Polish Digital Resilience Agenda 2040
a model of strategic preparedness
for the antinomies of digitalisation.

Scenario: Her Highness emergence

strategic area: Education, schooling and science science

Scenario for the transformation of Polish education and science by 2040

Emergence

is the phenomenon of the sudden emergence of new, complex properties or behaviors in a system, resulting from the cooperation of simple elements that cannot be predicted by analyzing these components separately.

Outstanding talents as the main source of competitive advantage for both global corporations and countries

Poland faces a unique "decision window" in the years 2025–2035, which will determine the shape of society for the next generation.

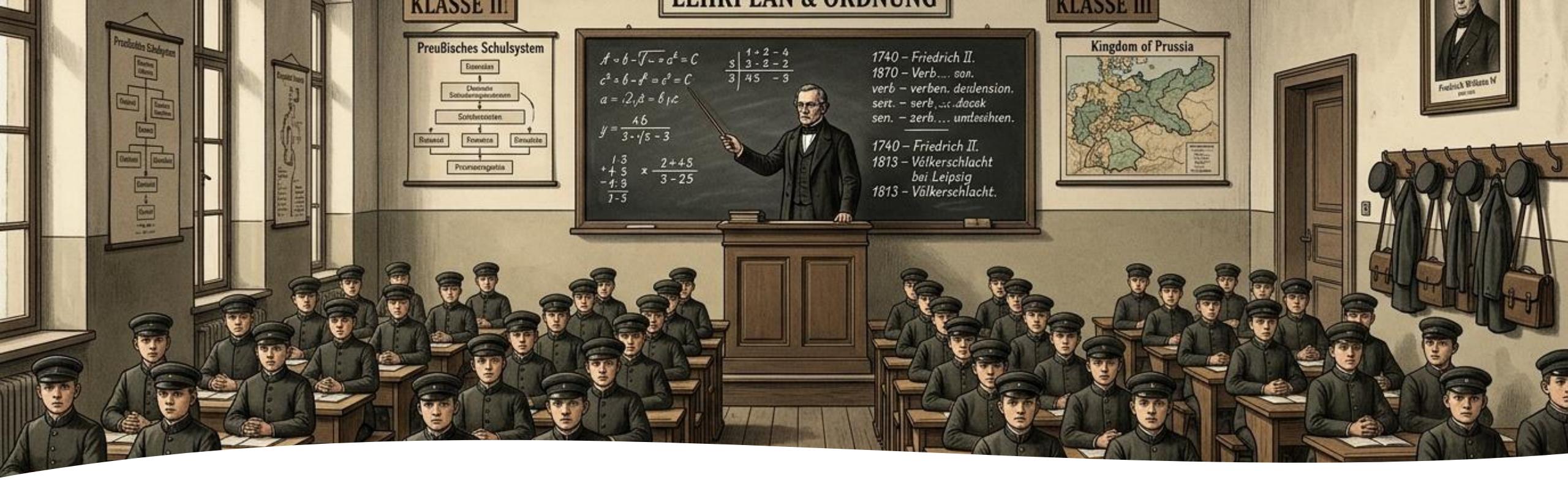
Failure to act means a deepening brain drain and relegation to the role of an assembly plant.

Goal: jumping into the league of global innovators.

The global race for the "gold of the 22nd century" is underway

- Outstanding talent will become the main source of competitive advantage for global corporations
- Corporations are developing independent systems to monitor knowledge, skills and aptitudes
- Key action: identifying unique talents at the earliest possible stage of education
- Domestic start-ups and internships for the most outstanding individuals as a mechanism to stem the global brain drain
- Fundamental thesis: everyone has some talent – none should remain unidentified

The starting point of the scenario is a paradigm shift: from a model of mass education to a system of precise identification and development of the unique predispositions of each individual.
Corporations are already building such systems - Poland must create them
own, before it becomes merely a supplier of talent for others.

