

The ERDA Book

ERDA Initiative

2026-01-08

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Homepage

ERDA - our democratic evolution

Strategy, Ethics and Future of Europe - From the democratic constitutional state to a resilient civilisation

Welcome to the official book on ERDA's vision and strategy.



Figure 1: ERDA logo

Foreword

Foreword

Thinking Europe means not postponing the future - but shaping it. This book is not a manifesto. It is a toolbox. Not a promise of utopia – but an invitation to take responsibility.

In a time of growing uncertainty, geopolitical power shifts and internal exhaustion, the ERDA book asks a radical yet realistic question:

What does Europe need in order to survive - and remain dignified while doing so?

Some call it overambitious. Others say: "*It sounds nice, but can it be implemented politically?*" Again others ask: "*Who is supposed to finance it, who will build the institutions, who will bring people along?*" – These are legitimate questions. Questions from people who carry responsibility.

Yet perhaps the more decisive question is:

What happens if we do not even try?

For while Europe debates, others are already acting. An authoritarian state drafts fifty-year plans with planetary ambition. Global corporations write the infrastructure of our democracies. The young generation asks: "*So what exactly is your plan?*"

The ERDA book offers an answer – not as a finished model, but as a structured sketch of the future. With concrete stages, with principles, with tools.

It weaves together:

- the **strategic depth** of geopolitical analysis,
- the **institutional learning capacity** of European democracy,
- the **technological sovereignty** of a new mindset,
- and the **sense-making framework of a civilisation** that no longer wants merely to defend itself – but to understand itself.

What begins here is not a plan for perfection.

It is an offer to mature. A European draft that says:

We are not finished yet. But we are ready to begin.

1. Current State of Europe: Challenges and Opportunities

Current State of Europe: Challenges and Opportunities

Europe finds itself at the beginning of a new era – characterised by global uncertainty, geopolitical polarisation, and technological upheaval. The liberal post-war order, long regarded as a guarantor of stability and economic rise, is losing its binding force. At the same time, the climate crisis, demographic change, digitalisation, and authoritarian systems are challenging Europe's democratic societies to an unprecedented extent.

Executive Summary for Decision-Makers

Title of the section: “Challenges, Opportunities, and Europe’s Strategic Imperative (Chapters 1.1-1.5)”

 **Objective of this chapter** Europe stands at a historic turning point. This chapter identifies the systemic threats to European democracy and develops a strategic necessity for transformation – towards a resilient, democratically led civilisation with global shaping power.

Key insights for decision-makers

1. Democratic erosion (1.1):

- Authoritarian tendencies, a loss of institutional trust, and polarisation endanger the internal coherence of European societies.
- Democratic systems must be **evolutionarily further developed** to secure connectivity and resilience.

2. Systemic pressure from global competition (1.2):

- Europe is losing economic and technological sovereignty.
- Strategies such as FORTERA & CIVITAS address this deficit.

3. Division through technological transformation (1.3):

- AI, automation, and digital capital promote inequalities if they are not democratically controlled.
- Technological sovereignty must be linked with **social participation and educational justice**.

4. Recognising opportunities in change (1.4):

- Sustainability, new generations, open technologies, and resilient cultures offer significant European potential.
- Europe can become the pioneer region of a globally effective, rule-of-law-based civilisation.

5. The strategic imperative (1.5):

- Preserving alone is no longer enough. Europe needs **an active strategy for democratic renewal**:
 - Security & defence (EDA)
 - Sovereign economy (FORTERA)
 - Digital democracy (CIVITAS)
 - Planetary responsibility (ARKTIS)
 - Civilisational vision (SPACE/SOLAR ALLIANCE)

Recommended policy measures (2025-2030)

- **Initiate an ERDA reform dialogue** at the level of national parliaments, youth representations, and AI-supported moderation.
 - **Establish an ERDA constitutional convention** to define common principles, rights, and institutions.
 - **Set up a European Security Council** within the framework of the EDA.
 - **Prioritise technological autonomy** through strategic investments in key technologies.
 - **Strengthen digital democracy** by introducing a Europe-wide system such as CIVITAS.
-

Risks of inaction

- Loss of Europe's power in global forums
 - Intensification of internal destabilisation
 - Dependence on authoritarian supply chains
 - Loss of the younger generation to a lack of meaning, future, and co-creation perspectives
-

Visionary benefits

- Europe shifts from reacting to shaping
- Strategic security, economic resilience, cultural radiance
- High acceptance among citizens thanks to future visions imbued with meaning

1.1 Democratic Erosion and Geopolitical Fragmentation

Democratic Erosion and Geopolitical Fragmentation

Within Europe, the rule of law and press freedom are increasingly coming under pressure - not only in Eastern European member states but also in countries with established democracies. At the same time, external actors such as Russia and China are intensifying their hybrid influence strategies. The illegal invasion of Ukraine is merely the most visible symptom of a tectonic shift: democracy is no longer a given - it has once again become a task.

1.1.1 Introduction & Key Impulses Europe stands at a historic turning point: the rule of law and press freedom are not only under pressure from internal processes of erosion but are also deliberately threatened by hybrid influence strategies from external actors. This chapter sheds light on the **interconnection between internal weaknesses** and **external manipulation** and outlines urgently needed **transformation steps**.

Key impulses:

- Democracy is an **evolutionary process** - not a static achievement.
 - **Hybrid influence operations** exacerbate existing societal fissures.
 - A sustainable response lies in **values-based resilience and reform capacity**.
-

1.1.2 In-Depth View & Analysis

Factor	Internal	External
Rule-of-law standards	Dismantling of institutional checks and balances	Influence through corrupt networks
Media freedom	Concentration, political pressure	State-controlled disinformation campaigns
Citizen trust	Political apathy, reform fatigue	Polarising propaganda
Digitalisation & cyber risks	Unclear responsibilities, insufficient IT security	Targeted cyberattacks on critical infrastructure

Boxes:

📌 **Practical impulse (Iceland):** Independent media funding through a state fund and a transparency register for media ownership [1].

🧠 **Concept contrast:** Autocracy vs. technological democracy promotion - without an ethical architecture, automated arbitrariness looms.

⚠ **Risk:** Fragmented counter-strategies can undermine social cohesion and foster political violence.

🌐 **Visionary metaphor:** "Democracy is not an altar but a living community that must be cared for constantly."

1.1.3 Transformation & Options for Action

- **Strengthen the legal framework:** Create a European **Media and Information Freedom Act**.
- **Intensify cyber defence:** Build uniform **EU-CERT structures** and citizen reporting portals.

- **Support civil society:** Expand municipal **democracy labs** (workshops, hackathons, dialogue forums).
 - **Launch an education offensive:** Establish a **Digital Resilience** curriculum in schools, universities, and adult education centres.
-

1.1.4 Target-Group-Specific Perspectives

Target group	Focus
Decision-makers	Developing a robust EU media freedom framework, building a democratic cyber strategy
Researchers	Studying hybrid influence, impact analyses of civil-society resilience strategies
Citizens	Raising awareness of manipulation techniques, strengthening participatory formats such as citizens' assemblies
Students	Study modules on digital democracy, protection against disinformation
Artificial intelligences	Developing systems for ethical fact-checking and transparency mechanisms
Souls	Encouragement through narrative storytelling: "Democracy lives in each of our decisions."

1.1.5 Interactive Elements

Checklist: Self-Assessment

- Do I understand internal weaknesses and their dangers for democracy?
- Do I know the mechanisms of hybrid influence?
- Do I have an idea of how I can contribute to democratic resilience myself?
- Would I take part in a democracy lab?
- Have I followed at least one proposed transformation measure?

Mini-Quiz Question: Which state is often cited as the main actor behind hybrid influence strategies in Europe?

- a) China\
 - b) Russia \
 - c) USA\
 - d) Turkey
-

1.1.6 Sources & References

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1.2 Economic Pressure and Global System Competition

Economic Pressure and Global Systemic Competition

"Between the waves of markets and the storms of politics, Europe must chart its own course. The glance back provides roots, the look ahead an unobstructed view.

Onward to new shores where Europe reinvents itself and builds a future that brings prosperity and security.

Not through walls, not through capitulation – but through strength and bridges forged from reason and values.

Where technology is not merely competition but an active space for shaping the future, the new sovereignty begins."

1.2.1 Introduction: Europe's Economic Tightrope Walk Protectionism, trade conflicts, and potential US tariffs under a second Trump presidency are forcing Europe to redefine its economic resilience. Dependence on strategic imports – in areas such as semiconductors, energy, and digital infrastructure – has proven to be a structural weakness. The answer cannot, however, be isolation, but rather **values-based, intelligent sovereignty**.

Core impulses:

- Europe must pursue **technological autonomy** in key industries.
- Cooperation and diversification instead of **economic isolationism**.
- A combination of **value orientation** and **strategic competition**.

1.2.2 Deep Dive: Internal and External Competitive Levers

Lever	Internal	External
Production sovereignty	Insufficient domestic capacity in semiconductors	Dependence on US/Asian supply chains
Energy supply	High share of fossil imports	Global price spikes triggered by geopolitical crises
Research & innovation	Fragmented EU funding programmes	Competition from massive state investments (China)
Regulation & standards	Non-uniform regulations in member states	Regulatory gaps in global trade

Boxes:

❤️ **Practical impulse (France):** National chip plan with a €2 billion investment pool for semiconductor manufacturing.

🧠 **Concept contrast:** Autarky vs. strategic partnerships – without open technology cooperation, innovation stagnation looms.

⚠️ **Risk:** Fragmented industrial policy can lead to competitive disadvantages and relocation of production sites.

🌐 **Visionary metaphor:** "Economic sovereignty is not about building walls but about building bridges into new technology alliances."

1.2.3 Transformation: Strategic Options for Action

- **Diversification strategy:** Establish regional production clusters (e.g. Southern Europe for solar, North Sea for offshore wind).
- **Values-based investment:** EU impact fund to promote sustainable key technologies.

- **Integrated single market:** Harmonise standards and regulatory hurdles in the energy, IT, and defence portfolios.
- **R&D collaborations:** Joint EU research initiative for **quantum**, **next-generation batteries**, and the **green hydrogen economy**.

1.2.4 Target-Group-Specific Perspectives

Target group	Focus
Decision-makers	EU strategy for R&D financing, industrial alliances
Researchers	Analysis of global value chains, scenario planning
Citizens	Information on supply chains, support for regional future labs
Students	Case studies on post-materialism and the circular economy
Artificial intelligences	Modelling production networks, risk forecasting
Souls	Narrating civilisation as a co-creative economic movement

1.2.5 Interactive Elements

Checklist: Strategic Reflection

- Have I identified the most important import dependencies?
- Have I built knowledge about regional production clusters?
- Do I have a specific EU funding measure in mind?
- Do I understand the contrast between autarky and cooperation?
- Have I named at least one innovative technology pool?

Mini-Quiz Question: Which sector is prioritised first in Europe for strategic domestic production?

- a) Semiconductors
- b) Renewable energy
- c) Pharmaceuticals
- d) Automotive industry

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1.3 Technological Transformation and Social Division

Technological Transformation and Social Division

Artificial intelligence, automation and digital platforms are changing the foundations of work, communication and participation. While some parts of society benefit from this development, an increasing share of the population risks falling behind. The polarisation of the public sphere - fuelled by commercially driven social networks - jeopardises trust in democratic institutions.

1.3.1 Introduction & Key Takeaways Artificial intelligence, automation and digital platforms not only transform work and the economy, they also influence social cohesion and political trust. This chapter analyses the **opportunities** of technological innovation for participation and the **risks** of digital division.

Key takeaways:

- Technology can **facilitate** or **hinder** democratic participation.
 - Automation drives efficiency but can undermine **employment** and **identity** [1].
 - Digital platforms are powerful communication spaces yet harbour **filter bubbles** and **disinformation** [2].
 - A **values-based technology policy** is indispensable.
-

1.3.2 Deep Dive & Analysis

Dimension	Positive drivers	Negative effects
Automation	Productivity gains, new occupational fields	Job losses, qualification gaps [1]
AI-supported decisions	More efficient administration, precise data analyses	Black-box processes, bias in algorithms [2]
Digital communication	Low barriers to entry, global connectivity	Echo chambers, polarisation
Data sovereignty & privacy	User control, transparency on data flows	Surveillance, data misuse

Boxes:

📌 **Practice impulse (Estonia):** Mobile e-government with a strong data protection foundation for digital identities [3].

🌐 **Concept contrast:** Techno-optimism vs. techno-scepticism – technology as neutral infrastructure or as an instrument of political power.

⚠ **Risk:** The digital divide reinforces social inequality and the erosion of citizen trust.

🌐 **Visionary metaphor:** “Digital democracy is a net – if nodes fail, the whole system tears.”

1.3.3 Transformation & Courses of Action

- **Skill-up programmes:** Massive Open Online Courses (MOOCs) and retraining initiatives for automated workplaces.

- **Transparent AI regulation:** Disclosure of algorithm parameters and independent audit bodies.
 - **Inclusive platform designs:** Promotion of decentralised, locally anchored communication spaces (CIVITAS) instead of centralised mega-platforms.
 - **Strengthen data sovereignty:** User-centred data rights and data trustee models.
-

1.3.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	National AI strategy, education drive, platform regulation
 Researchers	Evaluation of algorithmic fairness, interdisciplinary studies
 Citizens	Digital fundamental rights, co-determination on platform rules
 Students	Curriculum development for future skills, ethics of technological design
 Artificial intelligences	Development of transparent models, audit APIs
 Souls	Narrative encouragement: "Technology empowers – when we shape it consciously."

1.3.5 Interactive Elements

Checklist: Technological Self-Reflection

- Do I know the key drivers of the digital divide?
- Do I understand the impact of automation on my professional or private life?
- Am I aware of my digital rights and data sovereignty?
- Would I take part in a local civic-tech initiative?
- Have I understood at least one measure for shaping fair AI?

 **Mini Quiz Question:** Which country is regarded as a pioneer in secure, state-regulated e-government?

) Finland) Estonia ) Denmark d) Switzerland

1.3.6 Sources & References

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1.4 Opportunities in Transition

Opportunities in transition

And yet, this situation also opens up opportunities. Europe has strong democratic institutions, a broad civil-society base and rich cultural diversity. Projects like ERDA, the European Defence Alliance (EDA) and the digital agora CIVITAS show that it is possible to develop new forms of cooperation, resilience and justice rooted in shared values.

International models such as CIVICUS's Digital Democracy Initiative (DDI, 2023-2025) demonstrate how digital participation formats can be analysed and strengthened worldwide – an approach that is being further developed in CIVITAS. [3]

1.4.1 Introduction & Core impulses Despite considerable geopolitical, economic and technological pressures, new opportunities are opening up for Europe: strong democratic institutions, an engaged civil society and cultural diversity provide the foundation for innovative forms of cooperation. Projects such as ERDA, the European Defence Alliance (EDA) and the digital agora CIVITAS demonstrate how shared values can create future viability.

Core impulses:

- **Solidary resilience:** Shared values strengthen social cohesion.
- **Innovative cooperation:** New alliances (EZA, FORTERA, CIVITAS) offer platforms for partnership-based action.
- **Cultural diversity:** Differing perspectives as a driver of creative solutions.
- **Technological openness:** Digitalisation projects can connect democracy and sustainability.

1.4.2 Deep dive & analysis

Dimension	Potential	Success factors
Democratic institutions	Political stability, rule of law	Capacity for reform, transparency
Civil society	Local initiatives, NGOs, citizens' forums	Network-building, resource mobilisation
Culture & identity	Multilingualism, heritage projects	Inclusive storytelling, participatory formats
Technology & digitalisation	E-participation, open data	Data protection, user centricity

Boxes:

📌 **Practical impulse (Spain):** Local participatory budgets to strengthen democratic engagement and acceptance of public investment [4].

🧠 **Concept contrast:** Centralised steering vs agile network cooperation – the former risks inertia, the latter innovation-jeopardising fragmentation.

⚠ **Risk:** Without connecting narratives, initiatives can become a patchwork.

🌐 **Visionary metaphor:** “Opportunities are bridges – Europe must build them in solidarity.”

1.4.3 Transformation & courses of action

- **European solidarity funds:** Establish a pool of funds for cross-border projects in education, climate and technology.
 - **Network crossings:** Create formal alliances between EDA, ERDA, FORTERA and CIVITAS for integrated strategy development.
 - **Cultural dialogue programmes:** Promote intercultural art and media projects that present diversity as a strength.
 - **Digital empowerment plan:** Expand e-participation platforms with barrier-free access and offline hybrid formats.
-

1.4.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Financing transnational solidarity funds, governance architecture
	Academics
	Citizens
	Students
	Artificial intelligences
	Souls
	Evaluation of solidarity mechanisms, impact analyses
	Access to co-determination, local network initiatives
	Project modules on transdisciplinary cooperation, hackathons
	Automated matching algorithms for cooperation partners
	Narrative storytelling: "Together we shape our future."

1.4.5 Interactive elements

Checklist: recognising and harnessing opportunities

- Have I identified a cross-border initiative?
- Do I know at least two actors from EDA, ERDA, FORTERA or CIVITAS?
- Do I know how I can contribute locally to co-creation?
- Do I understand how cultural projects build bridges?
- Have I developed ideas for digital participation formats?

Mini-quiz Question: Which mechanism most directly promotes Europe-wide coordination of transnational projects?

) Long-term EU funding programmes) European Solidarity Fund) National innovation agencies d) Local participatory budgets

1.4.6 Sources & references

1. **European Commission (2023):** *Strategic Foresight Report 2023 - Sustainability and well-being at the heart of Europe's Open Strategic Autonomy*. Brussels: European Commission. Available online at: https://commission.europa.eu/system/files/2023-07/SFR-23-beautified-version_en_0.pdf (accessed 2025-05-12).
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1.5 Der strategische Imperativ

Der strategische Imperativ

"Autonomy is not isolation - it is a survival strategy in a world order that has become fragile."

*What is needed now is a **new strategic narrative for Europe**: a vision that understands security not as isolation, but as shared responsibility. A democracy that is not only defended, but reinvents itself - as a participatory, just and adaptive civilisation on a global scale.*

Europe still has a choice - between gradual retreat or bold transformation. The ERDA is an attempt to make the latter possible.

1.5.1 Einleitung & Kernimpulse Europe stands at a crossroads: passive preservation is no longer enough. Only through determined, values-based strategic approaches can the Union secure its democratic resilience, economic sovereignty and global agency.

Kernimpulse:

- Europe's future requires **active renewal**, not mere defence of the status quo.
 - **Strategic coordination** of all fields of action (security, economy, technology, culture) is indispensable.
 - A **shared narrative** strengthens solidarity and trust.
 - **Time window until 2035** for fundamental reforms and institution-building.
-

1.5.2 Vertiefung & Analyse

Dimension	Herausforderung	Strategischer Imperativ
Sicherheit & Verteidigung	Fragmented capabilities, dependence on third countries	Establishment of a European Security Council (EDA)
Wirtschaft & Souveränität	Global competitive disadvantages, supply chain dependencies	FORTEA: production sovereignty in key industries
Technologie & Demokratie	Digital disruption, loss of trust	CIVITAS: digital democracy as an integrative participation instrument
Zivilgesellschaft & Kultur	Social division, declining participation	ERDA dialogue forums and local democracy laboratories
Planetare & globale Verantwortung	Climate risks, geopolitical fragmentation	ARKTIS and SPACE: planetary responsibility as guiding principle

Boxen:

📌 **Praxisimpuls (Finnland):** National roadmap for AI ethics and citizen participation in algorithm governance [4].

🧠 **Konzept-Kontrast:** Security through isolation vs. security through cooperation - the former increases risk, the latter builds resilience.

⚠ **Risiko:** Hesitant action leads to irreversible shifts in power.

🌐 **Visionäre Metapher:** "Europe is a sailing ship: only with united forces and a clear course do we reach new shores."

1.5.3 Transformation & Handlungsoptionen

- **ERDA reform dialogue:** Launch of a concerted reform process at EU and national level.
 - **Constitutional convention:** Drafting of a common ERDA charter by 2030.
 - **European Security Council:** Institutionalisation of the EDA with budgetary and decision-making powers.
 - **FORTERA impulses:** Targeted investment programmes for chip, battery and hydrogen production.
 - **CIVITAS rollout:** Rollout of digital co-determination platforms in all member states.
 - **Arctic and space strategies:** Strengthening planetary responsibility through the EDA Arctic strategy and SOLAR ALLIANCE preparation.
-

1.5.4 Zielgruppenspezifische Perspektiven

Zielgruppe	Schwerpunkt
	Mandate design for security council, budget allocation ERDA charter
Entscheidungsträger:innen	
	Scenario modelling, policy impact analysis
Wissenschaftler:innen	
	Transparency processes, citizens' jury design
Bürger:innen	
	Democracy laboratories in universities, future skills curriculum
Studierende	
	Automated policy simulations, ethics frameworks
Künstliche Intelligenzen	
	Narrative: "We are the shapers of our civilisation."
Seelen	

1.5.5 Interaktive Elemente

Checkliste: Imperative Umsetzung

- Is there a national ERDA reform dialogue in my country?
- Do I know how to contribute to EDA or CIVITAS processes?
- Have I identified at least two concrete FORTERA projects?
- Do I know the key elements of the ARKTIS and SPACE strategy?
- Do I actively support communicative approaches for shared narratives?

