10,000 hours of learning during the next 100 years:
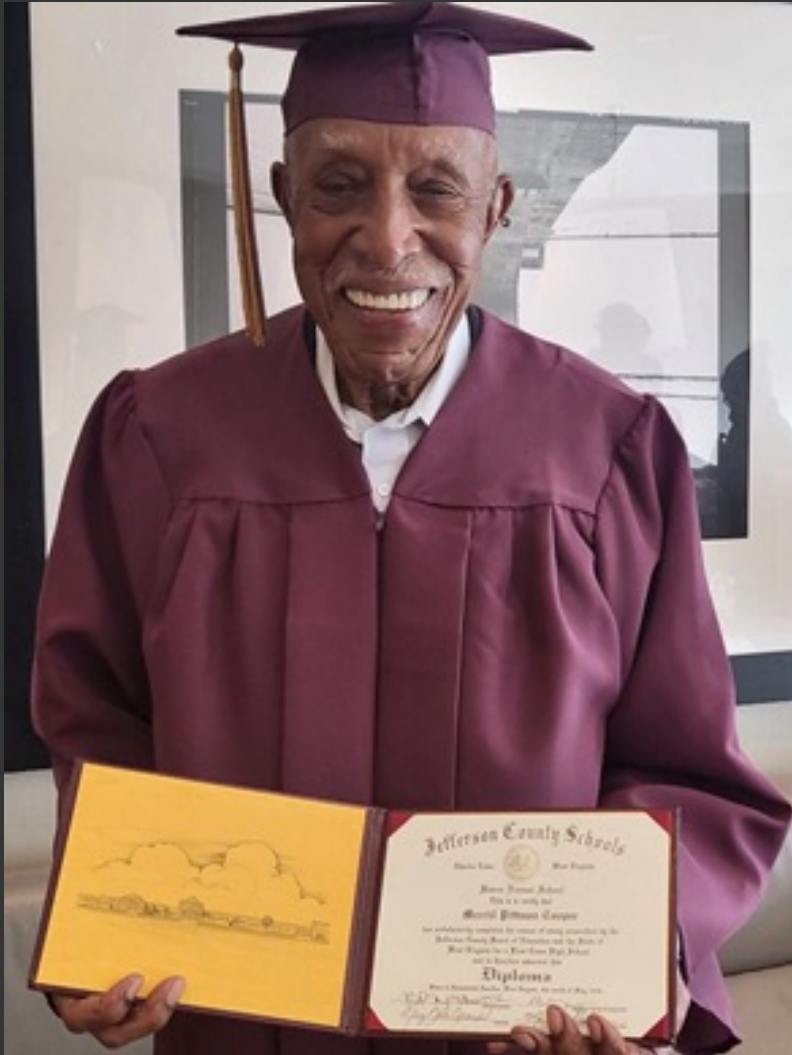## are universities ready for the post-pandemic reality?
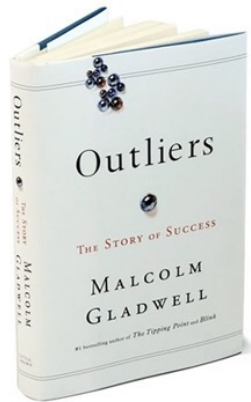
@cristobalcobo

"I am still learning…

(said the artist Michelangeloat 87 years old).

.... "I can't think of a happier day," says the inspiring 101-year-old. " *Although it took me a while*, I'm very happy to finally have it."