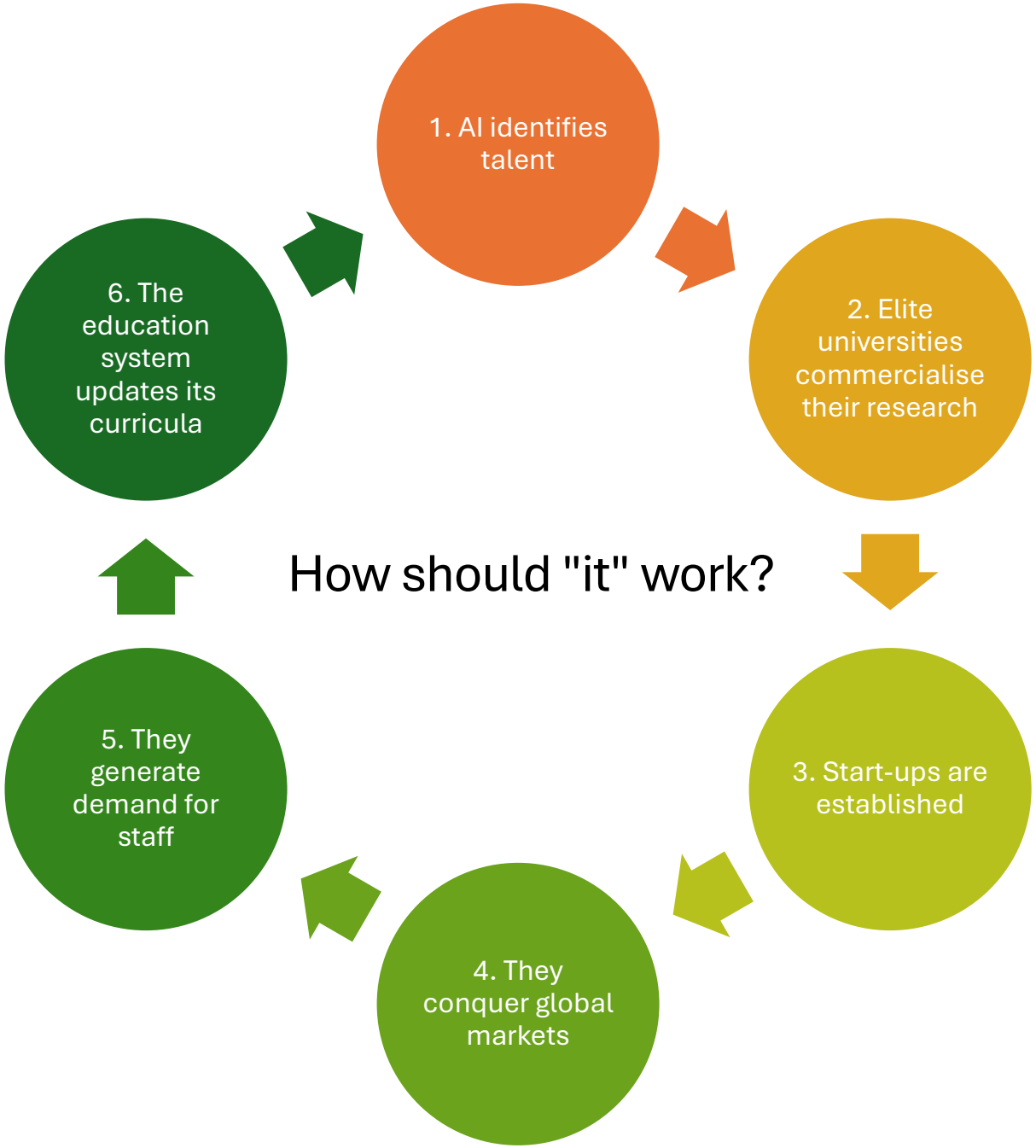


Why is change necessary?