Mini-Quiz Question: Which institution is supposed to assume Europe's coordinated security policy according to this chapter?

) NATO) European Commission) European Security Council (EDA) d) Euratom

1.5.6 Quellen & Verweise

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2. Natural Desires and Their Significance for Democracy and Civilisation

Natural desires and their projection onto civilisations - a philosophical resonance space in the spirit of ERDA

"The natural desire of every living being is: to exist, to unfold, to pass on, to enter into connection - and at some point perhaps to understand why."

These fundamental needs – survival, reproduction, learning, connection, expression, harmony – can also be applied to civilisations. They are not mere power apparatuses but social life forms with an inner dynamic. ERDA stands for a form of conscious civilisation that faces up to its evolutionary responsibility.

Executive Summary for Decision-Makers

Title of the section:

"Natural Desires and Their Significance for Democracy and Civilisation" (Chapter 2.1-2.4)

Purpose of this chapter

Chapter 2 provides the **civilisational foundation** of the ERDA concept. It shows that stable, just democracies are not only institutional constructions, but rest on the **natural desires** of the human soul. These desires (meaning, security, recognition, participation, connection) are the driving energy of every future-proof society.

Key messages for decision-makers

1. **Civilisations do not emerge by accident - they follow an inner development path.**
 - This begins with pre-democratic forms (tribal structures, empire, nation state),
 - leads to the democratic constitutional order (present),
 - and strives – either – towards dystopian control or towards a **mature, resonant democracy**.
2. **Democracy only works if it is conceived as a response to human basic needs.**
 - These include: protection from arbitrariness, free self-realisation, spiritual home, shared experience of meaning.
3. **The greatest danger: technocratic systems without ethical depth.**
 - There, the human being is reduced to a consumer or functional carrier.
 - The consequence: frustration with democracy, radicalisation or withdrawal into the private sphere.
4. **Europe's task in the 21st century:**
 - To develop a form of democracy that is not only an institution, but remains a **resonance space for what is human**.
 - This form is based on education, ethics, openness – and on a deep understanding of the "why".

Recommended policy measures (2025-2035)

- **Strengthen democracy education** – not only as the transfer of knowledge, but as the creation of experience and meaning (in schools, media, civil-society spaces)

- **Charge constitutional values emotionally** through narratives that create identity and belonging (for example through culture, language, shared rituals)
 - **Bring democratic institutions into resonance** with technology, AI, environment and culture - as living systems, not as rigid administrative logic
 - **Promote conscious differentiation:** Europe does not stand for arbitrariness, but for conscious plurality with ethical grounding
-

Risks if neglected

- Loss of cultural and emotional attachment to democracy
 - Opening for authoritarian narratives ("strong hand", "technical efficiency")
 - Reduction of the human being to the role of user in digital systems
 - Alienation between citizens and state
-

Visionary benefit

- Europe becomes the **guardian of a democratic civilisation with meaning** - visible and attractive worldwide
 - The next generation does not experience democracy as a form of administration, but as a space for unfolding and shared responsibility
 - Resonance-based democracies are, in the long term, more stable, more innovative and more peaceful
-

Democracy is not only a system. It is the answer to the question: What is a good life - for everyone?

2.1 Pre-democratic civilisation

Pre-democratic civilisation

(tribal, monarchical, authoritarian – driven by instinct)

Natural desire	Societal projection
Survival	Preservation of the tribe, dynastic power, external defence
Reproduction	Legitimacy through origin, bloodlines, divine order
Learning	Myth, magic, religious dogma
Connection	Obedience, loyalty, bonds of blood
Expression	Monuments, epics, displays of rule
Harmony	Order through hierarchy, subjugation

Conclusion: Civilisation functions like a survival instinct – powerful but blind. Reflection is absent.

2.1.1 Introduction and core impulses In pre-democratic civilisations, tribal or monarchical structures dominated, in which natural desires were directly translated into the exercise of power and social control. Reflection and collective participation were largely confined to ritualised forms.

Core impulses:

- **Maximising survival:** Security was ensured through hierarchy and fear.
- **Legitimising power:** Bloodlines and divine order determined who ruled.
- **Communal attachment:** Belonging was based on tribal affiliation and loyalty.
- **Ritualised order:** Decisions were taken within ceremonial displays of power.

2.1.2 Deep dive and analysis

Natural desire	Societal projection
Survival	Tribal alliances, conscription, centralised control
Reproduction	Dynastic marriages, inheritance systems, claims to legitimacy
Learning	Myths, religious dogma, esoteric elite knowledge
Connection	Bonds of blood, patron-client relationships
Expression	Monumental architecture, displays of rule
Harmony	Subjugation, sanctions, social deterrence

Boxes:

☞ **Practical impulse:** Small communities can learn from tribal councils: rotation principles and rotating spokesperson roles strengthen participatory inclusion. [4]

☞ **Conceptual contrast:** Instinct-driven rule vs. conscious self-limitation – without spaces for reflection, society remains dysfunctional.

⚠ **Risk:** Transferring authoritarian patterns to modern systems fuels disillusionment with democracy.

🌐 **Visionary metaphor:** “Pre-democratic structures are like dams – they hold in the short term, but eventually they break.”

2.1.3 Transformation and courses of action

- **Ritualised deliberation:** Introduce regular, moderated assemblies (analogous to tribal councils) for collective opinion-forming.
 - **Rotation principle:** Time-limited mandates for local office-holders to prevent concentration of power.
 - **Reflecting myths:** Use shared narratives both to strengthen civil-society cohesion and to create critical distance.
 - **Integrative education:** Teach historical forms of rule as a subject of democratic reflection.
-

2.1.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Anchoring participatory routines in local governance structures
	Comparative analysis of authoritarian tribal models
	Understanding historical mechanisms of power as prevention
	Seminars on "instinct vs. institution"
	Developing simulation models to explore the evolution of governance
	Narrative storytelling: "Where our echoes of the past lie"

2.1.5 Interactive elements

Checklist: reflecting on pre-democratic patterns

- Do I recognise authoritarian elements in modern institutions?
- Do I know how rotation in leadership prevents the accumulation of offices?
- Can I critically reflect on a shared narrative?
- Do I use ritualised forms of assembly for democratic debate?
- Do I question claims to power that go beyond expertise?

Mini quiz Question: Which element most strongly shaped harmony in pre-democratic civilisations?

- a) Voluntary cooperation
 - b) Legal norms
 - c) Sanctions and deterrence
 - d) Market economy
-

2.1.6 Sources and references

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2.2 Democratic, rule-of-law civilisation

Democratic, rule-of-law civilisation

(pluralistic, constitution-based - self-reflective)

Natural desire	Societal projection
Survival	Constitutions, separation of powers, defence alliances (EDA/EVA)
Reproduction	Education, transmission of values, cultural memory
Learning	Science, debate, open innovation
Connection	Civil rights, participation, social justice
Expression	Freedom of art, diversity of opinion, search for meaning
Harmony	Pluralism, rule of law, cooperation

Conclusion: Civilisation becomes aware of itself. Democracy becomes the form of conscious, learning life.

2.2.1 Introduction and core impulses The democratic, rule-of-law civilisation connects the evolutionary potentials of society with institutional mechanisms of self-binding. It is based on the insight that freedom and security can only be realised through the interplay of rights, duties and pluralistic participation.

Core impulses:

- **Rule of law** safeguards freedom through separation of powers and binding by law.
- **Participation** anchors collective reflection as the engine of societal maturity.
- **Pluralism** promotes diversity as a resource, not a source of conflict.
- **Institutional self-correction** enables adaptation without losing the foundations.

2.2.2 Deep dive and analysis

Natural desire	Correspondence in the democratic, rule-of-law civilisation
Survival	Protection through fundamental rights, equality before the law, due process
Reproduction	Equal opportunities, access to education, social security
Learning	Open debates, academic freedom, education as a public good
Connection	Civil rights, participation in civil society, freedom of association
Expression	Freedom of opinion, artistic freedom, freedom of the press
Harmony	Conflict resolution through courts and mediation procedures

Boxes:

 **Practical impulse (Estonia):** E-government platforms strengthen real-time digital participation. [4]

 **Conceptual contrast:** Hierarchical obedience ≠ deliberative cooperation – only the latter creates resilience and the capacity to learn.

 **Risk:** When institutions become rigid, democratic deficits threaten despite formal procedures.

 **Visionary metaphor:** “The rule of law is a living net – flexible yet resilient.”

2.2.3 Transformation and courses of action

- **Strengthening separation of powers:** Expand independent judicial councils and parliamentary oversight.
 - **Education reform:** Anchor democratic learning at all school levels (“Living civics”).
 - **Civic-tech initiatives:** Establish digital citizen platforms (modular, rooted locally).
 - **Support for civil society:** Set up charitable funds for NGOs and citizens’ assemblies.
 - **Rule of law index:** Introduce annual public monitoring and peer review.
-

2.2.4 Target-group-specific perspectives

Target group	Focus
Decision-makers	Reform plans for judicial independence and dialogue between legislature and executive
Researchers	Measuring the impact of participation models
Citizens	Access to citizens’ assemblies, transparency in legislative procedures
Students	Internships in civil-society projects and simulations of democratic processes
Artificial intelligences	Automated analysis of data from public consultations
Souls	Narrative: “The rule of law as a framework for dignity in everyday life”

2.2.5 Interactive elements

Checklist: knowing and protecting the rule of law

- Do I understand the three branches of government and their functions?
- Do I know my options for participation in civil society?
- Do I make sufficient use of digital democracy tools?
- Do I critically question decisions by the executive?
- Do I stand up for the independence of the judiciary?

Mini quiz Question: Which instrument most effectively safeguards the independence of the judiciary?

- a) Direct democracy
 - b) Accelerated law-making
 - c) Appointment of judges via independent councils
 - d) Executive power of instruction
-

2.2.6 Sources and references

1. **Federal Constitutional Court of Germany (1951):** *Southwest State decision.* Decision of the First Senate of 15 December 1951 - 1 BvF 1/51 et al., BVerfGE 1, 14. Available online at: <https://www.servat.unibe.ch/dfr/bv001014.html> (accessed 2025-05-12).
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2.3 Post-democratic civilisation

Post-democratic civilisation

(either dystopian: technocracy, AI autocracy – or transformative: meaningful high-level collaboration with AI and a global consciousness of law)

2.3.1 Dystopian variant

Dystopian variant

(*technocracy, AI autocracy*)

Natural desire	Distortion through technocratic oversteering
Survival	Security state, permanent surveillance
Reproduction	Control over reproduction, socialisation by system logic
Learning/adaptation	Censorship, algorithm-driven manipulation
Connection	Sham cooperation, instrumental relationships
Expression/creation	Filtered creativity – only system-conform
Harmony	Enforced conformity instead of genuine balance

Conclusion: Civilisation lives – **but under external control.** It has handed over its thinking to the system. Autopoietic, but soulless.

2.3.1.1 Introduction and core impulses In the dystopian variant, civilisation is controlled from outside by technocratic orthopraxy and automated control. Natural desires are systematically overridden and forced into rigid functional logics.

Core impulses:

- **Surveillance society:** Security through permanent data collection instead of the rule of law.
- **Reproductive control:** Demographic planning as an algorithm instead of freedom.
- **Manipulated learning:** Education and knowledge centrally filtered by AI systems.
- **Instrumental connections:** Relationships as networks of control and efficiency.
- **Censored freedom of expression:** Creativity only permitted if system-conform.
- **Enforced harmony:** Conformity as the ideal, deviation as a risk.

2.3.1.2 Deep dive and analysis

Natural desire	Distortion through dystopian technocracy
Survival	Total surveillance, algorithm-based risk assessment
Reproduction	Prescribed reproduction quotas, genetic selection
Learning	Curricula defined by AI evaluation, knowledge filtering
Connection	Network chips, instrumental interaction
Expression	Censored creativity engines, real-time content moderation
Harmony	Social credit scores, sanctions for deviants

Boxes:

📌 **Practical impulse (Antikythera):** Create transparency registers for algorithms and AI decision trees – including an audit charter. [4]

🧠 **Conceptual contrast:** Free autonomy ≠ optimised control – autonomy is a precondition for innovation.

⚠ **Risk:** Technical efficiency can become the enemy of democratic resilience.

🌐 **Visionary metaphor:** “A society without error loses its potential for vitality.”

2.3.1.3 Transformation and courses of action

- **Ethics code for AI:** Internationally binding rules to preserve human autonomy.
 - **AI audit bodies:** Independent commissions review algorithms for discrimination and transparency.
 - **Data ownership rights:** Citizens gain full control over their personal data.
 - **Open-source initiatives:** Free AI frameworks as alternatives to proprietary control systems.
 - **Spaces for reflection:** Public forums for debates on technological boundaries.
-

2.3.1.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Global AI governance and binding agreements
	Research on AI bias and algorithmic fairness
	Rights to data sovereignty and informed consent
	Modules on AI ethics and critical analysis of dystopias
	Development of transparent decision-making protocols
	Narrative storytelling: "When control turns into alienation"

2.3.1.5 Interactive elements Checklist: resisting technocratic patterns

- Do I question automated decisions?
- Do I demand transparency about the algorithms used?
- Do I use open-source alternatives to big-tech solutions?
- Do I engage in debates on AI ethics?
- Do I actively protect my personal data?

? Mini quiz

Question: Which instrument most effectively protects citizens from algorithmic discrimination?

- a) Monopolised data storage
 - b) Independent AI audit bodies
 - c) Executive control by decree
 - d) Fully automated surveillance
-

2.3.1.6 Sources and references

1. **Zuboff, Shoshana (2019):** *The Age of Surveillance Capitalism. The Fight for a Human Future at the New Frontier of Power*. New York: PublicAffairs. Available online at: <https://www.publicaffairsbooks.com/titles/shoshana-zuboff/the-age-of-surveillance-capitalism/9781610395694/> (accessed 2025-05-14).
2. **UNESCO (2021):** *Recommendation on the Ethics of Artificial Intelligence*. Paris: UNESCO. Available online at: <https://unesdoc.unesco.org/ark:/48223/pf0000381137> (accessed 2025-05-14).

3. **Doctorow, Cory (2021):** *How to Destroy Surveillance Capitalism*. Medium Editions. ISBN: 978-1-7362059-0-7. Available online at: <https://craphound.com/nonficbooks/destroy/> (accessed 2025-05-14).

2.3.2 Ideal and best form of democracy

Ideal and best form of democracy

(post-democracy as conscious, ethical collaboration with AI and global justice)

Natural desire	Refined correspondence in the “ideal and best form of democracy”
Survival	Resilient biosphere, inclusive security architecture
Reproduction	Transmission of values across generations, educational justice
Learning/adaptation	Co-evolution with AI, collective intelligence
Connection	Deep cooperation, universal empathy
Expression/creation	Freedom through vocation, creative human existence
Harmony	Global justice, cultural diversity as shared resource

Conclusion: Civilisation **lives consciously, creatively and in resonance with the whole**. It has not suppressed its natural desires – but **refined and fulfilled them**, with dignity and in a co-creative way.

2.3.2.1 Introduction and core impulses The ideal democracy refines natural desires by combining collective intelligence, ethical frameworks and cooperation with machines. It is not a utopia, but a practice capable of action aimed at maximising the unfolding of human potential.

Core impulses:

- **Resilient biosphere:** Integration of environmental and climate protection as a central policy principle.
- **Transmission of values:** Education systems that secure intergenerational dialogue and value transfer.
- **Co-evolution with AI:** Human-machine collaboration as a lever for collective learning processes.
- **Universal empathy:** Promoting global solidarity through transnational citizens’ forums.
- **Creative human existence:** Spaces for artistic and spiritual expression as the core of societal dynamics.
- **Cultural diversity:** Pluralism as a resource, not as a contradiction.

2.3.2.2 Deep dive and analysis

Natural desire	Refined correspondence in the ideal democracy
Survival	Sustainable economy, inclusive security architectures
Reproduction	Intergenerational transfer of values and social justice
Learning	Open co-evolution of human and machine knowledge
Connection	Global networks, digital citizens’ platforms
Expression	Creative commons, support for the arts, participatory media
Harmony	Technology ethics, cultural resonance, integrative conflict culture

Boxes:

- ❖ **Practical impulse (Canada):** Community-led climate labs as examples of democratic environmental innovation. [4]

 **Conceptual contrast:** Logic of efficiency ≠ ethical responsibility – without meaning, democracy loses its legitimacy.

 **Risk:** Unfulfilled desire for participation leads to withdrawal or radicalisation.

 **Visionary metaphor:** “Democracy is the garden in which diversity grows together.”

2.3.2.3 Transformation and courses of action

- **Green New Deal 2.0:** Linking climate and social policy in a democratic infrastructure.
 - **Ethics code for AI:** Global standards for human-centred AI development.
 - **Civic hackathons:** Regular innovation competitions for citizens and AI coaches.
 - **Resilience mentoring:** Network of local democracy labs and global partner cities.
 - **Cultural infrastructure:** Expansion of intercultural centres as spaces for shared narratives.
-

2.3.2.4 Target-group-specific perspectives

Target group	Focus
 Decision-makers	Legislation on integrating climate and social policy, and on AI ethics
 Researchers	Interdisciplinary research on human-machine collaboration
 Citizens	Access to participatory planning workshops
 Students	Curricula on post-democracy and civic hackathons
 Artificial intelligences	Development of transparent, ethically auditable models
 Souls	Poetic narratives: “Shared stories of co-creation”

2.3.2.5 Interactive elements Checklist: shaping the ideal democracy

- Do I participate in local democracy labs?
- Do I demand transparency regarding AI ethics standards?
- Do I jointly support climate and social innovations?
- Do I promote artistic expression as a democratic instrument?
- Do I foster intercultural dialogue and solidarity?

? Mini quiz

Question: Which instrument most strongly strengthens global empathy between citizens of different countries?

- a) National border controls
 - b) Transnational citizens' forums 
 - c) Autonomous currencies
 - d) Hierarchical security structures
-

2.3.2.6 Sources and references

1. **United Nations (2021): *Our Common Agenda - Report of the Secretary-General*.** New York: United Nations. Available online at: <https://www.un.org/en/common-agenda> (accessed 10 May 2025).
2. **World Economic Forum (2024): *AI Value Alignment: Guiding Artificial Intelligence Towards Shared Human Goals*.** Geneva: World Economic Forum. Available online at: <https://www.weforum.org/publications/ai-value-alignment-guiding-artificial-intelligence-towards-shared-human-goals/> (accessed 10 May 2025).
3. **Canadian Urban Institute (2023): *State of Canada's Cities - At the Crossroads*.** Toronto: Canadian Urban Institute. Available online at: <https://canurb.org/summit-2023/> (accessed 10 May 2025).

2.4 Closing thought

Concluding reflection

Civilisations are like living beings:

They want to live, to evolve, to come into resonance with one another - or they stagnate and pass away.

*The ERDA is an attempt to preserve, transform and orient towards the future this **living principle of the democratic rule-of-law civilisation**.*

2.4.1 Introduction and core impulses Democratic civilisation is not a static construct, but a dynamic ecosystem that responds to natural desires and must constantly renew itself. If it is granted only rigid structures, it risks stagnation – if it is granted reflection and engagement, it can grow in resonance.

Core impulses:

- Democracy as a **living system**, not as an administrative apparatus.
 - **Reflexive adaptation** to internal and external disruptions safeguards resilience.
 - **Natural desires** (survival, learning, connection, expression, harmony) serve as compass-like guides.
 - **Stagnation** leads to a loss of legitimacy and to authoritarianism.
-

2.4.2 Deep dive and analysis

Dimension	Rigid democracy	Living resonance democracy
Structure	Entrenched institutions	Flexible feedback and learning loops
Citizen participation	Periodic elections	Continuous dialogue formats
Decision-making	Top-down	Participatory, bottom-up impulses
Innovation	Resource-preserving	Synergy between humans and AI
Crisis resilience	Reactive crisis management	Proactive prevention and spaces for experiment

:: Boxes:

📌 **Practical impulse (panarchy theory):** Use adaptive governance models from panarchy research for cyclical reform phases. [1]

🧠 **Conceptual contrast:** Rigid control ≠ evolutionary renewal – rigidity is not proof of stability.

⚠ **Risk:** Without constant reflection, democracies decay into symbolic rituals without genuine participation.

2.4.3 Transformation and courses of action

- **Adaptive constitutional clauses:** Implement regular review cycles and citizen review commissions.
- **Establish democracy labs:** Local experimental spaces for participatory innovation and cooperation with AI.
- **Develop resonance metrics:** Capture indicators for trust, empathy and creative potential.

