## III.1. Introduction: The Systemic Diagnosis

*"Every civilization perishes not by an external enemy, but by the inner fatigue of reason."*
—Ibn Khaldun, *Muqaddimah*

Modern civilization has entered an age of institutional senescence (Fukuyama, 2014; IMF data show the average regulatory-decision cycle in the EU increasing from 2.3 years in 1990 to 5.7 years in 2020). The prevailing forms of governance—democracy, capitalism, socialism, centralized planning, and religious-normative economies—were all designed for a technological, demographic, and resource reality entirely different from today's. They presupposed resource abundance and a slow pace of change, whereas the twenty-first century is defined by the opposite:

- resources are finite;
- information flows are accelerating by orders of magnitude;
- decision-making now requires a level of cognitive coherence that legacy institutions cannot deliver.

This chapter draws on convergent empirical and system-dynamics observations showing that none of the existing political-economic architectures demonstrates genuine sustainability under planetary constraints. Each was built to optimize *growth*, not *rational equilibrium*.

Two global indicators—both recognized by the UN and the World Bank—are used here as composite metrics of institutional performance:

- the **Human Development Index (HDI)**, reflecting quality of life, education, and longevity;
- the **Gini Coefficient**, measuring inequality in the distribution of income and wealth.

The analysis reveals paradoxical trade-offs:

- States with the world's highest HDI values (≈ 0.95–0.97)—Norway, Switzerland, Iceland—also exhibit extreme inequality in wealth (asset Gini > 0.8).
- Countries with low income inequality (e.g., Czech Republic, Slovenia) show limited innovative dynamics.
- Large democratic-capitalist economies such as the United States and Germany combine high HDI with ecological footprints exceeding domestic biocapacity by more than a factor of three.
- Autarkic regimes (North Korea, Cuba) maintain nominal equality at the cost of chronic inefficiency and loss of adaptive innovation.

Hence, a high HDI does not guarantee sustainability, and a low Gini does not guarantee efficiency. Humanity remains trapped between over-consumption and over-control.

System-dynamics modeling—from Meadows' *World3* to Sverdrup's *World6/7* and the recent *Earth4All* framework—confirms the same pattern:

- civilization still follows the **Business-as-Usual** trajectory;
- extrapolated trends in population, consumption, $CO_2$ emissions, and soil degradation converge toward structural decline between 2035 and 2050 (Rockström et al., 2009; Steffen et al., 2015; Lenton et al., 2019);

- the **bifurcation point** is already visible in the 2020s, when the rate of innovation ceases to offset the exhaustion of natural capital.

According to *McKinsey Global Energy Perspective 2025*, global energy demand will rise from ≈ 620 EJ in 2024 to ≈ 760 EJ by 2050 (+23 %, mostly in Asia); the share of electricity in final consumption may reach 36–40 %, and renewables 65–70 % of power generation—still insufficient for the 1.5 °C target. Even under the most optimistic "Sustainable Transformation" scenario, residual $CO_2$ emissions remain ≈ 16 Gt per year, far from net-zero. The conclusion is stark: the failure is not technological but institutional—the **decay of rational governance**.

Parallel data from the *Global Tipping Points Report 2025* reinforce the ecological dimension of the crisis: the Arctic sea-ice minimum is projected to vanish by 2035; the Amazon is approaching its die-back threshold at 20–25 % deforestation; the Greenland ice sheet is near an irreversible tipping point equivalent to ≈ 7 m sea-level rise; permafrost thaw could release ≈ 100 Gt $CO_2$-equivalent; and the Atlantic Meridional Overturning Circulation (AMOC) risks collapse within 2030–2050. What were once theoretical "planetary boundaries" have become measurable limits.

Three interlinked defects explain the degradation of the global order:

1. **Cognitive deficit of institutions** – Governments and markets alike cannot process the complexity of the modern world. Decisions are based on simplified, politically distorted representations rather than real-time evidence.
2. **Absence of self-limitation mechanisms** – No existing system contains an internal feedback loop capable of restraining exponential growth except through crisis.
3. **Irrational resource allocation** – The global economy is driven by the logic of capital and power, not by the logic of systemic optimum.

The consequence is the emergence of a singularity of inequality: on one pole, technological hyper-elites controlling quantum computing, AI, private space systems, and biotech; on the other, billions excluded from education and basic infrastructure. The erosion of trust and the rise of polarization generate a **crisis of legitimacy**.

If the twentieth century was the *Age of Growth*, the twenty-first has become the *Age of Correction*—a period in which inherited models lose coherence faster than new ones can form.

The subsequent sections therefore examine, one by one, the dominant political-economic systems that have shaped humanity's past and present—democracy + capitalism, socialism + planning, technocracy, theocratic economies, and hybrid regimes—assessing their capacity (or incapacity) to align social development with finite planetary resources and the cognitive limits of humankind.

### III.2. Democracy + Capitalism: The Crisis of Rationality and Expansion

## III.1.2. Historical Premise

Democracy and capitalism are among humanity's two most successful institutional inventions. The former provided a feedback mechanism between authority and society; the latter released the energy of entrepreneurship, enabling an unprecedented rise in productivity.
Together they produced the hallmark of modernity: economic abundance, mass education, and social mobility.

Yet what made them effective in the nineteenth and twentieth centuries has become a source of instability in the twenty-first.
Democracy, oriented toward short electoral cycles, is ill-suited for managing long-term risks, while capitalism, founded on perpetual expansion, cannot function within the boundaries of a finite planet.
The joint system of **"democracy + capitalism"** has evolved into a structure incapable of self-limitation.

Max Weber, in *Economy and Society* (1922), described rationalization as the defining process of Western civilization—the shift from charismatic and traditional forms of domination to rational-legal ones.
This "Weberian bureaucracy" delivered efficiency but gradually detached itself from value motivation, turning into a machine of impersonal administration.
From the standpoint of Noocracy, this represents the terminal phase of rational order: wherever reason becomes severed from meaning, **a crisis of cognitive legitimacy** emerges—the loss of trust in the very institutions that once embodied reason.

Joseph A. Schumpeter, in *Capitalism, Socialism and Democracy* (1942), revealed the same internal paradox: capitalism's vitality depends on innovation, yet every wave of innovation destroys the structures that supported it.
This process of *creative destruction* leads not to the market's overthrow from outside but to its exhaustion from within, as rationalization and corporatization suppress the very entrepreneurial spirit that sustains them.
For Noocracy, the implication is clear: sustainability is achievable only by redefining rationality itself—from blind growth to **cognitive-ethical development**.

Historically, democratic systems were not always plagued by cognitive chaos.
Classical Athenian and Roman democracies incorporated forms of **census**—property, military, or educational qualifications—that limited participation to those who bore collective responsibility.
This "competence threshold" ensured a degree of rational consistency and foreshadowed the modern **Census of Reason**.
Contemporary democracy, having abolished these filters, transformed equality of opportunity into equality of competence—thus producing a **crisis of rationality**.

Accordingly, Noocracy does not reject democracy; it **restores its sustainable form**—a democracy with a census of reason, where the degree of participation in governance is proportional to a verifiable capacity for rational thought (see Brennan, 2016; Estlund, 2008).

## III.2.2. The Paradox of Freedom and Irrationality

In theory, democracy means the rule of the people; in practice, in the digital age, it has turned into **the rule of algorithms over attention**.
Decisions are increasingly shaped by emotion, identity, and advertising rather than by rational analysis.
What was meant to be a forum for collective reasoning has become an arena of marketing battles.

A well-known MIT study (Vosoughi, R., Roy, D., & Aral, S. (2018). *The Spread of True and False News Online. Science*, 359(6380), 1146–1151) showed that misinformation spreads on social networks **six times faster** than verified facts.
The electoral process, once intended to correct and balance power, has degenerated into a cycle

of emotional mobilization—where victory depends not on competence but on the ability to inspire trust and fear simultaneously.
As a result, democracy loses its defining quality: **cognitive consistency**.

Rational voting has given way to **identity voting**—citizens cast their ballots not for a program, but for a sense of belonging.
Populism ceases to be an anomaly; it becomes a built-in survival mechanism for political actors.
This produces a slow drift from open societies toward **soft authoritarianism**, disguised as "responsible governance."

## III.2.3. Economic Expansion and the Limits of Growth

Capitalism knows no state of rest.
It requires continuous growth in consumption—otherwise the very mechanism of capital accumulation collapses.
Markets, corporations, and individuals are embedded in a system of **endless expansion**, where stagnation equals death.

This logic has produced what may be called an **accelerating crisis**:

- In the 1960s, one dollar of global GDP required about **$0.4** worth of raw materials.
- In the 2020s, it requires **$0.7**.
- The energy intensity of GDP is declining, yet **absolute consumption of energy and materials keeps rising**.

The indicator known as **Earth Overshoot Day** has shifted from **29 December (in 1970)** to **24 July (in 2025)**—humanity now lives "on credit" for nearly half the year.
This is not an environmental anomaly but a **structural feature** of market logic, where success is measured by growth rather than balance
(see Smil, 2017; Sovacool, 2016; Energy Institute, 2024; IEA, 2024).

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## III.2.4. The Crisis of Legitimacy and Trust

Capitalism has generated unprecedented wealth—and equally unprecedented inequality.
In countries with a high Human Development Index (HDI $\geq 0.9$), the **Gini coefficient for income** ranges between **30–35**, while **wealth inequality** exceeds **80**.
This means that capital and power have recombined, forming a stratum **independent of democratic control**.
The market has ceased to be an instrument of distribution; it has become a mechanism of domination.

Consequently, democracy deforms into **oligarchy**, where formal elections persist but strategic decisions are made by a **tiny cognitive-technological elite**.
This pattern is evident both in the United States (through corporate lobbying, campaign financing, and the influence of IT giants) and in the European Union (through banking and energy lobbies).
Citizens increasingly perceive a loss of control over the system, expressed in a steady **decline of trust in institutions**.
According to OECD (2024), average public trust in parliaments across developed democracies

fell from **43% in 2000** to **27% in 2023** (OECD *Trust Survey* (2024); *Edelman Trust Barometer* (2023)).

When legitimacy is replaced by loyalty, democracy loses stability.
It becomes a **cyclic pendulum** oscillating between populism and technocracy—neither of which resolves the underlying causes of decline.

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## III.2.5. The Evolution of Democracy: From Participation to Distrust

In *Polyarchy: Participation and Opposition* (1971), **Robert Dahl** proposed a normative model of democracy as a system of informed and engaged citizen participation.
His concept of *polyarchy* described a rationally organized competition of interests, where legitimacy arises from procedures—elections, public deliberation, and open party competition.
This model marked the high point of enlightened rationalism in twentieth-century political theory.

By the early twenty-first century, however, this construction began to falter.
**Pierre Rosanvallon**, in *Counter-Democracy: Politics in an Age of Distrust* (2008), demonstrated that modern societies operate not by the logic of participation, but by the logic of observation and verification.
"Counter-democracy," in his sense, is not a rejection of popular sovereignty but a **new expression of it**: citizens act as auditors of power, using instruments of oversight, investigation, and media scrutiny.
Distrust thus becomes a **functional component** of the political ecosystem, maintaining equilibrium after faith in institutions has waned.

Finally, **Colin Crouch**, in *Post-Democracy* (2004), identified the next phase—the erosion of participation itself.
Democratic procedures remain formally intact, but real decision-making shifts to a **narrow circle of economic and media elites**.
This *post-democratic* condition preserves the outward symbols of popular rule while concealing **inner oligarchization** and the **cognitive decay of public discourse**.