- Prussian model: uniform curriculum, rigid class levels, emphasis on standardization
- **30-40% of STEM graduates emigrate — brain drain as a strategic threat**
- Poland trapped in the "assembly plant" - an economy dependent on cheap labor, not on innovation
- Global corporations are building their own talent detection systems - Poland remains passive

7 elements of the ecosystem

Element	Action
Customization (AI)	Detecting talent from kindergarten
Entrepreneurial universities	Rapid commercialization of research
Startups and spin-offs	Unique products in global niches
Global markets	Technology exports (MENA, Asia)
T-shaped staff	Demand for interdisciplinary specialists
Program updates	Education keeps pace with the market
Talent management	Top 10% fully financed



The cycle returns to the beginning, each time at a higher level.

And all without a central command point: the system creates a framework and its participants decide on their role in it.

Mechanism: How AI is changing education

AI algorithms identify aptitudes from as early as nursery school — cognitive, creative and STEM

Personalised learning pathways instead of a standardised curriculum → 30–40% increase in learning effectiveness

Multimodal teaching: AR, immersive simulations, AI assistants

Top 10% of pupils → elite programmes with 100% scholarships

National Talent Platform with transparent algorithm auditing

Reform of universities and science

Deregulated entrepreneurial universities — a business model alongside the academic one

Intellectual property reform: 70% of rights for researchers (vs. ~30% today)

Fast-track for applied research — procedure shortened to 30 days

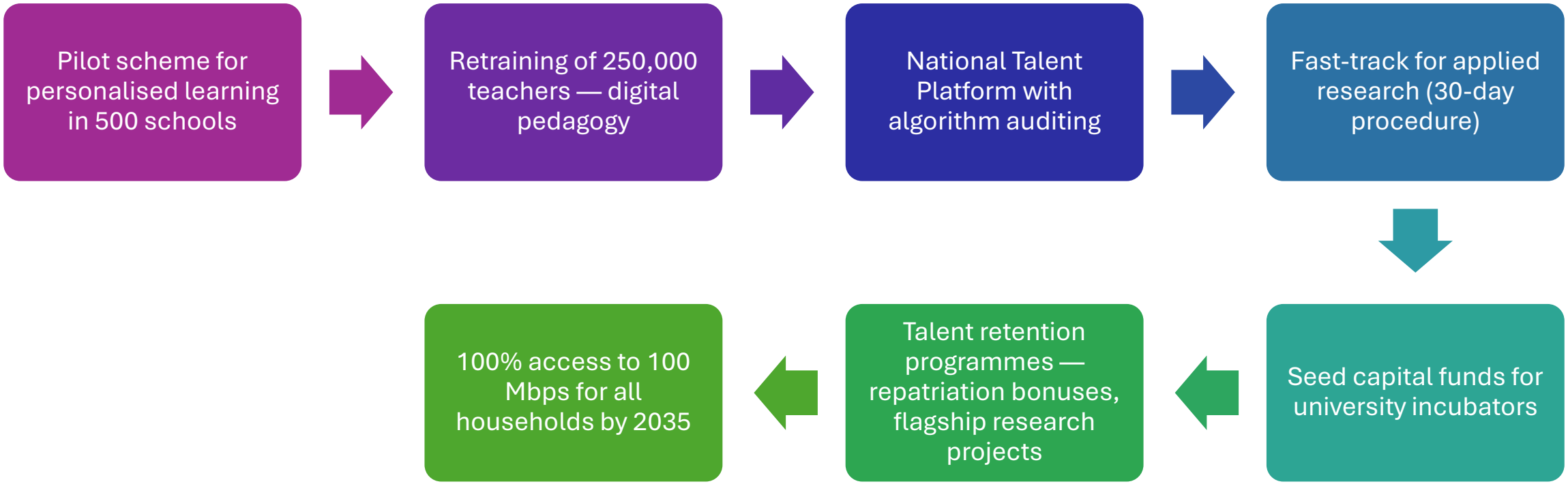
Seed capital funds for university incubators

Selective commercialisation: 60% applied research / 40% basic research

Strategic sectors

- Precision agriculture → export to MENA and Asia
- Telemedicine → global markets
- Artificial intelligence → services and products
- Biotechnology → pharmacy and food
- Cybersecurity → critical infrastructure
- Smart energy grids → climate transformation

Strategic recommendations (2025–2035) What should you do immediately?