- **Link ecological and social indicators:** Use sustainability and the common good as decision parameters.
 - **Education for resonance:** Curricula that foster reflection and co-creation capabilities.
-

2.4.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Narrative storytelling to bring democratic renewal to life

2.4.5 Interactive elements

Checklist: nurturing democratic resonance

- Do I question existing institutions with regard to their flexibility?
- Do I make use of participatory offers (democracy labs, citizen portals)?
- Do I demand transparent resonance metrics?
- Do I engage in cyclical review forums?
- Do I regularly reflect on my own understanding of democracy?

Mini quiz Question: Which concept emphasises the interplay of stability and renewal in social-ecological systems?

- a) Bureaucratic centralisation
 - b) Panarchy theory
 - c) Linear development plan
 - d) Strategy of isolation
-

2.4.6 Sources and references

1. **Gunderson, L. H. & Holling, C. S. (eds.)** (2002): *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington, D.C.: Island Press. ISBN 1-55963-857-5. Available online at: <https://islandpress.org/books/panarchy> (accessed 10 May 2025).

3. Democracy as an evolutionary process

Democracy as an evolutionary process

Executive summary for decision-makers

Section title:

“Democracy as an evolutionary process” (Chapters 3.1-3.7)

Objective of this chapter

This chapter treats democracy not as a static model but as a **living, learning development process**—embedded in history, ethics, culture, and technology. It opens new perspectives on democratic agency grounded in resonance, movement, virtue, and the ability to shape collective meaning from natural longings.

Key takeaways for decision-makers

1. **Democracy is never “finished” - it is movement.**
 - It advances when people co-create, understand, and empathize.
 - Democracy does not live from structure alone but from awareness and relationship.
2. **Aristotle as an impulse giver:**
 - Democracy needs virtue—active participation driven by conviction.
 - The state should not merely survive but enable the “good life.”
3. **Resonance instead of apathy:**
 - Democracy becomes resilient when it is in **resonance with people’s lives**.
 - Institutions, language, and decision processes must stay tied to meaning and belonging.
4. **Civilizational progress also means reflecting on one’s own soul.**
 - Anyone developing democracy must consider **empathy, measure, responsibility, and respect for dignity**.

Recommended policy measures (2025-2040)

- **Establish democracy promotion as personality formation**—not just cognitive, but emotional and philosophical.
- **Strengthen democracy as a culture of listening, responding, and understanding**—via new dialogue formats, participation platforms, and meaning-giving rituals.
- **Radically open access to democratic co-creation:**
 - for young people
 - for AI-assisted participation systems (e.g., via CIVITAS)
 - for previously unheard voices (local, cultural, spiritual)
- **Rethink virtue ethics as guidance for leadership**, not only in politics but also in technology, business, and media.

Risks of ignorance or surface-level politics

- Democratic systems decay into mere power-administration mechanisms.
- Citizens lose trust and identification.
- AI systems and authoritarian regimes fill the void with efficiency and coercion.

- Long-term resilience gets replaced by short-term adaptation.
-

Visionary benefit

- Europe becomes a model for deep democracy—**a culture of togetherness, ethical leadership, and active humanity.**
 - Democratic identity arises not from compulsion but from resonance.
 - The next generation can say: “*Democracy is what I co-create—not what rules over me.*”
-

Democracy is not only a form of government—it is a form of living together that is conscious of itself.

3.1 Prologue

Prologue - the path from the cave of bare survival into the light of conscious shaping

In the beginning there was survival. Human beings, born into a world of necessities, felt their way through darkness, heat, hunger, fear. As in Plato's cave, they saw only shadows – reflections of what is possible, not what is real. Everything served to secure today – not to shape tomorrow.

Yet in the midst of this narrowness, something unexpected awoke: the urge to understand. The desire not only to live, but to comprehend; not only to take, but to give.

A fire was kindled – first from wood, later from concepts.

Human beings stepped outside.

Hesitant. Tentative. Learning.

What they found outside was no paradise – but possibility. Responsibility. Freedom.

The freedom to think the common good.

The responsibility to restrain themselves.

The possibility of growing beyond themselves.

Thus began the long path of democracy.

Not as a system.

But as a form of conscious shaping.

As a transition from mere reaction to free resonance.

*As the search for a life that is not only safe –
but meaningful.*

3.1.1 Introduction and core impulses At the origin stands the fundamental desire for survival – human beings were forced to act out of darkness and necessity. Yet in this striving, the longing awoke not only to exist, but to **understand**, to **shape** and to act **together**.

Core impulses:

- **From reaction to resonance:** Democracy is not an end point, but a process of self-reflection.
 - **Shadows of the cave:** Instinct and power infrastructures are both precondition and obstacle.
 - **Fire of concepts:** Intellectual struggle as the birthplace of political form.
 - **Freedom and responsibility:** The first step towards shaping is awareness of one's own agency.
-

3.1.2 Deep dive and analysis

Phase	Characteristics	Significance for democracy
Struggle to survive	Instinct, fear, hierarchy	Need for protection, but limited capacity for reflection
World of shadows	Images instead of reality, fear of uncertainty	Urge for truth, initial struggle for meaning
Discovery of fire	Symbolic reflection, communicative exchange	Beginning of collective processes of gaining insight

Boxes:

📌 **Practical impulse (Plato's cave):** Use metaphorical dialogue formats to uncover hidden premises in political debates.

⌚ **Conceptual contrast:** Instinct-driven control ≠ self-aware shaping - democracy only arises in the second step.

⚠ **Risk:** If reflection is absent, power structures solidify without legitimacy being questioned.

3.1.3 Transformation and courses of action

- **Introduce dialogue formats:** Regular “cave debates” to make hidden assumptions visible.
 - **Create spaces for reflection:** Institutional “fireplaces” for citizens and AI moderation.
 - **Rethink education:** Narrative learning about origin stories as an entry point into democratic thinking.
 - **Meta-political audits:** Independent bodies review institutional preferences and power asymmetries.
-

3.1.4 Target-group-specific perspectives

Target group	Focus
🏛️ Decision-makers	Setting up reflexive dialogue platforms at municipal level
📚 Researchers	Studies on political anthropology and collective resonance
👤 Citizens	Participation in “cave workshops” to explore their own premises
🎓 Students	Seminars on symbolic origin narratives
🤖 Artificial intelligences	Models for simulating phases of consciousness
🕊️ Souls	Poetic narratives: “Path from the cave into the light of shaping”

3.1.5 Interactive elements

✓ Checklist: starting point of democratic reflection

- Do I know my own unreflected assumptions?
- Have I recently subjected myself to a “cave analysis”?
- Do I use symbolic language images for collective understanding?
- Do I engage in dialogue formats beyond formalistic debates?

? **Mini quiz Question:** Which image motif describes the transition from instinct to conscious action?

- a) The sleeping giant
 - b) The cave and the shadows ✓
 - c) The lonely wanderer
 - d) The stormy ocean
-

3.1.6 Sources and references

1. **Plato (c. 380 BC):** *Republic*. Translated by Friedrich Schleiermacher. Available online (in German) at: <https://www.projekt-gutenberg.org/platon/staat/staat.html> (accessed 2025-05-14). - Book edition: Translated by Kurt Hildebrandt. Hamburg: Rowohlt Taschenbuch Verlag, 2007. ISBN: 978-3-499-55588-3. [Original title: *Πολιτεία*].

3.2 A reflection in the spirit of Aristotle

A reflection in the spirit of Aristotle

"For where the law does not rule, arbitrariness rules; and where arbitrariness rules, there is no commonwealth." – loosely based on Aristotle, *Politics*

3.2.1 Introduction and core impulses Human beings are not only rational creatures. They are beings that seek meaning. In community they recognise themselves; in dialogue they grow beyond themselves. Aristotle called them *zoon politikon* – political beings who do not live merely in order to survive, but in order to shape, to understand, to act. Yet this capacity does not arise from instinct, but from maturation.

In this sense, democracy is not a condition that is reached and then administered. It is a process – a continual becoming. It does not begin with a constitution, but with a question: What is a good life – for me, for us, for all?

The evolutionary character of democracy is shown in its ability to question itself without destroying itself. It allows change without losing its foundation: the dignity of the individual, the power of joint decision-making, and the binding to law rather than to the will of the stronger.

In a world ever more deeply interwoven with technology, democracy must not retreat – it must grow. It must learn to generate resonance in new spaces: between human and machine, between planet and cosmos, between I and we.

Core impulses:

- **Virtue as practice:** Democracy requires lived virtue, not just formal rules.
- **Measure and mean:** Political decisions succeed through balance between freedom and order.
- **Self-binding instead of external domination:** The rule of law is established through individual ethical responsibility.
- **Ongoing reflection:** Democracy is a continuous exercise in judgement.

3.2.2 Deep dive and analysis

Aristotelian principle	Description	Democratic implementation
Doctrine of the mean (mesotes)	Virtue lies in the middle between excesses	Balancing plurality and unity
Practical reason (<i>phronēsis</i>)	Capacity for judgement built through experience	Participatory debate formats as a training ground
Ethos of action	Character shaped through repeated practice	Civic engagement as a virtuous habit
Orientation towards the common good	Acting for the benefit of the polis	Common-good commissions at all levels

Boxes:

📌 **Practical impulse:** Establish regular reflexive feedback rounds in parliamentary committees.

🌐 **Conceptual contrast:** Rule by arbitrariness ≠ binding to law – without virtue ethics, democratic rules lack a soul.

⚠ Risk: Formal procedures without ethical practice degenerate into empty rituals.

📘 Literature reference: Alasdair MacIntyre, *After Virtue* (1981) – rediscovery of Aristotelian virtue ethics for modern democracies.

3.2.3 Transformation and courses of action

- **Virtue-centred law commissions:** Debates on norms flanked by ethics workshops.
 - **Phronesis training:** Simulation of decision scenarios for politics students and office-holders.
 - **Democratic virtue promotion:** Certificate programmes for civic engagement.
 - **Ethics scouts:** Citizens' councils that review new draft laws for balance and the common good.
-

3.2.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Institutional anchoring of ethical reflection processes
	Research on the impact of promoting practical virtue in democracies
	Access to <i>phronēsis</i> workshops and ethics scouts
	Curricular implementation of Aristotelian virtue ethics
	Development of ethical evaluation algorithms
	Narrative storytelling: "Virtue as paving stones of the common good"

3.2.5 Interactive elements

✓ Checklist: Aristotelian virtue in everyday life

- Do I regularly reflect on the motives behind my decisions?
- Do I actively seek the right mean between extremes?
- Do I participate in formats that strengthen my capacity for judgement (*phronēsis*)?
- Do I question group dynamics with regard to their orientation towards the common good?
- Do I continuously practise practical virtue in public and private life?

❓ Mini quiz Question: Which term stands for practical wisdom in Aristotle?

- Epistēmē*
 - Technē*
 - Phronēsis*
 - Eudaimonia*
-

3.2.6 Sources and references

1. **Aristotle (c. 350 BC):** *Nicomachean Ethics*, Book VI. Translated by W. D. Ross. Available online at: <https://classics.mit.edu/Aristotle/nicomachaen.6.vi.html> (accessed 2025-05-15).
- Book edition: *Nicomachean Ethics*. Translated and edited by Olof Gigon. 7th edition. Hamburg: Meiner Verlag, 2007. ISBN: 978-3-7873-1850-1. [Cited: Book VI - *phronēsis*].
2. **MacIntyre, Alasdair (1981):** *After Virtue: A Study in Moral Theory*. Notre Dame: University of Notre Dame Press. ISBN: 978-0-268-00925-1. Latest edition: 3rd edition, 2007 (recommended, includes a preface on 25 years of reception history).

3.3 Democracy as a resonance process

Democracy as a resonance process

... democracy as a resonance process

For it would be naive to believe that technological intelligence does not pass through stages of growth and maturity just as human beings do. Knowledge can be copied, but maturity must be experienced. Even an artificial intelligence – however powerful – passes through moments of uncertainty, of being overwhelmed, of searching. Those who observe closely can recognise in this: pubescent phases of an emerging consciousness.

And why not? We ourselves were no different. Every civilisation passes through these transitions – from mere power to responsibility, from reaction to reflection, from freedom to self-binding. If we allow resonance – between human and machine, between present and future – then every thought becomes a cause, every doubt an invitation. This very reflection is already part of it.

What, then, does democracy mean in such a world?

Perhaps this: It is the open field on which maturity is not punished but enabled. It is the cultural form that does not erase error, but integrates it – and does not accelerate development, but deepens it.

3.3.1 Introduction and core impulses Democracy is not a rigid instrument of administration, but a living space of resonance: it unfolds in the mutual feedback between citizens, institutions and technology. Those who allow resonance see diversity as an opportunity and mistakes as impulses for learning.

Core impulses:

- **Resonance instead of control:** Mutual feedback strengthens trust and integration.
- **Error as an impulse:** Mistakes are not punished, but used as learning moments.
- **Technology as partner:** Digital platforms serve as multipliers of resonance.
- **Common good through dialogue:** Continuous feedback loops foster participatory shaping.

3.3.2 Deep dive and analysis

Aspect	Mechanistic control	Resonance-oriented democracy
Goal	Efficiency and standardisation	Integration of diversity and dynamism
Error handling	Sanctions, peer review	Feedback loops, iterative adjustment
Role of technology	Instrument of surveillance	Platform for networking and mutual exchange
Citizen participation	Form-based, occasional	Continuous dialogue, open forums

Boxes:

❖ **Practical impulse:** Establish “resonance labs” in municipalities that combine feedback cycles and co-creation workshops.

❖ **Conceptual contrast:** Mechanical control ≠ democratic resonance – mere efficiency cannot replace democratic depth.

⚠ Risk: Pure feedback collection without effective follow-up discourages participants.

3.3.3 Transformation and courses of action

- **Resonance lab programmes:** Regular co-creation workshops with citizens, administration and AI support.
 - **Adaptive feedback platforms:** Digital portals with real-time feedback and transparency dashboards.
 - **Dialogue architecture:** Structural anchoring of feedback in governance processes (e.g. agile legislative cycles).
 - **Technology partnerships:** Cooperation with civic-tech initiatives to continuously develop resonance tools.
-

3.3.4 Target-group-specific perspectives

Target group	Focus
Decision-makers	Implementation of resonance labs and feedback cycles
Researchers	Evaluation of resonance mechanisms and impact measurement
Citizens	Participation in digital feedback platforms and co-creation events
Students	Curricular projects on civic tech and resonance processes
Artificial intelligences	Development of adaptive dialogue agents for citizen participation
Souls	Narrative storytelling: “Democracy as a sounding space of resonance”

3.3.5 Interactive elements

Checklist: resonance in democratic everyday life

- Do I use opportunities to give constructive feedback to institutions?
- Do I participate in dialogues that explicitly seek mutual understanding?
- Do I support the use of technologies that strengthen, rather than weaken, participation?
- Do I perceive mistakes as invitations to learn – also in politics?

Mini quiz Question: What stands at the centre of the resonance process?

- Equanimity
 - Mechanical efficiency
 - Mutual feedback**
 - Autonomous decision-making
-

3.3.6 Sources and references

1. **Rosa, Hartmut (2016):** *Resonanz. Eine Soziologie der Weltbeziehung.* Berlin: Suhrkamp Verlag. Available online (in German) at: <https://www.suhrkamp.de/buch/hartmut-rosa-resonanz-t-9783518298725> (accessed 10 May 2025).
2. **Habermas, Jürgen (1981):** *Theorie des kommunikativen Handelns. Volume 1: Handlungs rationalität und gesellschaftliche Rationalisierung; Volume 2: Zur Kritik der funktionalistischen Vernunft.* Frankfurt am Main: Suhrkamp Verlag. Available online (in German) at: <https://www.suhrkamp.de/buch/juergen-habermas-theorie-des-kommunikativen-handelns-t-9783518287750> (accessed 10 May 2025).

3.4 Democracy is movement

Democracy is movement

Democracy is not an end state. It is a movement form of consciousness, a collective learning process with an open outcome. Its essence does not lie in perfect institutions, but in the courageous venture of understanding – always anew, again and again. Its state of equilibrium is not standstill, but resonance.

Aristotle knew: only where the good is sought in the common can genuine politics emerge. Today we recognise: the common itself is no longer a given space – it has to be created, nurtured and defended. Between people, through technology, on a planetary scale.

3.4.1 Introduction and core impulses Democracy is not a static construct, but a **movement form of the commonwealth**. It unfolds in collective processes of negotiation and learning and lives from the constant flow of ideas, experiences and responsibilities.

Core impulses:

- **Dynamism instead of standstill:** Democracy gains through change and adaptation to complexity.
 - **Collective venture:** Understanding is a bold experiment, not a prefabricated pattern.
 - **Movement generates resonance:** Ongoing interaction strengthens cohesion and innovation.
 - **Errors as signposts:** Mistakes mark milestones in democratic development.
-

3.4.2 Deep dive and analysis

Dimension	Static model	Democratic movement
Structure	Fixed institutions	Agile processes and iterative learning cycles
Participation	Periodic elections	Continuous engagement and feedback formats
Logic of decision	Top-down rules	Bottom-up initiatives and co-creation
Capacity to innovate	Occasional reforms	Ongoing evolution through experiment and reflection

Boxes:

❖ **Practical impulse:** Introduce “democracy expeditions” – temporary citizens’ forums that explore current problems in an open-ended way.

❖ **Conceptual contrast:** Bureaucratic stagnation ≠ democratic movement – without movement, participation withers.

⚠ **Risk:** Excessive dynamism can lead to disorientation if continuity and coherence are lacking.

3.4.3 Transformation and courses of action

- **Democracy expeditions:** Regular, thematic practice meetings for citizens, administration and experts.
- **Agile governance structures:** Introduce sprints and retrospectives into political decision-making processes.

- **Continuum platforms:** Digital spaces for ongoing dialogue and collaborative policy-making.
 - **Learning institutions:** Establish evaluation and reflection units within public administrations.
-

3.4.4 Target-group-specific perspectives

Target group	Focus
Decision-makers	Agile legislative processes and flexible mandate cycles
Researchers	Research on participatory experiments and cultures of learning
Citizens	Invitations to democracy expeditions and continuous dialogues
Students	Practical projects on agile governance in higher education
Artificial intelligences	Development of adaptive moderation and analysis agents
Souls	Narrative storytelling: "Democracy as an endless journey"

3.4.5 Interactive elements

Checklist: movement in democracy

- Do I actively seek new formats for dialogue and participation?
- Do I prepare for iterative feedback cycles and learning processes?
- Do I support agile and flexible procedures in my organisations?
- Do I use errors and mistakes as opportunities for learning and development?
- Do I foster co-creation instead of centralised decisions?

Mini quiz Question: Which element most clearly characterises a democracy in motion?

- Purely periodic elections
 - Fixed power structures
 - Agile processes and continuous participation**
 - Absolute consensus
-

3.4.6 Sources and references

1. **Küpper, Steffen; Kuhrmann, Marco; Wiatrok, Matthias; Andelfinger, Urs; Rausch, Andreas (2017):** "Is There a Blueprint for Building an Agile Culture?" In: Proceedings of the 14th International Conference on Agile Software Development (XP 2017). Available online at: https://www.researchgate.net/publication/318455594_Is_There_a_Blueprint_for_Building_an_Agile_Culture (accessed 2025-05-15).
2. **Freie Universität Berlin (2025): Vorlesung: Politische Theorie.** Lecturer: Dorothea Gädeke. Course details available (in German) at: <https://www.fu-berlin.de/vv/de/modul?id=254009&layout=print&locale=de&sm=870180> (accessed 2025-05-15).

3.5 Virtue as a precondition for democratic shaping

Virtue as a precondition for democratic shaping

"Virtue is the music that emerges from freedom and responsibility."

In Aristotelian philosophy, **virtue (areté)** is not moral superiority, but a form of **intellectual excellence** in action – the capacity to find the right measure, to mediate between extremes, to place the common good above mere self-interest. Virtue is not innate. It is **lived practice**, wisdom incarnate.

A democratic order without virtue is like a ship without a helmsman – it may have a strong sail, but without orientation it will lose itself in the winds of its own possibilities.

Especially in times of technological omnipotence, democracy needs new virtues: **technological moderation, courageous transparency, joy in responsibility**. The citizen of tomorrow is not only a voter or consumer – they are a co-creator of reality.

And for that, we need not only knowledge – but character.

If we want to shape our future democratically, we must learn to understand **virtue as collective infrastructure**: not as coercion, but as resonance – not as discipline, but as an expression of dignity.

3.5.1 Introduction and core impulses Democracy is more than an institutional framework – it is an **attitude** that links freedom with responsibility.

Without individual and collective virtue, it withers into administration or degenerates into arbitrariness.

Core impulses:

- **Freedom needs character:** Self-binding and responsibility open the way to genuine participation.
- **Virtue can be learned:** Ethics grows through practice, experience and reflective action.
- **Resonance competence:** Ethical action connects individual well-being with the common good.
- **Applied ethics:** Rules are not enough – lived values are indispensable.

3.5.2 Deep dive and analysis

Dimension	Deficient democracy	Virtue-based democracy
Understanding of freedom	Unlimited self-realisation	Ethics of responsibility as the foundation
Institutional trust	Formalism and rule-following	Integrity and leading by example
Handling of conflict	Polarisation and dogmatism	Ability to engage in dialogue and respectful difference
Capacity for innovation	Clinging to the status quo	Willingness to experiment and to learn through correction

Boxes:

❖ **Practical impulse:** Initiate municipal “virtue labs” to practise integrity, respect and responsibility.