In early March, a 101-year-old man named Merrill Pittman Cooper received his high school diploma during a ceremony held in his honor.
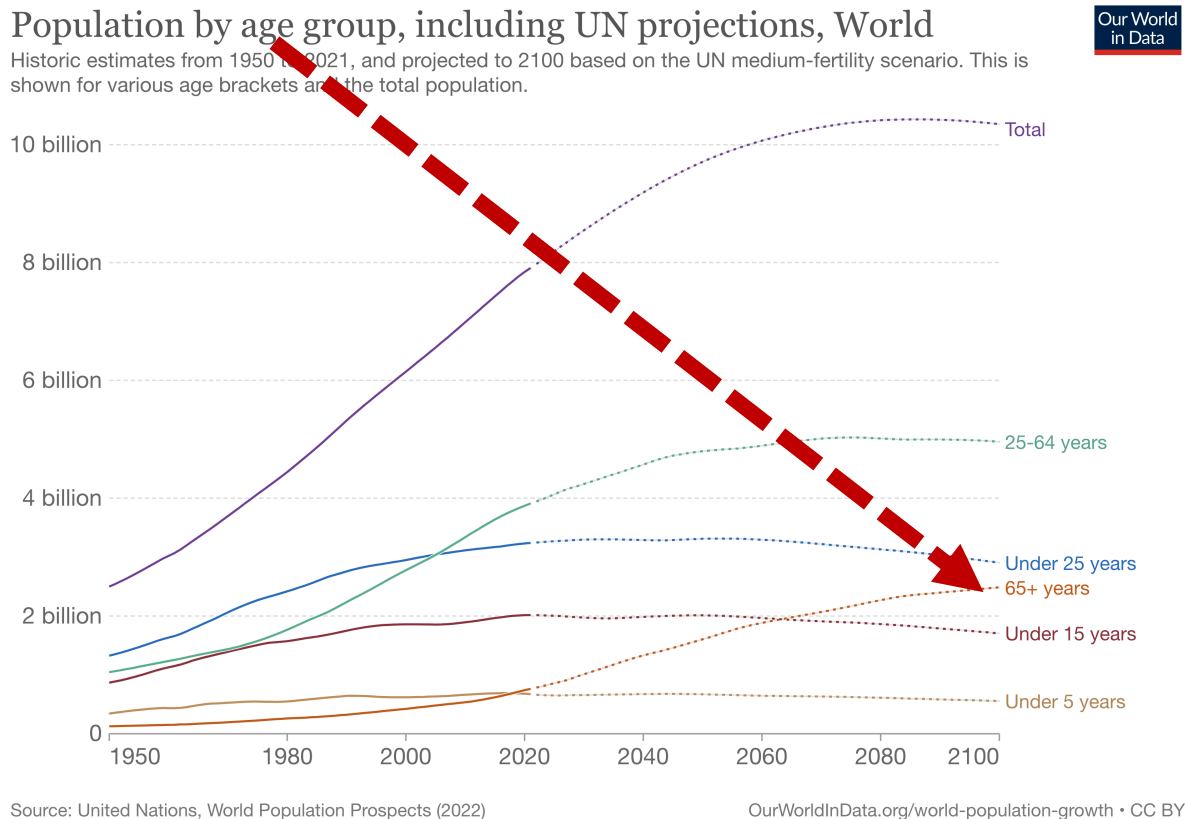
10,000 hours

SUCCESS IS ONLY
10,000 HOURS AWAY:
AN OVERVIEW OF
Outliers

Outliers

THE STORY OF SUCCESS

MALCOLM
GLADWELL

#1 bestselling author of *The Tipping Point* and *Blink*

100 years

The Global Population Is Aging. (this not only a healthcare or pensions issue…)

Population by age group, including UN projections, World
Historic estimates from 1950 to 2021, and projected to 2100 based on the UN medium-fertility scenario. This is shown for various age brackets and the total population.

Total
25-64 years
Under 25 years
65+ years
Under 15 years
Under 5 years

10 billion
8 billion
6 billion
4 billion
2 billion
0

1950 1980 2000 2020 2040 2060 2080 2100

Source: United Nations, World Population Prospects (2022)   OurWorldInData.org/world-population-growth • CC BY

42years
average age of everyone alive in 2100, up from 24 in 1950

The number of centenarians will increase more than 50 times, from 500,000 today to over 26 million by 2100

GLOBAL POPULATION BY 5-YEAR AGE GROUP

1950 MEDIAN AGE: 24
TODAY MEDIAN AGE: 30
2100 MEDIAN AGE: 42

Sources: UN, our calculations

https://ourworldindata.org/future-population-growth

https://www.bbc.com/future/article/20170330-5-numbers-that-will-define-the-next-100-years

Pearce, M., & Raftery, A. E. (2021). Probabilistic forecasting of maximum human lifespan by 2100 using Bayesian population projections. *Demographic Research*, *44*, 1271-1294. https://www.demographic-research.org/volumes/vol44/52/44-52.pdf

10,000 hours of learning during the next 100 years:
are universities ready for the post-pandemic reality?
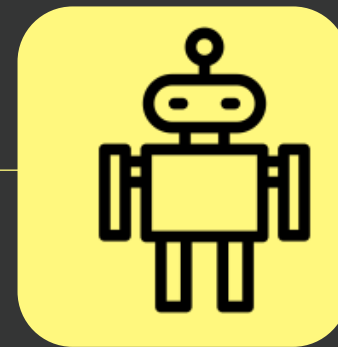
	Age			
Current Paradigm of Formal Education	0-25	25-50	50-75	75-100
Potential Transformation of Formal Education	0-25	25-50	50-75	75-100

who   where   how

polycrisis: a cluster of related global risks with compounding effects, such that the overall impact exceeds the sum of each part.