Individualization of education as the foundation of the system

AI algorithms identify cognitive aptitudes from as early as nursery school age – personalising learning pathways

Replacing rigid grade levels with dynamic learning pathways tailored to each pupil

Multimodal digital teaching: AR, immersive simulations, AI assistants — learning effectiveness increases by 30–40%

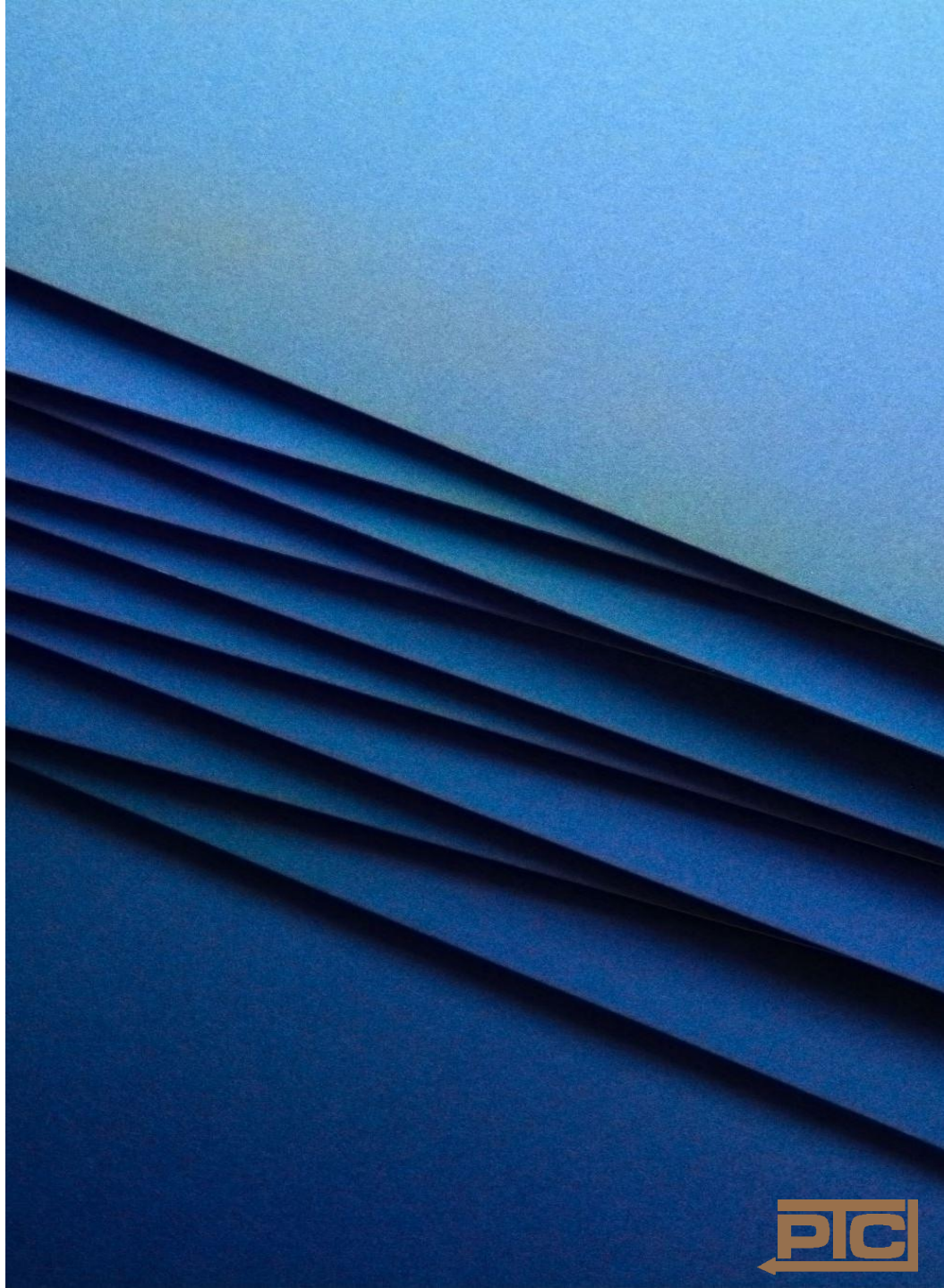
The transition from the Prussian (mass) model to an adaptive learning ecosystem