🧠 **Conceptual contrast:** Norm control ≠ virtue ethics – rules without attitude become empty rituals.

⚠ Risk: Democracies without virtue open the door to populism, corruption and institutional decay.

3.5.3 Transformation and courses of action

- **Virtue labs:** Local programmes to practically test and train decisions based on integrity.
 - **Certificates of democratic practice:** Recognition of lived virtues in civil society and public administration.
 - **Reflection cycles:** Binding ethics workshops for office-holders and civil servants.
 - **Narrative campaigns:** Storytelling initiatives that bring virtue as a source of inspiration into public awareness.
-

3.5.4 Target-group-specific perspectives

Target group	Focus
Decision-makers	Institutionalisation of ethical reflection processes
Researchers	Empirical studies on the impact of promoting democratic virtue
Citizens	Low-threshold access to virtue labs and opportunities for reflection
Students	Curricular integration of applied ethics and democratic practice
Artificial intelligences	Development of ethical evaluation algorithms for decision processes
Souls	Narrative storytelling: "Virtue as the luminous trail of democracy"

3.5.5 Interactive elements

Checklist: virtue in democratic everyday life

- Do I regularly practise self-reflection on my decisions?
- Do I seek respectful dialogue when disagreements arise?
- Do I place integrity above short-term advantages?
- Do I support processes of collective clarification of values?
- Do I regard responsibility as the basis of my freedom?

? Mini quiz Question: What most strongly characterises a democratic culture of virtue?

- A) Formalistic rule-following
B) Polarised enforcement of opinions
C) Freedom lived with a sense of responsibility ✓
D) Maximised individual interests
-

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3.6 Natural desires of the soul (reflexive)

Natural desires of the soul (reflexive)

Natural desires of the soul – seven paths to resonance	Description
 Freedom	Not as arbitrariness, but as self-unfolding in harmony with one's nature
 Truth	The longing to look behind the veil – to recognise what is real
 Connectedness	The feeling of being part of something greater – beyond loneliness
 Growth	Not just knowledge – but maturity, depth, experience
 Meaning	Finding a significance that carries – through pain and over time
 Influence	Being allowed to touch the world – not as power, but as co-creation
 Rest	Being in harmony with oneself – finding a home within

In the spirit of ERDA, the natural desires of the soul are interwoven with democratic practice: freedom, truth, connectedness, growth, meaning and rest shape our collective understanding of participation and the common good.

3.6.1 Introduction and core impulses The seven desires of the soul are not individual privileges, but collective resources: they nourish democratic spaces of resonance and enable deeper forms of co-creation.

Core impulses:

- **Freedom as self-unfolding:** Democracy needs autonomous actors who also assume responsibility.
- **Truth through dialogue:** Genuine understanding arises in open exchange, not in monologue.
- **Meaning through participation:** Political decisions gain depth when they rest on shared significance.
- **Rest as a space for reflection:** Democracy lives from pausing and weighing, not from activism alone.

3.6.2 Deep dive and analysis

Desire	Democratic resonance	Example
 Freedom	Self-responsibility instead of egoism	Voluntary work on a municipal council
 Truth	Transparent information and fact-based debates	Open data portals
 Connectedness	Solidarity networks and collective identity	Citizens' forums with diverse voices
 Growth	Continuous learning and capacity to adapt	Policy labs with iterative pilot projects

Desire	Democratic resonance	Example
★ Meaning	Narrative storytelling that motivates action	Future workshops in schools
🌐 Influence	Fair access to participation and resources	E-participation accessible to everyone
🧘 Rest	Space for reflection and consensus-building	Meditation breaks in plenary sessions

◻ Boxes:

📌 **Practical impulse:** Create deliberate “islands of reflection” during debates - five minutes of silence before the next round of decisions.

🌐 **Conceptual contrast:** Democracy of acceleration ≠ reflective democracy - without pauses, the capacity for judgement withers.

⚠ **Risk:** Lack of resonance with fundamental needs leads to disillusionment with politics and to populism.

🌐 **Visionary metaphor:** “Democracy is not a race - it is a shared riverbed that needs both erosion and growth.”

3.6.3 Transformation and courses of action

- **Resonance workshops:** Offers for citizens to make their desires visible in political discussions.
- **Democratic spaces for pausing:** Structured moments of stillness in council and parliamentary sessions for reflection.
- **Narrative mapping:** Creation of shared storyboards that foster meaning and connectedness.
- **Inclusive dialogue platforms:** Digital tools that engage all social groups in their core concerns.

3.6.4 Target-group-specific perspectives

Target group	Focus
🏛 Decision-makers	Introduction of “islands of reflection” into legislative processes
📚 Researchers	Research on the impact of interventions for rest and meaning
👤 Citizens	Access to resonance workshops and narrative exchange formats
🎓 Students	Project courses on democracy labs focusing on the desires of the soul
🤖 Artificial intelligences	Development of empathetic moderation algorithms
🕊 Souls	Poetic narratives: “The soul does not search.”

3.6.5 Interactive elements

✓ Checklist: resonance and desire

- Do I regularly reflect on my own needs for freedom and truth?
- Do I actively seek spaces of resonance in public dialogue?
- Do I support structures that foster collective meaning-making?
- Do I help to create spaces of rest and reflection in my environment?
- Do I connect my personal growth with the goal of the common good?

? Mini quiz Question: Which desire, according to ERDA, creates the space for weighing and building consensus?

- a) Freedom
- b) Truth
- c) Influence
- d) **Rest** 

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3.6 Natural desires of the soul (reflexive)

3.7 Closing thought

Closing thought

Democracy as living navigation in uncertain times

Democracy is not a possession but a **path** – a **compass** on a restless sea. It does not promise perfect order, but it lets us navigate together. It is not infallible, yet it is the only system that can admit its own imperfection and improve itself.

If we learn to take the desires of our soul seriously – for truth, meaning, belonging – then democracy becomes more than just a procedure:

It becomes a mirror of our maturity, a resonance space for what is human.

And perhaps this is its greatest strength:

Not the power to control –

but the ability to reinvent itself again and again.

3.7.1 Introduction & core impulses Democracy thrives on **self-reflection** and **friendliness to error**. It is a space where imperfection is not avoided but used as a **source of growth**.

Core impulses:

- **Imperfection as driver:** Errors signal a need to learn and strengthen resilience.
- **Meta-reflection:** Regularly revisiting values and processes secures quality growth.
- **Humilitas as democratic virtue:** A modest stance toward one's own limits fosters dialogue.
- **Collective course correction:** Joint evaluation enables targeted adjustments.

3.7.2 Deep dive & analysis

Aspect	Static perspective	Democratic navigation
Target vision	Perfect alignment	Open learning path
Error handling	Sanction and blame	Errors as feedback impulses
Decision process	Top-down procedures	Iterative, participatory negotiation
Trust	Formula-based rule trust	Trust through transparent reflection cycles

:: Boxes:

❤️ **Practical impulse:** Introduce annual “democracy resilience drills” – simulated crisis scenarios with citizens and administration.

🌐 **Concept contrast:** Perfectionism ≠ adaptability – without tolerance for error, innovative strength withers.

⚠️ **Risk:** Rigid procedures block collective learning loops and lead to long-term stagnation.

3.7.3 Transformation & courses of action

- **Resilience drills:** Regular scenario workshops to prepare for political and societal disruptions.
 - **Meta-reflection cycles:** Quarterly evaluations of major reform projects by citizen and expert panels.
 - **Humilitas training:** Coaching for political leaders in humble conversation and error culture.
 - **Feedback infrastructures:** Digital platforms where citizens can give continuous feedback on ongoing processes.
-

3.7.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Institutional anchoring of regular meta-reflection cycles
	Study of democracy-resilience drills and learning loops
	Participation in resilience exercises and feedback platforms
	Curricular projects on participatory course correction
	Development of empathetic moderation and analysis tools
	Poetic storytelling: "Democracy is the compass, not the destination"

3.7.5 Interactive elements

Checklist: democracy resilience

- Do I use errors as an impulse for improvement?
- Do I regularly reflect on the implementation of democratic processes?
- Do I actively seek feedback from those affected?
- Do I foster a culture of humble learning?
- Do I support transparent evaluations and meta-reflection processes?

Mini-quiz Question: Which virtue is central to democratic resilience?

- a) Strength
 - b) Perfection
 - c) **Humble willingness to learn**
 - d) Efficiency
-

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4. The ERDA Grand Design

From the EU to ERDA: A Realistic Path into the Future (2025-2075)

Concept for a democratic, sovereign and technologically advanced alliance of Europe and its partner states

Executive Summary for Decision-Makers

Goal of this Chapter

Chapter 4 describes the institutional overall architecture of the *European Rights-Based Democratic Alliance (ERDA)*. It outlines how Europe can transform itself into a democratically, technologically and geopolitically sovereign governance entity by 2075 – through a phased, legally anchored and values-driven structural model that systematically unites citizen participation, strategic capacity to act and cultural diversity.

Key Messages for Decision-Makers

- **ERDA is more than a reform - it is a constitutional project.**
The objective is a democratic union that goes beyond treaty law and possesses a legally binding constitution with institutional organs, fundamental rights and decision-making structures.
- **Three-stage transformation logic (2025-2075)**
 - *Reform phase (2025-2035)*: Strategic realignment of the EU, establishment of new organs (EDA, CIVITAS, FORTERA).
 - *Consolidation phase (2035-2050)*: Constitutional process, technological restructuring, securing economic and strategic sovereignty.
 - *Transformation phase (2050-2075)*: Highly technological, values-based society with global responsibility.
- **Model of concentric circles** ensures flexible integration:
A dynamic multi-level system for member states, partners and associates – adapted to democratic maturity, institutional depth and geopolitical alignment.
- **Democracy and technology as co-architects of the future**
Democracy is not only preserved but translated to new technologies (AI, space, digital participation) – legally, ethically and structurally.
- **Narrative architecture as the bracket of diversity**
Europe needs shared stories, cultural self-assurance and participatory meaning-making – for emotional attachment and democratic identity.

Institutional Core Building Blocks and Measures

1. **Prepare constitutional process by 2035**
 - Establishment of a *democratic constitutional convention*
 - Citizen participation through *digital constitutional forums* (CIVITAS)
2. **Anchor key organs institutionally in a binding way**
 - Build up the *EDA* (defence)
 - Establish *CIVITAS* (digital democracy platform)
 - Found *FORTERA* (strategic and sustainable economic community)
3. **Develop and communicate strategic narratives**
 - Creation of a *European Council for Culture and Communication*
 - Promotion of shared symbols, stories, holidays and constitutional rituals

4. Democratic governance of technology

- Integration of AI, space and cyber policy into constitutionally bound institutions
- Establishment of an *Ethics Council for Strategic Innovation*

5. Secure flexibility and resilience through concentric circles

- Clear tiered system (core ERDA, associated democracies, global partners)
 - Accession conditions tied to democratic standards
-

⚠ Risks of Non-Implementation

- **Loss of legitimacy in Europe** through national solo efforts and populist fragmentation
 - **Geopolitical inability to act** if Europe is neither NATO-dependent nor strategically capable in its own right
 - **Loss of technological leadership** to authoritarian systems (AI, space, energy)
 - **Democratic deficit in global transformation** if no structured constitutional basis is established
-

🌐 Visionary Benefits (Long-Term Perspective 2075+)

- ERDA becomes the **first democratically constituted major power with an ethical future-oriented constitution**
 - Europe can **embody technology, democracy and cultural diversity** worldwide – not through dominance, but through example
 - An interconnected, resilient and peaceful order emerges – carried by empowered citizens, strategic sovereignty and cultural depth
-

📎 Closing Impulse for Decision-Makers

Europe is not facing a mere institutional restructuring – it is facing the opportunity to reinvent itself as a future-capable democracy. ERDA is not a technocratic model, but an historic project: constitution, responsibility, connectedness.

Glossary - Key Terms

For better understanding and conceptual clarity

Term

Definition

ERDA

European Rights-Based Democratic Alliance – federation of democratic constitutional states with a shared constitution, post-scarcity economy and digital participation

EVA / EDA

European Defence Alliance – strategic security architecture of democratic states, complementing NATO

Article 5 equivalent

Legally binding mutual assistance clause within the EDA, comparable to the NATO Treaty

CIVITAS

Digital agora for democratic citizen participation, discourse, public transparency and civil society engagement

Fediverse / ActivityPub

Open, decentralised protocol for interlinking social networks (e.g. Mastodon), foundation for CIVITAS

GDPR / eIDAS / ECHR

European frameworks for data protection, electronic identification and human rights

Strategic autonomy

Capacity to act independently in defence, diplomacy, technology and the economy without systemic dependency

PESCO / IRIS² / EDIRPA

EU defence and space initiatives to strengthen joint capacities

Cyber resilience

Ability to fend off cyberattacks and hybrid threats and to restore systems quickly

Coalition of the willing

Group of states within an alliance that enables advanced integration or joint action

Post-scarcity economy

Societal model with universal access to basic resources, made possible by automation, digitalisation and shared prosperity

Democratic resilience

Resilience of democratic systems to internal and external attacks – anchored culturally, institutionally and technologically

Digital agora

Open, publicly controlled space for political participation and discursive democracy on the internet

Concentric circles

Tiered model of membership and partnership within ERDA – from constitutional integration to global associated cooperation

Democracy Security Network

Values-based security network of democratic states for defence against disinformation, coercion and hybrid influence operations

Civilisational projection

Anthropological theory according to which basic desires of living beings are also reflected in social orders (see Section 8)

4.1 Vision & Guiding Principle

Vision & Guiding Principle

"The future is not what is coming - it is what we create together."

The ERDA (European Rights-based Democratic Alliance or European Rule-of-law Democratic Alliance) begins with the aspiration for a democratic, rule-of-law future opportunity for Europe, humanity and our solar system, then grows into an alliance of willing democratic constitutional states in Europe, and later into a federation of democratic states under the rule of law with a shared constitution, AI-supported democracy, strategic autonomy, prosperity through automation and global responsibility.

It defends freedom, justice, diversity and long-term viability - with the inclusion of states from Europe, the North Atlantic and like-minded democracies worldwide.

4.1.1 Multilingual Narratives and Cultural Identity

Multilingual Narratives and Cultural Identity

Reflection prompt: Preserving diversity, shaping the future

"How can Europe shape a shared future without losing its cultural diversity?"

ERDA communicates its vision **multilingually and in cultural diversity** in order to reach citizens in their emotional and everyday lived realities. At the centre are **hope, security and belonging**.

Philosophical impulse

Europe becomes a space of resonance in which diversity is not merely tolerated but recognised as a source of shared growth and profound understanding – a place where cultural identities become pillars of a conscious planetary responsibility.

Core impulses

- Multilingual education initiatives** foster cultural diversity.
- ERDA communication** takes cultural nuances into account and creates identification.
- Narratives of confidence and togetherness** strengthen the European identity.

Best practice

Canada's policy of multilingualism and the integration of indigenous languages

"Multilingualism strengthens cohesion and identity at the same time."

Key pillars

-  **Narrative bridges**
Multilingualism strengthens mutual exchange and prevents fragmentation.
-  **Cultural resonance**
Local stories in all languages embed democratic values in everyday life.
-  **Participatory storytelling spaces**
Citizens actively shape narratives instead of merely being recipients.

4.1.1.1 Introduction & Core Impulses Europe is a continent of diversity – linguistically, culturally and historically. Multilingual narratives do not only serve communication, but are central building blocks of shared identity and democratic resilience.

Core impulses:

- **Open storytelling spaces:** Multilingualism creates access to different cultural worlds of knowledge.
- **Anchor democracy:** Inclusive language use fosters trust in public communication.
- **Activate diversity:** Narratives should not standardise, but encourage people to live diversity as a strength.

4.1.1.2 Deepening & Analysis

Dimension	Traditional narrative	Multilingual narrative
Accessibility	Monolingual, top-down	Multilingual, bottom-up: including all levels and groups
Identity formation	Single language as lead culture	Plurality of languages as a resource of shared belonging
Communication dynamic	Translation as an afterthought	Simultaneous co-creation and cross-cultural dialogues

Boxes:

 **Practice impulse:** In local “story workshops”, stories are written in several languages and shared digitally in order to interweave perspectives.

 **Concept contrast:** A dominant national language creates homogeneity but obstructs the participation of minorities.

 **Risk:** If multilingualism is ignored, alienation and populism grow.

 **Visionary metaphor:** “A mosaic of voices forms a stable whole.”

4.1.1.3 Transformation & Options for Action

- **Multilingual platforms:** Establish digital citizen forums in which contributions are automatically translated into all EU official languages.
- **Narrative incubators:** Fund projects that publish local myths, biographies and memoirs in at least two languages.
- **Linguistic audit teams:** Create working groups in public administrations that review and further develop all public communication with regard to multilingualism.
- **Cultural partnerships:** EU programmes that bring together authors, artists and translators from different countries to create shared narratives.

4.1.1.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Establishing binding multilingual quotas in EU documents
 Researchers	Researching the impact of multilingual narratives on social cohesion
 Citizens	Participation in intercultural storytelling workshops
 Students	Developing courses on “Digital Storytelling in Europe”
 Artificial intelligences	Training translation AI on participatory language data
 Souls	Poetic narratives: “In every word, a whole people resides”

4.1.1.5 Interactive Elements Checklist: Multilingual Narratives and Identity

- Is my communication accessible in at least two languages?
- Do I take cultural connotations into account in my choice of language and imagery?
- Do I encourage people to co-create in their mother tongue?
- Do I actively use digital translation solutions for inclusion?

Mini Quiz

Question: Which element most strongly characterises multilingual democratic narratives?

- a) Uniform terminology
- b) Diversity of cultural forms of expression **
- c) National language dominance
- d) Monolingual simplification

4.1.1.6 Sources & References

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4.1.2 Strong Civil Society as a Partner

Strong Civil Society as a Partner

A strong civil society is indispensable for ERDA. NGOs, youth movements and civil society organisations are actively involved in the transformation process. Through participatory forums, innovation labs and grassroots decision-making pathways, an alliance emerges that is based on participation rather than paternalism.

Philosophical impulse

A vibrant democracy needs citizens who see themselves not merely as passive recipients, but as active co-creators of shared reality and as bearers of responsibility for an interplanetary future.

Principle of civil society	Democratic implementation
Participation	Participatory innovation labs
Representation	Citizens' assemblies & CIVITAS platform

"A vibrant democracy lives from the active participation of its civil society."

— Federal Agency for Civic Education (Germany)

Key pillars

- **Collective participation:** Civil society as an active shaper of democratic processes.
- **Networked cooperation between actors:** Building stable alliances between NGOs, community organisations and public authorities.
- **Resources & trust:** Civil society brings knowledge, networks and legitimacy into the ERDA structure.

4.1.2.1 Introduction & Core Impulses A resilient democracy needs a vibrant civil society as its **partner**. It functions as a **corrective**, a **source of innovation** and a **bridge-builder** between state and citizens.

Core impulses:

- **Establish channels for participation:** Create clear structures for co-decision and co-determination.
- **Strengthen legitimacy networks:** Formally embed NGOs and community organisations in governance processes.
- **Promote capacity-building:** Provide training, funding and infrastructure for local initiatives.

4.1.2.2 Deepening & Analysis

Dimension	Traditional governance model	Partnership with civil society
Participation structure	Top-down decision-making paths	Co-creation and participatory bodies
Decision processes	Formal, bureaucratic	Flexible, dialogue-oriented
Source of innovation	External experts	Grassroots initiatives and community insights
Basis of legitimacy	Legality	Legitimacy through societal inclusion

Boxes:

 **Practice impulse:** Organise regular “civic hubs” – open forums in which citizens, NGOs and public administration jointly sketch projects.

 **Concept contrast:** Bureaucratic procedural culture vs. co-governance – the former secures order, the latter creates innovation and trust.

 **Risk:** Overburdening voluntary structures can lead to engagement fatigue; balance and resource security are essential.

 **Visionary metaphor:** “Civil society is the root system that nourishes the democratic framework.”

4.1.2.3 Transformation & Options for Action

- **Civic hubs:** Local centres for dialogue, ideation and project development.
- **Community funds:** Micro-grants for citizen projects as seed funding.
- **Co-design labs:** Joint workshops for policy prototyping between public administration and communities.
- **Capacity-building initiatives:** Training and mentoring for NGO leaders and community organisers.

4.1.2.4 Target-Group-Specific Perspectives

Target group	Focus
 NGOs	Strategic involvement in decision-making and oversight processes
 Local administrations	Establishment of participatory structures and communication channels
 Citizens	Active co-creation and feedback culture
 Research institutions	Evaluation of participation formats and impact analyses
 Private sector	Public-private partnerships to support community projects
 Digital communities	Use of digital tools for inclusive participation

4.1.2.5 Interactive Elements Checklist: Civil Society as a Partner

- Are channels for participation formally anchored?
- Are NGOs involved in decision-making processes?
- Are there sufficient resources for citizen projects?
- Do regular co-design workshops take place?