"We can't solve problems by using the **same** kind of thinking we used when we created them."
(Albert Einstein)

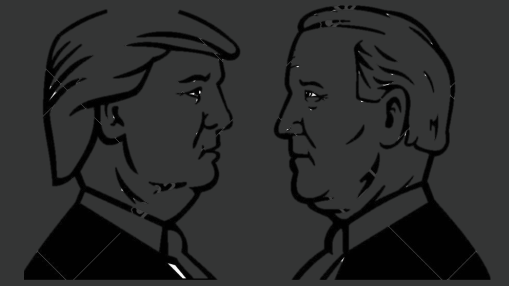3 drivers of change   3 cognitive dissonances

- Age
- Climate
- Datification

✂ ageism
✂ "carbon footprint outliers"
✂ "data absolutist"
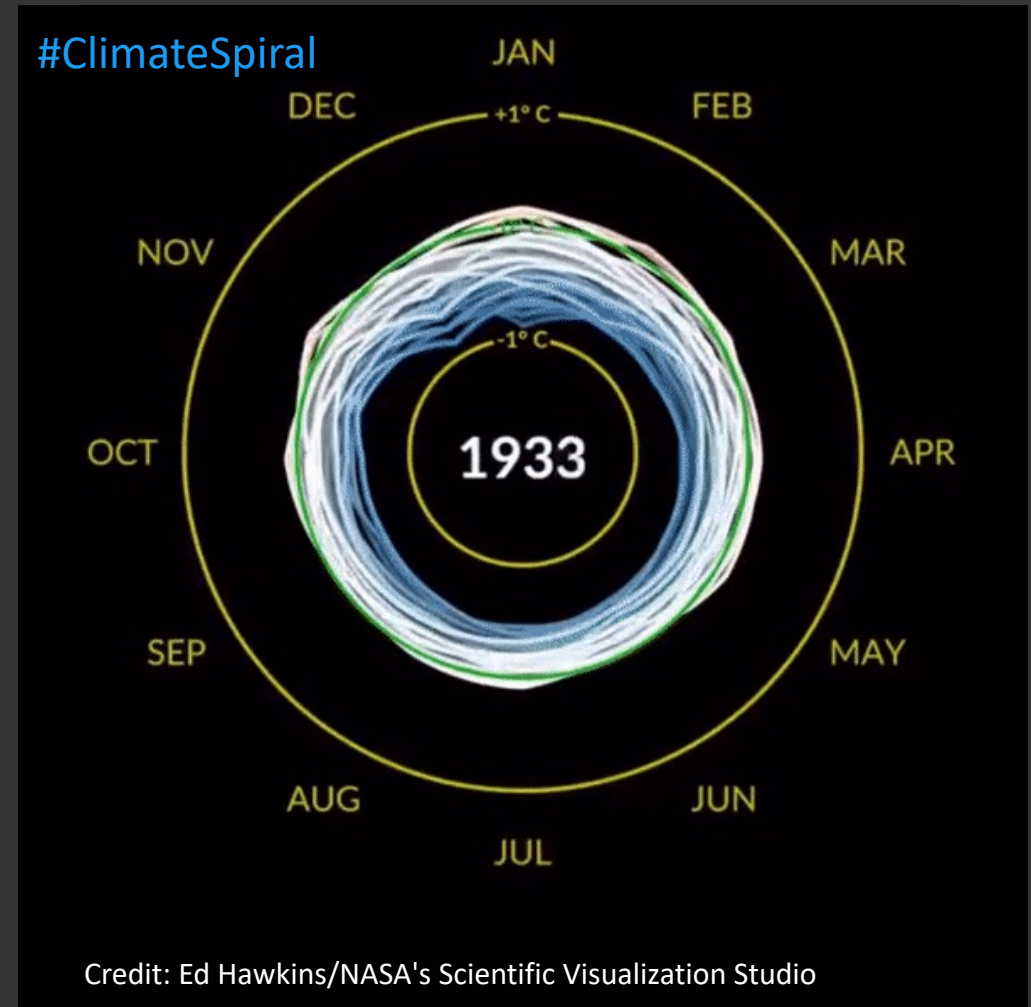
drivers of change: age

- Aging population: Life expectancy over 80y/o in OECD countries:
- +65 will reach over 90 millions in US by 2050
- Reasonable for white collars to work until 70 y/o (cognitive capacities)
- Declining births, increased longevity and improved health
- Age discrimination prejudice
- Negative stereotypes

Too Much Experience To Be Hired?