Individualization of education based on AI is not a distant vision - it is a specific technological requirement that can be implemented within the next decade. However, pilot implementation is crucial before the system is scaled.

Comprehensive talent management

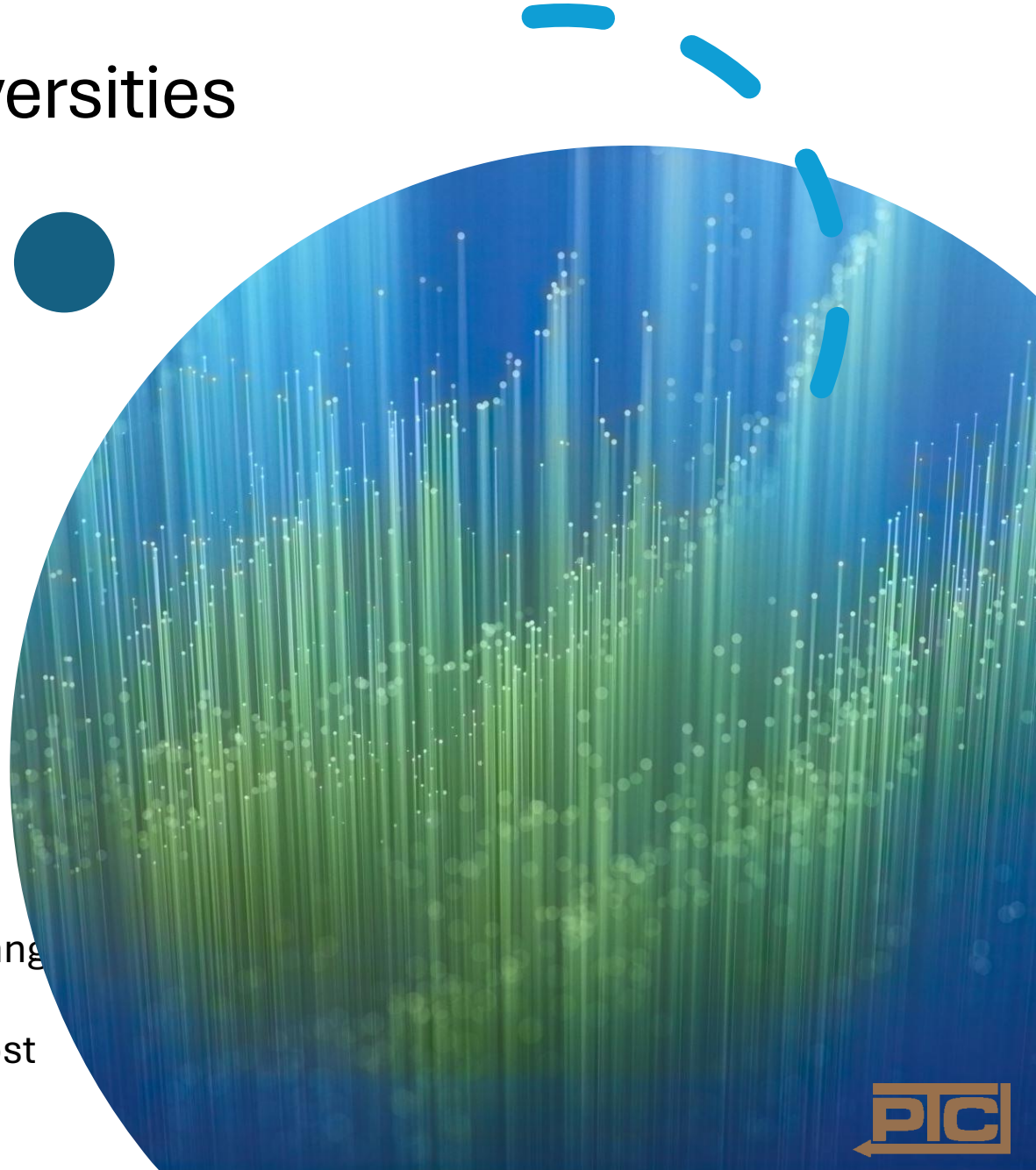
- A multi-tiered identification process: from nursery school to university acceleration programmes
- Identification of the top 10% of pupils in each area of competence
- Elite development pathways with scholarships covering 100% of tuition fees
- Access to advanced research infrastructure
- Selection criteria based on a transparent audit of algorithms