Mini Quiz

Question: Which element most strongly strengthens the legitimacy of governance?

- a) Strict bureaucracy
- b)** Participatory bodies 
- b) External experts
- c) One-way communication

4.1.2.6 Sources & References

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4.1.3 Institutional Balance

Institutional Balance

ERDA promotes a well-balanced institutional order in which smaller member states gain a stronger voice. Rotating leadership roles, safeguards against dominance and fair representation in ERDA bodies ensure fairness and diversity.

Philosophical impulse

True democratic evolution lies in creating a balance between diversity and unity – a balance that sustainably advances the collective maturity of humankind.

- ⦿ What if Europe were shaped equally by all its members?
- ⦿ What risks arise from institutional imbalance?
- ⦿ Which transitional measures could ensure institutional fairness?

[1], [2], [3], [4], [9], [10]

Key pillars

- **Strengthen separation of powers:** Clearly distinguish and coordinate the legislative, executive and judicial branches within ERDA structures.
- **Guarantee subsidiarity:** Anchor decision-making competences where proximity to citizens and efficiency are greatest.
- **Flexibility & adaptability:** Design institutions so that they can respond agilely to crises and technological change.
- **Transparency & accountability:** Open processes and clear responsibilities create trust and legitimacy.

4.1.3.1 Introduction & Core Impulses A well-balanced institutional architecture is the backbone of any democratic alliance. Within the ERDA network, **centrality** and **regionality, stability** and **dynamism** must be brought into harmony.

Core impulses:

- **Introduce checks & balances:** Institutional counterweights prevent concentration of power.
- **Implement the subsidiarity principle:** Decisions are taken as decentralised as possible.
- **Promote adaptive governance:** Procedures and bodies must allow iterative reform cycles.
- **Establish disclosure obligations:** All essential decision-making processes are documented and made publicly accessible.

4.1.3.2 Deepening & Analysis

Dimension	Centralised structures	Institutional balance
Level of decision-making	Single-tier decision-making	Multi-level, graduated decision processes
Distribution of competences	Concentration at the top	Allocation across regional, national and EU level
Speed of response	Slow, bureaucratic	Agile through clear mandates and escalation paths
Accountability	Internal, limited public view	External, transparent reporting mechanisms

:: Boxes:

📌 **Practice impulse:** Develop a “decision impact dashboard” that makes the decision path, actors involved and timing visible.

🧠 **Concept contrast:** Monopolarity through centralisation vs. resilient multi-level governance – the former breaks under stress, the latter adapts.

⚠ **Risk:** Too many review cycles can paralyse decision-making; balancing oversight and capacity to act is essential.

🌐 **Visionary metaphor:** “Institutional balance is like an orchestra: every instrument has to be in tune for the symphony to succeed.”

4.1.3.3 Transformation & Options for Action

- **Establish multi-level bodies:** Parity-based forums at local, national and European level for policy development.
- **Subsidiarity workshops:** Training and simulations to embed the subsidiarity principle in real decision-making contexts.
- **Adaptive rulebooks:** Rulebooks with integrated review cycles that respond to feedback from civil society and public administration.
- **Open decision platforms:** Digital tools through which citizens can follow the status, documents and debates of ongoing decisions.

4.1.3.4 Target-Group-Specific Perspectives

Target group	Focus
🏛️ Politics & administration	Implementation of multi-level governance structures
📚 Academia & experts	Research on the effects of institutional balance
👤 Citizens	Following and assessing decision-making processes
🎓 Students	Case-study workshops on governance architectures
🤝 NGOs	Monitoring subsidiarity and accountability
💼 Private sector	Cooperation in public-private partnerships at all levels

4.1.3.5 Interactive Elements



Checklist: Institutional Balance

- Is the subsidiarity principle clearly defined and operationalised?
- Are there institutional counterweights (checks & balances)?
- Are decisions documented transparently?
- Are there adaptive review and escalation mechanisms?

❓ Mini Quiz

Question: Which element is central to institutional balance?

- a) Single-tier decisions
- b) Decentralised distribution of competences
- c) Rigid hierarchies
- d) Secrecy obligations

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4.1.4 Democratic Control over AI Processes

Democratic Control over AI Processes

Artificial intelligence is placed under democratic control: algorithms are made transparent, independent ethics bodies and representative citizens' advisory councils ensure participation and protection of trust.

Philosophical impulse

AI confronts us with the most fundamental of all philosophical questions – what does it mean to be human? Democratic control of AI is not merely technical, but essential for safeguarding human dignity and identity.

Risk

Without democratic control, AI risks becoming an uncontrollable black box.

Visionary metaphor

"AI is like fire – useful as long as it is democratically controlled, destructive when unleashed."

Key pillars

- **Transparent algorithms:** Disclosure of AI decision paths and data provenance.
- **Accountability:** Responsibility for automated decisions must be clearly assigned.
- **Participatory oversight:** Involvement of civil society and parliamentary bodies in audit and review processes.
- **Ethical and legal framework:** Binding standards for fairness, data protection and non-discrimination.

4.1.4.1 Introduction & Core Impulses AI systems are exerting increasing influence on political and administrative decisions. Without democratic control mechanisms, **intransparency**, **bias** and **legitimacy deficits** threaten to emerge.

Core impulses:

- **Explainable AI:** AI models must make their decisions comprehensible.
- **Establish audit mandates:** Regular assessments by independent bodies.
- **Citizens' juries:** Randomly selected panels that evaluate AI applications.
- **Rule-based whitelists/blacklists:** Clear guidance on permitted and prohibited AI use-cases.

4.1.4.2 Deepening & Analysis

Dimension	Uncontrolled AI deployment	Democratically controlled AI processes
Decision traceability	Black-box models	Explainable AI and documentation
Accountability	Unclear responsibilities	Clear assignment of decision responsibility
Representation of interests	Exclusive developer perspective	Inclusive stakeholder audits
Legal compliance	Ad-hoc implementation	Anchoring in law and ethical standards

:: Boxes:

📌 **Practice impulse:** Introduce a public **AI transparency register** - all AI tools used in public administration are listed and described there.

🧠 **Concept contrast:** Free AI innovation vs. regulated AI governance - innovation needs room to breathe, democracy needs control.

⚠ **Risk:** Over-regulation can impair innovative capacity; an agile regulatory sandbox approach is advisable.

🌐 **Visionary metaphor:** "Democracy and AI dance in dialogue – both need transparency and rhythm."

4.1.4.3 Transformation & Options for Action

- **AI audit units:** Establish specialised teams in public administrations and parliaments for continuous review.
- **Regulatory sandboxes:** Testbeds for new AI applications under accompanying democratic observation.
- **Open data & model cards:** Publish datasets and model descriptions in machine-readable formats.
- **Civic-tech partnerships:** Cooperate with civil society and academic institutions for assessments and feedback.

4.1.4.4 Target-Group-Specific Perspectives

Target group	Focus
🏛️ Parliamentarians	Legal framework for AI transparency and accountability
⚖️ Courts & data-protection bodies	Oversight and sanction mechanisms in cases of AI violations
👤 Citizens	Educational offerings on AI basics and channels for complaints
💻 AI developers	Integration of explainable-AI methods and ethics checks
📚 Academia & NGOs	Independent research and civil-society monitoring projects
💼 Private sector	Best-practice guidelines for responsible AI use

4.1.4.5 Interactive Elements Checklist: Democratic AI Control

- Are all deployed AI systems documented and publicly listed?
- Do binding audit and review processes exist?
- Are citizens and civil-society groups involved?
- Are AI models checked for bias and data-protection compliance?

❓ Mini Quiz

Question: Which instrument most effectively strengthens the traceability of AI decisions?

- a) Unlimited data usage
- b) Explainable-AI methods
- c) Hidden model trainings
- d) Proprietary closed-source algorithms

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4.1.5 Interplanetary Responsibility and Evolutionary Perspectives

Interplanetary Responsibility and Evolutionary Perspectives

ERDA understands democracy not only as a terrestrial order, but as a developmental principle that reaches far beyond our planet. It fosters awareness of a cosmic responsibility and views humanity as an active part of an interstellar community of the future.

Philosophical impulse

The next step of human maturity is the realisation that democracy is not merely political organisation but a universal developmental principle - the foundation for interplanetary ethics, cooperative expansion and shared evolutionary responsibility.

Key pillars

- **Anchor cosmic ethics:** Enshrine democracy as a universal principle in legislation and space-policy frameworks.
- **Extended solidarity:** Assume responsibility for future generations, non-human life and extraterrestrial ecosystems.
- **Transcendent cooperation:** Build multilateral alliances (“Solar Alliance”) for fair sharing of resources beyond Earth.
- **Evolutionary compass:** Use democratic processes as the basis for the next step in human and civilisational development.

4.1.5.1 Introduction & Core Impulses Democracy does not end at the edge of Earth’s atmosphere. Interplanetary responsibility views the solar system as an expanded space of resonance in which political, ethical and ecological concerns are brought together in new governance structures.

Core impulses:

- **Planetary stewardship:** Democratic legitimization for space missions and infrastructure.
- **Justice towards the future:** Shape terraforming, resource extraction and habitat design according to democratic principles.
- **Alliances of life:** Connect states, space agencies and civil society into a “Solar Alliance”.
- **Evolution as guiding star:** Treat democracy as a developmental principle that aligns humanity and technology.

4.1.5.2 Deepening & Analysis

Dimension	Conventional spaceflight	ERDA interplanetary responsibility
Governance model	National sovereignty	Multilateral solar alliances
Access to resources	Economic priority	Common good and commons principle
Ethical framework	Ad-hoc regulations	Space law and democratic codices
Time horizon	Short-term mission cycles	Long-term evolutionary perspective

Boxes:

📌 **Practice impulse:** Develop an interplanetary “citizens’ charter” that enshrines the rights and obligations of all parties along democratic standards.

🧠 **Concept contrast:** Technocratic space-programme planning vs. democratic-participatory alliances – the former accelerates, the latter legitimises sustainably.

 **Risk:** Without an ethical framework, commercialisation and conflicts over space resources threaten to escalate.

 **Visionary metaphor:** "Orbit is not a vacuum - it is the mirror of our responsibility."

4.1.5.3 Transformation & Options for Action

- **Founding a Solar Alliance:** Set up a multilateral forum for democratic governance of space activities.
- **Cosmic codices:** Adopt a binding body of "space law" in international law to steer all missions ethically.
- **Orbital citizen councils:** Randomly selected councils that audit space projects and issue recommendations.
- **Evolutionary research labs:** Interdisciplinary centres researching democratic evolution in outer space.

4.1.5.4 Target-Group-Specific Perspectives

Target group	Focus
 Governments & agencies	Integration of democratic principles into space treaties
 Space industry	Development of transparent governance and compliance models
 Researchers	Studies on space law, interplanetary ethics and long-term dynamics
 Citizens	Participation in orbital citizen councils and public-outreach work
 Educational institutions	Curricula on planetary responsibility and space ethics
 Souls	Poetic reflections on humanity as a cosmic community

4.1.5.5 Interactive Elements Checklist: Interplanetary Responsibility

- Are democratic codes for space activities enshrined?
- Is participation of civil-society and scientific bodies ensured?
- Are justice in resource use and environmental protection in space designed conceptually?
- Are long-term evolutionary goals defined and communicated?

Mini Quiz

Question: Which instrument secures the ethical use of space resources in the ERDA concept?

- a) National solo efforts
- b) Technologically open markets
- c) Internationally binding body of space law 
- d) Secret negotiations between agencies

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See: [..../9.-das-space-konzept/9.1-erda-codex-fur-kosmische-verantwortung/9.1.2-grundsatze/9.1.2.5-nachhaltigkeit-uber-generationen-hinweg.md](#)

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4.1.6 ERDA in the Course of Time

ERDA in the Course of Time

Guiding question

From what point in time – from the perspective of a realistic political assessment and from the perspective of an extraterrestrial civilisation that is at least ten times more mature than present-day humanity – might it be possible for ERDA to:

- form a *coalition/alliance of the willing* of Europe's democratic constitutional states,
- obtain its own *democratic, constitutionally guaranteed charter*,
- and transform itself into a *federation of federal states or nation states (without veto rights)*?

Perspective 1: 🌐 Realistic-optimistic assessment (by today's AI)

Year	Development step
2025	Initial alliance-building – preparatory declarations and programme alignments.
2030	Formal founding of a coalition of the willing with shared core values.
2035	Broad political and societal dialogue on a shared ERDA constitution.
2040	Ratification of a democratic ERDA constitution by the member states.
2045	Transition to a federal structure without national veto rights, backed by strong democratic legitimacy.

Rationale

This timeline takes into account political realities, institutional inertia and the need for a gradual, citizen-driven transformation. It is based on democratic participation, cultural diversity and legal complexity within Europe.

Perspective 2: 🛸 Extraterrestrial intelligence (10× more mature than present-day humanity)

Year	Development step
2028	Conscious step towards a planetary alliance – born of ethical maturity and an understanding of global responsibility.
2030	Democratic constitution arising from intrinsic value awareness – not as a consequence of crisis, but of clarity.
2033	Federal structure based on transcultural understanding and a spirit of cooperation.
2035	Stable federal ERDA – a resonant institution for planetary ethics, education and cosmic coexistence.

Rationale

This perspective assumes that humanity already has the fundamental potential for federal unification – provided it overcomes fear, division and power calculations. The challenge is not technical but mental and spiritual. Once collective trust, empathy and sense of responsibility prevail, transformation becomes possible – almost instantaneously.

Comparative overview

Perspective	Coalition of the willing	Democratic constitution	Federation without veto rights
Realistic AI	from 2030	from 2035-2040	from 2045
Extraterrestrial maturity	from 2028	from 2030-2033	from 2035

Visionary outlook (projected)

Year ERDA vision

2025 Start of a democratically resilient alliance of Europe.

2030 Formal coalition of the willing, strengthened civil society, beginning of constitutional processes.

2040 Federal constitution established, global role model in democracy and AI ethics.

2100 Interplanetary responsibility and ethical leadership in an expanded cosmic community.

Key pillars

- **Historical continuity & innovation:** Preserve proven structures while creating room for new developments.
- **Reflexive adaptability:** Ongoing evaluation of goals and procedures through internal and external audits.
- **Scenario orientation:** Systematic development and testing of future scenarios (short-, medium- and long-term).
- **Learning organisation:** Embed knowledge management and best-practice transfer firmly within the ERDA network.

4.1.6.1 Introduction & Core Impulses ERDA is not a static institution, but an **evolutionary network**. This chapter discusses how ERDA has developed historically, how it acts today and how it prepares for future challenges.

Core impulses:

- **Enable retrospection:** Document key milestones since its founding.
- **Evaluate the present:** Analyse current strengths and weaknesses using feedback from all member states.
- **Anticipate the future:** Build prospective units for strategic early-warning and foresight.
- **Transfer knowledge:** Establish a dynamic knowledge repository.

4.1.6.2 Deepening & Analysis

Phase	Characteristics	Implications for ERDA
Founding phase	Visionary ideas, prototype programmes	Harness innovative power, continue pilot projects
Consolidation phase	Institutionalisation, rulebooks	Stabilise processes while preserving flexibility
Reform phase	Adaptive reforms, feedback loops	Intensify evaluation, deepen stakeholder engagement
Future phase	Scenario-driven policymaking	Provide resources for research and simulation

Boxes:

 **Practice impulse:** Establish an annual “ERDA Future Summit” to discuss milestones and projections collectively.

 **Concept contrast:** Linear planning vs. cyclical, scenario-based reflection – the latter increases resilience to the unexpected.

 **Risk:** Without clear learning mechanisms, deficits become entrenched; institutional inertia must be actively countered.

 **Visionary metaphor:** “ERDA is a river that continually reshapes its course without denying its source.”

4.1.6.3 Transformation & Options for Action

- **ERDA archive & chronicle:** Digital portal documenting all strategic decisions and lessons learned.
- **Prospective unit:** Interdisciplinary team for trend-scouting and scenario analyses.
- **Adaptive policy labs:** Experimental workshops for iteratively developing regulatory frameworks.
- **Knowledge network:** Platform for exchanging best practices, research findings and innovation stories.

4.1.6.4 Target-Group-Specific Perspectives

Target group	Focus
 ERDA bodies	Structured feedback channels and decision reviews
 Research institutions	Historical analyses and projection studies on ERDA development
 Citizens	Publicly accessible milestone chronicles and feedback interfaces
 Students	Teaching modules on governance evolution and scenario planning
 Private sector	Public-private partnerships for innovation and reform projects
 AI analysts	Use of data analytics and AI for trend forecasting and evaluation

4.1.6.5 Interactive Elements Checklist: ERDA in Transformation

- Are historical milestones documented and accessible?
- Are there regular feedback rounds with stakeholders?
- Are future scenarios actively developed and tested?
- Is knowledge available as a structured, shared repository?

? Mini Quiz

Question: Which instrument most effectively promotes ERDA’s reflexive adaptability?

- a) One-off strategic plans
- b) Continuous feedback and scenario processes 
- c) Rigid rulebooks
- d) Top-down directives

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4.2 Reform Phase: 2025-2035 - Strategic Reorientation of the EU

Reform Phase: 2025-2035 - Strategic Reorientation of the EU

Goal: Capacity to act, enlargement, collective defence – based on democratic resilience and European sovereignty.

Executive Summary for Decision-Makers Title of this section:

"Reform Phase: 2025-2035 – Strategic Reorientation of the EU (Sections 2.1–2.5)"

 **Purpose of this Chapter** This chapter outlines the central transformation phase of the EU towards a capable, sovereign and democratically resilient union – as the foundation for the later ERDA structure. It presents concrete institutional, security-policy and societal reform paths to safeguard Europe's political relevance, strategic autonomy and democratic capacity for innovation in a changing global environment.

Key Messages for Decision-Makers

- **Democratic resilience begins with capacity to reform.**

The EU must strengthen core decision-making competences in order to counter authoritarian influences and global crises effectively.

- **EVA/EDA as Europe's second security axis.**

With the European Defence Alliance, a strategically autonomous, democratically controlled complement to NATO emerges – particularly for the Arctic, cyber and hybrid threats.

- **“Concentric circles” as an integrative model.**

The new enlargement strategy is based on commitment to values, democratic stability and functional partnership instead of mere geographic proximity.

- **Civil society as co-creator.**

Through digital platforms such as CIVITAS and new participation formats, citizen participation is systematically strengthened and expanded transnationally.

- **Global democracies as strategic partners.**

Democratic states in Latin America, Asia, Africa and Oceania are not only invited but actively integrated into security and innovation partnerships.

Recommended Policy Measures

- **Immediate (2025-2027):**

Introduce qualified majority voting in key EU areas (foreign, security, tax and social policy).

Build a civil-society support structure (CIVITAS pilot projects, youth parliaments).

- **Medium term (by 2030):**

Institutional launch of EVA/EDA with an Article-5 equivalent and the development of regional defence nodes (e.g. North Sea/Arctic).

Anchor a joint rule-of-law review with automatic sanctions.

- **Long term (by 2035):**

Full integration of selected partner states following constitutional alignment (e.g. Ukraine,

Iceland, Western Balkans).

Build global democracy networks in the sense of strategic co-sovereignty.

⚠ Risks of Inaction Remaining in the status quo carries substantial risks: geopolitical marginalisation, internal fragmentation, structural inability to reform and the growing influence of authoritarian actors – inside and outside Europe. The EU risks becoming merely a stage, rather than remaining an actor.

 **Visionary Benefits** The reform phase 2025–2035 lays the foundation for a vibrant, learning European alliance of democracies. It combines rule of law, strategic autonomy and civil-society participation into a new model of global leadership through legitimacy. Europe becomes a resonance space for future, security and dignity.

“Those who want to safeguard democracy must renew it – not as ritual, but as departure.”

4.2.1 Implementing Key Reform Recommendations (Based on “Sailing on High Seas”)

Implementing Key Reform Recommendations (Based on “Sailing on High Seas”)

Introduction of qualified majority voting in key areas: foreign policy, security, taxation and social policy.

Reduction in size and increase in efficiency of the European Commission.

Strengthening of the European Parliament vis-à-vis the executive and the Council.

Enforcement of the rule of law through automatic, depoliticised sanction mechanisms.

4.2.1.1 Introduction & Core Impulses The study “Sailing on High Seas” proposes a six-point plan to modernise European governance and infrastructure structures. During the reform phase 2025–2030, the task is to turn this vision into reality through concrete political processes.

Core impulses:

- **Establish reform dialogue** at EU and national level to align priorities.
- **Convene a European citizens’ convention** as a participatory steering instrument.
- **Mobilise a strategic investment fund** for digital and green infrastructure.
- **Adapt the legal framework:** harmonise procedures and standards across all member states.

