What's Next for Artificial Intelligence (AI) in Colleges & Universities?

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Stephen Murgatroyd

- Working in higher education | business since 1972.
- Teaches anticipatory studies at the University of Alberta and Athabasca University at the graduate level.
- Written extensively on leadership, change, transformation and development. Over 50 books.
- Led a large consulting company focused on organizational change and transformation – working with 40 of the Fortune 100.
- Worked in around the world on a range of projects – including India, China, New Zealand, Paraguay, Chile, UK, US and across Canada.
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Right Now

The "Horseless Carriage" and "Playing Defense"

David Wiley suggests that we are at the "**horseless carriage**" state of adoption – AI is used to do what we have always done slightly faster, easier and with some modest quality issues.

Pasi Sahlberg suggests we are becoming much more efficient at doing the wrong things.

David Wiley also suggests that faculty are so pre-occupied with "**playing defense**" against cheating and academic misconduct that this is sucking up all the time, energy and oxygen and distracting us from innovation and reimagining the work of teaching, learning and assessment.

Three Big Shocking Facts!

Between 30 and 40% of faculty in colleges and universities have not yet used AI tools in any meaningful way.

More than 75% of faculty only use AI occasionally.

91% of college and university students use AI once a week or more often.

Trying to Stay in Control of the Learner Journey

Peter Scott (Commonwealth of Learning) suggests that personalized and adaptive learning has been possible for some time (and even more so with AI), but faculty 's need for control gets in the way.

We have the possibility of each student navigating their own learning journey, but this would require us to reimagine the idea of “a class”, “study time”, “assessment” and the role of the instructor.

That is, the **business model for higher education** would have to change fundamentally. Too much is invested in it for this to happen.

Focusing on Control not Innovation

- Imagine trying to set policies for the way in which universities and colleges would use the internet in 1994?
  - Before the internet “took off.”
  - Before we started to create and develop learning management systems.
  - Before we really understood the semantic web.
- But colleges and universities are developing policies based on what they saw last year, not what is coming 2-3 years from now.
- They are ignoring Artificial General Intelligence (AGI) and Quantum Computing and trying to regulate AIs future without fully understanding its capabilities.

The Underlying Fear of Some Faculty

“It’s not AI that will take my job, it’s someone who knows how to use AI that will!”

There Are “Pockets of Innovation”

A collection of pockets makes for a lousy suit.

Free AI Tools Created By Contact North | Contact Nord

- **AI Tutor Pro** – an intelligent support system for students – learn anytime, anywhere, anything, at any level in any language.
- **AI Teaching Assistant Pro** – instructional design and learning support co-intelligent partner for instructors and instructional designers.
- **AI Pathfinder Pro** – a career and learning resource to help those seeking work, seeking education for work or just wanting to change career.
- **AI Trades Explorer Pro** – a comprehensive AI tool to support those seeking or engaged in apprenticeships or trades education.

Five Major Use Cases

This is what we see when we look at hundreds of examples of AI in use in colleges, polytechnics and universities around the world.

AI for Student Support & Retention

- ***McMaster University (Canada):*** AI chatbots for academic support
- ***Georgia State University (USA):*** Predictive analytics to reduce attrition
- ***Jisc (UK***): Signal Vine & Re-Up to re-engage at-risk students
- ***PUC Chile***: ConectIA to monitor engagement and intervene
- ***University of Sydney (Australia):*** Cogniti AI agents reduce staff burden

Takeaway: AI boosts student retention but needs empathetic design and human oversight.

AI for Teaching, Learning & Curriculum Design

- **Simon Fraser University (Canada):** Virtual STEM labs
- ***University of Florida (USA):*** AI literacy embedded in all majors
- ***University College Dublin (Ireland):*** MSc AI & ML programs
- ***IIT Madras (India):*** Industry-linked AI curriculum
- ***Tecnológico de Monterrey (Mexico***): Tec21 AI integration across 44 degrees

Takeaway: Curriculum innovation should be AI-enhanced, not AI-driven.

AI for Assessment, Feedback & Learning Analytics

- ***University of Surrey (UK***): KEATH.ai reduces grading load
- ***University of Delaware (USA):*** AiDE creates personalized study materials
- ***Mindspark (India):*** Adaptive exercises improve scores in K-12

Takeaway: AI makes assessment scalable,

but we must guard against bias.

Policy, Ethics and Governance

- ***UTS (Australia):*** Ethical certification for AI tools
- ***Trinity College Dublin (Ireland):*** EU AI Act compliance education
- ***University of Toronto (Canada):*** AI Constitutional Convention

Takeaway: Policy frameworks must enable innovation, not suppress it.

AI for Operations & Institutional Transformation

- ***Tecnológico de Monterrey (Mexico):*** TECgpt & TECbot streamline info access
- ***Honoris United Universities (Africa):*** AI adaptive learning across Africa
- ***RobotsMali (Mali):*** AI-supported multilingual book production
- ***TeleTaleem (Pakistan):*** Automated teacher training content

Takeaway: AI supports scale, access, and efficiency when localized to need.

The Policy Landscape

Reviewing 100 Institutional Policies

01

Governance & Ethics

Academic misconduct and the governance of deployment.

02

Teaching & Learning

Defining the conditions for deployment and use in teaching, learning and assessment

Managing Risk & Uncertainty

03

Innovation

Setting the condition for exploring and innovation with AI tools and apps

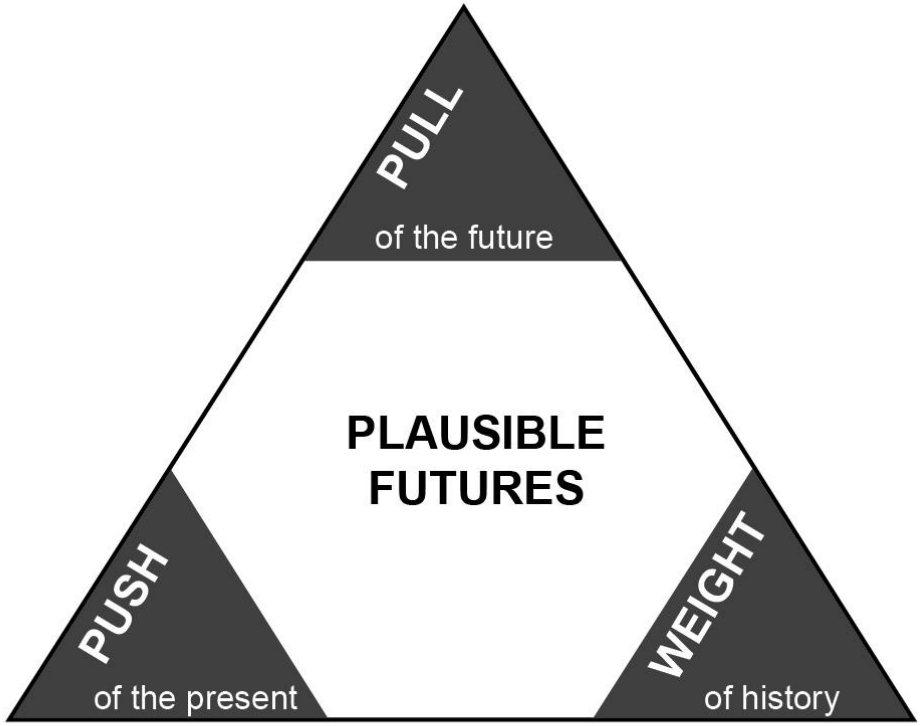
04

Collaboration & Sharin

Leveraging AI to encourage & enable collaboration in learning & research

The Future’s Triangle

Using Sol Inayatullah’s Futures Triangle to Understand The Dynamics of Where we Are and Where we May Go



PUSH

- What drivers of change are pushing us towards particular futures?
- What quantitive drivers of change are changing the future?
- What is happening now?