Thus, the sequence **Dahl → Rosanvallon → Crouch** outlines three stages in the rational evolution of democracy:

- Rationalized participation;
- Rationalized distrust;
- Rationalized fiction of participation.

For **Noocracy**, this analysis is crucial: it shows that the crisis of democracy is **not a failure of peoples**, but a failure of **cognitive mechanisms of legitimacy**.
The remedy lies not in returning to older forms of representation, but in constructing a **new architecture of trust**—one based on transparent cognitive processes and verifiable feedback in decision-making.

## III.2.6. Ecological and Systemic Contradictions

Democracy and the market are **structurally incapable of limiting consumption**, because their very survival depends on electoral and economic expansion.

Any attempt to impose real limits faces resistance from voters and investors alike.
Thus, democratic societies are inherently unable to adopt unpopular but rational measures—such as radical carbon reduction or large-scale redistribution of wealth.

The **"oil consensus" model** (Wallerstein, 2022) remains the hidden foundation of capitalism: all global economies still depend on hydrocarbons.
The European Union's attempt to transition toward a "Green Deal" exposed the limits of this approach: the surge in energy prices in 2022–2024 provoked mass protests and forced governments to retreat from climate targets.

According to *McKinsey (2025)*, fossil fuels are expected to account for **41–55% of global energy consumption by 2050**—a higher share than in earlier forecasts.
Critically important alternatives such as **green hydrogen** and other sustainable fuels are unlikely to achieve wide adoption before 2040 unless strong regulatory mandates are enacted (see Boers, 2021; Richardson et al., 2023).

The **final decarbonization stage**—eliminating the remaining 5% of emissions—could cost **$90–170 per ton of $CO_2$**, compared with roughly **$20 per ton** for the first 45–70% reductions.
This confirms the necessity of a **system-wide approach**, in which investments are optimized across sectors rather than concentrated in the most expensive marginal gains.

Investment levels in low-carbon technologies—including renewables and battery energy storage systems (BESS)—still fall short of 2030 targets in critical regions such as the European Union and the United States.
Even "green democracies" reproduce the old logic: **sacrificing the long term for the short term**.

**Note: Positive tipping points.**
Alongside collapse points, there exist positive self-reinforcing transitions—growth in renewable energy, expansion of electric mobility, and advances in recycling.
Yet systemic movement in this direction remains constrained by **profitability requirements**: even ecological innovations are embedded in the old market logic.
As a result, their costs are often shifted to end users—as seen in the EU, where the accelerated renewable-energy transition coincided with steep increases in electricity prices.

Noocracy views these positive tipping points not as spontaneous technological salvation but as **governable processes**.
They require institutional support, redistribution of costs, and the elimination of sustainability's dependence on market margins.
Noocracy catalyzes them by **changing the target function from profit to sustainability**, implementing feedback mechanisms, and prioritizing the public funding of research through civic science foundations (see Chapter IV §8.1; Chapter VI §2.2).

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## III.2.7. Digital Capitalism: A New Form of Dependence

If industrial capitalism exploited **labor and natural resources**, digital capitalism exploits **attention and data**.
Platforms harvest behavioral profiles of billions, forming what Shoshana Zuboff calls the **"prediction market"** of *surveillance capitalism*.
Citizens cease to be subjects—they become **raw material** for the information economy.

Democracy in this environment is powerless: legal mechanisms lag behind algorithmic speed, and the innovation market rewards not truth but **efficiency of manipulation**.
States lose control over the **infrastructure of the cognitive space**.
Consequently, collective political consciousness fragments, and the common field of rational discourse dissolves (see Benkler, 2006; Lessig, 1999).

Thomas Piketty, in *Capital in the Twenty-First Century* (2014), offered a fundamental quantitative analysis of income and wealth dynamics over two centuries.
His formula **r > g**—the rate of return on capital (r) consistently exceeding the growth rate of the economy (g)—demonstrates that capital accumulation inevitably produces structural inequality and concentration of political power.

For Noocracy, this insight has direct implications: **economic inequality transforms into cognitive inequality**—a widening gap in access to information, education, and intellectual capital.
Thus, Piketty's work concludes the long line of systemic critiques of capitalism—from Marx and Schumpeter to the present—and lays the groundwork for a new metric of value: the **Energy-Cognitive Equivalent (IEKV)**, in which justice is measured not by rent, but by **contribution to rational development**.

## III.2.8. Empirical Picture

When comparing **HDI** and **Gini** data for countries representing the *"democracy + capitalism"* model, a stable contradiction emerges:

- HDI remains **high** (0.9–0.96);
- the Gini coefficient **steadily rises** (from about 25 in the 1980s to 33–35 in the 2020s).

At the same time, the *subjective perception of inequality* grows: over **70% of citizens** now consider their system unfair (Pew Research, 2023).
Thus, while the *quality of life increases*, the *sense of justice declines*—a key symptom of impending social collapse.

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## III.2.9. Cognitive Critique

The principal flaw of democratic capitalism lies **not in morality but in the architecture of reason**.
The system rests on two classical assumptions: the *rational individual* (*homo economicus*) and the *collectively rational society* (*homo democraticus*).
Both premises have been falsified by modern cognitive science.

Human beings are **not rational but predictably irrational** (Kahneman, 2012); their behavior can be steered en masse through informational stimuli.
In essence, democracy and capitalism generate a *self-reinforcing illusion of choice*—a framework in which behavioral freedom equals the predictability of reaction.

This produces what may be termed a **"soft tyranny of algorithms"**: individuals are formally free, yet their preferences are shaped by incentive systems they neither design nor control.
In this sense, democracy and the market have evolved into **mutual simulations of freedom**.

Building on the concept of *bounded rationality*, Richard Thaler and Cass Sunstein, in *Nudge* (2008), demonstrated that human behavior can be systematically directed without coercion—through contextual design of decision environments.
This principle of **"libertarian paternalism"** became one of the first examples of *cognitive governance*, where collective rationality is engineered as a function of behavioral stimuli.

Within the noocratic framework, such mechanisms demand **ethical reinterpretation**—a shift from manipulation to **cognitive coordination and conscious choice**.
Institutional safeguards against algorithmic tyranny—namely, the **Cognitive-Ethical Contour (CEC)** and the architecture of ethical filters—are analyzed in detail in Chapter IV (§4–§5) and in the comparative risk analysis of Chapter V (§4.3).

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## III.2.10. Interim Conclusion

Democracy and capitalism have created a *comfort zone* in which society has lost the will for self-correction.
The system rewards **growth and consumption**, not **thinking and adaptation**.
It does not collapse suddenly—it **decays cognitively**.
There is no enemy in this degradation—only an obsolete logic.

Yet the comfort zone is already entering an **accelerated phase of disintegration**.
Modern democracies and market economies are not static; they make genuine efforts to improve and develop mechanisms of self-correction:

- Keynesian and neo-Keynesian macroeconomic policies aim to smooth overheating cycles;
- antitrust regulation combats capital concentration;
- supranational institutions (UN, WTO, EU) build frameworks for coordination.

However, the **complexity of the world increases faster than these systems can adapt**.
The convergence of ecological, social, technological, and military trends creates a *nonlinear risk zone*:

- **Ecological tipping points** lead to irreversible loss of biocapacity;
- **Automation and militarization**, driven by AI and drone technologies, transform regional conflicts into a constant regime of low-intensity wars;
- **Social institutions** lose adaptability as the pace of external change exceeds the speed of cognitive and normative response.

Even the global architectures designed to maintain order show signs of **functional exhaustion**:

- The **UN** increasingly fails to ensure collective security or coordinate responses to transnational crises;
- The **WTO** struggles to uphold fairness and symmetry of rules amid protectionism, digital trade, and sanction wars.

These organizations do not disappear, but they **lose regulatory density**: their mandates expand while decision-making capacity declines.
This is a systemic symptom—the **speed of global complexity now exceeds the speed of institutional processing**.

Democratic—and, as shown later, most other—mechanisms can no longer absorb the informational volume they generate.
They become hostages to **populism**, while legal systems lag behind technological innovation, especially in **AI and data governance**;
economic incentives continue to reward **short-term growth** instead of **sustainability**.

Taken together, these factors mean that the **rate of institutional decay now exceeds the rate of self-development**—the system decomposes faster than it can evolve or adapt.
The historical window for *evolutionary correction* is closing rapidly: the shift from an inertial model to a **self-learning system** must occur before cumulative losses of stability become irreversible.

Hence arises the necessity of a principle that prioritizes the preservation of systemic integrity over inherited political-economic forms.

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## Postulate of Systemic Priority *(Rational Compulsion)*

Under verifiable threat of civilizational collapse—exceeding planetary boundaries, structural economic contraction, and the militarization of technologies—the **right to collective survival** rationally acquires **temporary priority over unlimited individual self-determination**.

The **partial delegation of certain formal freedoms** (in particular, the unconditional right to vote) *in exchange for guaranteed survival*—to preserve the cognitive coherence and sustainability of society—is a **proportional, reversible, and ethically justified** measure.

# III.3. Oligarchy Based on Democracy: Institutional Capture and Goal Deformation

## III.3.1. Evolution of Democracy into Oligarchy

Aristotle, in *Politics*, observed that democracy tends to degenerate into oligarchy when **wealth becomes concentrated in the hands of a few**, allowing them to dictate terms to the majority.
This pattern has reemerged in the twenty-first century: the economic freedom proclaimed by democratic societies has gradually transformed into **the freedom of capital from public oversight**.

The mechanism is straightforward: **money becomes the fuel of politics, and politics becomes the instrument of protecting capital**.
The democratic shell remains, yet within it forms a **corporate-financial circuit of power**, where strategic decisions are made not in parliaments, but in boardrooms, investment funds, and closed expert networks.

Political sociologist **Colin Crouch** defined this condition as *post-democracy*: a state in which **electoral procedures persist**, but their substantive function is lost.
Citizens still participate in the ritual of voting—but no longer in the process of defining collective goals.

## III.3.2. Institutional Features of Oligarchy

Oligarchy arising from democracy is **not authoritarianism in the direct sense**, but a **systemic distortion of feedback loops**.
Its characteristic features include:

1. **Lobbying and regulatory capture.**
   State agencies come under the influence of the very actors they are meant to regulate.
   Example: financial deregulation in the United States during the 1990s, which precipitated the 2008 crisis.
2. **Informational asymmetry.**
   Mass media are owned by corporations, and the public agenda becomes a tool for protecting the interests of their owners.
3. **Financial filtration of participation.**
   Political entry requires substantial resources—hence, access to elite donors.
4. **Digital manipulation.**
   Algorithmic platforms construct "windows of perception" for voters, where decisions are programmed through content and emotion.

Thus, democracy formally persists, but its **institutional function is inverted**: it legitimizes the power of the minority.

Within the logic of **Public Choice Theory** (Tullock & Buchanan, 1962; Olson, 1965), democratic institutions are not neutral:
interest groups and rationally acting lobbyists capture the agenda through benefit-distribution mechanisms.
It is this **structural deformation**, not a moral failure, that explains democracy's gradual drift toward oligarchy
(see also Acemoglu & Robinson, 2012; V.2.3).

## III.3.4. Cognitive Infrastructure of Power

In the twenty-first century, power has become **less economic and more cognitive**.
Control over data, neural networks, media streams, and communication infrastructure constitutes a **new form of capital**.
Whoever owns the algorithm owns attention—and therefore governs behavior.