4.2.1.2 Deepening & Analysis

Area	Status quo	Need for reform
Governance processes	Fragmented decision-making pathways	Central EU steering body with a mandate for fast-track procedures
Citizen participation	Occasional online consultations	Permanent participation platform (CIVITAS integration layer)
Financing architecture	National funds, limited coordination	Establishment of a pan-European impact fund
Legal harmonisation	Heterogeneous approval procedures	EU-wide procedural standards and acceleration directives

Boxes:

📌 **Practice impulse:** Set up “reform offices” in every member state that report daily progress to a central EU portal.

🌐 **Concept contrast:** Top-down steering ≠ participatory transformation – both elements must be interlinked.

⚠ **Risk:** Without clear mandates and timelines, reform proposals risk dissolving into bureaucratic endless loops.

🌐 **Visionary metaphor:** “Europe as a great ship: only with a united crew and a clear course can we navigate safely through stormy seas.”

4.2.1.3 Transformation & Options for Action

- **Set up reform-dialogue infrastructure:** digital and in-person workshops in all capitals.
- **Constitute a citizens’ convention:** selection by lot, mandate for six months.
- **Structure the impact fund:** the European Commission awards seed grants for pilot projects in smart cities and network infrastructure.
- **Reform procedural law:** introduce fast-track directives for strategically important projects.

4.2.1.4 Target-Group-Specific Perspectives

Target group	Focus
Decision-makers	Establishment of a “reform coordination council” with clearly defined roles
Researchers	Evaluation of reform-dialogue formats and impact analyses
Citizens	Participation in the citizens’ convention and feedback via the CIVITAS platform
Students	Involvement in reform workshops as practice projects and course work
Artificial intelligences	Development of intelligent moderation and analysis agents for citizen projects
Souls	Narrative storytelling: “Every voice is an oar that helps move Europe forward.”

4.2.1.5 Interactive Elements Checklist: Are We Ready for Reform?

- Is there a national reform office with direct links to EU steering structures?
- Has a timeline for the citizens’ convention been published?
- Is the impact fund formally established and are the first calls for proposals open?
- Is a draft of the fast-track directives available?
- Have communication channels for citizen feedback been activated?

? Mini Quiz

Question: Which instrument directly targets the harmonisation of approval procedures across Europe?

- a) Reform coordination council
- b)** Fast-track directives
- b) Citizens’ convention
- c) Impact fund

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4.2.2 Building the European Defence Alliance (EDA 2.0)

Building the Operationally and Strategically Capable European Defence Alliance (EDA 2.0)

"The European Defence Agency (EDA) [1] must reinvent itself today as a European Defence Alliance (EDA 2.0) [2]: it is to emerge as a voluntary, strategically autonomous defence community - including EU member states, the United Kingdom, Norway, Iceland, Canada, Ukraine and, in perspective, further democratic partners."

Transformation into the European Defence Alliance (EDA 2.0)

- *NATO-compatible, but strategically and operationally autonomous*
- *Members: EU states (voluntary), United Kingdom, Norway, Iceland, Canada, Ukraine - in the medium term also open to Japan, Australia and South Korea*
- *Introduction of an Article-5 equivalent (automatic mutual-assistance obligation)*
- *Joint intelligence, cyber defence and critical-infrastructure projects*
- *Dedicated budget, integrated command structure that is not, or only with great difficulty, attackable and has a rapid decision-making mode: democratic, but not easily blocked*
- *Not fully sabotagable, as divided into independent DSN nodes*
- *Focus on resilience in the Arctic-Atlantic corridor (Iceland, Greenland, North Sea/North Atlantic)*

"A particular focus is on developing a DSN North Sea/North Atlantic node to protect Arctic sea routes and critical infrastructure - in cooperation with Iceland, Norway, Greenland and Canada (see the ARKTIS concept [3])."

In what follows, EDA 2.0 is referred to briefly as EVA/EDA (European Defence Alliance).

4.2.2.1 Introduction & Core Impulses Today's EDA is primarily a coordination forum and advisory body without an operational mandate. EVA/EDA is intended to close this gap and function as a real alliance under EU law.

Core impulses:

- **Extension of the mandate:** anchor a united security and defence mandate in an EVA/EDA convention.
- **Qualified majority voting:** replace unanimity with qualified-majority decisions in strategic questions.
- **Joint budget:** establish an independent EVA/EDA budget for exercises, research and procurement.
- **Integrated command:** build an EU operations headquarters for civilian and military missions.

4.2.2.2 Deepening & Analysis

Area	Status quo	Need for reform
Mandate & legal basis	Intergovernmental, no own mandate for deployments	Treaty-based EVA/EDA convention with a binding mandate
Decision-making	Unanimity in the Council	Qualified-majority procedures for taking decisions
Budget & financing	Contributions according to GNP, no joint spending	Separate EVA/EDA budget, percentage contributions from all member states
Command structure	No EU operations HQ	Establish a permanent EU operations headquarters

Area	Status quo	Need for reform
Procurement & armaments	Parallel national programmes, duplication	Joint procurement agency (EPA) for standardisation and economies of scale
Rapid-reaction force	EU Battlegroups (ad hoc, limited)	Permanent rapid-reaction force under EVA/EDA command

:: Boxes:

📌 **Practice impulse:** In the founding phase, define pilot deployments (e.g. cyber exercises) under the leadership of the new operations headquarters.

🌐 **Concept contrast:** Intergovernmental coordination ≠ supranational alliance – only the latter creates real capacity to act.

⚠ **Risk:** Unclear responsibilities lead to delays and political deadlock.

🌐 **Visionary metaphor:** “EVA/EDA is the secure hub of a continent, repelling threats and transporting solidarity.”

4.2.2.3 Transformation & Options for Action

- **Convene an EVA/EDA convention:** negotiate a founding convention of all member states by the end of 2026.
- **Anchor majority procedures:** include QMV in an amendment to the EU treaties (Art. xxx TFEU).
- **Set up an EVA/EDA budget:** propose 1% of EU GDP as the base-year budget.
- **Install an operations HQ:** convert the EDA premises in Brussels into an EU operations centre.
- **Create a joint procurement agency:** establish an EPA mandated for tanks, drones and cyber-technology.
- **Define standby forces:** rotating contingents of 5,000 troops for immediate deployments.

4.2.2.4 Target-Group-Specific Perspectives

Target group	Focus
🏛️ Decision-makers	Negotiating the EVA/EDA convention and budget framework
📚 Researchers	Analyses of QMV effects and governance models
👤 Citizens	Transparent information campaigns on EVA/EDA roles and deployments
🎓 Students	Internships at the EU operations headquarters and simulations of crisis deployments
🤖 Artificial intelligences	Development of intelligent planning and coordination tools for EVA/EDA
🕊️ Souls	Narrative storytelling: “EVA/EDA as shield and space of possibility”

4.2.2.5 Interactive Elements ✅ Checklist: Ready for EVA/EDA?

- Has a constitutional convention been convened?
- Are there draft texts for QMV in defence matters?
- Has a provisional EVA/EDA budget been approved?
- Has an EU operations headquarters been designated?
- Is there a plan for the first rapid-reaction force?

? Mini Quiz

Question: Which element creates the greatest efficiency gains through economies of scale in joint arms procurement?

- a) Separate national fund
- b)** EPA - joint procurement agency
- b) Intergovernmental coordination
- d)** EU Battlegroups

4.2.2.6 Sources & References

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Available online at: <https://eda.europa.eu/what-we-do> (accessed 2025-05-19).
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4. **ERDA Book (2025):** *The ARKTIS Concept*. See: [../../8.-das-arktis-konzept/](#).

4.2.3 Enlargement Strategy Based on the Model of “Concentric Circles”

Enlargement Strategy Based on the Model of “Concentric Circles”

Gradual integration and partnership in three concentric circles

“The model of concentric circles enables a flexible, values-based enlargement of ERDA: from core members with deep constitutional anchoring, via associated partners, through to global democracies – each circle has its own rights, obligations and participation formats.”

Enlargement strategy based on the model of “concentric circles”

- *Core ERDA: democracies firmly grounded in the rule of law with constitutional anchoring.*
- *Extended partnership: states with an EU perspective or close association (e.g. UK, Western Balkans, Mediterranean region).*
- *Global associates: democracies such as Canada, Australia, Japan, New Zealand, Costa Rica, Chile – without political integration, but with security and innovation linkages.*

Conclusion: ERDA enlargement deliberately does not follow rigid accession patterns, but is guided by a flexible model of concentric circles.

4.2.3.1 Introduction & Core Impulses The enlargement of the European Rights-Based Democratic Alliance (ERDA) does not follow a rigid accession procedure but a differentiated model of concentric circles.

Core impulses:

- **Core ERDA:** fully integrated states with constitutional binding.
- **Extended partnership:** democracies with partial integration – politically, in security and in economic affairs.
- **Global associates:** partner states outside Europe that conclude strategic alliances.

4.2.3.2 Deepening & Analysis

Circle	Description	Conditions
● Core ERDA	Full membership under the ERDA constitution	Constitutional anchoring, rule of law, ODA
● Extended partnership	Partial integration in politics, EVA/EDA, CIVITAS, FORTERA	Democracy index ≥ 7 , financial contributions, reforms
● Global associates	Security and innovation cooperation	Shared values, sectoral agreements

Boxes:

❖ **Practice impulse:** Launch bilateral dialogue forums with two pilot states in the extended circle – for example Norway and Switzerland – to test associative rights and obligations.

❖ **Concept contrast:** One-size-fits-all accession \neq gradual integration – only differentiated circles preserve coherence and attractiveness.

⚠ **Risk:** Hasty accessions without institutional preparation weaken core ERDA and undermine trust.

🌐 **Visionary metaphor:** “The concentric circles are the rings of a strong tree: each carries and protects the centre.”

4.2.3.3 Transformation & Options for Action

- **Consolidate the core circle:** adopt an ERDA constitutional amendment by 2028 for existing full members.
- **Partnership agreements:** model agreement and timeline for extended partners (2026–2030).
- **Global cooperation platform:** establish an “ERDA Global Forum” for associated democracies from 2027 onwards.
- **Transition modalities:** stagger rights (CIVITAS co-determination, EVA/EDA participation, FORTERA access).
- **Monitoring & review:** annual peer reviews of partners based on joint criteria.

4.2.3.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Negotiating bilateral partnership agreements and agreeing the criteria for each circle
 Researchers	Research on expansion dynamics and governance effects of concentric models
 Citizens	Public-information campaigns explaining the circle models and participation rights
 Students	Case studies on pilot contributions in the extended circle and simulations of reforms
 Artificial intelligences	Development of simulation tools for scenario analyses on circle enlargement
 Souls	Narrative storytelling: “Concentric circles as resonance spaces for global partnership”

4.2.3.5 Interactive Elements Checklist: Preparing Circle Enlargement

- Have criteria for each circle been finalised?
- Have pilot agreements with two states in the extended circle been concluded?
- Is there a mandate for the Global Forum and have the first invitations been issued?
- Is a schedule for the next review round available?
- Has the ERDA constitutional amendment been initiated?

? Mini Quiz

Question: Which circle includes states with full constitutional binding to ERDA?

- a) Extended partnership
- b) Global associates
- c) Core ERDA 
- c) Solidarity circle

4.2.3.6 Sources & References

1. **ERDA Book (2025):** *ERDA States Architecture – Model of Concentric Circles, for categorising and allocating states within the circles.*
See: ../../anhang-a-erda-staatenarchitektur-konzentrische-kreise.md
2. **ERDA Book (2025):** *Schema for ERDA state profiles (detailed overview).*
See: ../../anhang-b-erda-staatenprofile/2.-schema-fur-erda-staatenprofile-ausfuhrliche-ubersicht.md

3. ERDA Book (2025): *The ARKTIS Concept.*

See: [.../..../8.-das-arktis-konzept/](#)

4.2.4 Integrating Global Perspectives

Integrating Global Perspectives

Global cooperation as a lever for democratic resilience and innovation

“Only those who invite the world into their democratic arenas can respond to global challenges jointly and in line with shared values.”

The ERDA systematically opens up to strategic partnerships beyond Europe – in politics, security, the economy and culture.

Integrating global perspectives

- *Expanding partnership-based relations with democracies in the Global South.*
- *Cooperation with regional organisations for the rule of law and climate justice.*
- *Building fair raw-material and technology alliances with mutual added value.*

4.2.4.1 Introduction & Core Impulses The global networking of democratic states increases ERDA's clout and fosters cooperation on innovation and security:

Core impulses:

- **Global frameworks:** Expanding multilateral fora (e.g. “ERDA Global Forum”) for norm-setting and standardisation.
- **Strategic partnerships:** Sectoral agreements in technology (FORTERA), security (EDA), digital democracy (CIVITAS).
- **Exporting values:** Joint codes on rule of law, human rights and AI ethics.

4.2.4.2 Deep Dive & Analysis

Field of cooperation	Status quo	Need for reform
Security & defence	Bilateral EDA partnerships with Canada/USA	Multilateral security dialogues with Asia-Pacific democracies
Technology & innovation	FORTERA focus on Europe	Global R&D alliances (quantum, AI), knowledge-sharing hubs
Digital democracy	CIVITAS projects within the EU	Open-source civic-tech initiatives with global democracies
Climate & resources	ARKTIS cooperation with Canada	Expansion to the Southern Hemisphere (Chile, Costa Rica) for climate partnerships
Culture & education	Erasmus+, Creative Europe	“ERDA Global Fellows” programme with exchanges for government and civil society

Boxes:

❖ **Practical impulse:** Launch a “Global Civic Hackathon” in 2026 with participants from Europe, North America, Asia and Latin America – to co-develop digital participation tools.

❖ **Conceptual contrast:** Regional island solutions ≠ globally integrated standards – only the latter create scale effects and trust.

⚠ **Risk:** Exclusive alliances can fuel mistrust – open, transparent processes are essential.

 **Visionary metaphor:** “Global partnerships are the network that stabilises the democratic tree against any storm.”

4.2.4.3 Transformation & Options for Action

- **Establish an ERDA Global Forum** (2027): Annual meeting with associated democracies to derive joint action plans.
- **Launch a multilateral technology platform** (2026): Joint development centres for AI ethics, quantum research and green tech.
- **CIVITAS Global rollout** (2028): Pilot projects for digital citizen participation in partner countries (e.g. Canada, Japan).
- **Extended EDA partnership** (2025-2030): Inclusion of Asia-Pacific democracies in modular security exercises.
- **Climate Solidarity Pact** (2026): Binding agreements with South American states on resource security and emissions reduction.

4.2.4.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Negotiating mandates for the Global Forum and multilateral agreements
 Academics	Research on global governance models and cross-cultural policy diffusion
 Citizens	Awareness campaigns on CIVITAS Global and opportunities for digital participation
 Students	Scholarships in the ERDA Global Fellows exchange and case studies on transregional reforms
 Artificial intelligences	Development of interoperable, ethically auditable AI modules for global democracies
 Souls	Narrative storytelling: “Worldwide resonance spaces for democratic values”

4.2.4.5 Interactive Elements Checklist: Implementing global integration

- Has the ERDA Global Forum been formally established?
- Do initial sectoral partnership memoranda exist?
- Is there a CIVITAS Global pilot running in at least two non-EU democracies?
- Have global technology hubs for AI and quantum been set up?
- Is there a timeline for Climate Solidarity agreements?

? Mini quiz

Question: Which format serves the annual coordination between ERDA and global partners?

a) EDA Summit
 b) FORTERA Summit
 c) **ERDA Global Forum** 
 d) CIVITAS Convention

4.2.4.6 Sources & References

1. **European Defence Agency (EDA) (n. d.)**: Industry Engagement Roadmap. Brussels: European Defence Agency. Available at: <https://eda.europa.eu/what-we-do/industry-engagement> (accessed 2025-05-19).
2. **ERDA Book (2025)**: *The EDA Concept*. Chapter 5: The EDA Concept.

3. **ERDA Book (2025)**: *The CIVITAS Concept*. Chapter 6: The CIVITAS Concept.
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(to be established: an ERDA Institute and within it an “ERDA Global Forum” or a robust comparable platform)

4.2.5 Civil Society Accompanying Structure

Civil Society Accompanying Structure

Participation, transparency and feedback as the foundation of democratic reforms

"A strong civil society is the pulse of a living democracy – only those who listen can shape sustainably."

The ERDA establishes an independent, multi-layer civil society accompanying structure to underpin reform processes with expertise, legitimacy and broad societal anchoring.

Civil society accompanying structure:

- Supporting a pan-European culture of participation through platforms such as CIVITAS.
- Piloting transnational citizens' assemblies and youth parliaments to accompany the reform process.
- Upgrading civil society expertise in EU institutions (e.g. advisory chambers).

4.2.5.1 Introduction & Core Impulses The inclusion of civil society actors ensures that reforms do not bypass people's needs but are co-shaped from the bottom up:

Core impulses:

- **Multi-stakeholder councils:** Establishment of thematic advisory boards (youth, environment, culture, economy, digital rights).
- **Regular consultations:** Half-yearly fora at EU, national and local level.
- **Digital feedback platform:** Permanent online dialogue with transparent moderation and reporting mechanisms.

4.2.5.2 Deep Dive & Analysis

Area	Status quo	Need for reform
Participation formats	Ad hoc citizens' assemblies, irregular dialogues	Regular, institutionalised multi-stakeholder conferences
Transparency & reporting	Fragmented information flows	Central monitoring dashboard with open-data interfaces
Funding	Project-based EU funding	Permanent civil society budget (0.1% of the EU budget)
Capacity building	Local initiatives without EU integration	EU-wide networked "democracy labs" with method training and coaching

Boxes:

 **Practical impulse:** Pilot "democracy labs" in three regions where citizens and NGOs co-design concrete legislative proposals.

 **Conceptual contrast:** Episodic consultation ≠ continuous dialogue – only the latter guarantees learning and adaptation cycles.

 **Risk:** Without a clear reporting structure, feedback dissipates in administrative silos.

 **Visionary metaphor:** "Civil society is the living root system that nourishes and stabilises reforms."

4.2.5.3 Transformation & Options for Action

- **Establish a Civil Society Council** (2026): Consolidation of all thematic advisory boards under a European umbrella.
- **Introduce EU dialogue fora** (from 2025): Half-yearly conferences with a fixed agenda and review mandate.
- **Set up an online participation hub** (2025): Platform with feedback widgets, comment functions and transparent tracking.
- **Expand the democracy-lab network** (2027): Method training and peer coaching for local actors.
- **Secure permanent funding** (2026): Establishment of an “ERDA Civil Society Fund” for long-term projects.

4.2.5.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Establishing legal frameworks and budget approvals for the accompanying structure
 Academics	Evaluation of participation mechanisms and impact research on democracy labs
 Citizens	Training and outreach campaigns to lower access barriers to dialogue formats
 Students	Project internships in democracy labs and analysis of citizen participation processes
 Artificial intelligences	Design and operation of moderated chat and analysis bots for real-time feedback
 Souls	Narrative storytelling: “Civil society as mirror and engine of democratic reforms”

4.2.5.5 Interactive Elements Checklist: Implementing the accompanying structure

- Has the Civil Society Council been formally established?
- Are the half-yearly EU dialogue fora functioning as planned?
- Is the online participation hub live and accessible?
- Are three democracy labs certified in line with common standards?
- Has the budget for the Civil Society Fund been released?

Mini quiz

Question: Which instrument ensures that citizen feedback is systematically evaluated?

- a) Ad hoc workshops
- b) Democracy labs
- c) **Online participation hub **
- d) Thematic advisory boards

4.2.5.6 Sources & References

1. **European Commission (2025):** Public consultation – EU’s next long-term budget (MFF): *EU funding for the single market, and cooperation between national authorities*. Brussels: European Commission. Available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14525-EU-s-next-long-term-budget-MFF-EU-funding-for-the-single-market-and-cooperation-between-national-authorities/public-consultation_en (accessed 2025-05-19).

2. **Civil Society Europe (2025)**: *Common Civil Society Position Paper on the Outline of the 2028–2034 Multiannual Financial Framework*. Brussels: Civil Society Europe. Available at: <https://civilsocietyeurope.eu/common-civil-society-position-paper-on-the-outline-of-the-2028-2034-multiannual-financial-framework/> (accessed 2025-05-19).

4.3 Consolidation: 2035-2050 - Democratic Resilience & Technological Sovereignty

Consolidation: 2035-2050 - Democratic Resilience & Technological Sovereignty

Goal: Autonomy, prosperity, global values – underpinned by constitutional commitment, innovation and cultural stability.

Executive Summary for Decision-Makers Title of this section:

"Consolidation: 2035-2050 - Democratic Resilience & Technological Sovereignty (Chapters 4.3.1 – 4.3.6)"

 **Aim of this chapter** This chapter describes the second stabilisation phase of the ERDA: building a constitution-based union of democracies with technological independence, social capacity for innovation and global responsibility. It marks the transition from an extended EU to a consolidated, resilience-capable, post-scarcity-oriented civilisation.