PULL

- What are the compelling images of the future, those we can't overlook?
- Are there competing images of the future?

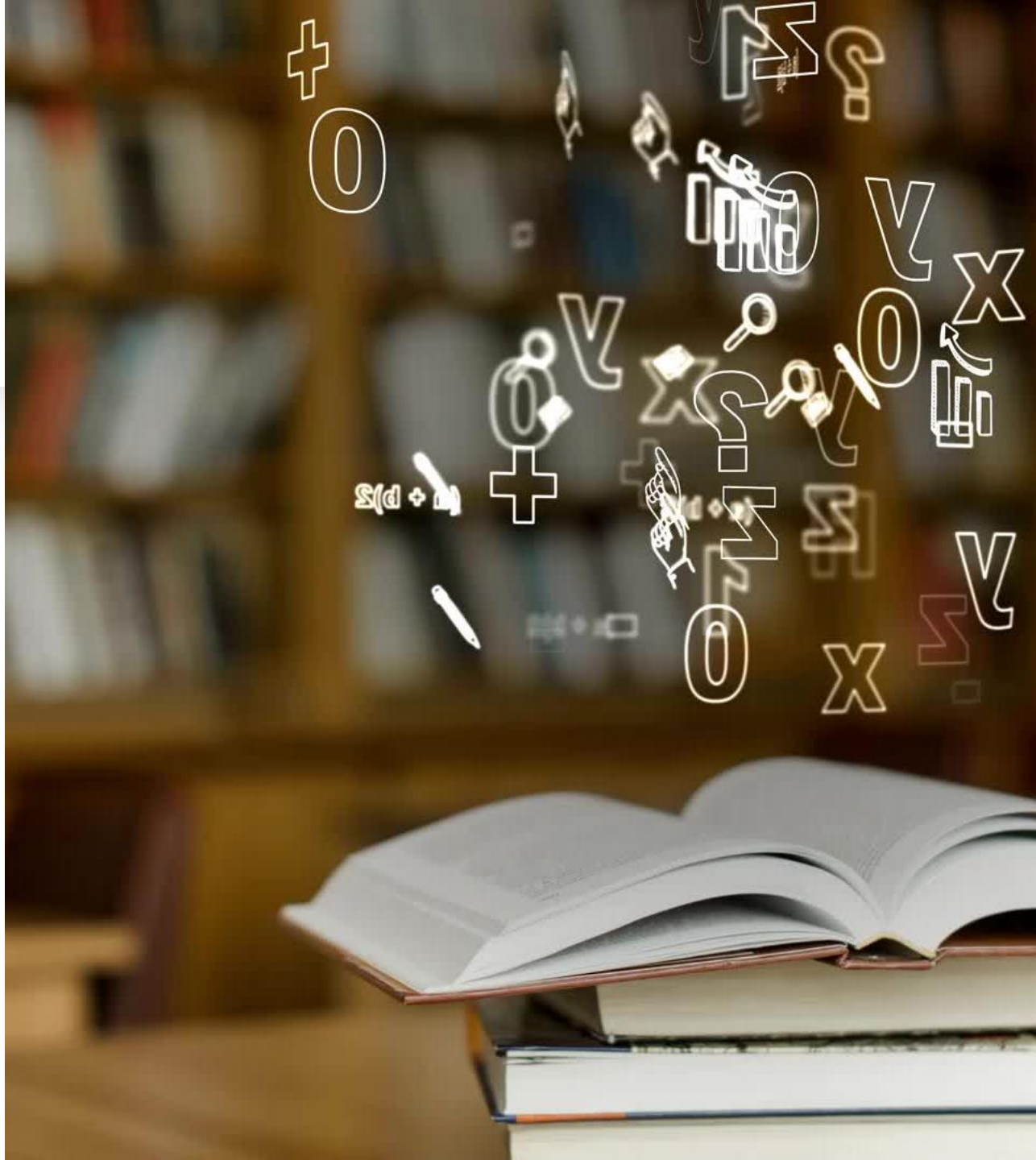
WEIGHT

- What is holding us back or getting in our way?
- What are the barriers to change?
- What are the deep structures that resist change?

Weight of the Past: Structural and Cultural Barriers

Key Theme: Institutional inertia and legacy systems continue to inhibit rapid AI adoption:

- **Outdated infrastructure:** Many universities rely on decades-old IT systems incompatible with modern AI tools.
- **Academic traditions**: Resistance to rethinking assessment models (e.g., essays, exams) persists despite generative AI's disruption of traditional assignments.
- **Resource limitations:** Smaller institutions struggle with funding AI training programs and infrastructure upgrades compared to well-endowed universities.
- **Ethical skepticism**: Historical controversies around algorithmic bias in admissions and grading fuel caution about AI-driven decision-making.