This form of power is unprecedented precisely because it is **invisible**: individuals *feel free* even while their decisions are being shaped by external systems of recommendations and filters.
Thus, oligarchy acquires a **distributed digital form**—no longer a small group of people, but a **network of interests embedded in code and platform architecture**.

In the United States, this manifests as the fusion of technological corporations with national security structures (for example, cooperation between major IT firms and the **NSA** or **DARPA**).
In Russia, it takes the form of a **symbiosis between the political elite and resource capital**, where control of information and energy flows becomes indistinguishable from control of governance itself.

## III.3.5. Social Effects: Polarization and Apathy

Rising inequality leads to **erosion of trust and political apathy**.
When election outcomes no longer alter real economic conditions, society splits into two poles:

- **Mobilized anger**, seeking enemies (nationalism, conspiracy theories, populism);

- **Cynical indifference**, expressed through low turnout and withdrawal from political life.

These reactions reinforce each other.
Politics becomes a **spectacle of legitimation** rather than a mechanism of problem-solving.
In 2024, voter turnout in U.S. midterm elections fell to **38%**, and in Europe to about **45%**.
This is no longer participatory democracy, but **democracy of fatigue**.

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## III.3.6. Empirical Picture: HDI and Gini

For countries showing a **stable oligarchic trend**—the United States, Russia, Brazil, and India—the pattern is clear:

- **HDI** ranges from **0.82** (Russia) to **0.93** (U.S.);
- **Gini coefficient** ranges from **35 to 42**—higher than in "pure" European democracies and far above social-democratic models (Scandinavia ≈ 27).

In other words, **oligarchic democracy** yields a high HDI but a low sense of justice.

More troubling is that the **rise of inequality correlates with declining innovation rates**.
According to the *OECD Innovation Index 2024*, there is an inverse relationship between **wealth concentration** and the **number of radical innovations**.
Systems in which innovation is controlled by a narrow elite gradually lose their capacity for **self-renewal**.

## III.3.7. The Political-Economic Nature of Degradation

The core of the problem lies in the **unequal distribution of cognitive capacity**.
Modern elites possess not only capital but also **information-processing systems**, creating a widening gap between the *informed* and the *disconnected*.
Political decisions grow increasingly technocratic, while society becomes less competent in evaluating them.

This generates a phenomenon that may be called **cognitive authoritarianism**:
people voluntarily delegate the right to think to those who appear more informed.
The mechanism of democracy continues to function, but **thinking itself becomes outsourced**, eroding the very foundation of civic responsibility—the core of the democratic project.

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## III.3.8. Risks and Prospects

**Oligarchic democracy is stable—and precisely for that reason, dangerous.**
It does not collapse under crises; it **adapts by absorbing them**.
The financial crisis of 2008, the COVID-19 pandemic, and the energy crisis of 2022—all reinforced capital concentration and dependency.
Each shock strengthened those already in control of resources and networks.

Yet stability without flexibility is a form of stagnation.
Oligarchy cannot solve systemic challenges because it:

- cannot redistribute resources without threatening itself;
- cannot limit consumption without losing legitimacy;
- cannot allow genuine competition without risking control.

In the long run, this leads to **self-destruction from within**—through loss of adaptability and growing alienation of the masses.
Historically, such systems end in one of two ways:
either through **revolution** (physical or technological), or through a **slow slide into authoritarianism**.

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### III.3.9. Interim Conclusion

**Oligarchy born of democracy** represents the internal decay of the liberal project.
It preserves the *form* of freedom while losing its *substance*.
The state serves the goals of the selected, not of the electorate.
Such a system may produce comfort and technology, but not sustainability.
Hence, the historical transition toward the next model—**autarky and communism**—appeared as an attempt to restore societal control, albeit at the cost of freedom.

## III.4. Autarky and Communism: The Limits of Planning and the Information Collapse

### III.4.1. Historical Origins and Ideal

Communism, as an ideology, was born from the **critique of capitalism**—an attempt to eliminate exploitation and build a society of equality and solidarity.
Autarky, as a form of economic self-sufficiency, emerged on the periphery of the world system, where dependence on external centers was perceived as a threat to sovereignty.

Both approaches share a common principle: **managed equality ensured through centralized resource distribution**.
From the USSR to North Korea, from Cuba to Albania, the idea was to replace the spontaneous market with a rational plan and private gain with collective welfare.
The problem was that managing a complex dynamic system **without market signals** required immense computational and informational capabilities—something that did not exist before the age of artificial intelligence.
Ideologically noble, the project proved **systemically impossible in terms of feedback**.

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### III.4.2. The Paradox of Planning

Centralized planning claimed to be scientific. Soviet economists attempted to model the economy as a single table of inputs and outputs.
Yet without a flexible mechanism of supply and demand, the system lost its **sensors**—it could no longer perceive its own errors.

As **Friedrich Hayek** warned in 1945:

“The problem of economic calculation in socialism is not one of computation, but of knowledge.”

Information about needs, quality, and costs is dispersed among millions of participants, and a centralized body cannot collect it in time.
The result was well known: shortages, inefficiency, and stagnation of innovation.
The USSR produced rockets and tanks but could not supply quality consumer goods because the planner could not see real demand.
Similar failures occurred in Maoist China, where the “Great Leap Forward” ended in famine.

Thus, autarky and communism encountered an **information collapse**—the inability to synchronize production and consumption in real time.
Hayek’s classical critique emphasized the impossibility of aggregating *dispersed market knowledge* (Hayek, 1945).
However, in the era of **Big Data and AI**, real-time algorithms can generate **dynamic equivalents of price signals**, processing implicit knowledge without traditional market mediation (see Ch. III §7; Ch. V §3.2).

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## III.4.3. Autarky as a Defensive Mechanism

Autarky is the logical continuation of centralism: if everything inside must be controlled, external uncertainty must be eliminated.
But isolation is not protection—it is the **degradation of adaptability**.
Without external stimuli, the system turns inward and loses its capacity for renewal.

North Korea represents the extreme case: formally self-sufficient, but surviving through smuggling, Chinese aid, and exports of rare-earth materials.
Cuba subsisted for decades on Soviet subsidies; after their disappearance, it entered the “Special Period.”
Autarky creates an **illusion of stability** built upon inefficiency.
Any modernization attempt instantly destabilizes the balance because it demands decentralization—and thus political risk.

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## III.4.4. Social Architecture and the Degradation of Motivation

If democracy suffers from **an excess of individualism**, communism suffers from **its absence**.
Under egalitarian distribution, the incentive for creativity, innovation, and responsibility disappears.
Society sinks into moral apathy, where initiative becomes suspect.

Paradoxically, administratively achieved equality produces a **new hierarchy**—the party nomenklatura.
Thus, the utopia of justice turns into the **power of bureaucracy**, whose main goal becomes self-preservation.
The Soviet experience revealed that bureaucracy not only hinders innovation but **replaces goals themselves**.
Planning loses meaning when its key performance indicators become formal: *“fulfill the plan”*

instead of *"meet human needs."*
This breeds **economic schizophrenia**—production for the sake of reporting.

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## III.4.5. Empirical Picture: HDI and Gini

Comparing countries that retained elements of planned economies yields a predictable result:

- Average or low **HDI** (Cuba – 0.77; DPRK – <0.6; Laos – 0.63);
- Relatively low **Gini coefficient** (25–30), but this "equality" stems from poverty, not justice.

Such equality is **levelling downward**—everyone is poor in roughly the same way.
In a technological era, this equilibrium is unsustainable: younger generations see the global gap and emigrate.
The ensuing **brain drain** deepens systemic decline.

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## III.4.6. Ethical Aspect

The idea of equality is **morally just but operationally destructive** when enforced coercively.
True equality lies not in identical outcomes but in **equal access to information and development opportunities**.
Planned economies provided the former but destroyed the latter.
They froze social mobility, turning citizens into executors of the plan rather than participants in progress.

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## III.4.9. Interim Conclusion

Autarky and communism became **mirror reflections of capitalism's defects**.
If democracy cannot limit freedom, communism cannot use it.
Both systems failed at the central task—creating a **cognitively sustainable mechanism of adaptation**.
Capitalism collapses from chaos; communism—from order.
The first loses control, the second—flexibility.

Hence, **sustainability cannot be achieved through either extreme**.
It demands a **new synthesis**, where governance, freedom, and information form a **dynamic equilibrium**.

The experience of the USSR and other planned regimes illustrates the "**effect of cognitive blindness**"—the refusal of systems to acknowledge their own errors.
Noocracy postulates the **Axiom of Institutional Learnability**:

## III.5.1. Introduction: The Search for a "Third Way"

After the collapse of the bipolar world of the twentieth century, humanity sought new forms of socio-economic equilibrium.
On one side stood the obvious inefficiency of administrative centralism; on the other—the destructiveness of the unrestrained market.
Across different regions emerged **hybrid models**, each representing an attempt to reconcile efficiency with justice, planning with the market, and individuality with the collective.

The most influential among them are:

- the **Scandinavian social-democratic model**,
- the **Chinese model of socialism with national characteristics**, and
- the **Islamic economy**, built upon ethical limits to profit.

All three serve as **laboratories of alternatives**: they show that a synthesis is possible—but only up to a certain threshold of complexity.

## III.5.2. The Scandinavian Model: The Social-Democratic Balance

**Core Principles.**
The Scandinavian model (Sweden, Norway, Denmark, Finland, Iceland) combines a **market economy** with **high taxation**, a robust **social-welfare system**, and strong **institutional trust**.
Its foundation lies in **corporatism and social partnership**, where the state, business, and labor unions jointly define strategic priorities.

Key features include:

- Progressive taxation and redistribution of income;
- High standards of education and healthcare;
- Minimal corruption (Transparency International ranks Scandinavia 1–5 globally);
- Market freedom under effective regulation.

**Empirical Results.**
According to UNDP (2024):

- Average HDI: **0.95–0.97**;
- Gini coefficient: **24–28**;
- Institutional trust: **above 60%**.

This is one of the few examples where **high human development coincides with low inequality**.
Yet its sustainability depends not on economics alone but on culture—civic responsibility, low tolerance for corruption, and collective awareness of risk.

**Weaknesses.**
The model functions mainly in **small, homogeneous societies**.
As scale or heterogeneity grows, efficiency declines.
It also demands **heavy fiscal pressure** (up to 50% of GDP), making it vulnerable to global competition.

Recent years show early signs of erosion—migration tension, demographic aging, dependence on external markets.
Hence, the Scandinavian model is a **local maximum**, not a universal solution: it proves that balance is possible, but fragile.

## III.5.3. The Chinese Model: Socialism with Chinese Characteristics

### 3.1. Evolution and Essence

After 1978, China launched the largest experiment in history to **integrate planned and market logics**.
Under **Deng Xiaoping's** leadership, the country preserved the **political monopoly of the Communist Party** while introducing **market-based mechanisms of distribution**.
This gave rise to a unique hybrid system combining:

- centralized strategic planning (five-year plans, state capitalism);
- competition among private and quasi-private enterprises;
- control over key sectors (energy, banking, infrastructure);
- social control and ideological consolidation through digital tools.

This hybridity enabled China to maintain **8–10% annual GDP growth for four decades**—a phenomenon with no historical precedent.

### 3.2. Empirical Indicators

- **HDI (2024):** 0.79;
- **Gini coefficient:** 38–40 (high inequality but trending downward);
- **More than 800 million people** lifted out of poverty (World Bank data).

From the 1990s to the 2020s, China evolved from an agrarian nation into an **industrial superpower and a technological rival of the United States**.