HUMAN RESOURCES

https://www.npr.org/2017/03/24/521266749/too-much-experience-to-be-hired-some-older-americans-face-age-bias

NYT

Institute of Gerontology at the University of Georgia.

drivers of change: climate

- Long term: raising sea levels

- Shirking glaciers

- Increase in extreme water weather events

- Loss biodiversity & deforestation

- Oceans acidification (CO_2)

- Increase in air pollution (T°)

- More frequent wildfire

- Balancing Profit and Planet

- Massive Displacement: btw ~200 Mill to 1,2 Bill by 2050

#ClimateSpiral

Credit: Ed Hawkins/NASA's Scientific Visualization Studio

drivers of change: datification

- Privacy concerns
- Algorithmic bias
- Data concentration (asymmetry)
- Gap between tech. change & legislation
- Limited institutional and regulatory capacities
- Universities in a sub-optimal position
- Align AI expansion with Human Values
- Revisit what it means to know during automation of human tasks
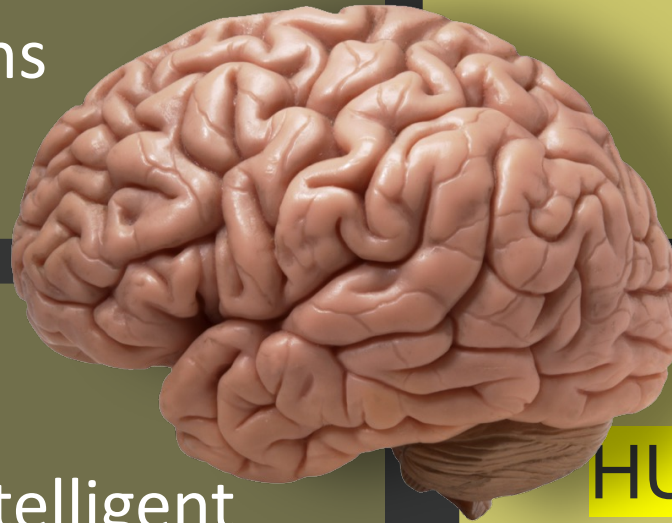
We should consider which mental activities should be outsourced to AI.