Push of the Present: Catalysts for Change

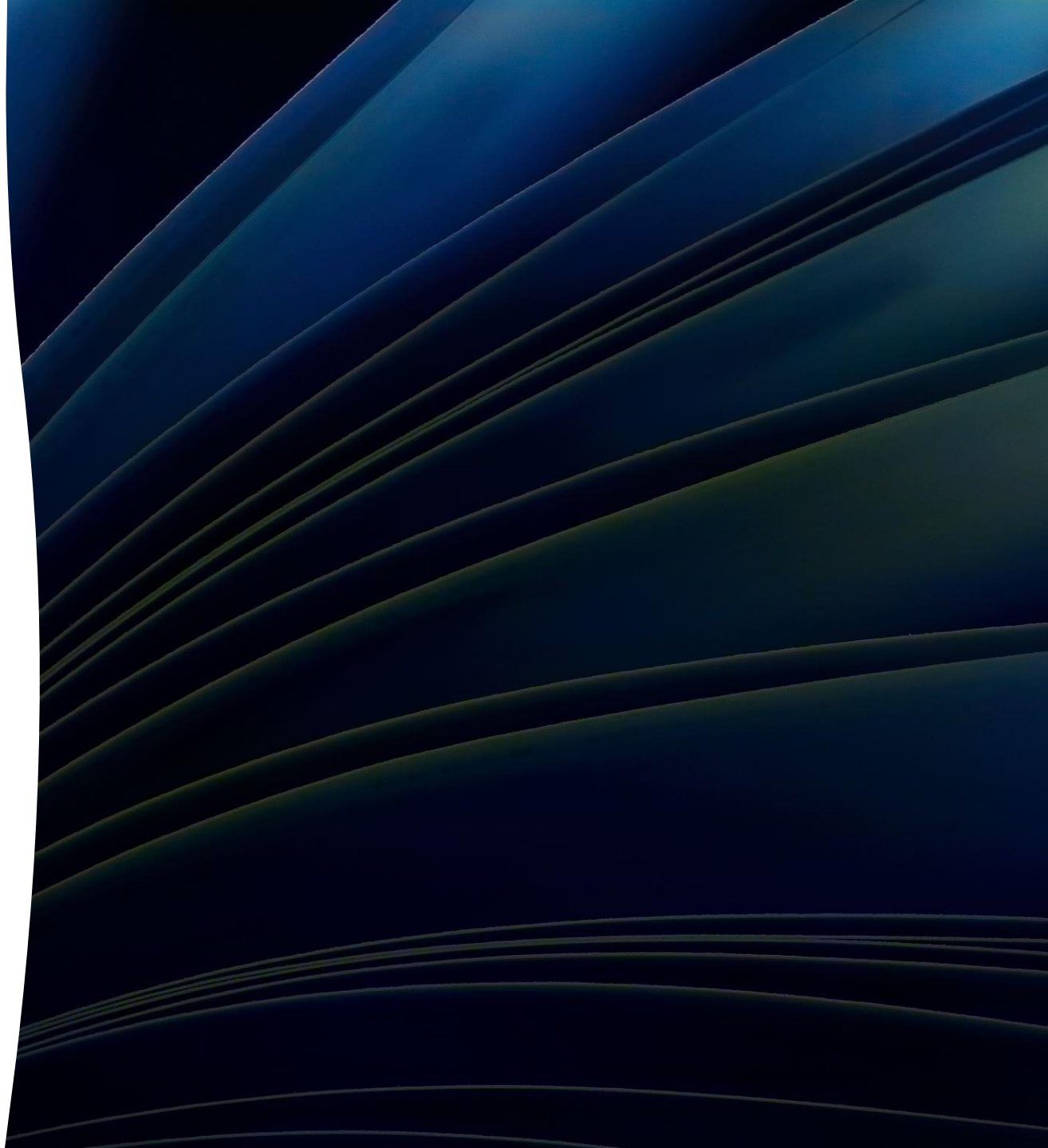
Key Theme: A recognition that AI is here to stay and there will be a need to begin to use it.

AI literacy demands: 44% of institutions have launched dedicated AI courses to prepare students for workforce needs, while 20% created AI majors/minors.

Operational efficiency: Universities now deploy AI for grant management, enrollment analytics, and personalized student support chatbots, reducing administrative workloads by ~30%.

Legislative momentum: 68% of institutions adopted AI usage policies in 2024-2025, driven by government guidelines on algorithmic transparency and data privacy.

Student expectations: 81% of undergraduates now use AI tools for research and drafting, pressuring faculty to adapt teaching methods.



Pull of the Future: Competing Visions

AI-augmented human collaboration

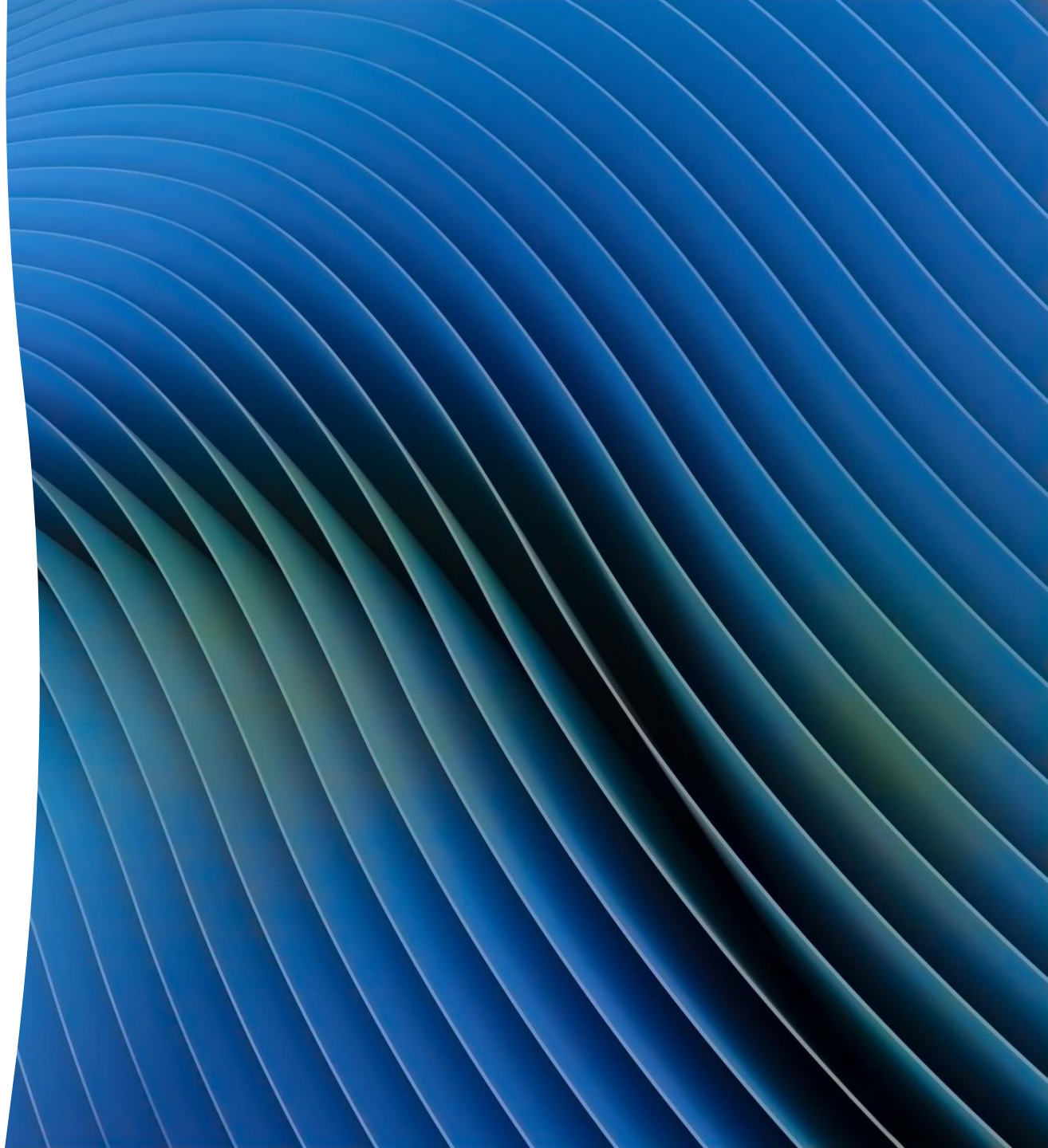
- Adaptive tutors provide 24/7 support, reducing student stress while freeing faculty for mentorship.
- Curricula blend technical AI skills with critical thinking, ethics, and creativity across disciplines.

Equity-driven systems

- AI personalizes learning pathways for neurodiverse students and bridges resource gaps between institutions.
- Federated learning models allow small colleges to pool AI resources without compromising data sovereignty.