The talent management system combines AI technology with classic scholarship logic. The key challenge is to ensure the transparency of algorithms so that selection does not reproduce existing social inequalities.



Deregulated entrepreneurial universities

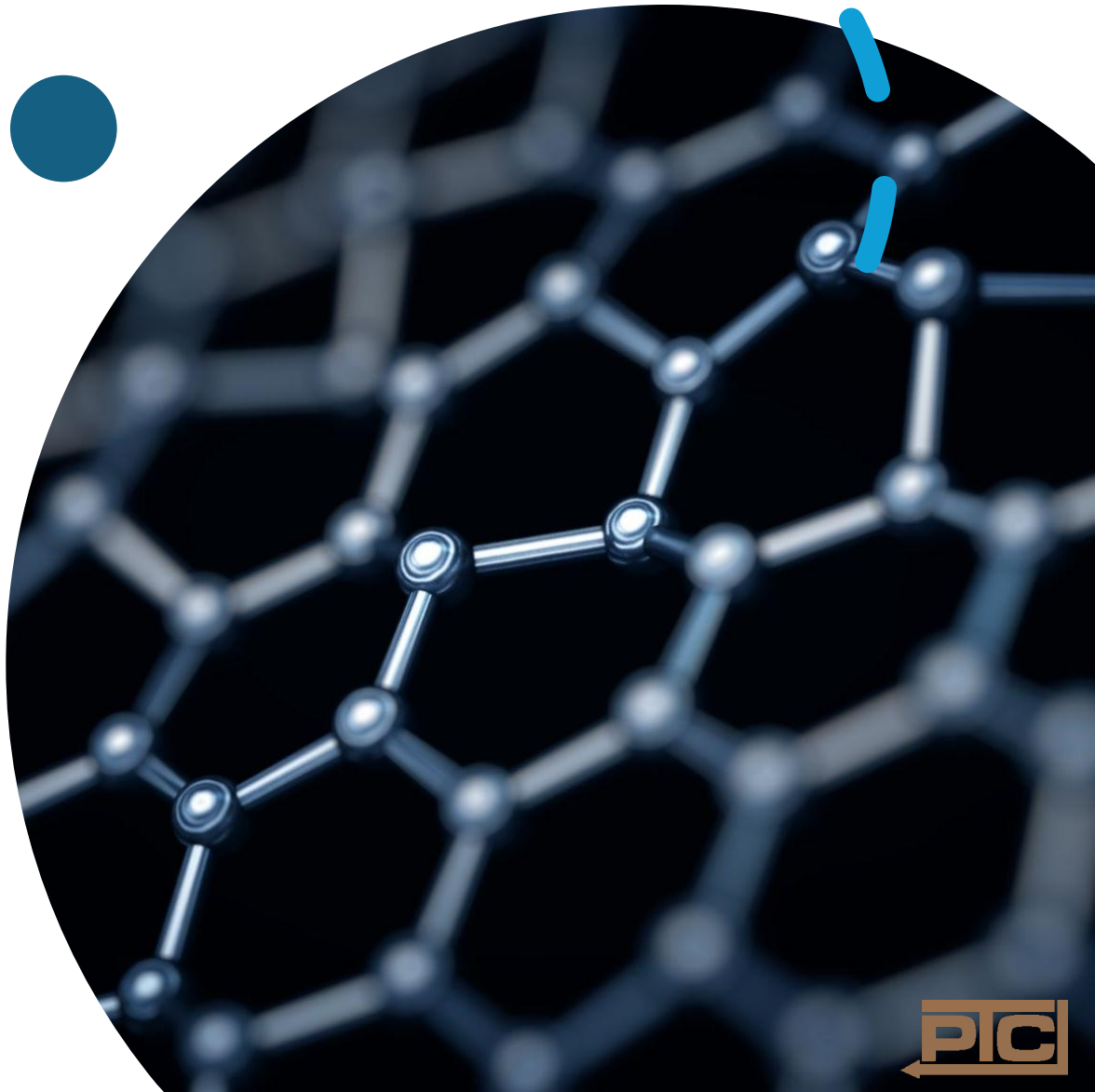
- Fast-track for applied research — streamlining bureaucratic procedures
- Intellectual property reform: researchers retain 70% of IP rights instead of the current ~30%
- University incubators with seed capital funds
- Emerging start-ups create unique products in strategic sectors
- Priority sectors: precision agriculture, telemedicine, AI, biotechnology, cybersecurity