System 1	System 2
Fast	Slow
Subconscious	Conscious
Automatic	Effortful
Everyday Decisions	Complex Decisions
Error Prone	Reliable
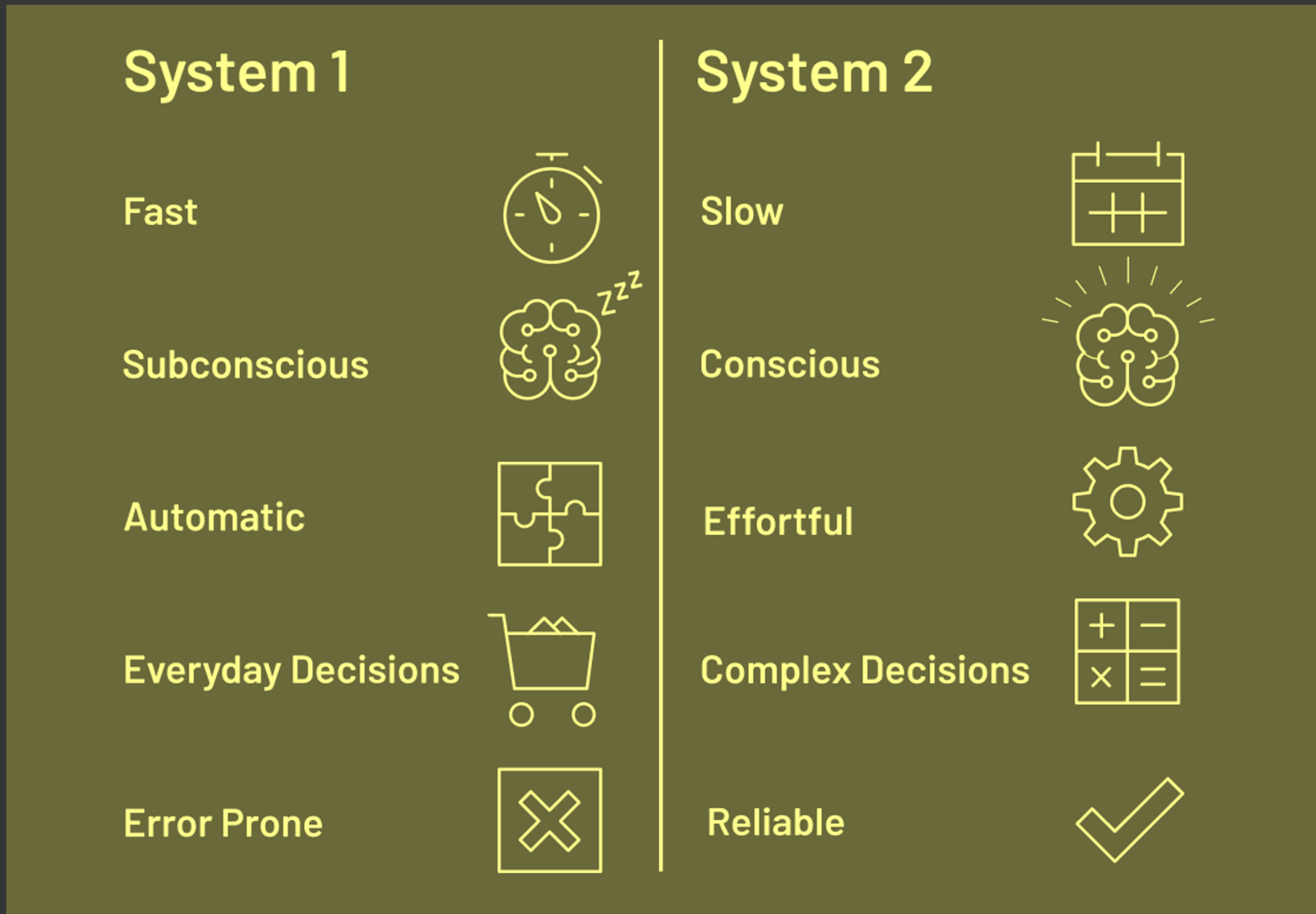
polycrisis?

"… By 2030 , there will be more grandparents than grandchildren (*fewer* grandchildren are born and grandparents live longer).

2030

HOW TODAY'S BIGGEST TRENDS WILL COLLIDE *and* RESHAPE THE FUTURE OF EVERYTHING

MAURO F. GUILLÉN

The Guardian

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Environment ▶ **Climate crisis** | Wildlife | Energy | Pollution | Green light

https://www.theguardian.com/environment/2020/sep/09/climate-crisis-could-displace-12bn-people