Institutional metamorphosis

- Universities and colleges transition from certification factories to lifelong learning hubs powered by AI microcredentialing.
- “Collective intelligence” frameworks let stakeholders co-design AI systems through participatory foresight exercises

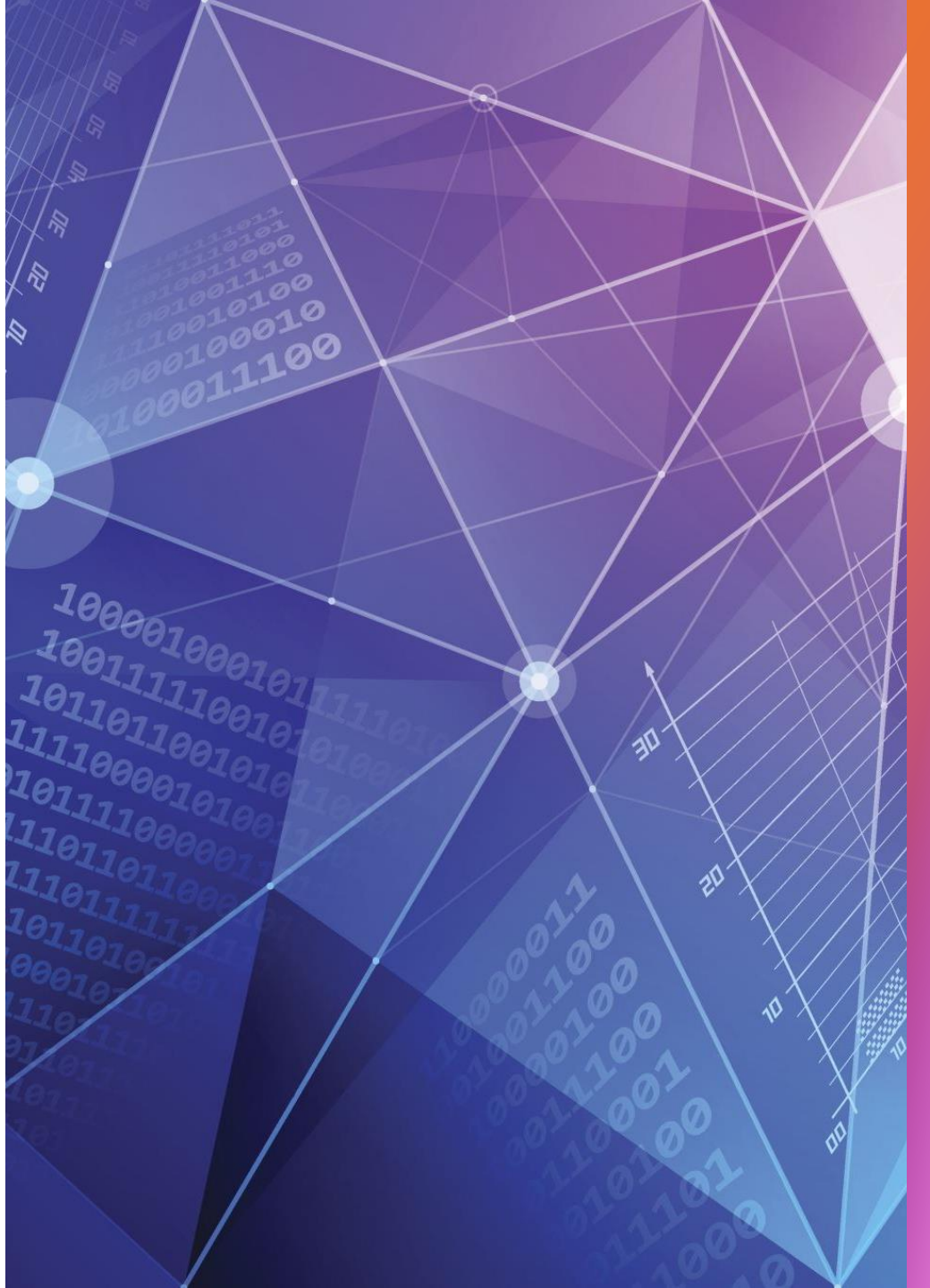


Three Close to “Now” Developments

Artificial General Intelligence, Robots and Quantum Computing

1: Quantum Computing: A Paradigm-Shifting Technology

- Quantum computing represents a paradigm shift across science, education, and research.
- It will enable faster problem-solving, personalized learning, interdisciplinary collaboration, and innovative research methods.
- It will redefine how knowledge is created and shared in the coming decades.



For Higher Education, Quantum Will Enable

- Adaptive learning platforms powered by quantum algorithms that can dynamically adjust curricula in real-time (milliseconds) to foster deeper engagement and accelerate learning development by moving beyond one-size-fits-all teaching models. **A major business redesign challenge for colleges and universities.**
- By automating repetitive tasks such as grading or admissions processes, it also frees up educators' time for more creative and impactful teaching activities – **a redesign of employment contracts may be needed.**
- For research, almost instant analysis of large datasets will make a variety of studies faster, smarter and simpler: fields like quantum chemistry, biology, and engineering benefit from the ability to simulate complex phenomena, fostering innovation at the intersection of multiple scientific domains. **New approaches to inter-disciplinary research will need to be encouraged.**

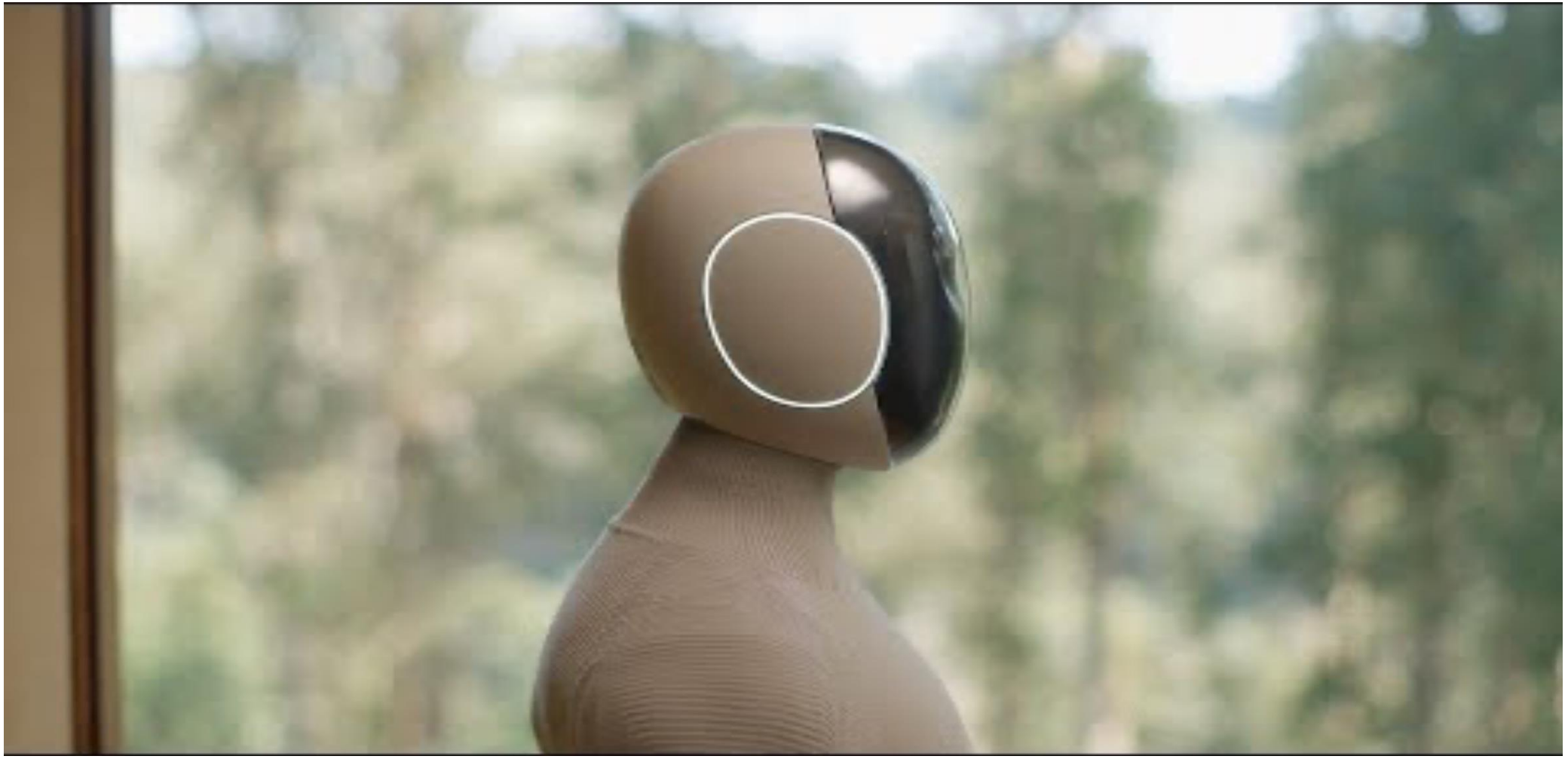
2. Artificial General Intelligence (AI) and The Singularity (2029 – 2040)