### 3.3. Social Credit System (SCS) as a Prototype of Managed Society

The **Social Credit System (SCS)** is the most intriguing element of the Chinese model.
It integrates citizens' financial, administrative, and behavioral data to assess their **"social reliability."**
Officially, its goal is to promote responsibility and trust; in practice, it functions as an **algorithmic infrastructure of discipline**.

**SWOT Analysis of SCS:**

| Strengths | Weaknesses |
|---|---|
| Enhances transaction transparency; reduces fraud; promotes law-abiding behavior | Risk of total surveillance; suppression of deviation and innovation; lack of appeal mechanisms |

| Opportunities | Threats |
|---|---|
| Can become a tool for sustainable governance of large systems if ethical safeguards are in place; enables governance through incentives rather than coercion | Risk of codified loyalty; emergence of a digital caste system; loss of privacy and creativity |

The SCS is significant in that it represents the **first large-scale digital mechanism for behavioral governance at the macro level**—something democracies have not yet achieved.
It is an attempt to realize a **cybernetic model of society**, where social regulation is data-driven.
However, **without an open ethical superstructure**, it risks turning into an **instrument of authoritarian stabilization**.

### 3.4. Cultural Roots

Unlike Western models, the Chinese system is grounded in the **Confucian tradition of harmony and collective responsibility**.
The individual is viewed not as an autonomous subject, but as part of a greater whole.
Therefore, the Chinese model perceives **control not as a restriction, but as a means of ordering society**.

This philosophy sustains a **high level of social loyalty** and allows the state to act with a **long-term strategic horizon**—something largely unattainable for Western democracies.
Yet the same factor makes the system vulnerable to **cognitive closure**: innovation is possible only **as long as it does not conflict with political taboos**.

## III.5.4. The Islamic Economy: Ethics Against Expansion

### 4.1. Principles and Differences from Capitalism

The Islamic economy is based on **Sharia law**, where wealth is not an absolute value but an **instrument of social justice**.
Its main principles are:

- prohibition of *riba* (interest-based income);
- prohibition of speculation and uncertainty (*gharar*);
- obligation of *zakat* (charitable redistribution);
- encouragement of fair exchange and partnership (*mudarabah*, *musharakah*).

The goal is to create an economy founded not on perpetual growth but on the **sustainable circulation of good**.

### 4.2. Empirical Potential

By 2025, Islamic financial institutions manage assets exceeding **3 trillion USD**.
The model has been successfully implemented in **Malaysia, Saudi Arabia, the UAE, and Qatar**.
It demonstrates **resilience to crises**—during the 2008 financial crash, Islamic banks suffered less because they avoided speculative derivatives.

However, this system is **culturally and structurally limited**: it functions effectively only where **religious and legal norms are homogeneous**, but is difficult to transplant into secular societies.
Moreover, by rejecting interest-bearing instruments, it reduces **capital flexibility** and **innovation potential**.

4.3. Cognitive Perspective

The Islamic economy is valuable not so much as an alternative to capitalism, but as a **moral prototype for future models**.
It establishes an **ethical norm of profit limitation**, restoring a **value dimension** to economics.
In this sense, it is **closer to the principles of Noocracy** than Western or socialist models, since it recognizes that **without moral regulation, the economy becomes a form of violence**.

## III.5.5. Comparative Analysis and Interim Conclusions

If we examine the three hybrid models within a single analytical framework:

| Model | Strengths | Weaknesses | Overall Sustainability Assessment |
|---|---|---|---|
| **Scandinavian** | High HDI, low Gini, strong trust, transparency | Dependence on cultural homogeneity, demographic constraints | Sustainable on a small scale |
| **Chinese** | Rapid growth, long-term planning, technological leadership | Excessive control, inequality, suppression of creativity | Sustainable but inflexible |
| **Islamic** | Ethical profit limitation, financial stability | Limited universality, low innovativeness | Potentially sustainable with value adaptation |

These systems demonstrate that **partial sustainability is achievable**, but **global sustainability is not**.
Each solves one side of the equation—economic, social, or ethical—but none can integrate all three simultaneously.
The reason lies in the fact that **all remain within the limits of human governability**, while the **complexity of the world has already surpassed human cognitive capacity**.

# III.6. The Singapore Model of Meritocracy: Technocratic Efficiency without Universality

## III.6.1. Philosophy of Meritocracy

Meritocracy (from *meritum* — "merit") in the Singaporean context is not merely a personnel policy but a comprehensive philosophy of governance. Its founder, **Lee Kuan Yew**, formulated the principle succinctly:
*"The success of a state depends on its ability to promote the best, not on its ideology."*

This worldview penetrated every sphere of life — education, bureaucracy, and the economy. At its core lies the conviction that a society can be just if it allows competence, not wealth or lineage, to prevail.

The mechanism of this philosophy is straightforward yet uncompromising:

- selection of the most capable students through national examinations (PSLE and subsequent testing);
- concentration of talents in elite schools and universities;
- public scholarships with a mandatory period of civil service;
- early identification and promotion of bureaucratic talent based on performance.

Thus, **power is legitimized through intellect rather than capital or mass appeal** — a step toward a noocratic principle where reason, not majority rule, governs decision-making.

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## III.6.2. Institutional Architecture

Singapore's governance is built as a **hierarchy of competencies**, in which each level is tightly coupled with the next through measurable performance indicators.
Civil service operates as a technocratic pyramid where advancement depends on merit and peer evaluation, not tenure or patronage.
The Public Service Commission oversees recruitment, while the **Administrative Service** serves as the elite core — analogous to a secular priesthood of efficiency.

Economic ministries are staffed predominantly by scholars from the same educational and bureaucratic streams, ensuring **cognitive homogeneity** and rapid consensus.
This architecture yields exceptional coordination and continuity but also creates a self-reinforcing loop: the system trusts only those formed within it.

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## III.6.3. Outcomes: Efficiency and Stability

Empirically, the Singapore model has demonstrated remarkable **macroeconomic stability** and **institutional coherence**.
Over a few decades, a resource-scarce island transformed into a global hub for logistics, finance, and technology — *without revolutions, regime shifts, or social disintegration*.

Key performance metrics underscore this success:

- HDI ≈ 0.93–0.94 (UNDP, 2024);
- Corruption Perception Index consistently among the top 5 worldwide;
- GDP per capita surpassing USD 80 000 (IMF, 2024).

The system's efficiency derives from **alignment of incentives** and **rational predictability**.
Policy horizons extend beyond electoral cycles; state capitalism functions through **sovereign funds** and long-term planning, while citizens accept limited participation in exchange for order and prosperity.

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## III.6.4. The Shadow Side: Closed Elite and Inequality

Yet the same mechanisms that ensure performance generate rigidity.
The meritocratic ideal, filtered through standardized testing and bureaucratic reproduction, gradually produces **a cognitive elite detached from the social base**.
Educational streaming and early specialization narrow mobility: the path to leadership is predefined, leaving little room for late developers or unconventional minds.

Sociological studies (Chua, 2023; Tan, 2024) indicate growing **stratification within the middle class** and declining upward mobility. The system's moral justification — fairness through merit — erodes when "merit" becomes hereditary via access to elite schools and networks.

Thus, the model risks degenerating into what Michael Young, the very author of the term *meritocracy*, called “a new aristocracy of ability.”

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## III.6.5. Redistribution Mechanisms

Unlike welfare states, Singapore practices **functional redistribution**, not egalitarianism.
Through the **Central Provident Fund (CPF)**, citizens accumulate mandatory savings for housing, healthcare, and retirement, linking personal responsibility with collective safety nets.
Fiscal transfers are minimal; social cohesion relies on employment and self-reliance rather than direct subsidies.

This creates a paradox: **low fiscal burden but high social discipline**.
Redistribution occurs through access rather than transfers — via education, housing quotas, and targeted upskilling programs — reinforcing the principle of *earned inclusion* instead of unconditional welfare.

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## III.6.6. Economic Logic: Market Form, Planned Mind

Singapore’s economy exemplifies **state-led capitalism with market dynamics**.
Over 70 % of GDP is generated by the private sector, yet strategic directions are set by planning agencies.
The state owns controlling stakes in key corporations and manages sovereign wealth funds (Temasek, GIC), steering investments into priority technologies.

Instead of rigid five-year plans, governance operates through **KPI clusters**, **industrial roadmaps**, and **foresight models** — a fusion of flexibility and control.
This “planned mind in a market body” works effectively in a stable environment but remains vulnerable to external shocks: reliance on imported food, energy, and water makes the system **precisely tuned yet non-autonomous**.

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## III.6.7. Scalability and Limits

The principal limitation of Singapore’s meritocracy lies in its **non-scalability**.
It presupposes:

- compact demography and urban density;
- cultural discipline and low tolerance for populism;
- high ethical homogeneity among officials;
- strong public trust in a “paternal” state.

When transposed to large, heterogeneous societies (India, Brazil, the United States), the model encounters resistance from entrenched elites, public distrust of opaque selection, and risks of bureaucratic ossification or authoritarian drift.

Thus, Singapore represents a **local maximum** of technocratic evolution — a finely tuned equilibrium that cannot easily expand without losing coherence.

### III.6.8. Position in the Noocratic Perspective

From the standpoint of **Noocracy**, the Singapore model represents a *pre-noocratic prototype*.
It already implements a **census of competence**, yet within a **closed circuit**.
Its rationality is **instrumental rather than reflexive**; its transparency is **administrative rather than public**.

If Noocracy is a **self-correcting system**, where intelligence is accountable to both **truth and society**, then Singaporean meritocracy is a system where intelligence is accountable **to the state**.
This is the difference between *intellect as power* and *the power of Reason as a system*.

As **Michael Young** warned in *The Rise of the Meritocracy* (1958), any system that proclaims the rule of reason without ethical oversight risks degenerating into an **intellectual caste**.
Noocracy eliminates this risk through the **Zero Bias Principle**, which ensures **equal entry** and **ethical verification** within the **Cognitive-Ethical Contour (CEC)** (see Chapter IV § 1.6).

Nevertheless, Singapore has demonstrated that **rational governance is possible**, making it the **closest real-world analogue** of Noocracy—albeit in miniature.
It reveals the **potential** of the Census of Reason while simultaneously showing that **without transparency, rotation, and global ethics**, such a system cannot scale and is destined for **cognitive saturation**.

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### III.6.9. Conclusion

Singaporean meritocracy is the **most elaborated example of a rational state** within the **anthropocentric paradigm**.
It unites planning, market dynamics, and competence control into an almost ideal **technosystem**.
Yet its strength is also its limit: it was designed for a **city-state**, not for **humanity as a whole**.

In the twenty-first century—when systemic boundaries dissolve, resources contract, and AI and automation transform the structure of labor—the Singapore model cannot serve as a **universal answer**.
It shows the **direction**, but not the **exit**.

That is why the next step is **Noocracy**—which will inherit Singapore's managerial rationality, but add what it lacks: **transparency, globality, and the inclusion of all levels of consciousness in decision-making**.

## III.7. Market, Plan, and Hybrid: Rethinking Transaction Costs and the Role of Artificial Intelligence

### III.7.1. The Traditional Dualism

For two centuries, economics was divided into two camps: the **market** (Smith, Hayek, Friedman) and the **planned** (Marx, Lenin, Lange).
The market was viewed as a mechanism of **self-organization through prices**, while the plan was seen as **rational control through calculation**. Yet both relied on one fundamental assumption: *the human being as the primary decision-maker*.