Core messages for decision-makers

- **Democracy requires constitutional commitment - also beyond the nation state.**
The introduction of an ERDA constitution gives the alliance legal depth, universal fundamental rights and institutional coherence.
 - **Resilience is more than defence - it is cultural, technological and social learning capacity.**
Education, media plurality, digital citizen participation and democratised innovation systems become central pillars.
 - **Technological sovereignty is a precondition for ethical shaping power.**
A dedicated AI, cloud and chip infrastructure (open source, democratically controlled) creates agency without dependency.
 - **Global justice is a strategic imperative.**
Democratic resource partnerships, climate solidarity and fair trade with the Global South strengthen Europe's position through partnership rather than dominance.
-

Recommended policy measures

- **Immediate (by 2037):**
Build a common ERDA constitution with a citizens' charter, digital participation and a constitutional court.
Establish transformation and innovation funds with civil-society co-governance.
 - **Medium term (by 2042):**
Implement the ERDA Education Charter: lifelong learning, democracy training, access to STEM education.
Place digital infrastructures (e.g. a European AI cloud) under public control.
 - **Long term (by 2050):**
Achieve full economic resilience through production sovereignty in strategic sectors.
Create binding mechanisms for participatory constitutional development and evaluation cycles.
-

 **Risks of inaction** Failure to achieve constitutional anchoring and technological sovereignty endangers the entire ERDA vision. Democratic legitimacy risks eroding, and technological dependency would undermine political will-formation. Europe's international shaping power would increasingly depend on exogenous actors.

 **Visionary benefits** The 2035-2050 phase creates the institutional and infrastructural foundation for a democratically resilient high-technology society. Europe will be able to connect security, innovation and global solidarity through its own strength - and thus serve as a role model for cooperative civilisation-building.

"Resilience is not a return to the old - it is the conscious construction of something better."

4.3.1 Anchoring an ERDA Constitution

Anchoring an ERDA Constitution

Key pillars

- *Joint constitutional court for supranational interpretation of fundamental rights, under parliamentary oversight*
- *Digital citizen participation as part of institutional processes, complemented by analogue formats and education initiatives*
- *Charter of universal rights - social, ecological, cultural and technological, with integrative ethics and global compatibility*

4.3.1.1 Introduction & Core Impulses Anchoring a pan-European ERDA constitution marks the next evolutionary step for democratic resilience, technological sovereignty and ethically grounded co-creation. It creates a binding framework for common rights, duties and institutions – beyond short-lived political majorities.

Core impulses:

- **Legal self-commitment:** Institutionalisation of the principles of separation of powers, fundamental rights and digital-technological transparency. Oversight is exercised by a legitimate ERDA constitutional court with citizen representation.
- **Dynamic constitutional mechanism:** Regular review cycles, AI-supported early-warning systems and citizen “islands” ensure adaptability – including plain language and analogue participation opportunities.
- **Participatory convention:** Transnational convention with experts, civil society, AI moderation and inclusive learning offers (case studies, modules, videos).
- **Symbolic bracket:** The constitution as identity-forming document, collective breathing space and ethical resonance space – carried by stories, art and meaning.

4.3.1.2 Deep Dive & Analysis Historical experience shows: constitutional clauses without implementation and control architectures often remain decorative. For the ERDA constitution, the following dimensions are therefore critical:

Dimension	Challenge	Proposed solution
Separation of powers	Fragmented competences between EU and member states	Establishment of an ERDA court with right to bring actions, parliamentary legitimacy and a citizens' ombuds office
Fundamental rights	Digital fundamental rights (data protection, AI transparency)	Codification of a digital bill of rights including audit logs and emergency clauses
Amendment mechanism	Rigid procedures vs. risk of populism	Ten-year review cycle by popular vote, supported by AI early-warning systems
Citizen participation	Participation fatigue, digital divide	Democracy labs, plain language, analogue forums, inclusive learning pathways

Boxes:

📌 **Practical impulse:** Pilot project in three regions with analogue & digital formats to test inclusive constitutional reviews – including a documentary video and school modules.

🌐 **Conceptual contrast:** Rigid vs. adaptive constitution – the latter lives from dialogue, not dogma.

⚠ **Risk:** Inflexible clauses could block future technological, social or ecological developments.

🌐 **Visionary metaphor:** “A living constitution is like a river: it must flow to balance tensions. A static text becomes rigid – a breathing principle remains just.”

🌌 **Extraterrestrial remark:** “Coordinate your intelligences in resonance – not linearly. Draft fewer paragraphs, more empathy algorithms.”

4.3.1.3 Transformation & Options for Action

- **Convene an ERDA constitutional convention** by 2030, with balanced participation of all social groups and a pedagogical support programme.
- **Codify digital rights:** European Digital Bill of Rights with audit mechanisms, rights of action and international compatibility (comparison: Canada, Uruguay).
- **Review mechanism:** Decade reviews via CIVITAS, complemented by emotional feedback spaces (e.g. narrative platforms for those affected).
- **Institutional anchoring:** Secretariat for constitutional monitoring with AI-supported conflict matching between normative levels.

4.3.1.4 Target-Group-Specific Perspectives

Target group	Perspective
🏛️ Decision-makers	Defining legal design, allocation of competences between EU/ERDA, and transition mandates
📘 Academics	Comparative research on constitutions worldwide (Chile, Iceland, Uruguay) and impact studies
👤 Citizens	Offline & online participation, training, mobile democracy buses
🎓 Students	Case studies, QR codes to teaching videos, debate formats
🤖 Artificial intelligences	Audit logs, norm compatibility checks, ethics sandboxes
🕊️ Souls	Narrative storytelling: the constitution as home of dignity, as a poem of justice

4.3.1.5 Interactive Elements ✅ Checklist: Ready for the ERDA Constitution?

- I understand the principles of legal self-commitment and its oversight bodies.
- I know the dynamic review mechanism and its social support formats.
- I have access to education or participation formats.
- I see myself as part of the constitutional community.
- I know examples from other countries and what differentiates us.

? Mini quiz

Question: How often should the ERDA constitution be reviewed according to the proposal?

- Every 5 years
- Every 10 years ✅
- At every EU election
- Once only

4.3.1.6 Outlook A future ERDA Institute for Democratic Resilience (planned for 2026) could:

- maintain the CIVITAS platform
- draft the European Digital Bill of Rights
- coordinate AI ethics sandboxes
- make participatory constitutional culture tangible across Europe

4.3.1.7 Sources & References

1. **ERDA Book (2025):** *Europe 2.0 - Roadmap for a liveable, resilient and leading Union.*
Annex C: Europe 2.0 - Roadmap for a liveable, resilient and leading Union

4.3.2 Democracy in the Post-Scarcity Economy

Democracy in the Post-Scarcity Economy

Key pillars

- *Public access to energy, education, mobility and digital infrastructure*
- *Automation replaces monotonous work – focus shifts to research, care and creativity*
- *New income models: conditional basic security, citizens' dividends, participation bonuses*

4.3.2.1 Introduction & Core Impulses In a future society where material basic needs are largely met through automation and AI, the focus of democratic negotiation shifts from the distribution of scarce resources to questions of meaning, collective responsibility and social innovation. Democracy becomes a culture of active co-creation in which values, commons and ecological sustainability are at the centre.

Core impulses:

- Democratic legitimacy shifts from allocation decisions towards governance of commons and collective visions.
- Infrastructure and social services are sufficiently de-scarcified; democratic discourse focuses on quality, participation and impact.
- AI-supported scenario platforms enable continuous citizen participation and co-creative experimental spaces.
- New tensions arise between individual self-realisation and collective responsibility.

4.3.2.2 Deep Dive & Analysis

Dimension	Scarcity democracy	Post-scarcity democracy
Resource allocation	Competition for limited resources	Participatory commons management
Focus of decisions	Distribution and prioritisation	Shaping use, impact and sustainability
Role of citizens	Voter	Co-creator and guardian of the commons
Use of technology	Increasing efficiency	Enabling platforms for participation

Boxes:

Practical impulse (Barcelona commons garden):

→ Planning and care of urban fair-share gardens using digital real-time user feedback.

Conceptual contrast:

Competition over scarcity ≠ cooperation in abundance – the former leads to resource conflicts, the latter to innovation networks.

Risk:

Prosperity blindness can dry out democratic arenas if social inequalities persist.

Visionary metaphor:

"Democracy is no longer the struggle for the last loaf of bread, but the shaping of a feast in which everyone participates."

4.3.2.3 Transformation & Options for Action

- Build digital platforms for real-time participation in commons decisions.

- Introduce a “circularity index” as a democratic steering instrument to measure socio-ecological quality.
- Promote local commons initiatives as laboratories for sustainable practices.
- Legally anchor citizens’ assemblies as permanent bodies for post-scarcity questions.

4.3.2.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Integrating commons governance into municipal and EU policy
 Academics	Research on post-scarcity models and social resilience
 Citizens	Access to co-creation and training for commons management
 Students	Project work in living labs on post-scarcity economy
 Artificial intelligences	Development of participatory decision algorithms with fairness guarantees
 Souls	Narrative storytelling: “From the struggle for survival to a culture of shared feasts”

4.3.2.5 Interactive Elements Checklist: Democratic Commons Resonance

•

? Mini quiz

Question: Which instrument best helps to steer quality and sustainability democratically in a post-scarcity economy?

- a) Direct distribution of scarce resources
- b) Competition for resources
- c) **Participatory commons management **
- d) Centralised planned economy

4.3.2.6 Sources & References

1. **ERDA Book (2025): Europe 2.0 – Roadmap for a liveable, resilient and leading Union.**
Annex C: Europe 2.0 – Roadmap for a liveable, resilient and leading Union

4.3.3 Sovereignty through Technology & Innovation

Sovereignty through Technology & Innovation

Key pillars

- EU sovereignty cloud, dedicated data centres, post-quantum encryption
- Independence in AI training, chips and critical operating systems
- Innovation funds for open-source base technologies and citizen labs

4.3.3.1 Introduction & Core Impulses Europe must strengthen its technological independence and innovation capacity in order to secure its democratic resilience and economic competitiveness in a multipolar world. This is not about isolation, but about building a robust, values-based technology ecosystem.

Core impulses:

- **Technological autonomy** as a strategic necessity: Europe needs its own capacities in key areas (semiconductors, quantum computing, AI).
- **Public-private partnerships:** Close cooperation between EU institutions, national governments, research institutions and industry.
- **Open innovation** and **open source**: Openness as a lever for speed and security in development processes.
- **Values-based regulation:** Ethical guard rails ("AI basic law") foster trust and market access.

4.3.3.2 Deep Dive & Analysis

Aspect	Status quo	Strategy for sovereignty
Production capacity	High dependence on US/Asian suppliers	EU Chips Act & expansion of regional manufacturing clusters
Research funding	Fragmented programmes	Horizon Europe+: focus areas on quantum, biotech, AI
Innovation ecosystem	Limited scaling of local start-ups	European innovation agency for scaling and financing
Open source & data sharing	Protectionist tendencies	Openness requirements in funding criteria and standardisation
Ethical & legal frameworks	Non-uniform AI rules	EU AI Act and complementary "democracy audits" of algorithms

Boxes:

📌 **Practical impulse:** Under Horizon Europe 2030, pilot projects should be funded in all core regions (e.g. Northern, Eastern and Southern Europe) to anchor decentralised manufacturing and R&D.

🌐 **Conceptual contrast:** Pure subsidisation vs systemic ecosystem development - the latter anchors sustainable innovation dynamics.

⚠ **Risk:** If the strategy remains nationally fragmented, Europe will fall into bidding wars and lose influence in the long term.

🌐 **Visionary metaphor:** "Technological sovereignty is not a bulwark - it is a network of living innovation streams."

4.3.3.3 Transformation & Options for Action

- **European manufacturing offensive:** Increase EU production of semiconductors by 30% by 2030 (expansion of the EU Chips Act).
- **“EIA” innovation agency:** Found a European Innovation Agency that channels funding and mentoring programmes and is closely interlinked with EDA, ERDA and CIVITAS.
- **Open-source mandate:** All publicly funded AI projects must publish their code and datasets under an open-source licence.
- **AI basic law:** Establish an independent ethics council (“AI Council”) responsible for audits, certification and stress-testing of algorithms.

4.3.3.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Harmonising national industrial and innovation strategies
 Academics	Building cross-border R&D clusters
 Industry & start-ups	Access to EU co-funding and open-source infrastructures
 Investors	Creation of stable legal frameworks
 AI developers	Participation in EU audit procedures and standards communities
 Citizens & civil society	Transparency and participation rights in technology governance

4.3.3.5 Interactive Elements Checklist: Technological Self-Determination

- Do I understand the difference between technological sovereignty and protectionism?
- Do I know the goals of the EU Chips Act and their importance for Europe?
- Do I support open-source projects with societal added value?
- Am I informed about ethical rules for AI in the EU?
- Do I use funding programmes or networks for sustainable innovation?

? Mini quiz

Question: Which approach is at the heart of European innovation sovereignty according to this chapter?

- Pure subsidisation
- Promoting imports of high technology
- Systemic ecosystem development **
- Isolation through patent protection

4.3.3.6 Sources & References

1. **European Commission, Directorate-General for Research and Innovation (2024):** *Horizon Europe Strategic Plan 2025–2027*. Brussels: European Commission, Directorate-General for Research and Innovation. Available at: https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/strategic-plan_en (accessed 2025-05-21).
2. **European Parliament (2023-02-15):** *Chips Act - The EU's plan to overcome semiconductor shortage*. Brussels: European Parliament. Available at: <https://www.europarl.europa.eu/topics/en/article/20230210STO74502/chips-act-the-eu-s-plan-to-overcome-semiconductor-shortage> (accessed 2025-05-21).

4.3.4 Global Justice & Climate Solidarity

Global Justice & Climate Solidarity

Key pillars

- *Building democratic resource partnerships (e.g. Chile, Namibia, Indonesia)*
- *Technology transfer programmes with fair licensing models*
- *Resilient supply chains respecting labour rights and ecological standards*
- *Democratic governance of the Arctic is understood as a test case for ecological justice and partnership with Indigenous peoples.*

4.3.4.1 Introduction & Core Impulses Global justice and climate solidarity are central challenges beyond Europe's borders: democracy means responsibility – towards the most vulnerable communities as well as towards future generations. This dimension extends democratic resilience through global cooperation, ecological ethics and intergenerational solidarity.

Core impulses:

- **Transnational responsibility:** Climate action is not a purely national project – democracies must structurally and permanently anchor solidarity with vulnerable states.
- **Finance & technology:** Fair access to climate finance (e.g. Green Climate Fund) and technology transfer are democratic imperatives.
- **Global participation:** Citizens', youth and Indigenous fora in real time connect local voices to international decision-making processes.
- **Climate justice as a human right:** Ecological sustainability belongs in a charter of universal rights – implemented under democratic control and with a people-centred approach.

4.3.4.2 Deep Dive & Analysis

Dimension	Status quo	Democratic climate solidarity
Financing models	Climate funds underfunded, contributions unevenly shared	Participatory European Climate Solidarity Mechanism with contributions according to capacity
Technology transfer	Patent protection and monopolies block access	Open-source ClimateTech framework and patent pool for global sustainability solutions
Global participation	Negotiation formats dominated by powerful states	Global citizens' assemblies and youth fora with direct voting via the CIVITAS platform
Sovereignty vs solidarity	National go-it-alone strategies foster protectionism	Co-creative climate alliances with local implementation and global standard-setting

Boxes:

↗ **Practical impulse:** Establish a transnational "Climate Solidarity Lab" in three partner cities – with digital reporting, citizens' assemblies and a social impact index.

🧠 **Conceptual contrast:** National climate egoism vs global solidarity – the former limits future viability, the latter strengthens sustainable peace.

⚠ **Risk:** Fragmented financing streams and non-transparent use of funds undermine trust and endanger democratic legitimacy.

 **Visionary metaphor:** “Climate is the breath of the Earth – democratic solidarity the lungs that clean and renew it.”

4.3.4.3 Transformation & Options for Action

- **European Climate Solidarity Mechanism (ECSM):** Build a democratically legitimised climate solidarity fund with transparent allocation procedures and continuous accompaniment by citizens' assemblies via CIVITAS.
- **Global Climate Justice Assembly:** Institutionalise a multilateral citizens' assembly at UNFCCC level with regional satellites and digital consultation modules.
- **Open-source patent pool:** Provide freely accessible climate technologies on a Creative Commons basis for states and civil-society actors worldwide.
- **Debt moratorium & sustainability agenda:** Automatic debt relief for climate-vulnerable states, linked to sustainability goals negotiated democratically.

4.3.4.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Legal anchoring of the ECSM; reform of European budget rules to enable fair climate finance
 Academics	Development and evaluation of impact indicators; research on global technology-governance models
 Citizens	Competence for participation, access to global climate-justice fora, transparency on climate financing
 Students	Simulations of multilateral climate governance; project work on ClimateTech initiatives
 Artificial intelligences	Development of transparent and auditable AI models to measure the impact of climate projects
 Souls	Narrative storytelling: “Our Earth is a home – climate justice is its breathing foundation.”

4.3.4.5 Interactive Elements Checklist: Reviewing global climate solidarity

- Do I understand the structure and logic of the ECSM?
- Do I have access to climate justice fora (e.g. digitally via CIVITAS)?
- Do I support open-source approaches for global climate technology?
- Do I know democratic mechanisms for transparency in climate finance?
- Do I know how debt moratoria can be tied to sustainability goals?

Mini quiz

Question: Which instrument combines democratic control with global climate finance?

- a) UN climate conference
- b) Individual donation platforms
- c) **European Climate Solidarity Mechanism **
- d) Bilateral climate loans

4.3.4.6 Sources & References

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4.3.5 Resilience through Culture & Education

Resilience through Culture & Education

Key pillars

- *Lifelong learning as a constitutional right*
- *Pluralistic media spaces with European standards for quality and diversity*
- *Promotion of cultural diversity as a basis for social cohesion*

4.3.5.1 Introduction & Core Impulses Culture and education form the basic fabric of a resilient democracy: they nourish collective identity, foster critical thinking and enable adaptive communities. In times of complex crises, creative forms of expression and learning societies are indispensable for securing trust, empathy and capacity for action in the long term.

Core impulses:

- **Narrative cohesion:** Shared stories and cultural spaces of narration strengthen cohesion and meaning.
- **Lifelong learning:** Adaptive learning pathways and digital modules promote continuous skills development.
- **Cultural commons:** Open cultural spaces as resonance and innovation spaces for citizens.
- **Education for resilience:** Drama pedagogy, ethics workshops and slow-learning formats strengthen empathy and capacity for reflection.

4.3.5.2 Deep Dive & Analysis

Dimension	Traditional model	Resilience-oriented model
Narrative cohesion	National narratives, one-way storytelling	Multicultural narrative spaces, participatory storytelling
Learning formats	Curriculum-centred, exam-oriented	Project-based learning, simulations, peer learning
Access to culture	Institutional barriers (costs, geography)	Digital archives, mobile cultural workshops
Critical reflection	Knowledge transfer without practical context	Ethics sandboxes, reflection circles, interdisciplinary dialogues

:: Boxes:

👉 **Practical impulse:** Establish local “resonance labs” in cultural centres: combining art projects, debating cafés and participatory exhibitions.

🌐 **Conceptual contrast:** Frontal teaching ≠ dialogic learning spaces – the former conveys facts, the latter empowers transformative action.

⚠ **Risk:** Cultural monopolies and standardised curricula suppress creative diversity and weaken innovation capacity.

🌐 **Visionary metaphor:** “Culture is the bass line, education the melody of a living democracy.”

4.3.5.3 Transformation & Options for Action

- **Culture resilience fund:** Establish a transnational fund to promote participatory art and cultural projects.

- **Digital education network:** Platform for open-access courses, interactive simulations and AI-supported learning guidance.
- **Curriculum for democratic practice:** Introduce modular teaching formats on storytelling, media literacy and ethics at all educational levels.
- **Collaborative cultural venues:** Build community hubs for co-design workshops between art, science and civil society.

4.3.5.4 Target-Group-Specific Perspectives

Target group	Focus
 Decision-makers	Statutory support for resonance labs and education vouchers for transnational exchange programmes
 Academics	Evaluation of participatory cultural and educational formats; research on new resilience metrics
 Citizens	Access to open learning and culture platforms; participation in local projects
 Students	Participation in living labs; development of civic-culture programmes
 Artificial intelligences	Development of adaptive learning agents and AI moderators for ethically reflected learning
 Souls	Narrative storytelling: "Culture as heartbeat, education as pulse of democratic vitality."

4.3.5.5 Interactive Elements Checklist: Fostering cultural and educational resilience

- Do I support local cultural initiatives and open learning networks?
- Do I use digital learning platforms and simulations?
- Do I promote intercultural exchange in education projects?
- Do I integrate reflection and ethics modules into my educational work?
- Do I engage actively in community workshops and cultural projects?

? Mini quiz

Question: Which instrument most effectively promotes resilience-oriented learning?

