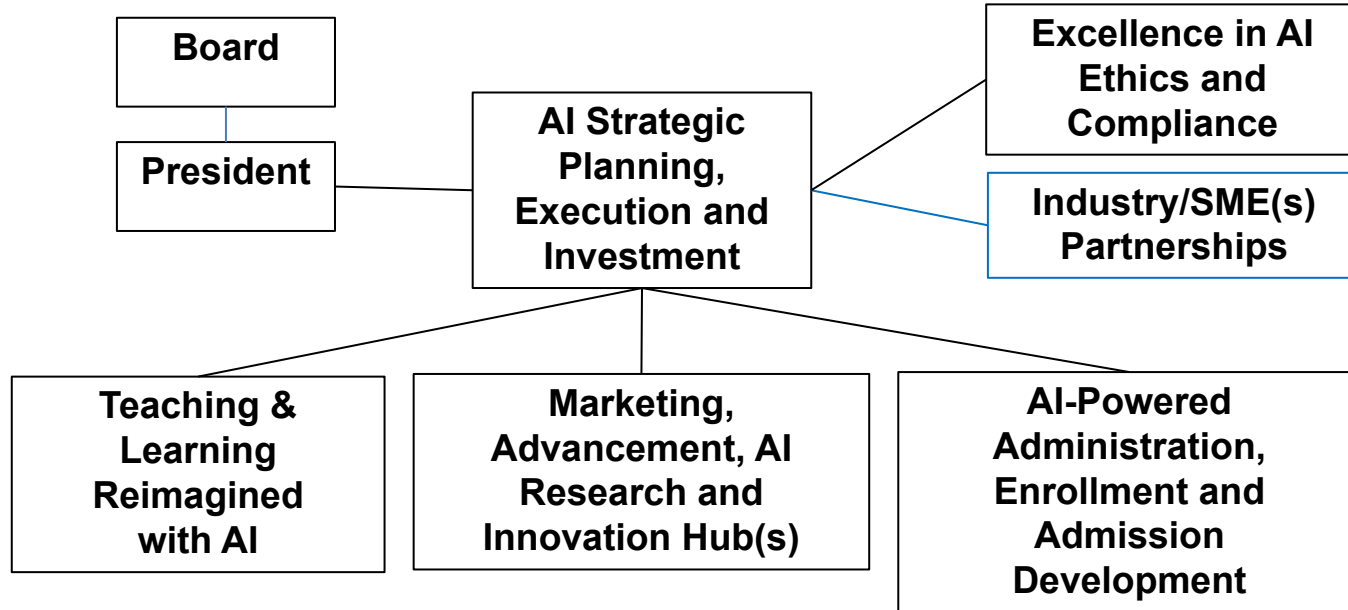


Institutional AI strategy core activities



Program Organizational Structure

AI CoE



AI Management and Action Squads



Early adopters

- . Faculty of Business and IT
- . Faculty of Education
- . Faculty of Engineering and Applied Science
- . Faculty of Energy Systems and Nuclear Science
- . Faculty of Health Sciences
- . Faculty of Science
 - . Faculty of Social Science and Humanities
 - . Faculty of Graduate Studies



The AI Enhanced Parent



When AI Knows Your Child Better Than You Do,

Tomorrow: AI-powered parenting assistants will soon track a child's emotional shifts, learning styles, and personality evolution in ways even parents can't.

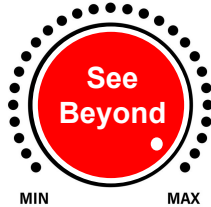
Future: Will AI-driven insights cause over-optimization, where parents push kids toward what AI predicts, rather than letting them evolve naturally?

How do we balance AI parenting tools without undermining human intuition?

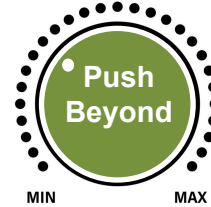


Final thoughts

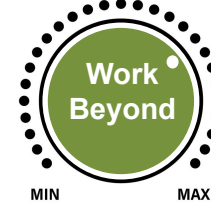
INTELLECTUAL
CAPACITY



INTRAPERSONEL
CAPACITY



INTERPERSONAL
CAPACITY



FUTURE PROOF THE CLASSROOM

- ✓ Make AI the co-teacher
- ✓ Work with the AI tech strengths and weaknesses,
- ✓ Value human intelligence more than computer like processing,
- ✓ Ask AI questions it can't answer and devise problems chatbots can't solve



THANK YOU