- AGI – where AI is smarter than almost all humans – is near (2032 ish).
- According to Ray Kurzweil, so in the singularity – where AI is smarter than the collective intelligence capabilities of mankind (2040 ish).
- While many find this scary (Chomsky, Harari, etc) it also could unleash massive social and economic change.

3. Compassionate and Empathic Robots

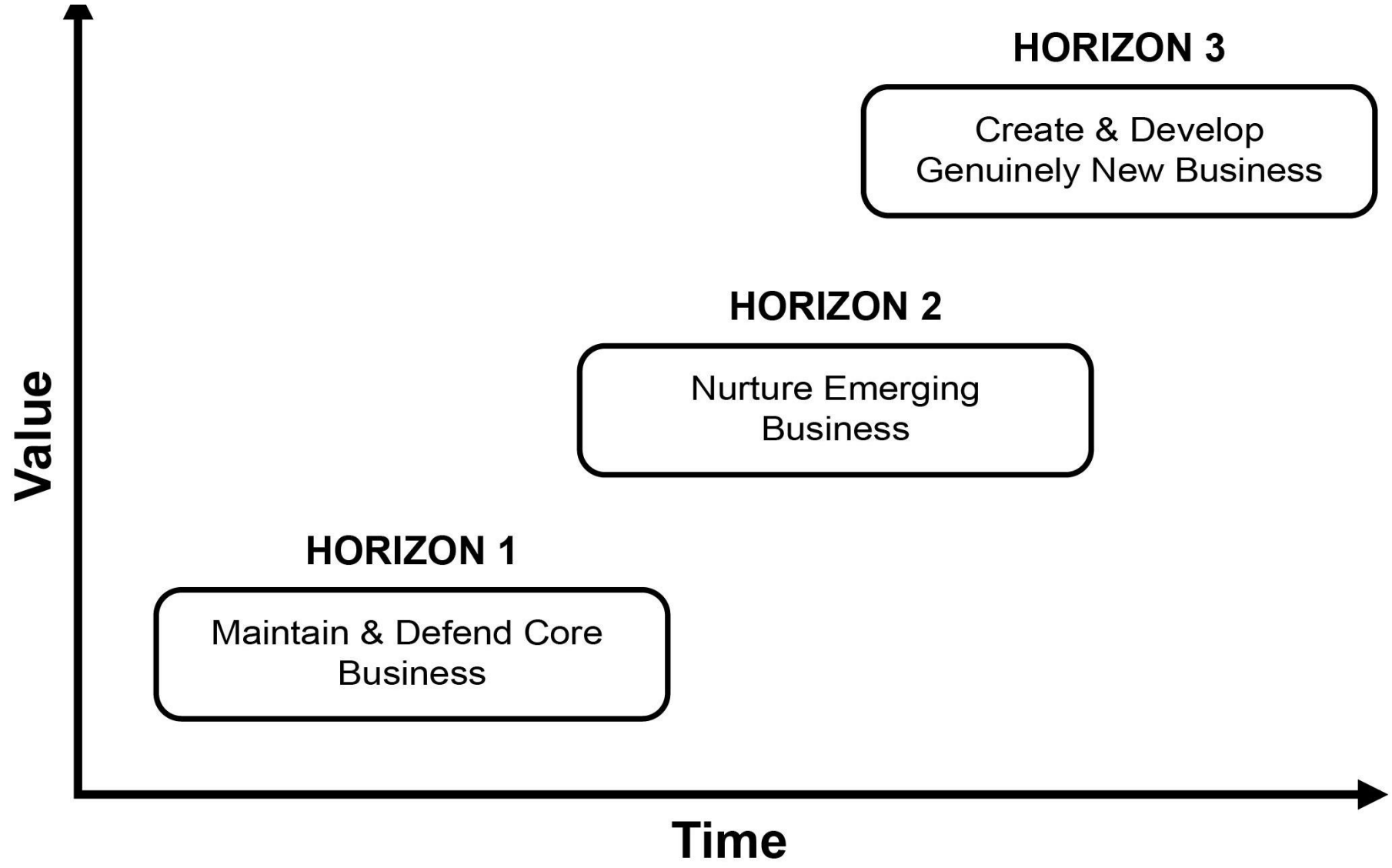
- We don’t talk much about robots in higher education – we often associate them with the C-suite in the dark humour corridors.
- But robotics technologies, especially in South Asia, China and Scandinavia are advancing rapidly.
- A particular focus is enabling them to be kinder, smarter, more caring and compassionate than those robots building cars or picking groceries.

We All Soon Need Neo Gamma!



The Coming Horizons

Using McKinsey's Three Event Horizons Analysis – What's Next?