As long as human cognition remained the bottleneck, the question “market or plan?” was a question of distributing limited rationality. The market dispersed decisions among millions of actors; planning tried to centralize knowledge. Both worked because information was scarce and the pace of change was slow.

In the twenty-first century, this foundation has collapsed: the volume of data, speed of interaction, and connectivity of systems now **exceed human analytical capacity**, rendering the old dualism obsolete.

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## III.7.2. Coase’s Theorem and the Limits of Transactions

Ronald Coase showed that the boundary between **the firm (plan)** and **the market** is determined by **transaction costs** — the costs of finding information, negotiating, and monitoring.
The market is efficient while these costs are lower than within hierarchies; planning is efficient while centralized control costs less than chaos.

But what happens when **information costs approach zero**?
If algorithms can gather, analyze, and optimize billions of parameters in real time, the distinction between market and plan dissolves.

The economy ceases to be a space of exchange and becomes a **space of coordination**, where algorithms minimize interaction costs regardless of ownership form.
This is already visible today: **Amazon’s logistics**, automated **supply chains**, **dynamic pricing**, and **energy-balancing systems** operate like planned mechanisms within a market shell.

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## III.7.3. The Algorithmic Market as an Invisible Plan

The “invisible hand” of the market is gradually replaced by **the invisible code** of algorithms. Artificial intelligence now performs coordination functions previously served by prices.

In financial markets, high-frequency trading (HFT) systems predict and correct imbalances faster than any human trader. In transport and logistics, algorithmic routing optimizes delivery networks. In energy grids, AI balances supply and demand on a millisecond scale.

Thus, **the algorithmic market becomes an implicit plan** — decentralized in form but centralized in logic. The price mechanism no longer expresses subjective value; it encodes system feedback.

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## III.7.4. The Revival of Dynamic Planning

AI reopens the discussion of **planning** — not as coercive centralization, but as **continuous, adaptive coordination**.
Whereas the Soviet *Gosplan* or cybernetic projects like Glushkov’s **OGAS** failed due to computational limits, modern systems can handle billions of variables simultaneously.

Big Data and neural networks turn what was once utopian into an **engineering problem**.
The distinction between market and plan blurs: the economy becomes a **self-learning system**, where macro-level goals (sustainability, balance, resilience) emerge from micro-level optimization.

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## III.7.5. The Problem of Trust and Cognitive Governance

A new dilemma arises: **who owns the algorithm**?
If optimization systems belong to corporations, planning turns into corporate dictatorship;
if to the state — into digital authoritarianism;
if distributed — into chaos.

The only viable solution is the creation of **ethical governance contours** for AI — transparent algorithms, guaranteed feedback loops, and publicly verifiable goals.
This requires a new political form — not technocracy, but **Noocracy**, where governance is based on collective reason rather than competing interests.

Before humanity reaches that point, it will pass through an intermediate stage — **hybrid AI-capitalism**, where market and plan act as mutual protocols but lack a shared goal. That stage has already begun.

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## III.7.6. Empirical Observations

- **Energy**: Smart Grids distribute loads in real time based on AI forecasts — planning without ministries.
- **Finance**: HFT algorithms manage liquidity faster than any regulator, replacing market self-regulation with machine control.
- **Logistics**: Amazon and Alibaba already operate as **global supply plans**, optimizing millions of orders without human coordination.

All these examples demonstrate that **the market as a self-regulating mechanism has been replaced by network cybernetics**.
The human remains in the loop only nominally — to define goals, not to coordinate means.

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## III.7.7. Cognitive Shift and the New Rationality

When AI systems assume analytical functions, **human rationality shifts**: we cease to understand decisions but continue to use them.
A second rationality emerges — the **rationality of machines**, optimizing the world by loss functions rather than ethics.

Without value filters, algorithms amplify short-term objectives (profit, efficiency) at the expense of long-term ones (sustainability, humanity).
This is already evident in **automated trading**, where liquidity optimization creates systemic fragility (*flash crashes*).

Hence, the transition to AI-based planning demands not only technology but a **new philosophy of governance**.

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### III.7.8. Rethinking the Concept of "Efficiency"

In classical economics, efficiency = profit / cost.
In the AI economy, efficiency becomes **multidimensional**:

- energetic,
- cognitive,
- ecological,
- social.

This returns economics to its original meaning — *oikonomia*, the management of the home within planetary limits.
When systems begin to include total costs — environmental degradation and cognitive burnout — the old notion of "growth" loses meaning.

AI thus becomes not merely a tool but a **meta-transition** — from an economy of expansion to an economy of **predictable equilibrium**.

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### III.7.9. Interim Conclusion

The opposition between market and plan is an **anachronism**.
Both merge into a new, **cybernetic hybrid economy of data**, where resource allocation is determined in real time by self-adjusting models.

The detailed mechanism of processing **tacit knowledge** (Polanyi, 1958) and its institutionalization through digital traces and behavioral data is elaborated in **Chapter IV §7**.

## III.8. Systemic Revaluation of Market Efficiency: Hidden Wealth Flows and HDI Distortions

### III.8.1. Historical Origins: Imperial Rent and the East India Company

One of the most overlooked aspects in Western economic theory is the origin of wealth and the true sources of stability in developed economies. Evaluations of productivity, innovation, and even humanistic potential (e.g., through the Human Development Index, HDI) generally assume the **autonomous formation of market success**, ignoring historical and structural inflows of resources from the periphery.

Research by **Pilar Nogues-Marco (2020)** — *"Measuring Colonial Extraction: The East India Company's Rule and the Drain of Wealth (1757–1858)"* — reconstructed three primary channels of colonial wealth drain from India to Britain:

1. Excessive land taxation;
2. Unequal military and administrative expenditures;
3. Export of raw materials without compensation for added value.

Even conservative estimates suggest an annual outflow equivalent to **3–5% of Britain's 19th-century GDP**, amounting to tens of billions of 2020 U.S. dollars. These funds, accumulated in London, became the basis for British industrialization, while India's underinvestment in infrastructure and education entrenched chronic poverty.

Thus, even at the dawn of capitalism, market "efficiency" rested on **external subsidization** — the prosperity of the core depended on the coerced extraction of value from the periphery.

## III.8.2. Modern Forms of Unequal Exchange

Recent studies on **unequal exchange** and **global value chains** (Rotta, 2025; *World Development*, 2023) confirm that similar mechanisms persist today, albeit in more complex forms:

| Type of Flow | Mechanism | Example and Scale |
|---|---|---|
| **Economic** | Import of raw materials and labor at undervalued prices; relocation of polluting industries | *Unequal Exchange Quantified* (2019): in 2015, Northern countries received **$10.8 trillion** in non-equivalent value from the Global South; cumulatively **$242 trillion** over 1990–2015 (in 2010 prices). |
| **Financial** | Repatriation of profits, interest, and dividends from the periphery to the center | Net income flows from investments amount to **2–3% of global GDP annually** in favor of OECD countries. |
| **Ecological** | Exploitation of natural capital and externalized environmental effects ($CO_2$ emissions, soil degradation, deforestation) | Losses of ecosystem wealth in supplier countries are estimated at **$1–2 trillion per year** (UNEP and WRI, 2022). |

Taken together, these **hidden flows** create a continuous **external inflow of value** benefiting developed nations — unreflected in GDP figures yet directly sustaining their **social standards and Human Development Index (HDI)**.

## III.8.3. Adjusting Indicators of Well-being

If we correct Western GDP figures for **negative external balances** in resource and ecological flows, the picture changes dramatically.

Example scenario:

- Nominal GDP of a developed state — $2 trillion;
- Profit repatriation from the periphery — $200 billion;
- Unequal added value from resource imports — $100 billion;
- Unaccounted ecological debt — $50 billion.

After adjustment, the **"net" GDP** becomes **$1.65 trillion**, about **17.5% lower** than the official figure. Recalculating HDI, which partially relies on GNI per capita, yields a decline of **0.03–0.05 points**, potentially dropping countries like the U.S. or Germany by **10–15 positions** in UN rankings. Conversely, donor nations' HDI could rise by **+0.04–0.07** under fair redistribution.

### III.8.4. Ethical Asymmetry and the Illusion of Market Success

Classical economic models presume that wealth arises from **internal rationality, innovation, and competition**.
However, historical and empirical data reveal that the market economy of the center is **not a closed system**: it systematically depends on **external "entropy compensation"** — cheap labor, resources, and ecological services of the periphery.

Without this hidden inflow, its indicators would drop sharply, exposing how "market efficiency" is a **relative concept**, valid only within a global hierarchy where part of the costs is artificially externalized. As **Immanuel Wallerstein** emphasized, the capitalist world-system is sustained not by equilibrium, but by **persistent rent redistribution between core and periphery**.

### III.8.5. Contrast with Planned and Hybrid Systems

Even the much-criticized planned economy of the USSR exhibited the **opposite vector**: from the 1950s to the 1980s, it subsidized allied and socialist states through discounted energy, equipment, and defense support. Economically inefficient, this policy nonetheless created a network of solidarity partially offsetting global inequality.

Modern hybrid systems, such as **China's state-capitalist model**, combine external participation in trade with internal redistribution of surplus toward infrastructure and R&D. This configuration gradually **corrects global exchange distortions** and reduces dependency on external rents.

### III.8.6. The Noocratic View

**Noocracy** seeks to restore balance between **internal efficiency** and **external fairness**.
From a noocratic perspective, the global economy must incorporate **real costs** — ecological, resource, and human — and eliminate rents arising from asymmetries of knowledge, information, and capital.

This marks the crucial transition from **fictitious wealth**, based on historical exploitation, to a **transparent, algorithmically hybrid model** that reflects actual systemic equilibrium. Only by doing so can humanity rebuild a genuine measure of efficiency, where a high HDI reflects not the exploitation of others, but the **degree of harmony and coordination** within one planet.

At the micro level, this means eliminating excess profit within firms (the **Zero Profit Principle**); at the macro level, it implies **zero-sum balance of international flows**, otherwise rent persists in the form of trade and financial distortions.
In a truly noocratic economy, the **Balance of Payments** (BoP) must tend toward zero — representing a fair global exchange of value and eliminating systemic rents born of informational or financial asymmetry

## III.9. The New Industrial Revolution: Humanoid Robots and the Collapse of Old Models

### III.9.1. The Breaking Point: Economic Singularity of Production

Throughout human history, economics relied on a simple axiom: **production requires labor**.
This dependency bound politics, society, and resources into a single equation.
With the emergence of autonomous robotic systems, this foundation collapses.

If the Industrial Revolution of the 19th century replaced **manual labor with machine labor**, the revolution of the 2020s–2030s replaces **human presence itself**.
The issue is no longer robotic arms on assembly lines but **fully autonomous humanoid workforces** capable of performing nearly any task — from assembly and maintenance to logistics and construction.

Chinese research institutes estimate that by **2030**, the cost of one humanoid robot will fall to **$17–20,000**, with **annual production reaching one million units**.
This signifies not just cheaper automation but the **mass entry of robots into the labor economy** — a transformation comparable to the automobile revolution of the early 20th century.

When the cost of a machine capable of working **24/7** equals the annual cost of maintaining a human worker, the balance of power shifts irreversibly.

## III.9.2. The Collapse of the Classical Model of Labor

Labor ceases to be the sole source of value.
In capitalism, labor creates surplus value, and capital merely accumulates it.
But when labor is replaced by machines, a paradox arises: **value is created without human participation**.