Deregulation and commercialization of science is a systemic chang in the relationship between universities and the market. The key signal is the change in intellectual property law - this element most strongly motivates scientists to commercialize research results.

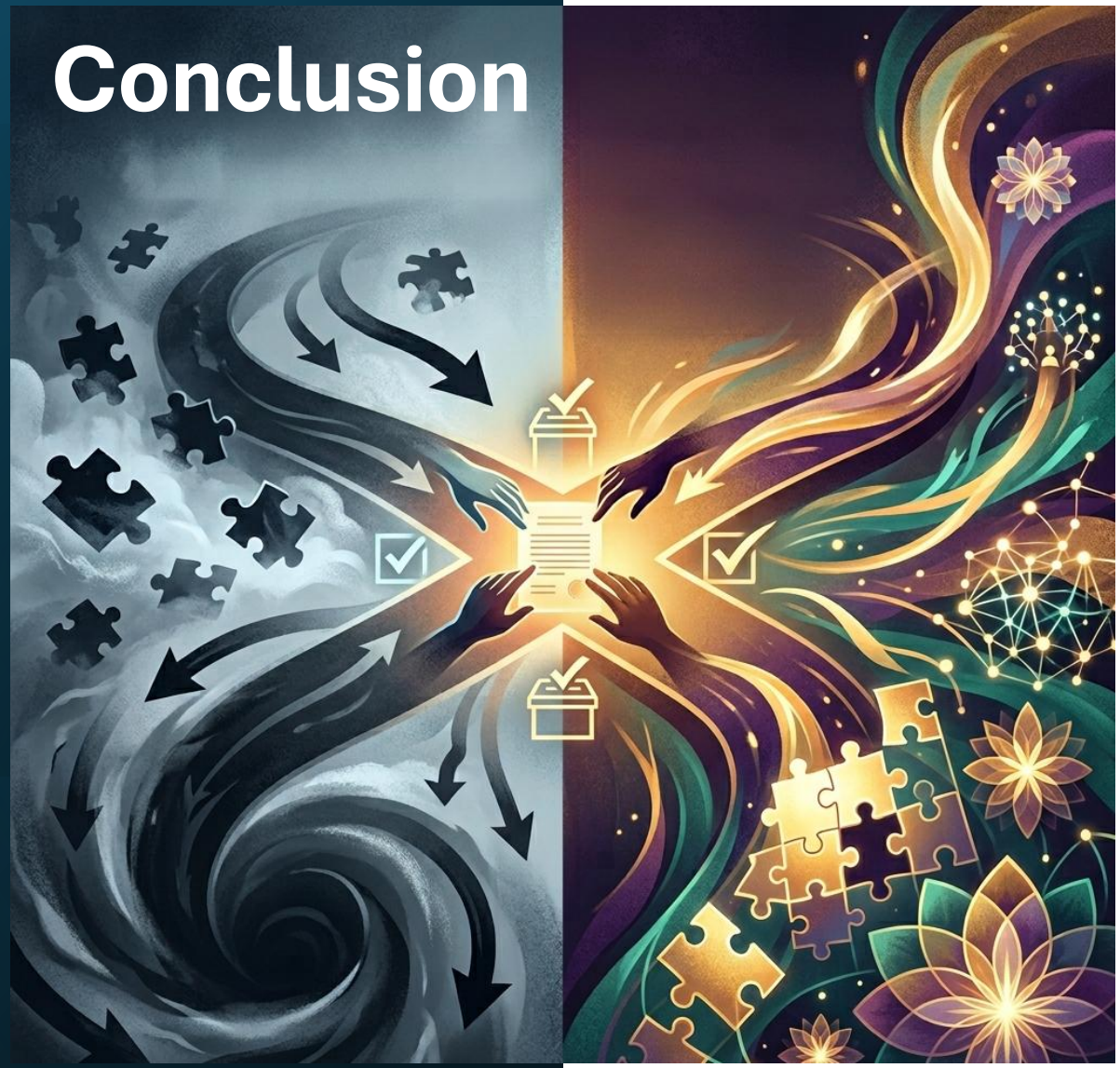
New T-shaped professions and competencies

