

Polish Digital Resilience Agenda 2040

a model of strategic preparedness
for the antinomies of digitalisation.

Scenario: Convergence of seven vectors

strategic area: Internet and IT

Integrated forces create a new order

Phase transition and convergence

Convergence:

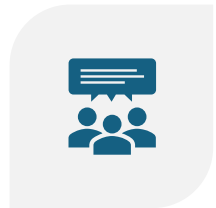
- is the process of different elements converging, becoming similar or combining into one whole.

Phase transition:

- analogy: water - ice is not "very cold water" - it is a new substance, although composed of the same particles,
- digital-physical civilization is not a "highly digitized society" - it is a new system.



Vector 1: Diagnosomats and predictive medicine



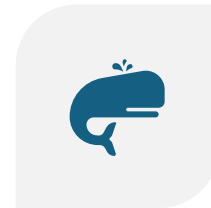
A NEW PARADIGM: FROM SYMPTOMATIC TREATMENT TO DATA-DRIVEN PREVENTION.



60-70% OF DIAGNOSES ARE MADE AT HOME



CARE COSTS – 25-35%



AN INCREASE IN HEALTHY LIFE EXPECTANCY OF 5-7 YEARS



DOCTORS – ‘AI INTERPRETERS’ (10-20 TIMES MORE PRODUCTIVE).



RISK: THE URBAN-RURAL DIGITAL HEALTH DIVIDE.

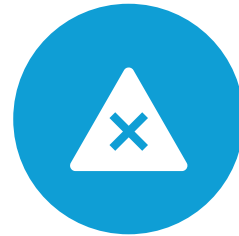
Vector 2: Cybersecurity as the new welfare state



Cybersecurity = a public good (like the NHS).



INVESTMENT: 2–3% OF GDP.



THE QUANTUM THREAT: DATA ENCRYPTED TODAY IS BEING STORED BY ADVERSARIES WAITING FOR THE QUANTUM BREAKTHROUGH EXPECTED BETWEEN 2030 AND 2035.



SOLUTION: IMMEDIATE MIGRATION TO CRYSTALS-KYBER AND CRYSTALS-DILITHIUM.



PUBLIC SECURITY OPERATIONS CENTRES (SOCS) AS CRITICAL INFRASTRUCTURE.

Vector 3 + 4: Self-sovereign identity (SSI) and digital superstates

SSI:

>90 digital accounts linked to a single decentralised DID.
Users regain control of their data
the end of 'surveillance capitalism'.

Digital superstates:

The EU, the US and Asia are creating 'regulatory empires'.
Poland pays for market access with regulatory sovereignty.

Risk:

Splinternet — the Balkanisation of the Internet in the absence of coordination between blocs.

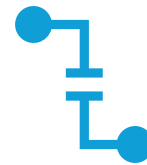
Vector 5: Digital Product Passports (DPP)



Every product has a digital identity (NFT 2.0) with a history: origin, carbon footprint, components, repairs.



Price premium for verifiable origin: +30–60%. EVs with DPP last 20–30% longer.

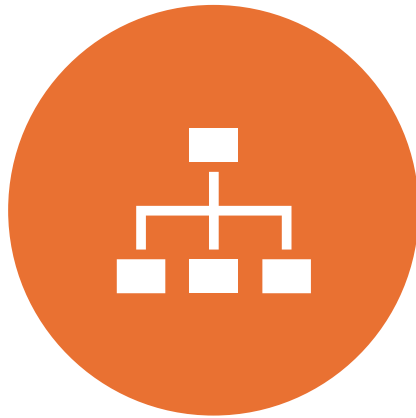


Network load: -40%.



For Polish manufacturers: DPP as a quality certificate and an export advantage under the CBAM scheme.

Vectors 6 + 7: The emergent state and the return to relations



An emergent state:

- Not a planner — a coordinator.
- Governs through protocols, not directives (model: Smart Grid Protocol 3.0).



Restoring relationships:

- Time spent on social media -65%,
- Young people's well-being +35%,
- Social trust +40%



A new social divide:

- 'Digital maximalists' (technology as identity)
- 'Digital minimalists' (technology as a tool).