Climate crisis

⏱ This article is more than **2 years old**

Climate crisis could displace 1.2bn people by 2050, report warns
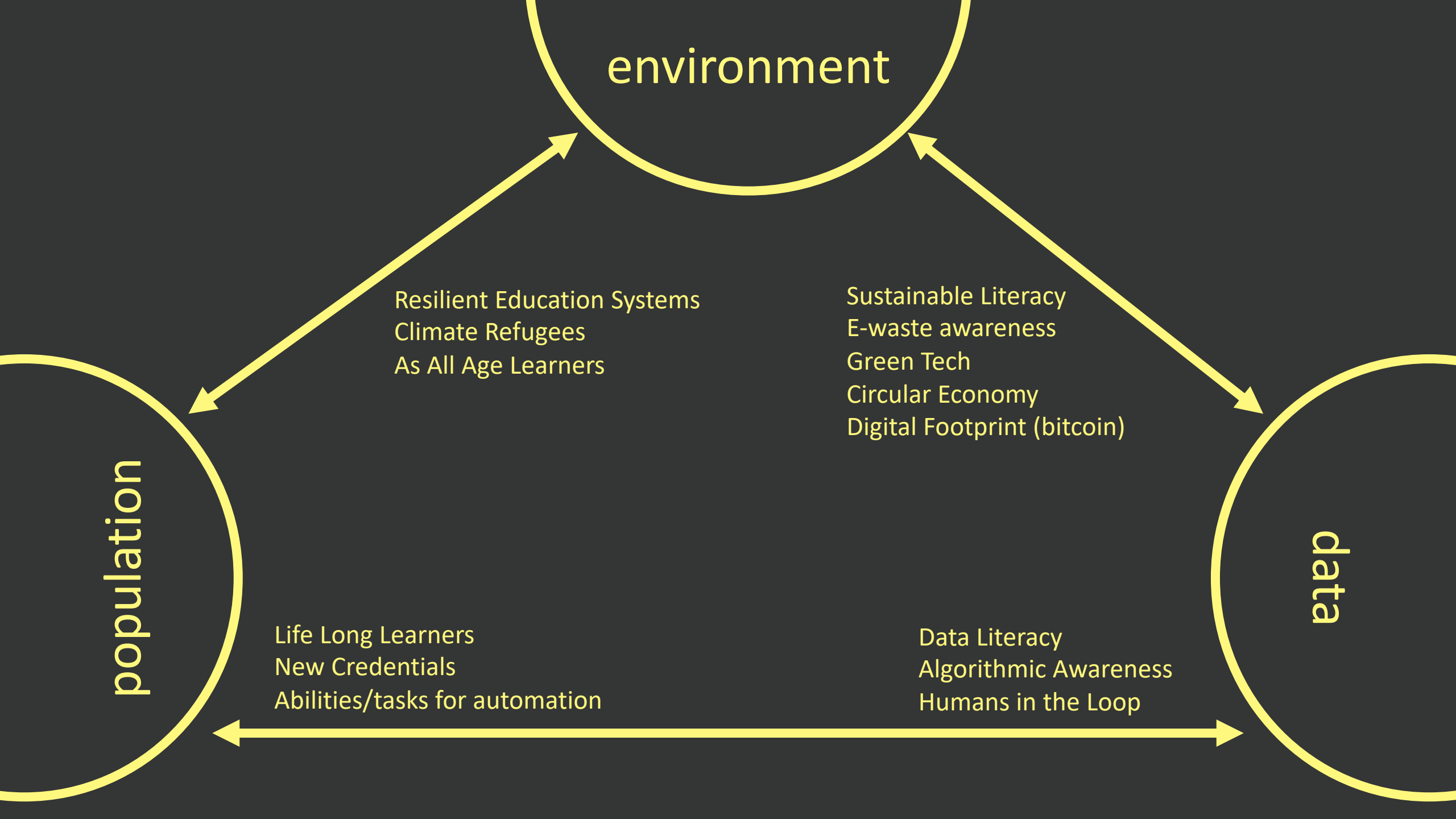
WIRED

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TOM SIMONITE   BUSINESS   AUG 19, 2020 8:00 AM

Skewed Grading Algorithms Fuel Backlash Beyond the Classroom

Thousands protest in the UK after a formula replaced a test that influences college placement. It's led to broader scrutiny of automation and inequality.

digitization

Digital Expansion

Digital Transformation (dx)

Vision: Design plan (long term) and team.
Infrastructure: Create data centers
Inclusion: Reduce gaps &support

Digitize Info.
Organize info
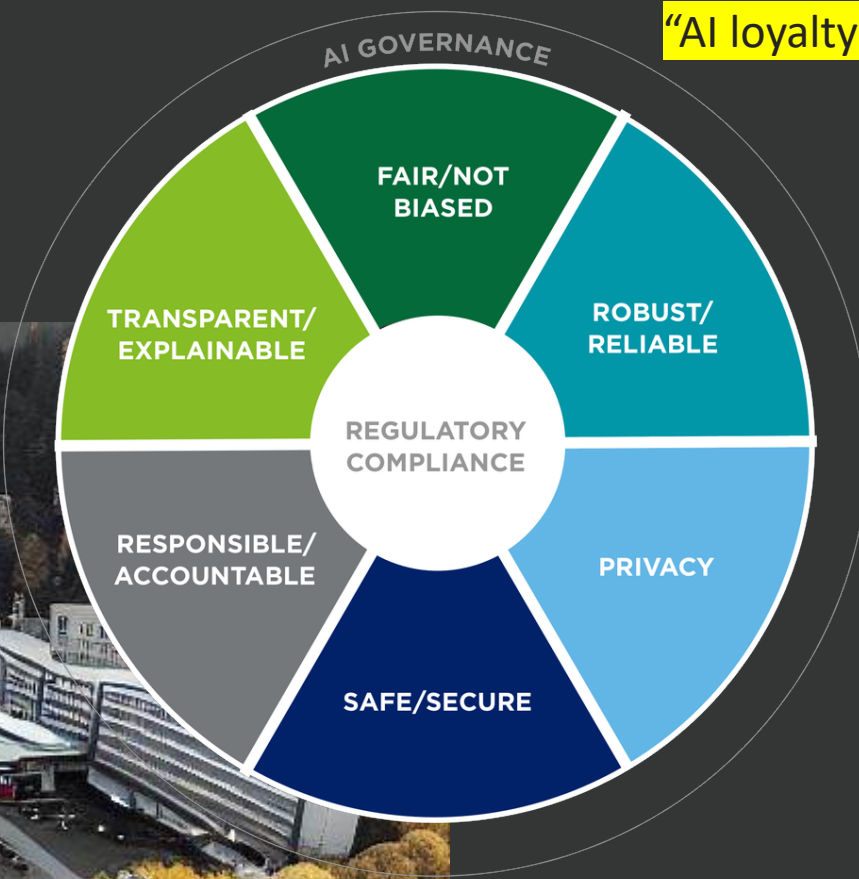
Automate Processes
Optimize Services