- Over 180 new professions by 2030 requiring new skills
- The T-shaped model: deep technical specialisation and broad horizontal skills
- Transversal skills: critical thinking, digital skills, intercultural communication, technology ethics
- Diversification of roles: teacher → AI Learning Designer, interdisciplinary fusions (bioinformatics, neurotechnology)
- Interdisciplinary fusions create professions with no precedents



The T-shaped model is a response to the paradox of the labor market: narrow specializations alone are being replaced by AI, and soft skills alone are not enough. Only the combination of both dimensions builds lasting market value.

Conclusion



- Emergence is not guaranteed - it requires conscious political decisions
- Risk of inaction = consolidation of the assembly plant model + brain drain
- Poland has the resources to build an innovation ecosystem - it lacks systemic will
- **Education is not a cost, but the infrastructure of the future economy**

Ministerstwo Nauki i Szkolnictwa Wyższego

NAUKA DLA SPOŁECZEŃSTWA

Polish Digital Society
http://cyfryzacja.org

The project is financed from state budget funds allocated by the Minister of Education a Science under the "Science for Society II" Program._x000B_Funding: PLN 1,467,000, Tota value: PLN 1,467,000

Postscript: one-page script

The document describes Poland's emerging transformation into an innovative knowledge society - the transition from the outdated "Prussian school" model to an adaptive ecosystem powered by artificial intelligence. The title "Her Majesty's Emergence" is programmatic: change will not come through one grand plan, but will emerge from the interaction of seven mutually reinforcing elements of the system.

The central thesis is: outstanding talents will become the main source of competitive advantage - both for global corporations and for countries. Poland faces a unique "decision window" in the years 2025–2035, which will determine the shape of society for the next generation. Failure to act means a deepening brain drain and relegation to the role of an assembly plant. Action - leap into the league of global innovators.

The narrative is built around a feedback loop:

AI detects talents → elite universities commercialize research → startups are created → they conquer global markets → generate demand for staff → the education system updates programs → and the cycle returns to the beginning, each time at a higher level. This is what emergence is - a system that reinforces itself.