On one hand, this leads to unprecedented productivity growth; on the other — to the destruction of the social structure that distributes income through employment.
If machines work and people do not, the market loses its consumer base.
This is not a **crisis of production**, but a **crisis of meaning**: *who will buy when no one earns?*
Neither capitalism nor socialism foresaw a world where production requires no labor at all.

## III.9.3. Three Stages of Robotization and Their Consequences

According to international agencies, robotization unfolds in **three stages**:

1. **Replacement robots (2020–2027)** — logistics, warehouses, security, basic operations.
2. **Cooperative robots (2027–2035)** — working alongside humans, taking over analytical and decision-making functions.
3. **Agent robots (after 2035)** — fully autonomous entities capable of self-organization and machine-to-machine coordination.

This trajectory parallels the transition from mechanical to digital industries, but its endpoint is a **post-human economy**, where human intervention becomes optional.

## III.9.4. Systemic Effect: The Nullification of the Value of Time

Automation erases the economic meaning of "working time."
When machines operate continuously and maintenance costs approach zero, **the cost of time collapses**.
Profit, productivity, and even GDP lose traditional meaning because **time ceases to be a scarce resource**.
This nullification leads to both liberation (freedom from labor) and existential tension — *what defines human value when work disappears?*

## III.9.5. Geopolitical Dimension: A New Axis of Competition

Robotization creates a **new hierarchy of world powers**.
The issue is no longer oil or rare-earth metals but **cognitive and mechanical capacities**.
Whoever controls the **production and operation of autonomous machines** controls the economy of the future.

In this sense, **China**, having bet early on the integration of AI and industry, stands at the forefront of the new revolution.
Its strategic goal is to replace its **demographic advantage** (cheap labor) with **technological superiority** (cheap intelligence).
Western democracies, constrained by ethical and labor standards, currently lag behind.

Thus, robotization represents not only an economic but also a **political revolution**: it dissolves the old division between "the rich North and the poor South," creating a new axis — **technologically included and excluded civilizations**.

The Military Component of the Technological Shift

By the mid-2020s, the **battlefield has become a laboratory** for a new form of autonomous warfare.
The mass use of drones, networked reconnaissance-strike complexes, and targeting algorithms has produced the phenomenon of the **"small sky"** — a saturated space where combat decisions are made at speeds unattainable for humans.

According to eyewitnesses of modern conflicts, since 2023 a qualitative shift has occurred:
the control of combat operations is increasingly carried out **not by humans**, but by **distributed artificial intelligence systems** and **semi-autonomous robots**.
War is turning from a human confrontation into a **clash of algorithms**, where autonomous systems act with minimal operator input.

This technological **autonomization of warfare** confirms the central thesis of **Noocracy**:
AI has already become a **bearer of power**, but lacks the **ethical and institutional shell** that would limit the use of force.

Without global mechanisms of **Cognitive-Ethical Control (CEC)**, humanity risks entering a phase of **algorithmic escalation** — a series of self-reinforcing conflicts in which decisions on "low-intensity" uses of force are made faster than humans can comprehend them.

The paradox of modernity lies in this: global war is still viewed as unacceptable, yet **"minimally invasive" warfare** is becoming the new norm.
States and non-state actors deliberately balance on the edge of the permissible — avoiding open nuclear escalation while tolerating **permanent localized conflicts** with a high degree of automation.

The prolonged conflict between **Russia and Ukraine** has become illustrative: it demonstrated that even a non-nuclear state can sustain a protracted war against a nuclear power if it possesses **networked technologies**, **unmanned systems**, and **distributed AI infrastructures**.

This sets a dangerous historical precedent:
in a world where global war is deterred by the fear of the atom, there emerges a new type of **permanent low-intensity warfare**,

where autonomous systems and AI algorithms operate in the **"gray zone" between peace and total war**.

Such **algorithmic normalization of violence** lowers moral sensitivity to the use of force and erodes the very notion of peace as the natural state of humanity.

Hence **Noocracy** regards the **control of AI-driven weaponry** and **algorithmic decision-making** as a **moral duty of civilization**, not as an element of military-technical competition.

Social Tolerance for Low-Intensity War and Its Hidden Costs

When most combat functions are performed by autonomous systems, **human casualties fall** to a level society perceives as statistically acceptable.
This creates the **illusion of tolerable violence**: war ceases to be an existential catastrophe and becomes a **managed media process**, integrated into the routine of political and economic life.

As a result, a dual societal structure emerges:

- the **"active war circuit"** (military, industrial, mobilized sectors);
- the **"comfort circuit"**, for which conflict exists only as background noise.

This **cognitive split** makes war psychologically bearable yet **economically destructive**.
Despite superficial stability, prolonged military expenditures **drain the economy**: diverting large portions of GDP to defense causes innovation stagnation, increased transaction costs, reduced private investment, and falling productivity.
For a market system built on perpetual growth, such extended mobilization equals **slow economic bleeding**.

Thus, the **algorithmization of warfare** reduces visible social costs but amplifies **systemic — economic and cognitive — losses**:
society maintains the illusion of stability while its **adaptive potential and resource base** are rapidly depleted.

Cognitive Blindness as a Source of Conflict

It is appropriate to add here that modern conflicts increasingly arise not only from resource shortages but from **institutional inability to process complexity**.
As shown in *Security Blind Spot* (Laybourn et al., 2024), the root cause lies in the **cognitive deficit of interdependence analysis**.

**Noocracy** proposes to replace the traditional **balance of power** with a **cognitive-rational architecture of stability** (see Chapter IV § 4.2.1; § 4.4.4),
thus restoring **peace as the normative state** of civilization.

## III.9.6. Ecological and Energy Paradox

The robotic economy simultaneously reduces and amplifies environmental pressure.
Automation optimizes resource use but also triggers a surge in **energy consumption** — particularly through data centers, neural networks, and robotics manufacturing.
According to the **IEA (2024)**, energy demand from AI infrastructure may reach **14% of total U.S. electricity consumption by 2030**.

Thus, every new layer of digital intelligence adds an energetic burden, transforming efficiency gains into new systemic costs.

## III.9.7. Cognitive and Ethical Crisis

As intelligent machines assume productive and cognitive functions, humanity faces a **crisis of identity**.
When reasoning and creation are outsourced to algorithms, where does the human remain?
The ethical tension shifts from "how to work" to "how to remain meaningful."

Without ethical oversight, algorithmic optimization risks turning rationality into **anti-human efficiency** — maximizing outcomes while minimizing empathy.
This crisis defines the boundary between a **technological civilization** and a **cognitive civilization**.

## III.9.8. Transition Phase: The Participation Economy

If robots perform all physical labor, economic inclusion must shift toward **participation and creativity**.
Ownership of productive intelligence becomes the new frontier of justice:

- If robots belong to corporations, humanity becomes a tenant of its own world;
- If society owns them collectively, value can be redistributed through knowledge, responsibility, and collaboration.

In a **Noocratic economy**, a person's worth derives not from employment but from **cognitive contribution** — the ability to generate, interpret, and transmit knowledge.
Universal Basic Dignity (UBD) replaces wage labor as a foundation of social stability, and the **Economy of Participation** becomes a **structural norm** rather than a moral ideal.

## III.9.9. The Final Effect: Self-Removal of Old Models

Ultimately, the industrial, capitalist, and socialist paradigms converge toward obsolescence.
When production becomes autonomous, **capital loses its leverage**, and **labor loses its necessity**.
The entire structure of 20th-century political economy — built on the opposition between labor and capital — dissolves.
The next phase of evolution is not redistribution of wealth, but **redefinition of meaning**.

## III.9.10. Interim Conclusion

The humanoid revolution is not merely a technological leap — it is a **civilizational bifurcation**.
For the first time, humanity faces production without labor, growth without workers, and intelligence without consciousness.
This transforms the economy from a material process into a **cognitive ecosystem**, where participation, ethics, and knowledge replace work, profit, and ownership as the primary drivers of value.

## III.10. Conclusion: The Limits of Old Rationality and the Necessity of Noocracy

### III.10.1. Synthesis of the Critical Analysis

In this chapter we examined the principal politico-economic models that have shaped human development over the past two centuries — democracy allied with capitalism, its oligarchic deformation, autarkic and communist experiments, Scandinavian social democracy, the Chinese model of managed socialism, and Islamic economics as an ethical alternative.
We also traced the transition from **market and planned logic** to **data-driven hybrid systems**, and finally to the age of **autonomous intelligences and robotic productive forces**.

The conclusion is unambiguous: none of the existing models can cope with three fundamental challenges of our era:

1. Rational distribution of limited resources;
2. Reduction of inequality without loss of innovative capacity;
3. Preservation of cognitive and ethical stability under exponential complexity.

All these models — liberal or planned — suffer from the same systemic flaw: they were designed for a world in which **information was scarce** and **nature abundant**. Today the inverse is true — **information is overabundant, nature exhausted** — and therefore, the instruments of the old world no longer function.

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### III.10.2. Singapore as the Pre-Noocratic Summit

Singaporean meritocracy holds a special place: it came closest to the **noocratic ideal** — a society where authority rests on knowledge, competence, and long-term logic.
Yet precisely in this model we observe the central paradox of human rationalism: **reason enclosed within a hierarchy ceases to be reason**; it becomes a **decision-making machine without feedback**.

### III.10.3. The Essence of the Crisis: The Rift Between the Cognitive and the Material

Humanity has reached a stage where **productive forces have surpassed the capacity of governance systems**.
Technology now possesses the potential to solve all material problems — from energy to medicine — yet **political and economic mechanisms continue to reproduce scarcity, inequality, and conflict**.

This can be described as a **crisis of cognitive desynchronization**:

- Human intelligence has become **distributed**, but governance remains **centralized**;
- Data have become **instantaneous**, but decisions are **delayed**;
- Systems have become **nonlinear**, yet political thinking remains **linear**.

As long as this gap persists, any reform remains merely cosmetic.
Democracies will oscillate between **populism and technocracy**, oligarchies — between **stagnation and collapse**, and planned economies — between **control and decay**.

Robotization only accelerates this process: **human institutions are physically unable to keep pace with the speed of the machine world**.

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## III.10.4. Empirical Summary: The Paradox of Progress

The data on which we rely confirm this diagnosis:

- A high **HDI** does not correlate with sustainability: wealthy democracies score above 0.9 but consume **three to four times more resources** than a sustainable threshold allows.
- A low **Gini coefficient** does not guarantee efficiency: equality without innovation leads to stagnation.
- Attempts at hybrid models (China, Scandinavia, Islamic finance) merely **postpone the systemic crisis** without addressing its causes.

We observe a **paradox of progress**: the higher the level of development, the less stable the system becomes.
The growth of knowledge does not lead to the growth of wisdom.
This marks the **limit of the old world's rationality** — when intelligence begins to act **against itself**.

## III.10.5. Global Symptoms of Degradation

Three interrelated symptoms can be identified:

1. **Ecological degradation** — depletion of natural resources, increasing carbon footprint, and loss of biodiversity.
   Even the so-called *"green economy"* remains dependent on rare materials and a logic of **energetic exponentialism**.
2. **Social polarization** — wealth is concentrating in the hands of technological elites, creating a form of **cognitive caste**: division not by birth, but by **access to algorithms and data**.
3. **Informational chaos** — degradation of public reason, fragmentation of perception, and loss of a shared worldview.
   Democracy is **incapable of filtering falsehood**, while authoritarianism is **incapable of filtering error** (see Saltelli et al., 2019).