Series of systemic changes (cultural, labour, technological) that enable **new educational** and **operational models** that **transform** the strategic direction and the institutional value proposition.

Challenges for Higher Education

Image Creator
powered by DALL·E

AI GOVERNANCE

FAIR/NOT BIASED

ROBUST/ RELIABLE

TRANSPARENT/ EXPLAINABLE

REGULATORY COMPLIANCE

RESPONSIBLE/ ACCOUNTABLE

PRIVACY

SAFE/SECURE
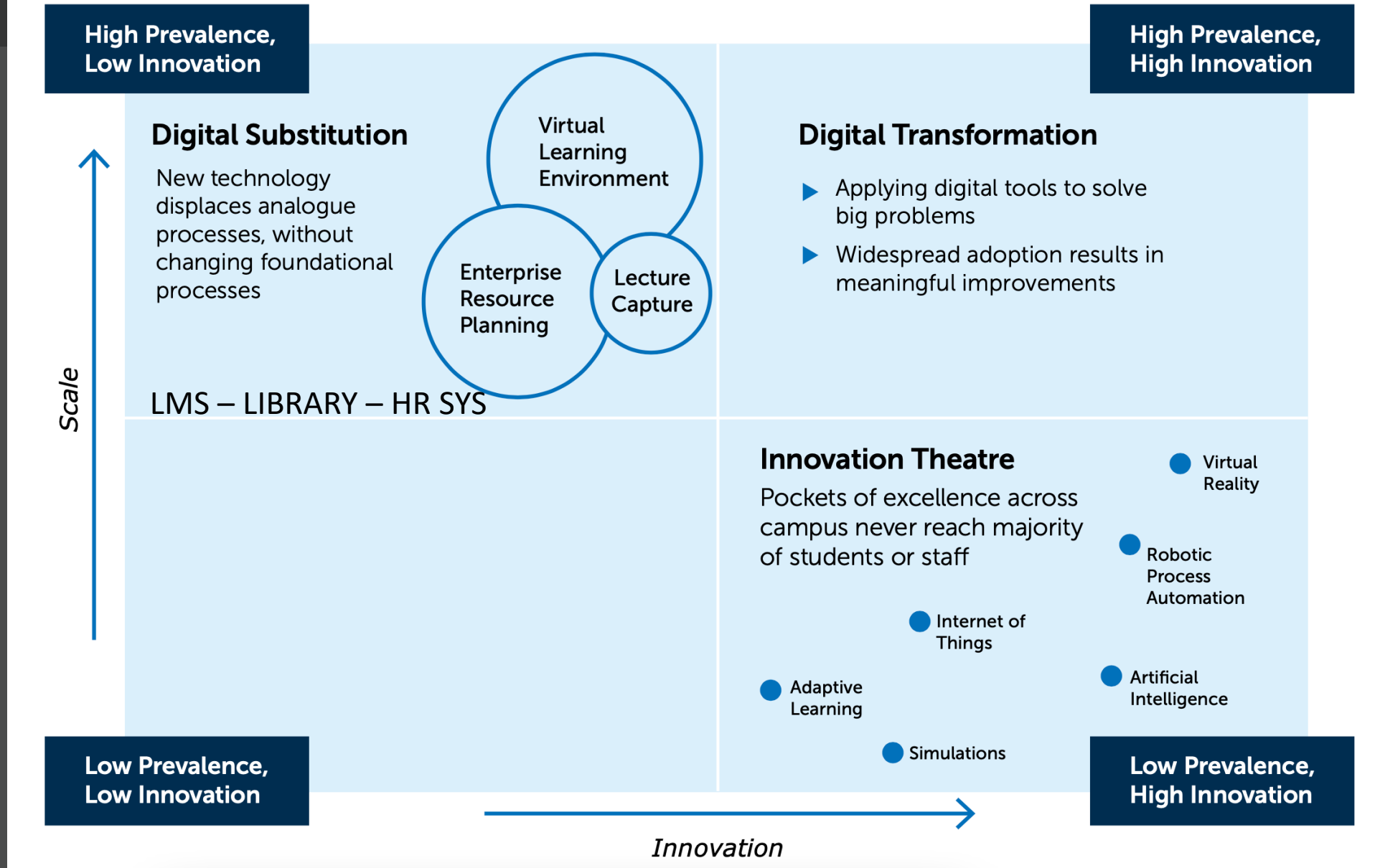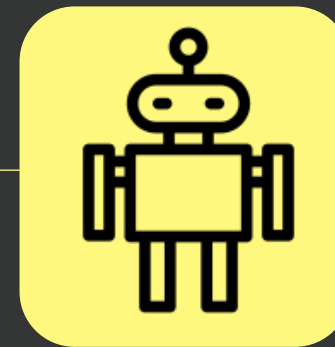
- **Governance:** governing board EdTech policies.
- **Human Capacities:** data culture, capacity building.
- **Research and Development:** incentives for better research.
- **Regulation on Transparency:** culture of transparency.
- **Ethical use:** prevent harmful or misuses (bias, discrimination).
- **Security and data protection:** guarantee safety and protection.
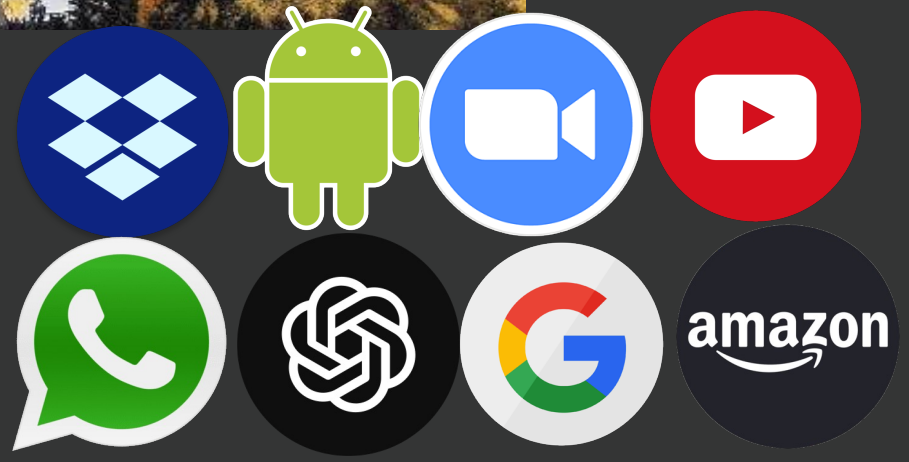
Barriers to Scale
Funding * Legacy IT infra * Poor Interoperability