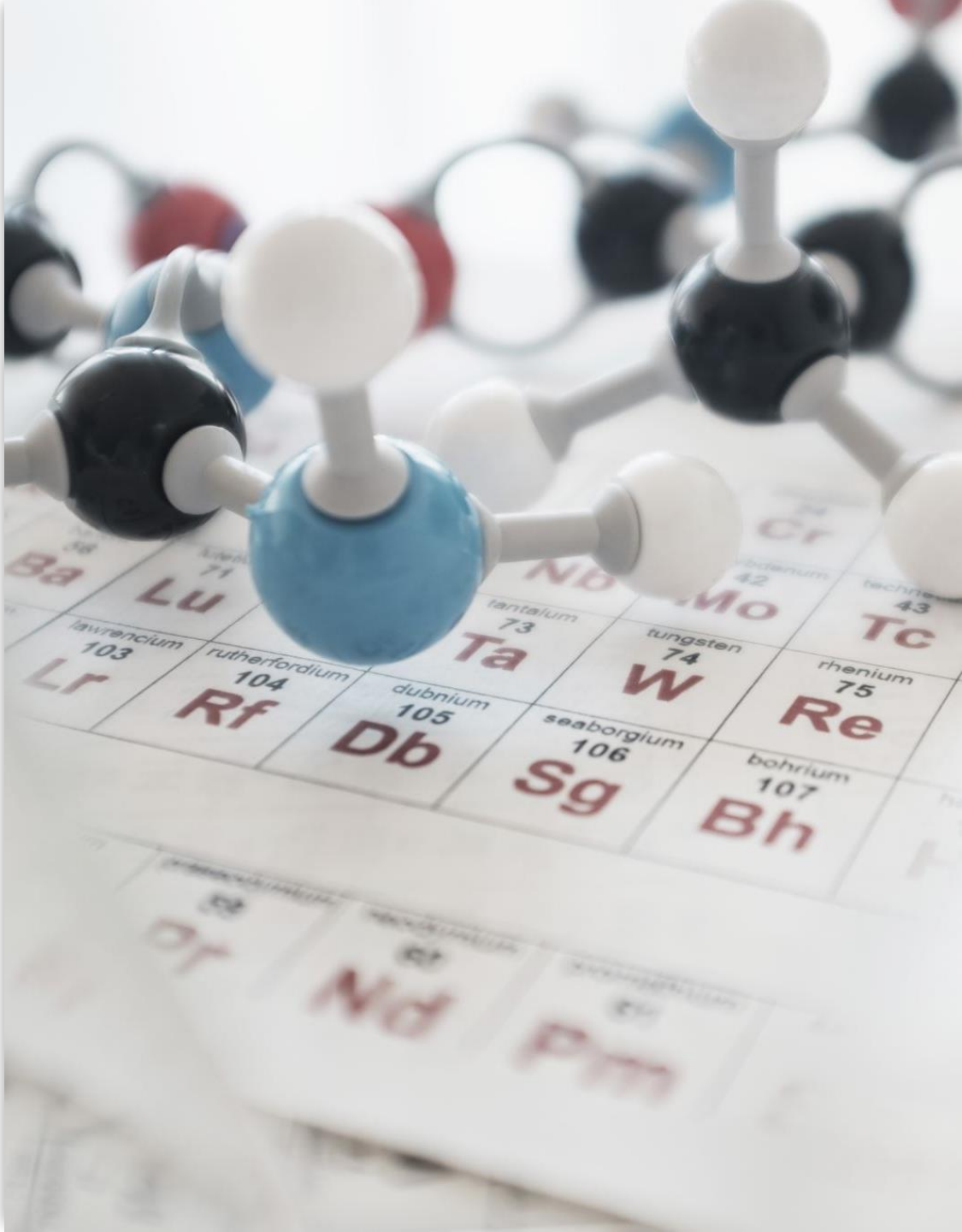

HORIZON 3
Create & Develop Genuinely New Business
HORIZON 2
Nurture Emerging Business
HORIZON 1
Maintain & Defend Core Business
Value
Time

Horizon One: AI Adopting within Business as Usual

- **AI-enhanced pedagogy**: By 2030 - 91% of faculty already use AI for course design and content creation, with tools like adaptive learning platforms reducing administrative workloads by 30% AI proctoring and blockchain credentialing (e.g., tamper-proof diplomas) dominate assessments, cutting fraud risks.
- **Operational efficiency**: Universities and colleges deploy AI chatbots for student services and predictive analytics to identify at-risk learners, improving retention by 15–20%.
- **Ethical guardrails**: 76% of institutions lack AI governance policies, prompting urgent efforts to address algorithmic bias and data privacy.