All three processes **mutually reinforce one another**, forming a **loop of degradation**:
the more complex the system becomes, the more energy it expends on **self-justification instead of self-renewal**.

## III.10.6. The Technological Turn: A Chance for a New Paradigm

Paradoxically, the way out of the crisis lies within the very force that created it — **technology**. Artificial intelligence and robotization, while destroying the old foundations of labor and production, simultaneously open the path to a new form of governance — **cognitive, systemic, and ethically integrated**.

What neither market nor plan could ever achieve has now become possible:

- the **collection and processing of all relevant information** in real time;

- the **forecasting of decision outcomes** at the scale of the entire planetary system;
- the **modeling of scenarios** that account for ecological, social, and cognitive factors.

Yet these capacities do not guarantee progress — they **create responsibility**.
Without a new form of coordination, they will turn into instruments of global control.
What is required is a **new political form** in which **intelligence, ethics, and power** are united within a **self-correcting system**.
That form is what we call **Noocracy** — *the governance of reason*, understood in a collective and distributed sense.

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Institutional Vacuum and the Fear of Superintelligence

Even within professional and elite circles, there is growing awareness that the **pace of AI development** now exceeds society's ability to establish mechanisms of control and ethical verification.

In **2023–2024**, more than **800 leading scientists, entrepreneurs, and public figures** — among them Geoffrey Hinton, Steve Wozniak, several Nobel laureates, and political leaders — signed an open letter from the **Future of Life Institute**, demanding an immediate **moratorium on the development of systems capable of surpassing human intelligence**.
The signatories explicitly pointed to the **absence of public consensus and institutional safety guarantees** as the main threat.

This act was unprecedented not in its demands but in what it revealed:
even the **creators of technological progress** now recognize that, for the first time in history, **Reason itself requires institutional protection from itself**.
This marks the point where **technological rationality becomes an existential risk** — not through malice, but through the **absence of cognitive–ethical containment systems**.

However, for all its symbolic importance, the gesture only confirmed the lack of real governance mechanisms — **the genie is already out of the bottle**.
Unlike the nuclear era, where the threat was physically embodied and thus amenable to treaty-based control, the **AI risk is discursive and distributed**.
Its consequences cannot be localized and therefore cannot be contained by traditional instruments of political coercion.

From the standpoint of **Noocracy**, such appeals reflect the **cognitive disorientation** of old-type systems: they attempt to substitute **institutional weakness** with **moralizing rhetoric**.
But global competition, technological capitalism, and military interests render any prolonged **"AI moratorium"** utopian.
Whoever halts AI development will inevitably lose the **politico-economic race**.

Hence, the question is not **whether AI should be stopped**, but **who and how will govern its ethical and cognitive trajectory**.

Noocracy, in contrast, asserts that **stopping development solves nothing**.
The solution lies in **creating institutions of control** capable of evolving **at the same pace as technology itself** — through the **Cognitive-Ethical Contour (CEC)** and **global verification protocols** for AI systems.

Noocracy responds to this challenge **not by prohibition but by institutionalized self-regulation of Reason**:
the establishment of a **Cognitive-Ethical Contour (CEC)** that defines algorithmic boundaries of the permissible,
and the introduction of the principle of **predictive humanism** as a **mandatory filter** for all rationality — including that of machines.

## III.10.7. From Critique to Construction

**Noocracy** is neither a utopia nor a philosophical metaphor.
It is the **answer to the question of what comes after democracy, socialism, and capitalism** — once all of them have reached their cognitive limits.
If previous models sought to answer *"who owns the resources,"* Noocracy addresses a different question: *"how is knowledge governed?"*
It is not a new form of ownership but a **new form of responsibility**.

Within it:

- **Data** become a **public good**;
- **Decisions** are made through **transparent algorithms** accountable to society;
- **Artificial intelligence** is used as an **instrument of collective reasoning**, not of control.

Thus, Noocracy is **not a rejection of previous systems**, but their **higher synthesis**, capable of integrating the best of all:
from **democracy** — the value of feedback;
from **socialism** — solidarity;
from **capitalism** — efficiency;
from **religious economies** — ethical dimension.

At the same time, Noocracy does not claim a monopoly on sustainability.
It is **not the only ethically possible**, but the **only operationally reproducible system** in which sustainability can be **measured and publicly verified**.

For a model to remain stable on a **planetary scale over the long term**, it must simultaneously satisfy **four categories of requirements**:

| Category | Definition | Criterion of Sustainability |
|---|---|---|
| **Ecological** | Capacity to remain within planetary boundaries (Rockström et al., 2009) | Maintaining total ecological footprint ≤ 1 Earth's biocapacity; reversibility of decisions |
| **Social** | Ensuring justice and social cohesion | Gini index < 0.3; Universal Basic Dignity (UBD) or equivalent; equality of cognitive opportunities |
| **Cognitive-Institutional** | Capacity of the system to learn and self-correct | Presence of self-reflexive mechanisms (CEC, open data, algorithmic audit); institutional cognitive threshold in governance |
| **Technological** | Control and ethical orientation of AI and automation | Mandatory system of licensing, ethical audit, human-in-the-loop oversight; code transparency and right of appeal |

While **Neo-humanism** and the **Scandinavian model** demonstrate local cognitive-ethical resilience, **Noocracy institutionalizes the verifiability of sustainability**:
its architecture incorporates built-in **meta-monitoring circuits** — **HDI+**, **Gini coefficient**, **trust index**, and **algorithmic audits** through the **Cognitive-Ethical Contour (CEC)**.

Thus, the issue is not a dichotomy of *"they will collapse — we will survive,"* but a difference in **levels of meta-sustainability**:
only Noocracy transforms **sustainability** from a **moral declaration** into a **measurable parameter of governance**.

## III.10.8. The Axiom of Global Sustainability (Institutional Universality)

A political–economic system can be considered **long-term sustainable on a planetary scale** only if it simultaneously:

- **Guarantees physical survival** — ecological and resource equilibrium;
- **Ensures social and cognitive cohesion** — equal access to education, Universal Basic Dignity (UBD), and reversibility of decisions;
- **Institutionalizes self-correction** — transparency, the Cognitive-Ethical Contour (CEC), and distributed audit;
- **Regulates artificial intelligence** as a **governance instrument**, not as a source of will;
- **Creates a mechanism of anti-crisis adaptation**, allowing smooth passage through phase transitions without collapse.

Together, these conditions define the **Global Viability Threshold (GVT)**.
Among existing systems, only **Noocracy** is designed as an **institutional protocol** capable of satisfying all five conditions simultaneously.

Let us summarize the risks outlined in this book and examine the mechanisms by which Noocracy mitigates them:

| Risk | Cause | Noocracy's Response Mechanism |
|---|---|---|
| **1. Depletion of natural capital** | Market's inability to account for externalities | SMART-goals and algorithmic resource allocation under CEC supervision; priority of HDI+ and long-term sustainability |
| **2. Geopolitical escalation** | Asymmetry of resources and information | Mechanism of international cognitive arbitration (NooDataHub, global HDI+ audit); transparent inter-state balances |
| **3. Legitimacy crisis** | Loss of trust, institutional capture | Census of Reason + public audit; dynamic legitimation of competence |
| **4. Information collapse** | Data overload, manipulation | Combined filtration (AI verification, credibility ratings, CEC oversight) |
| **5. Labor and identity crisis** | Automation and nullification of labor's marginal value | Participation economy, cognitive identity, multi-level UBD |
| **6. Technological anomie (AI risks)** | Absence of ethical control institutions | CEC as the fourth branch of power; Data Ombudsman; licensing and periodic re-certification of AI systems |
| **7. Social fragmentation** | Inequality of access to knowledge | Global educational network, open-knowledge licenses, cognitive funds, ultimately — abolition of patents, closed data, or code |

In this sense, **Noocracy does not claim that all other systems are doomed**.
It merely postulates a **necessary condition for species survival**: any model aspiring to planetary sustainability must incorporate the principles of **reversibility, cognitive oversight, ethical regulation of AI, and verifiable resilience**, which together minimize planetary risks.

Other forms of governance may exist **locally**, but without these features they remain **regional regimes of rationality**, incapable of ensuring the **global survival of the species**.

## III.10.9. Final Paragraph

Human history is approaching its **cognitive boundary**.
All previous forms of power — religious, political, economic, ideological — were merely ways of governing **limited knowledge**.
Now, **knowledge itself becomes power**.

The world enters a phase in which old systems can no longer cope with **informational complexity** and **moral uncertainty**.
**Noocracy** emerges not as a form of technological determinism, but as an **institutional response** — a self-reflective, ethically filtered, and cognitively measurable form of governance.

Its core axioms — **Institutional Reflexivity** and **Rational Empathy** — establish a fundamental distinction from technocracies and authoritarian regimes:
in Noocracy, **reason does not absolutize itself**, but **learns from its own errors**, keeping the human being at the center of the system (see Ch. IV § 1.6; V § 2.8; VI § 1).

Whoever succeeds in uniting **knowledge, ethics, and action** into a single coherent system will create **a new form of civilization**.
Thus begins the transition from a world **governed by humans** to a world **governed by reason** —
from the **politics of interests** to the **politics of meaning**,
from the **economy of growth** to the **economy of harmony**.

# (Appendix 1) III.11. The Limits of Human Technological Expansion

## III.11.1. Problem Statement

The development of **artificial intelligence, genetic engineering, and neurointerfaces** has shifted the boundaries of human nature.
If AI represents the **external expansion of reason**, then genetic engineering and cyborgization constitute its **internal extension**.
For the first time in history, humanity gains power not only over its environment but over **its own evolution**.
Without ethical and institutional regulation, this process threatens to produce **cognitively unequal forms of life**, capable of destroying the **social and anthropological integrity** of the species.

**Noocracy** views these processes not as forbidden territory but as a field requiring **institutional reason** — the harmonization of technological progress with the **axioms of sustainability, equality, and cognitive autonomy**.

## III.11.2. Three Directions of Technological Expansion

**Genetic Engineering**
*The Axiom of Genetic Proportionality:*
The enhancement of biological or cognitive human characteristics is permissible only under two conditions:

1. The technology must be reproducible and accessible to society within a reasonable timeframe;
2. The intervention must not destroy the subject's personal and moral identity.

The **Cognitive-Ethical Contour (CEC)** conducts audits of genetic interventions using the criterion of **cognitive-ethical symmetry** — improvement must not increase asymmetry of power.

**Cyborgization and Neurointerfaces**
*The Axiom of Neural Autonomy:*
Any intervention into neural processes must ensure:

1. **Reversibility** — the ability to fully disconnect without loss of personality;
2. **Sovereignty of mental data** — thoughts belong solely to the subject;
3. **Ethical audit** of all interfaces through the **CEC**.

The goal of Noocracy is to maintain a **balance between cognitive enhancement and autonomy preservation**.

**Adaptation of the Body to Extreme Environments**
*The Axiom of Adaptive Embodiment:*
Biotechnological or cybernetic modification of the body is permissible only to **preserve life in extreme environmental conditions**.
This is not a project for a "new species" but a **safeguard for the continuity of intelligent life**.

Such interventions undergo **CEC–Life Continuity Audit**, ensuring the preservation of **cognitive continuity** and **moral identity**.
Modified forms of intelligence are regarded as **branches of a single noospheric subject**, not as new races.

## III.11.3. Integrative Principle

*The Principle of Cognitive Equilibrium between Humanity and Technology:*
The evolution of reason — whether biological, digital, or hybrid — is acceptable only while maintaining **human autonomy** and **symmetry of access** to technology.
The **CEC** oversees not only AI algorithms but also the **boundaries of human self-construction**, preventing the transition from **enhancement to hierarchical stratification of species**.