High Prevalence, Low Innovation

High Prevalence, High Innovation

Scale

Digital Substitution

New technology displaces analogue processes, without changing foundational processes

Virtual Learning Environment

Enterprise Resource Planning

Lecture Capture

LMS – LIBRARY – HR SYS

Digital Transformation

▶ Applying digital tools to solve big problems

▶ Widespread adoption results in meaningful improvements

Innovation Theatre

Pockets of excellence across campus never reach majority of students or staff

● Virtual Reality

● Robotic Process Automation

● Internet of Things

● Artificial Intelligence

● Adaptive Learning

● Simulations

Low Prevalence, Low Innovation

Low Prevalence, High Innovation

Innovation

Barriers to Innovation
Digital Skills & incentive + Siloed + Resistance

"crisis" time of great disagreement, confusion, or suffering (Cambridge Dictionary)

polycrisis: a cluster of related global risks…

What institutional changes are needed?

o To rethink our relationship with knowledge (acquisition & validation)

o To reassess our relationship with new tech

o To create more inclusive institutions

o To build more sustainable & responsive universities

"The first step is to buy time to upgrade our 19th-century institutions for an A.I. world and to learn to master A.I. before it masters us."

Yuval **Harari**, Tristan **Harris** and **Aza Raskin**,

https://www.washingtonpost.com/archive/local/1986/04/04/math-teachers-stage-a-calculated-protest/c003ddaf-b86f-4f2b-92ca-08533f3a5896/

'When the winds of change blow, some build walls …while others build windmills.'

Chinese proverb

Cristóbal Cobo
Senior Education and Technology Policy Expert at International Organization