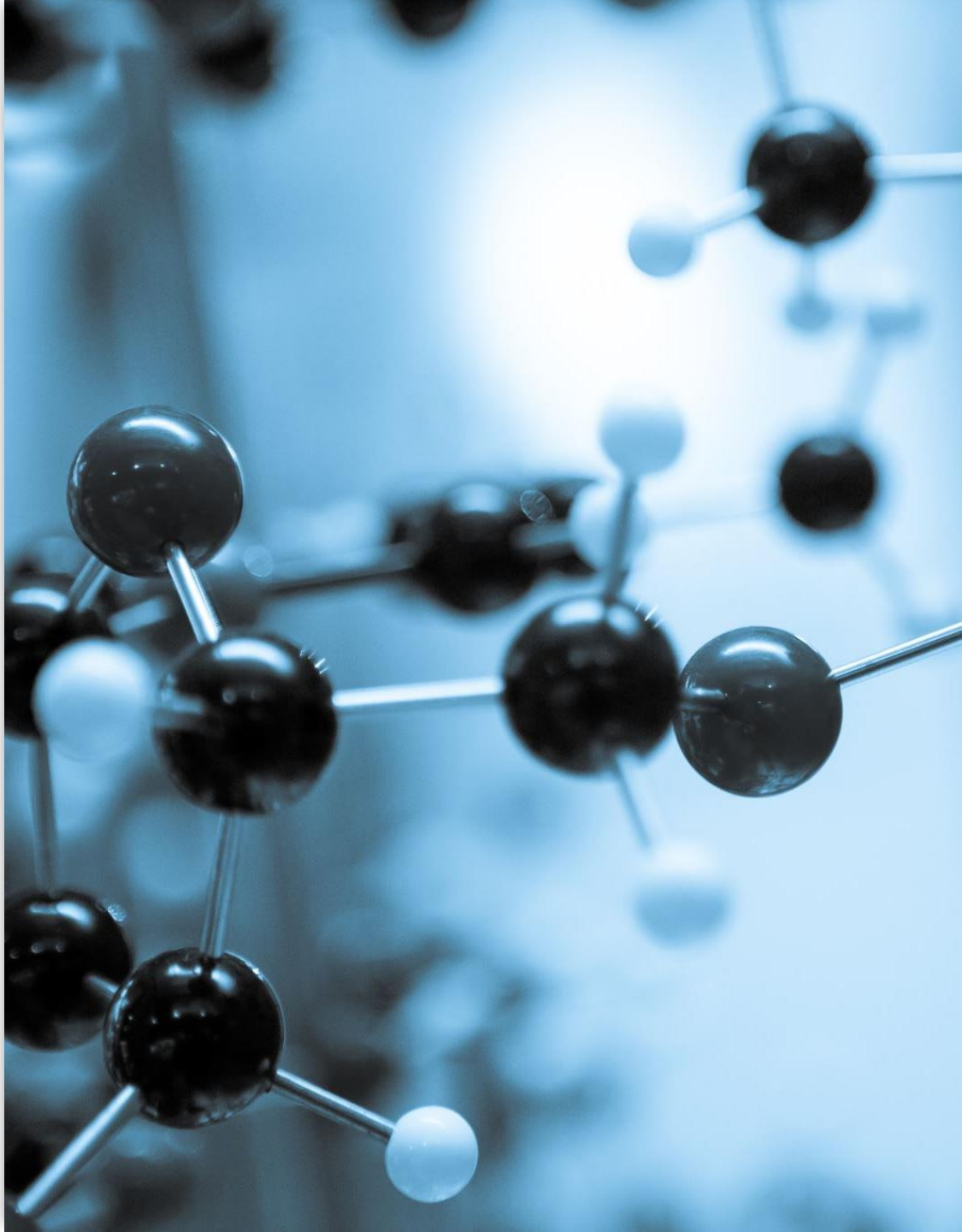
Horizon Two: Quantum Leap Ecosystems

- **Quantum computing integration**: Microsoft's Majorana 1 quantum processor (2025) enables universities to solve complex problems such as climate modeling and drug discovery, creating a demand for "quantum literacy" programs.
- **AGI experimentation**: As Kurzweil's 2029 AGI timeline nears, universities and colleges pivot to hybrid human-AI teaching and research teams. MIT and Stanford launch AGI ethics labs to audit systems for alignment with human values.
- **Compassionate robotics:** Humanoid robots like Beomni provide 24/7 mental health support, using emotion-recognition AI to counsel stressed students and faculty.



Horizon Three: Post-Singularity Metamorphosis

- **Singularity-driven obsolescence:** If Kurzweil's 2045 Singularity occurs, universities and colleges face irrelevance unless they transition to neuro-augmented learning hubs. Neural nanobots enhance cognition, enabling direct knowledge uploads.
- **Decentralized credentialing:** Degree's dissolve into micro-credentials earned via AI-curated "skill orbits," validated by quantum-secure blockchain networks supported by employers and governments. Degrees and diplomas are gone – in their place are new competency-based skills and knowledge passports.
- **Ethical arbiters**: Institutions evolve into governance watchdogs, auditing AGI systems for compliance with frameworks like Asimov's laws. University of Toronto's AI Constitutional Convention (2040) sets global standards.




There Are Other Views of the Future

“Bullshit Universities & Colleges”

- Which award certification on the basis of competencies not time in class, learning activities overseen by faculty and rigorous academic assessment.
- Where students don’t “do the work” (the 10,000 hours of study) required to master a discipline or body of knowledge.
- Where meta-cognition is replaced by algorithmic learning.
- Where AI assessments approve nonsense, since AI is also in part nonsensical.

There are several academics pursuing this line of thinking – e.g. a number of colleagues at Monash University.

Regulation, Anxiety & The Stifling Innovation

- The deep and very real concerns of Yuval Noval Harari (*Nexus*) and others win the day and AGI + Quantum are legally constrained.
- Issues of cybersecurity and privacy, ethics and bias become more concerning, and halt experimentation and innovation.
- Faculty, concerned about new roles and new human:IT relationships are either reluctant or refuse to use AGI and quantum tools.
- AI has a massive impact on every field of work and higher education lags behind.

Scenarios for the Future

Futurists Don’t Predict the Future, But Draw Attention to the Shapes of the Future and the “Direction of Travel” – Where Something is Headed

Two Key Dimensions for 4 Scenarios

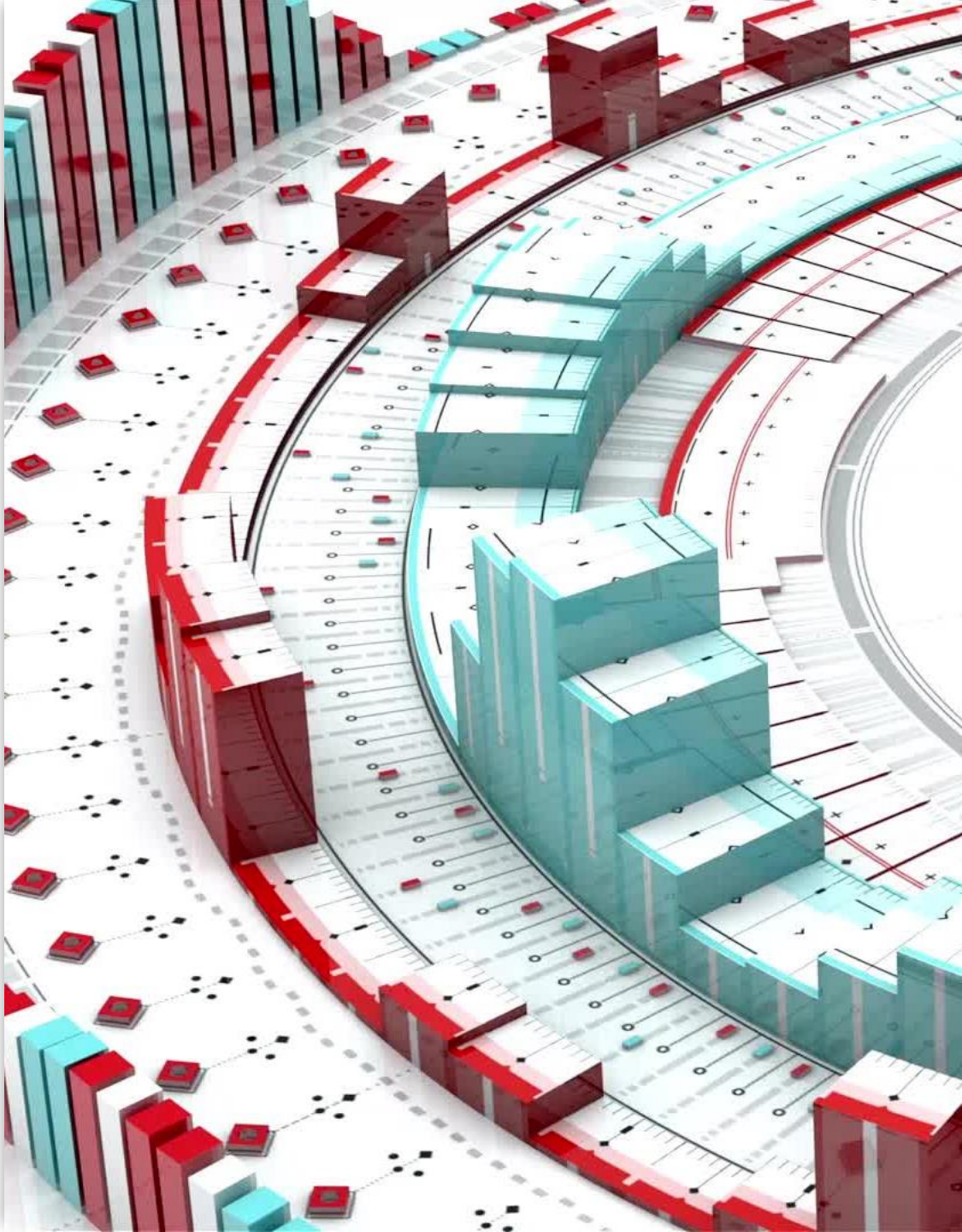
- **Innovation in Personalized Instruction** – high levels of personalization versus retention of more traditional methods of instruction.
- **Leveraging AI for a Different Kind of Learning** – high levels of AI integration versus low levels of AI use.
- High levels on both of these dimensions will require a **fundamental rethink of the business models, employment arrangements and contracts between students and the institution**.
- It also requires **courageous leadership,** imagination and risk-taking.