Transformation phases 2025–2040

Phase I (2025–2030) **decentralisation:**

- edge computing,
- SSI,
- first diagnostic machines,
- implementation of DPP,
- construction of SOC;

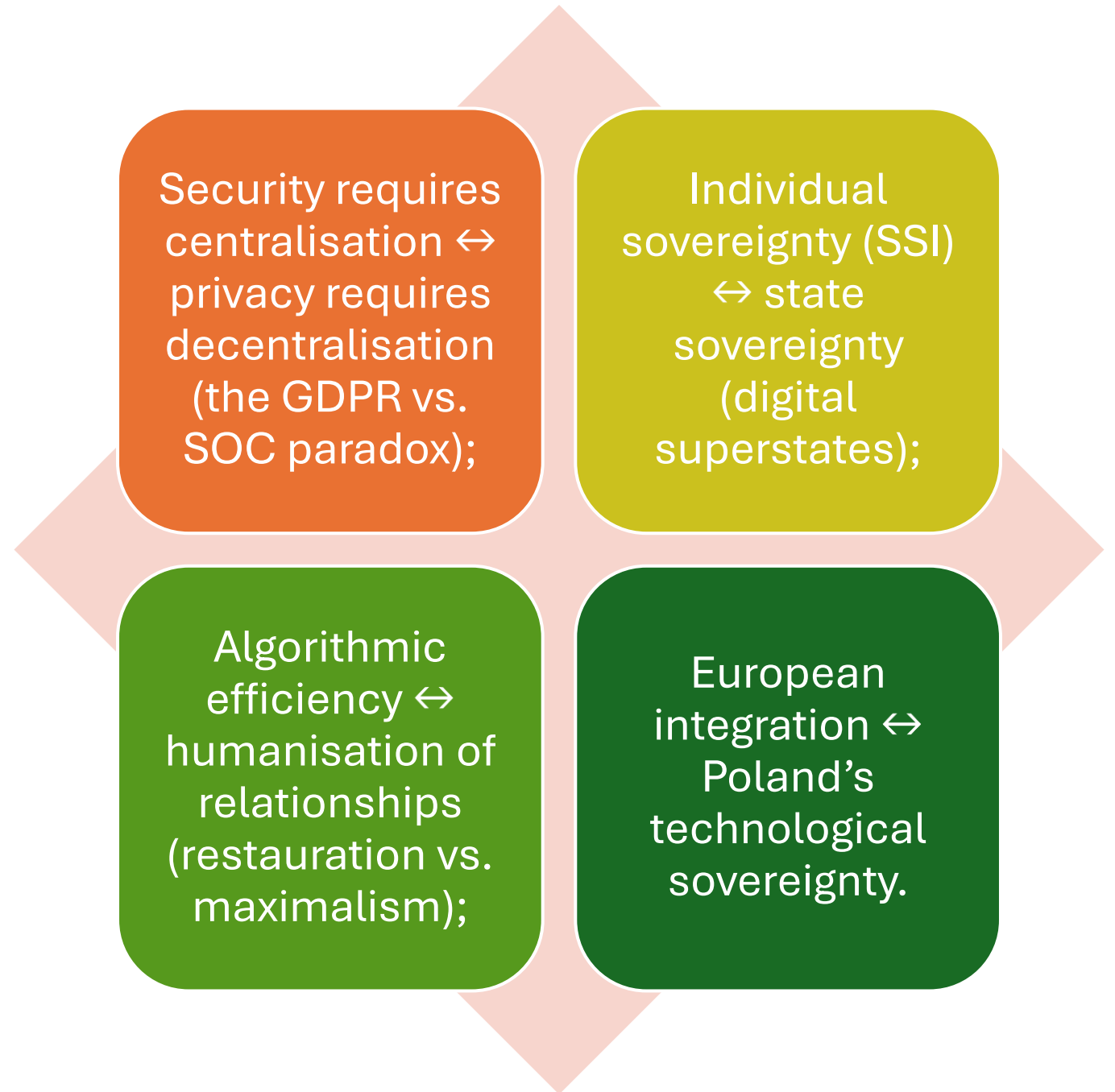
Phase II (2030–2035) **reintegration:**

- fusion of biological and digital identities,
- regulatory superstates,
- quantum cryptographic breakthrough;

Phase III (2035–2040) **emergence:**

- new institutional order,
- the state as protocol coordinator,
- dual-track society.

Systemic tensions




Systemic risks

Quantum Harvest – data capture now, in anticipation of quantum decryption after 2030;



Splinternet – the fragmentation of the global internet into incompatible blocks;



The urban/rural digital and health divide;



Neuro-doping and biological inequalities (epigenetic coaching);



Insurance discrimination based on biometric data.