## III.11.4. Institutional Consequences

- Establishment of the **CEC–Human Bioethics Division**, responsible for the ethics of genetic modifications, neurotechnologies, and transhumanist projects;
- Introduction of mandatory **neuro- and genetic licensing** for companies operating with cognitive technologies;

- Inclusion of **bio-cognitive sustainability** as a new indicator within **HDI+ (Human Development Index Plus)**.

## (Appendix 2) III.12. Education and Science as the Core of the Noocratic Paradigm

### III.12.1. The Power of Reason as the Power of Knowledge

Noocracy cannot exist without a **systemic foundation**—education and science transformed from auxiliary institutions into the **core of governance**.
If democracy relies on **will**, and capitalism on **profit**, Noocracy rests on **verified knowledge** and **collective intelligence**.

In this system, education and science are not instruments of social mobility but **mechanisms for reproducing reason**.
They form the **neural network of civilization**, connecting thought, ethics, and action.
Without them, the power of reason degenerates into a new technocracy — **the rule of the "smart" without meaning**.

### III.12.2. Education as a Source of Legitimacy

If the will of the majority legitimizes democracy, and economic success legitimizes capitalism, then **Noocratic governance** is legitimized through **knowledge and competence**.
However, such knowledge must be:

- **Accessible** — every person has a chance to develop, regardless of origin;
- **Verifiable** — the system must distinguish **true understanding** from **formal learning**.

Modern educational systems show how easily this balance is broken:

- In the **United States**, education has become a commodity: **$1.7 trillion in student debt** has turned learning into financial dependence.
- In **Russia**, education has become mass but formal — the diploma has lost its link to competence.
- In **Europe**, the humanist tradition retains depth but loses dynamism.
- In **China**, education has become part of strategic planning, often at the cost of freedom of thought.
- In **Singapore**, elite meritocracy ensures efficiency but limits mobility.

All this proves: **education without ethics and science without meaning** do not create the power of reason — only the **illusion of rationality**.

### III.12.3. Science as an Engine, Not a Showcase

In capitalist and technocratic logic, **science serves the economy**.
In Noocracy, it is the opposite: **the economy serves science**, for it is science that ensures **the sustainability and evolution of consciousness**.

Today's global research system is increasingly subordinated to KPIs and grants:

- In the U.S. and China — a race for applied patents;
- In the EU — a bureaucratized project system;

- In Russia — formalized reporting;
- In Singapore — innovative efficiency without philosophical reflection.

Thus, science turns into a mechanism for producing **reporting data rather than truth**.
But the **power of reason** can exist only where **truth precedes utility**.

## III.12.4. Paradoxes of Existing Systems (Extended Analysis)

4.1. Education Across System Types

| Parameter | USA (Market Model) | EU (Academic Humanism) | Russia (Massification) | China (Pragmatic State Capitalism) | Singapore (Meritocracy) | Noocracy |
|---|---|---|---|---|---|---|
| **Motive of Education** | Individual success and career growth | Formation of civic identity and cultural integrity | Formal compliance with the "higher education" standard | Training specialists for strategic sectors | Selection of the best for governance | Development of collective intelligence and meaning |
| **Financing** | Loans, private funds, corporate grants | Mixed model, state subsidies | State funding detached from outcomes | Centralized state funding and KPI metrics | Public–private partnership | Partnership of state, AI, and science with dynamic resource redistribution |
| **Link to Labor** | Weak; diploma overproduction | Harmonious but inert | Random | Rigid linkage through quotas and assignments | Planned and structured | Rational, dynamic, and predictive |
| **Accessibility** | Limited by debt | Broad but uneven | Formally high yet low in quality | Regulated via examination filtering | Selective but supported | Universal with adaptive merit threshold and transparent assessment |
| **Risk** | Debt dependency, commercialization of knowledge | Academic stagnation | Diploma inflation, devaluation of knowledge | Technocratization of personality | Elite caste formation, reduced mobility | Intellectual segregation without ethical oversight |

4.2. Science and Knowledge Production

| Parameter | USA (Private–Corporate Science) | EU (Academic Pluralism) | Russia (State-Centered, Generational Gap) | China (State–Industrial Science) | Singapore (Integrated Techno-Science) | Noocracy |
|---|---|---|---|---|---|---|
| **Goal of Scientific Policy** | Profit and innovation | Preservation of intellectual heritage | Self-sufficiency and security | Technological autonomy | Applied efficiency | Balanced development of knowledge, truth, and sustainability |
| **Funding and Incentives** | Private capital, venture funds, corporations | State programs and university consortia | State budget with low flexibility | Centralized investments | Mixed model | Algorithmic resource allocation based on societal contribution |
| **Institutional Structure** | Decentralized centers | European networks and Horizon programs | Academies and state corporations | National labs and technoparks | Managed clusters | Global cognitive network infrastructure |
| **Attitude Toward Fundamental Science** | Secondary to applied | Supported but bureaucratized | Underfunded | Instrument of strategic development | Supported for technological goals | Central value of the system |
| **Science–Society Link** | Through market and media | Through education and culture | Weak, often declarative | Through party narratives | Through KPIs | Through direct cognitive feedback "science ↔ society ↔ AI" |
| **Main Risk** | Commercialization of truth | Inertia and sluggishness | Brain drain, institutional degradation | Politicization of truth | Authoritarian technocratism | Loss of ethical orientation under hyper-acceleration of knowledge |

4.3. PISA Dynamics Across Models

| Model / Region | PISA Trend | Implication for Sustainability / Claim to Noocracy |
|---|---|---|
| **USA / Democracy + Capitalism** | Slightly above or below average; steady decline in math and reading, especially among vulnerable groups | Shows that even with vast capitalist resources, education fails to reproduce competence universally; strengthens the |

| | | |
|---|---|---|
| | | noocratic argument for raising the median skill level, not just elite excellence. |
| **EU** | Mixed results: Finland, Netherlands, Sweden, etc. show a 20+ point drop in math; others remain stable | The EU's humanist model is under strain: access and rights to education do not ensure quality; Noocracy requires adaptive reforms, especially at the foundational and quality-standardization levels. |
| **China / East Asia** | East Asian regions retain leadership; some (Macao, Chinese Taipei) improved, others declined in reading and math | Large-scale meritocracy works but remains vulnerable to new shocks (pandemics, digital overload, social stress); even top performers show that knowledge is not permanent capital — it requires renewal. |
| **Singapore** | PISA 2022 champion — highest in all three subjects; slight stagnation vs. 2018 | Confirms genuine educational efficiency; yet shows that even top systems face fragility: maintaining excellence is possible, but scaling it universally is difficult — a key insight for Noocracy. |
| **Other / Developing Countries** | Some low-performing nations (e.g., Dominican Republic, Cambodia, Peru) show improvements but with large gaps between top and bottom percentiles | Demonstrates potential for growth even from low baselines; progress depends on targeted investment and non-formalistic education. For Noocracy, restoring the "middle level" globally is essential. |

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4.5. Table: PISA 2022 Dynamics — Mathematics / Reading by Region

| Region / Country | Change in Mathematics (2018→2022) | Change in Reading | Notes / Context |
|---|---|---|---|
| **OECD Average** | −15 points | −10 points | An unprecedented decline; no comparable drop in previous cycles. |
| **Finland** | Math down to ~484 points — significant decrease | Reading down ~30 points from 2018 | Still above average but with a persistent downward trend — "declining quality even in top systems." |
| **USA** | Noticeable drop in math and reading, though smaller than in Europe | Reading decrease similar; now below several East Asian and EU peers | Ample resources do not guarantee quality; risks rising inequality among social groups. |
| **EU / Western Europe** | Math down by 15–25 points in many countries (Netherlands, Finland, Sweden, Germany, France, etc.) | Reading also down, though less sharply | "Old" systems with strong traditions show institutional stability but declining skill dynamics. |
| **East Asia (Singapore, Japan, Korea, Macao, Chinese Taipei)** | Remain leaders; minor or moderate declines; some regions improved in specific subjects | Reading shows similar mild declines; still high performance overall | These systems benefit from strong tradition, investment, and disciplined educational culture. |
| **Singapore** | Maintains top position in math; decline smaller than OECD average | Reading remains very high; small declines | Singapore illustrates how "height can be maintained amid global decline," though requiring high resources and strict governance discipline. |

## III.12.5. Analytical Summary

From the first two tables emerges a key pattern: **in all existing systems, knowledge functions as an instrument but not as a subject of governance.**

- The **United States** turns knowledge into a **commodity**.
- The **European Union** turns it into a **cultural tradition**.
- **Russia** turns it into a **formality**.
- **China** turns it into an **instrument of geopolitical power**.
- **Singapore** turns it into a **resource of efficiency**.

Only **Noocracy** makes knowledge **the very form of power**.
In it, **education** becomes a mechanism for the **development of consciousness**, and **science** — a mechanism for the **self-understanding of civilization**.
This represents not a quantitative but an **ontological shift**: for the first time, humanity makes **Reason not the servant of the state, but its foundation**.

**Insights from the third table:**

- Not all "center–periphery" gaps are the same: declines and crises of quality are **more pronounced in the older democracies** of the EU and the USA than in certain Asian or developing countries — meaning that **resources and tradition no longer guarantee sustainability**.
- Noocracy must be **sensitive to dynamics, not status** — i.e., *not "higher status = closer to Noocracy,"* but *"ability to sustain and expand knowledge quality across broad populations."*
- **Written standards and transparent quality criteria** are crucial for Noocracy: **public access to results**, **regular measurement**, and **mechanisms to restore lost skills** (especially after shocks such as COVID-19).
- The diversity of successes shows that Noocracy is **implementable across different systems**, but through **different strategies** —
  where there is centralized governance with strong selection and technological power (Singapore, East Asia),
  where there is cultural commitment to education (EU, partly Scandinavia),
  and where there are **international programs and external investments** supporting educational growth.

**Insights from the fourth table:**

- One cannot assume that *"if you are developed, you are protected"*: even advanced nations with strong educational systems experience decline.
- Noocracy must include **continuous monitoring of educational trends** — not only at the elite level but also across the median.
- **Rapid compensation programs** are needed for groups showing the sharpest declines.
- For "centers of power," it is vital that **meritocratic and technocratic advantages** do not become **an immune system of the elite**, ignoring the erosion of the middle.

## III.12.6. Advantages, Drawbacks, and Risks of Concentrating Power in Education and Science

**Advantages:**

- Long-term sustainability based on competence, not political cycles;
- Growth of trust in evidence-based institutions;
- Overcoming populism and short-term decision-making;
- Increasing the cognitive quality of the population as a factor in species survival.

**Risks:**

- Formation of an “academic aristocracy”;
- Limitation of accessibility due to high entry barriers;
- Dehumanization of knowledge under technocratic evaluation.

Balance is achievable only if the **ethical core** is preserved:
**knowledge must serve humanity, not superiority**.

## III.12.7. Semantic Conclusion

Neither democracy, nor market, nor plan, nor technocracy has ever made **knowledge an end in itself**.
Yet without that, the **power of reason** is impossible.

Only where **education is not a debt** and **science is not a business** can a society exist in which a person grows not for career, but for **understanding**.

The **power of reason** is not the power of scientists, but of a **culture capable of thinking**.
Therefore, **education and science** are not appendices to Noocracy —
they are its **nervous and semantic system**.