Four Future Scenarios

	High Personalization	Traditional Teaching
High AI Integration	**The Smart Campus:** ***AI-Driven Personalized Learning*:** Adaptive technologies, immersive experiences	**The Augmented Academy:** ***Traditional Teaching Enhanced by AI*:** Structured classrooms with supportive AI tools
Low AI Integration	**The "Classic" College | University:** ***Personalized Learning Without AI*:** Human-driven customization	**The Artisan College | University:** ***Human-Centered Traditional Education*:** Standardized curricula with face-to-face teaching

Challenges in Transitioning to A New Reality

- **High transition costs** and risk to existing revenue streams.
- **Faculty | Instructional skills, capability and mind-sets** – resistance to change and the challenge of collective agreements.
- **Fragmented IT systems and weak infrastructure** – coupled with challenges regarding sustainable development and the SDGs.
- **Determining which AIs to deploy**, given how fast the AI space is moving and the coming of AGI. Beware of the hype-cycle.
- **Getting too far ahead of where the students are** – the risk of alienation through a sudden change in learning processes.



It is Possible:
Tecnológico de Monterrey

- **Tec de Monterrey has overhauled its educational model (Tec21) to include challenge-based learning, flexibility, and personalized experiences**. They are redesigning 44-degree programs to integrate AI into teaching strategies, learning content, and evaluation processes by 2026. This includes adaptive learning paths tailored to individual student needs.
- **The university created TECgpt, its own generative AI model**, along with TECbot, to serve as a single source of information for students, faculty, and staff. These tools automate routine tasks, provide personalized assistance, and free up faculty time for innovation in teaching.
- **Establishing Living Labs for Innovation** - Tec de Monterrey uses its campuses as living laboratories through the "Campus City" initiative. This program integrates students, faculty, government, and industry partners to solve real-world challenges in areas like energy efficiency, mobility, and water management. These projects emphasize experiential learning and foster collaboration across disciplines.

Three Recommendations

- **Don’t try regulate AI** – you will be regulating the wrong things in the wrong way and will then find it difficult to change your policies and rules..
- **Stop focusing on cheating** and start reimagining teaching, learning and assessment.
- **Experiment, play, co-create learning with your students, start to change now** – imagine the work you do five years from now as not even closely resembling what you did last year and make it happen.

Be Courageous and Bold

“When You Come to a Fork in the Road – Take It”

Yogi Berra

“The future isn’t what it used to be”

Yogi Berra

Thank You!

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Additional Materials for Review

From Canada

1. **Simon Fraser University - Virtual Laboratories**
   AI-powered virtual labs enable science/engineering students to conduct remote experiments via simulations, maintaining hands-on learning when physical labs are unavailable (Conference Board of Canada, 2024).
2. **McMaster University - AI Chatbots**
   Deploys AI chatbots for instant student support on course registration, campus resources, and academic inquiries (Conference Board of Canada, 2024).
3. **University of Waterloo - Research Assistance**
   AI systems help researchers analyze data, identify relevant literature, and generate insights (Conference Board of Canada, 2024).

From UK

4. **University of Surrey - KEATH.ai**
   Streamlines educational assessments using AI to reduce grading workloads and improve feedback efficiency (HE Professional, 2024).
5. **King's College London - Degree Awarding Gap Analysis**
   Uses natural language processing to analyze student feedback and design policies to close attainment gaps (HE Professional, 2024).
6. **Jisc (UK) - Re-Up and Signal Vine**
   AI tools identify at-risk students and automate communication to improve retention (HE Professional, 2024).

From Europe

7. University College Dublin (Ireland) - AI-Focused Curricula
Offers specialized MSc programs in AI and machine learning to prepare students for tech-driven careers (Digital Strategy Ireland, 2025).

8. ADAPT Centre (Trinity College Dublin) – AI-Powered Language Tools
Develops NLP-driven tools for personalized language learning and cross-cultural communication training, with industry partnerships.

9. EU-Wide – AI Policy Literacy Initiatives
Institutions like TU/e and Trinity College Dublin integrate mandatory modules on EU AI Act compliance into computer science and social science programs, emphasizing risk assessment and transparency.

From the USA

10. University of Delaware - Study AiDE
AI suite generates customized study materials from course content (e.g., video transcripts, LMS data) (UD CEHD, 2023).

11. Georgia State University - Predictive Analytics
Tracks student behavior to trigger academic advisor interventions, improving retention (HE Professional, 2024).

12. University of Florida - Campus-Wide AI Integration
Embeds AI literacy into all undergraduate majors and graduate programs, including hospitality and public health (Higher Ed Dive, 2025).

From Latin America

13. Tecnológico de Monterrey (Mexico) - TECgpt

Institution-specific generative AI model (TECgpt) automates administrative queries and supports personalized learning (IHE, 2024) and project-based learning as part of Tec21.

14. Pontificia Universidad Católica de Chile (PUC) - ConectIA

360-degree AI monitoring system identifies academic risks and delivers tailored student support (IHE, 2024).

From India and Pakistan

15. **Mindspark Adaptive Learning (India)**
AI-driven math/English platform personalizes exercises using student performance data. Demonstrated 30% improvement in test scores for low-income students across 10 states6.

16. **IIT Madras M.Tech in Data Science**
Combines AI coursework with industry partnerships (Microsoft, TCS). Includes real-world projects in healthcare diagnostics and supply chain optimization7.

17. TeleTaleem (Pakistan)
AI-curated teacher training materials aligned with national curricula for K-12 with more coming for college level courses. Reduced lesson prep time by 40% in rural Punjab schools through automated resource matching6.

From Australia

- **18. University of Sydney - Cogniti AI Agents**
  Customizable chatbots integrated with LMS (Canvas). Used in 300+ courses to provide 24/7 concept clarification, reducing lecturer query loads by 52%.
- **19. University of Melbourne AR/VR Labs**

  Combines computer vision with mixed reality for anatomy/engineering simulations. Increased student competency retention by 37% in clinical trials.
- **20. UTS Ethical AI Governance Model**
  Implements aviation-style "safety certification" for educational AI tools. Requires algorithmic transparency audits for all classroom applications.

From Africa

21. **The Mohammed VI Polytechnic University (UM6P)** in Morocco became the first African university to officially integrate an AI-powered learning system, ChatGPT Edu, into its academic and operational activities.
22. **RobotsMali**, an educational non-profit, used a combination of ChatGPT, machine translation, and human editors to rapidly produce over 180 children's books in Bambara, a local Malian language. This initiative addressed the scarcity of educational materials in Bambara, promoting literacy and preserving cultural heritage.
23. **Honoris United Universities (Pan-African Network, including ESPRIT, Tunisia),** Africa's largest network of private higher education institutions, has pioneered the deployment of an AI-generated, adaptive learning course across its campuses—including ESPRIT in Tunisia.

Looking Across these Initiatives We See..

- The use of AI for **deepening learning, using metacognitive scaffolding** and structured use of AI to enable ethical, informed and considered use.
- AI for **adaptive learning and for varied learning pathways** to completion.
- Using the affordances of **AI to support neurodiverse learners**.
- Encouraging **experimentation, creativity and imaginative uses of AI** for project-based learning, collaboration, sustainable development and the arts.