Three subscenarios for 2040

Subscenario	Probability	Key results
A: Techno-federalism	45%	<ul style="list-style-type: none">• health costs: –30%,• cyberattacks: –80%,• digital inequality: –50%
B: Fragmentation	35%	<ul style="list-style-type: none">• cyberattacks +200%,• company costs +150%,• data leaks 40% of the population
C: Hybrid recalibration	20%	<ul style="list-style-type: none">• SSI adoption 60%,• polarization +25%,• two-track society

Recommendations for Poland and conclusion



Three investment pillars:

- digital energy — 1.5–2% of GDP annually;
- predictive healthcare — 0.8–1.2% of GDP, national genomic databases with federated learning;
- adaptive education — the ‘Bloom effect’, blockchain micro-certificates, lifelong learning.



For businesses:

- implement DPP immediately (30–60% bonus),
- adopt SSI,
- migrate cryptography.



Decision window:

- 2025–2030 — after this date, convergence reaches a point of no return, with no possibility of changing course.

"The seven vectors do not additively add up to change - they multiplicatively create a new civilization."



Polish Digital Society
<http://cyfryzacja.org>

The project is financed from state budget funds allocated by the Minister of Education and Science under the "Science for Society II" Program. _x000B_ Funding: PLN 1,467,000, Total value: PLN 1,467,000

Postscript: one-page script

The scenario describes a phase transition of civilization — not a technological revolution, but a deeper, structural reorganization of the relationship between technology, the state and the individual. The key words are coevolution and convergence: seven seemingly separate transformation processes converge into one coherent, non-linear system from which a qualitatively new socio-technical order emerges.

The central paradox is both subtle and disturbing: Each of the seven technological solutions designed to increase individual freedom, efficiency, or security also requires some kind of centralization. Ensuring digital security requires central monitoring - which conflicts with GDPR. Sovereign identity (SSI) gives power to individuals - but requires transnational "regulatory empires" for standardization. The average user today has over 90 digital accounts — SSI integrates them, but creates a single point of vulnerability. Technology is emancipating and addictive at the same time.

The seven vectors are not a list of trends - they are seven forces that together create a new civilizational architecture:

- *Vector 1 - Health diagnostics: 60-70% of basic diagnostic procedures are moved to the home, reducing care costs by 25-35% and extending healthy life by 5-7 years. Doctors are evolving into "AI medical interpreters" with a 10-20 times increase in productivity. Risk: urban-rural digital health divide.*
- *Vector 2 - Cybersecurity as a public good: The state is no longer the regulator of the cybersec market - it is becoming its operator. Investments: 2–3% of GDP. Quantum threat: "collect now, decrypt later" strategy - data encrypted today will be decrypted by quantum computers after 2030-2035. Immediate migration to CRYSTALS-Kyber and CRYSTALS-Dilithium is necessary.*
- *Vector 3 - Self-Sovereign Identity (SSI): An individual regains control of 90+ digital accounts through DID/W3C standards. A blow to the model of "surveillance capitalism". Risk: one compromised ID = total loss of identity.*
- *Vector 4 - Digital Superstates: The formation of "regulatory empires" (EU, US, Asia) controlling digital infrastructure. Poland and other medium-sized countries give up regulatory sovereignty in exchange for access to a unified market. Risk: balkanization of the Internet (Splinternet) in the absence of coordination.*
- *Vector 5 – Digital Product Passports (DPP): Every product of significant value receives a digital identity (NFT 2.0). Price premiums for verifiable origin: +30-60%. Extending the life of products (e.g. EV) by 20-30%. Reduction of peak network loads by 40%, lower costs for consumers by 25%.*
- *Vector 6 - Emergent State: The state gives up its role as a central planner - it becomes an adaptive coordinator, managing through interoperability protocols and standards. Example: Smart Grid Protocol 3.0 balances energy autonomously; the government only sets the rules of the game.*
- *Vector 7 - Restoration of social relations: A movement that rejects algorithmic exploitation. Time on social media is falling by 65% (from 145 min/day in 2025 to 50 min/day in 2040). The well-being of young people increases by 35%, social trust by 40%. A division is emerging: "digital maximalists" vs. "digital minimalists".*

The narrative leads through three phases: Phase I (2025–2030) – decentralization of responsibility and dematerialization of services; Phase II (2030–2035) — digital-physical reintegration, fusion of biological and digital identity; Phase III (2035–2040) — the emergence of a new institutional order in which technology and institutions create new forms of order.