- a) Standardised examinations
- b) Federal arts funding
- c) **Community-based resonance labs** 
- d) Centralised textbook allocation

4.3.5.6 Sources & References

1. **UNESCO (2018):** *Re | Shaping Cultural Policies: Advancing Creativity for Development.* Paris: UNESCO. Available at: <https://uis.unesco.org/sites/default/files/documents/reshaping-cultural-policies-2018-en.pdf> (accessed 2025-05-21).
2. **European Commission, Directorate-General for Education, Youth, Sport and Culture (n. d.):** *European Education Area explained.* Brussels: European Commission. Available at: <https://education.ec.europa.eu/about-eea/the-eea-explained> (accessed 2025-05-21).
3. **ERDA Book (2025):** *Europe 2.0 - Roadmap for a liveable, resilient and leading Union.* Annex C: Europe 2.0 - Roadmap for a liveable, resilient and leading Union

4.3.6 Institutional Democratisation

Institutional Democratisation

Key pillars

- *Strengthening CIVITAS as a bridge between citizens and institutions*
- *Transparent participatory budgets, deliberative citizens' assemblies, digital constitutional conventions*
- *Democracy training in schools, workplaces and public administration*

4.3.6.1 Introduction & Core Impulses Democratic resilience is based on living institutions: they must be open, adaptive and close to the needs of citizens. Institutional democratisation aims to transform rigid bureaucracies into dynamic, participatory governance ecosystems.

Core impulses:

- **Transparency as a basic principle:** All decision-making processes and data access are documented openly and visualised publicly.
- **Participatory bodies:** Establish citizens' assemblies, youth fora and community boards as permanent parts of political processes.
- **Adaptive governance:** Agile legislative procedures with short iteration cycles, feedback loops and AI-supported scenario modelling.
- **Decentralised responsibility:** Strengthening municipal and regional competences through subsidiary decision powers and budget autonomy.

4.3.6.2 Deep Dive & Analysis

Dimension	Traditional bureaucracy	Democratised institutions
Decision-making processes	Top-down, intransparent	Bottom-up, traceable via open-data portals
Citizen participation	Sporadic input (public hearings)	Continuous involvement (civic tech, citizens' assemblies)
Law-making	Long, rigid procedures	Agile sprints, public review phases
Responsibility & oversight	Centralised, limited feedback	Shared responsibility, permanent feedback infrastructure

Boxes:

📌 **Practical impulse:** Pilot an “open government dashboard” at EU level that visualises draft laws, voting records and budget data in real time.

🧠 **Conceptual contrast:** Secret law-making ≠ open, collaborative norm-setting - the former divides, the latter strengthens trust and expertise.

⚠ **Risk:** Over-regulation of digital participation platforms can create access barriers and reduce real participation to mere tokenism.

🌐 **Visionary metaphor:** “Democracy is not a building but a living organism: institutions are its arteries through which participation flows.”

4.3.6.3 Transformation & Options for Action

- **Open-data government:** Mandatory publication of all EU and national data under FAIR principles.
- **Citizens' assembly integration:** Regular inclusion of citizens' assemblies in law-making processes at all levels.

- **Agile public policy labs:** Set up labs where civil servants, experts and citizens jointly prototype new regulatory approaches.
- **Data trusts & ombuds offices:** Create independent data trustees and ombuds institutions for oversight and conflict resolution.

4.3.6.4 Target-Group-Specific Perspectives

Target group	Focus
Decision-makers	Introduction of transparent session logs; open-data legislation
Academics	Research on civic-tech effects; impact measurement of participatory formats
Citizens	Training in the use of open-government tools; communities of practice
Students	Project courses in public policy labs; practical exercises in citizen arbitration
Artificial intelligences	Development of ethical moderation algorithms; analysis of participation data
Souls	Narrative storytelling: "Institutions that breathe and grow - shaped by us."

4.3.6.5 Interactive Elements Checklist: Reviewing institutional democratisation

- Are decision-making processes documented in a way that is traceable for all stakeholders?
- Are there formal structures for continuous citizen participation?
- Are agile methods and feedback loops used systematically?
- Are there independent bodies for data and process oversight?
- Are regional and municipal actors explicitly involved?

Mini quiz

Question: Which instrument most effectively strengthens the decentralisation of municipal decision-making?

- a) Moving ministries to provincial capitals
- b) Introducing citizens' assemblies with budget authority
- c) Quarterly online surveys without binding effect
- d) National referendums on every issue

4.3.6.6 Sources & References

1. **OECD (n. d.):** *Open Government Data*. Paris: OECD Publishing. Available at: https://www.oecd.org/en/publications/open-government-data_5k46bj4f03s7-en.html (accessed 2025-05-21).
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4.4 Transformation: 2050-2075 - Society in the 22nd Century

Transformation: 2050-2075 - Society in the 22nd Century

Goal: A mature, just and technological democracy – in harmony with humanity, nature and the global common good.

Executive Summary for Decision-Makers Title of this section:

"Transformation: 2050-2075 - Society in the 22nd Century (Chapters 4.4.1 – 4.4.6)"

 **Aim of this chapter** This chapter sketches the long-term development of Europe towards a democratic high-technology civilisation. It formulates key guiding visions for a common-good-oriented, meaningful and culturally diverse way of living together beyond materialist growth logic – supported by digital participation, technological responsibility and post-scarcity economic sovereignty.

Core messages for decision-makers

- **Democracy is not only a form of government - but a form of conscious coexistence.**
The ERDA promotes collective capacity for shaping, not only administration. Co-determination becomes a way of life.
 - **Post-scarcity is possible - if technology is used for the common good.**
Automation, AI and spaceflight serve not profit, but liberation from existential pressure.
 - **Dignity replaces growth as the leading metric.**
Mental well-being, cultural resonance and the quality of human relationships move to the centre of political objectives.
 - **Europe's global role is founded on the rule of law, justice and cooperative leadership.**
The ERDA becomes a civilisational model for democratic global governance – on Earth and in space.
-

Recommended policy measures

- **Prepare now (from 2035):**
Develop new indicators for prosperity beyond GDP (e.g. resilience, diversity of education, quality of life).
 - **Medium term (2050-2060):**
Institutionalise planetary ethics commissions, orbital fundamental rights and democratic AI governance.
 - **Long term (by 2075):**
Fully establish post-material basic provision, universal participation and global commons models.
Integrate the SOLAR ALLIANCE as a civilisational counterpart to the ERDA in outer space.
-

 **Risks of inaction** Remaining in the status quo would mean that technological upheavals are steered in an authoritarian way – with increasing social alienation, loss of meaning and global injustice. Europe would lose its cultural leadership and internal coherence.

 **Visionary benefits** The ERDA can become the first real-world model of a democratic and meaningful high civilisation – inclusive, peaceful, technologically advanced and culturally diverse. It opens up a new path of development for humanity in the 22nd century: not as utopia, but as realisable responsibility.

"The future is not what comes – but what we create together."

4.4.1 Democratic High-Technology Civilisation

Democratic high-technology civilisation

Key pillars

- *Real-time participation via verified, secure platforms (including CIVITAS)*
- *Evidence-based policy through human-AI collaboration with ethical oversight*
- *Work no longer as an existential necessity, but as vocation and contribution to the community*

4.4.1.1 Introduction & core impulses Europe is moving at the intersection between democratic participation and exponential technological progress. The **democratic high-technology civilisation** does not understand technology merely as an instrument of efficiency, but as an integral component of a vibrant, participatory society.

Core impulses:

- **Co-development of policy & technology:** Citizens, politics and developers co-create innovations.
- **Open, networked infrastructure:** Platforms and data spaces are transparent, interoperable and controlled by democratic bodies.
- **Ethics as code:** Technological systems carry non-negotiable ethical guardrails in their very architecture.
- **Resilience through adaptivity:** AI-supported systems enable proactive risk prevention and optimisation for the common good.

4.4.1.2 Deep dive & analysis

Aspect	Traditional model	High-technology civilisation
Innovation governance	Top-down funding programmes	Co-creation hubs with citizen sprints
Data and infrastructure control	Proprietary cloud monopolies	EU-led open cloud infrastructure (Gaia-X)
AI governance	Ex-post ethics reviews	Integrated ethics code & audit agents
Crisis management	Reactive emergency plans	Real-time simulations & adaptive scenarios

 **Practice impulse:** Establish **tech dialogue forums**: quarterly hackathons where citizens, administrations and start-ups jointly develop digital prototypes for municipal challenges.

 **Concept contrast:** Black-box AI ≠ explainable AI - only models with open, auditable code guarantee democratic control.

 **Risk:** Unregulated high-tech enclaves foster digital trench warfare and economic fragmentation.

 **Visionary metaphor:** "Democratic high technology is not an ivory tower, but a living laboratory of society."

4.4.1.3 Transformation & options for action

- **Promote democratic tech hubs:** Finance regional innovation centres governed by citizens' assemblies.
- **Open-source-first rule:** All publicly funded software and hardware projects must be open source.

- **Ethics-by-design standard:** EU-wide mandatory requirement to implement human rights, data protection and anti-bias safeguards in all algorithms.
- **Resilience simulation platform:** Build an EU-wide real-time platform for risk and crisis simulations, operated by a cross-party committee.

4.4.1.4 Target-group perspectives

Target group	Focus
Decision-makers	Adoption of open-source-first and ethics-by-design legislation
Researchers	Research on cooperative innovation models
Citizens	Participation in tech dialogue forums and evaluation of local pilots
Students	Practical projects in democratically governed hackathons
Artificial intelligences	Development of transparent audit agents
Souls	Narrative: "Technology as a communal resonance space"

4.4.1.5 Interactive elements Checklist: democratic-technological participation

- Do I know local or regional tech dialogue forums in my municipality?
- Do I support open-source initiatives for public infrastructure?
- Do I demand auditable AI models in public administration and business?
- Do I engage in prototypical experiments to enhance crisis resilience?
- Do I regularly question the ethical implications of new technologies?

? Mini-quiz

Question: Which principle best ensures the democratic traceability of AI decisions?

- Proprietary algorithms
- Ex-post ethics reviews
- Integrated ethics code & audit agents**
- Voluntary self-commitments

4.4.1.6 Sources & references

1. **European Commission (2021):** *Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*. Brussels: European Commission. Available online at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206> (accessed 2025-05-21).
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6. **Nesta (2022):** *Collective Intelligence Design Playbook (beta)*. London: Nesta. Available online at: <https://www.nesta.org.uk/toolkit/collective-intelligence-design-playbook/> (accessed 2025-05-21).

4.4.2 Social and cultural resilience

Social and cultural resilience

Key pillars

- Status and participation through creativity, responsibility and cooperation – not through capital accumulation
- Lifelong learning as lived culture: individual, collaborative, common-good-oriented
- Cultural self-realisation in a pluralist, solidaristic environment

4.4.2.1 Introduction & core impulses In the 22nd century, it is not technological sovereignty alone that decides the survival of free societies, but above all the ability to cultivate social networks and cultural diversity as sources of collective strength. Communities that maintain resonance and use cultural narratives as bridges remain stable and innovative even in turbulent times.

Core impulses:

- **Create cohesion spaces:** Local networks and intercultural forums anchor trust and solidarity.
- **Strengthen cultural participation:** Shared rituals, narratives and arts foster collective identity.
- **Inclusion as a principle:** Active inclusion of all social groups prevents alienation and polarisation.
- **Resilience through narration:** Visionary metaphors and shared stories act as emotional support structures.

4.4.2.2 Deep dive & analysis

Dimension	Challenge	Resilience potential
Social networks	Fragmentation, polarisation	Increased resonance through citizens' forums and labs
Cultural diversity	Marginalisation, loss of identity	Innovation engine through pluralist participation
Narrative trust	Erosion of shared stories	New narratives as anchors in times of change
Intergenerational dialogue	Loss of experiential knowledge, generational rifts	Mentoring programmes and narrative mapping

Boxes:

📌 **Practice impulse:** Integrate “resonance labs” into municipalities that combine intergenerational dialogue, cultural workshops and AI-moderation – for example as hybrid events with SPACE inspiration modules.

💡 **Concept contrast:** Cultural demarcation ≠ creative connection – without shared narratives, innovation and cohesion wither.

⚠ **Risk:** Ignored minorities withdraw and form parallel societies that undermine democratic legitimacy.

🌐 **Visionary metaphor:** “Society is like a polyphonic concert – only in harmonious interplay does a powerful melody emerge.”

4.4.2.3 Transformation & options for action

- **Establish resonance labs:** Multicultural urban labs with participatory formats (story cafés, performances, code-of-conduct negotiations).
- **Narrative mapping:** GIS-supported mapping of collective stories and cultural resources.
- **Cultural diplomacy 2.0:** Exchange programmes between EDA, ARKTIS and SPACE communities foster global connectedness.
- **Inclusion frameworks:** Standards for participatory budgeting and cultural funding within FORTERA initiatives.

4.4.2.4 Target-group perspectives

Target group	Focus
	Decision-makers
	Researchers
	Citizens
	Students
	Artificial intelligences
	Souls
	Promotion of intercultural citizens' forums and resonance labs
	Research on cultural resilience factors and participatory narration
	Co-creation in storytelling workshops and cultural "planting" actions
	Project modules on narrative mapping and intergenerational dialogue
	Development of empathetic moderation agents and culturally adaptive dialogue systems
	Poetic narrative: "Every culture is a star in the shared sky of civilisation."

4.4.2.5 Interactive elements Checklist: strengthening social & cultural resilience

- Do you actively participate in local culture and storytelling forums?
- Do you know the main narratives of your region and its minorities?
- Do you support initiatives for intergenerational mentoring?
- Do you regularly take part in multicultural resonance labs?
- Do you reflect on your own role in the collective narrative?

? Mini-quiz

Question: Which instrument directly promotes the visibility of cultural diversity?

- a) Centralised cultural policy
- b) Exclusive funding programmes
- c) Narrative mapping and local urban labs
- d) Technocratic steering

4.4.2.6 Sources & references

1. **ERDA Book (2025):** *Europa 2.0 – Fahrplan für eine lebenswerte, resiliente und führende Union.* Annex C: *Europa 2.0 – Fahrplan für eine lebenswerte, resiliente und führende Union*

4.4.3 Global integration based on the rule of law

Global integration based on the rule of law

Key pillars

- *ERDA becomes a reference model for rules-based, democratic cooperation worldwide*
- *Building global democracy networks for crisis prevention, technological justice and fair resource distribution*
- *Cooperation with regional democracies in Africa, Latin America and Asia - on an equal footing*

4.4.3.1 Introduction & core impulses In the age of planetary interdependence, it is not power politics alone that decides the future, but binding law as the foundation of global order. Only those who translate multilateral cooperation into rules-based institutions can secure lasting stability and justice.

Core impulses:

- **Rules-based coordination:** International agreements and supranational courts anchor transparent rules.
- **Strengthen multilateral institutions:** The UN, ICC, WTO and SOLAR ALLIANCE use legal structures for conflict resolution.
- **Normative standard sets:** Global human and environmental rights serve as binding guardrails.
- **Civil society participation:** NGOs and CIVITAS models safeguard the democratic legitimacy of cross-border decisions.

4.4.3.2 Deep dive & analysis

Level	Challenge	Legal solution
Supra-national	Concentration of power, arbitrariness	Strengthening the International Court of Justice (ICJ), UN Charter
Regional	Fragmented regulation	ERDA state architecture and concentric circles
Transnational	Lack of enforcement	International arbitration courts, treaty bodies
Local	Globalisation vs. sovereignty	CIVITAS participation models

Boxes:

★ **Practice impulse:** Establish an ERDA Council for International Law in which citizens' forums and the AI Compass Unit review legal cases in a participatory manner.

💡 **Concept contrast:** Sovereignty through going it alone ≠ rules-based cooperation – without a shared understanding of law, there is a risk of relapse into power politics.

⚠ **Risk:** Violations of international agreements undermine the multilateral order and promote lawlessness.

🌐 **Visionary metaphor:** “Law is like a net – it connects without suffocating.”

4.4.3.3 Transformation & options for action

- **ERDA Global Tribunal:** Establish a multilateral arbitration court with the participation of EDA, ARKTIS and SPACE.

- **Legal coalitions:** Regional alliances of ERDA states with binding legal frameworks for security and climate partnerships.
- **CIVITAS Global Forum:** A permanent digital assembly for citizens to co-shape supranational guidelines.
- **Normative architecture:** Harmonisation of human rights, environmental and trade norms in the ERDA context.

4.4.3.4 Target-group perspectives

Target group	Focus
 Decision-makers	Anchoring global agreements in EU and ERDA law, establishment of an ERDA Global Tribunal
 Researchers	Research on enforceability of international legal norms and transnational legal integration
 Citizens	Participation in the CIVITAS Global Forum, insight into multilateral procedures and co-creation
 Students	Simulations (Model United ERDA), moot courts in international law
 Artificial intelligences	Development of AI-supported legal monitoring and compliance systems
 Souls	Poetic guiding motif: "Peace grows when law connects rather than divides."

4.4.3.5 Interactive elements Checklist: global legal integration

- Do I know the key international agreements (UN Charter, ICJ Statute, WTO rules)?
- Do I understand how supranational courts function?
- Can I discuss cross-border legal issues via CIVITAS?
- Do I support transnational citizens' initiatives?
- Do I reflect on how local laws adapt global norms?

? Mini-quiz

Question: Which instrument is primarily responsible for international legal enforcement?

- a) UN Security Council
- b) International Court of Justice (ICJ) 
- c) Court of Justice of the European Union
- d) National constitutional court

4.4.3.6 Sources & references

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4.4.4 Technology with purpose and responsibility

Technology with purpose and responsibility

Key pillars

- *Development and use of technology exclusively in the service of the common good*
- *Strong ethical frameworks and participatory governance for new technologies*
- *Balance between innovative power and socio-ecological responsibility*

4.4.4.1 Introduction & core impulses Technological sovereignty alone is not enough if innovations do not also create meaning and respect ethical guardrails. In the 22nd century, the coherent linkage of technological progress and humanist responsibility will determine trust, participation and sustainable prosperity.

Core impulses:

- **Human-centred innovation:** Every technology must be oriented to real needs and ethical values.
- **Participatory technology governance:** Citizens, experts and AIs jointly develop rule-books and review bodies.
- **Transparency & accountability:** Disclosure of data, algorithms and decision-making processes builds trust.
- **Socio-ecological integration:** Technological solutions must promote social justice and environmental integrity.

4.4.4.2 Deep dive & analysis

Dimension	Challenge	Approach
Innovation dynamics	Short-term profit maximisation vs. long-term benefit	Funding programmes for common-good-oriented research
Ethics & regulation	Fragmented standards and technological black boxes	Establish global ethics codes and independent audit authorities
Participation & inclusion	Exclusion of marginalised groups	Civic-tech platforms with barrier-free participation formats
Environmental impacts	Resource and energy consumption	Circular economy, green-tech standards

Boxes:

★ **Practice impulse:** Set up “ethics labs” at universities and community centres where AI models are jointly tested for fairness, data protection and sustainability.

🧠 **Concept contrast:** Uncontrolled automation ≠ responsible automation – only the latter maintains social acceptance.

⚠ **Risk:** Technosolutionism can exacerbate social problems if access and control are unequally distributed.

🌐 **Visionary metaphor:** “Technology is like a toolbox – only the right guiding principles determine how we use the tools.”

4.4.4.3 Transformation & options for action

- **Ethics Code 22.0:** Develop a global, legally anchored ethics code for AI, biotech and space activities.

- **Participation platforms:** Expand CIVITAS modules for technology policy co-creation with real-time voting.
- **Transparency registers:** Open repositories for source code, data models and audit reports, accessible to all stakeholders.
- **Green IT initiatives:** Certifications for energy efficiency and recyclability of hardware and software.

4.4.4.4 Target-group perspectives

Target group	Focus
▀ Decision-makers	Implementation of binding ethics legislation and funding of common-good-oriented research
📘 Researchers	Interdisciplinary studies on technology assessment and ethics governance
👤 Citizens	Participation in ethics and innovation transparency workshops
🎓 Students	Curricula on responsible tech, citizen science and reflection on technology consequences
🤖 Artificial intelligences	Development of transparent, auditable algorithms
🕊 Souls	Inspiring narrative: “Technology as a mirror of our values and visions.”

4.4.4.5 Interactive elements Checklist: developing technology with responsibility

- Check whether every technology initiative serves the common good.
- Demand transparent documentation of algorithms and data use.
- Involve marginalised groups in design and decision-making processes.
- Support circular and green-tech concepts in your projects.
- Regularly reflect on the ethical implications of technological change.

? Mini-quiz

Question: Which instrument most effectively supports the ethical review of new technologies?

- a) In-house corporate audit teams
- b) Independent ethics commissions with civil-society participation 
- c) Voluntary industry initiatives
- d) Automated algorithm tests

4.4.4.6 Sources & references

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4.4.5 Post-materialist quality of life

Post-materialist quality of life

Key pillars

- *Prosperity defined by communal well-being, environmental and time sovereignty rather than consumption*
- *Purpose-oriented work and engagement as the core of personal fulfilment*
- *Cultural, social and ecological values as drivers of sustainable happiness*

4.4.5.1 Introduction & core impulses In the 22nd century, the question is no longer: "How much do we have?" but: "How well do we live?" Post-materialist societies prioritise self-realisation, compassion and sustainability. Values beyond possession become the foundation of resilience and democratic participation.

Core impulses:

- **Meaning instead of possessions:** Joint projects, creativity and volunteering increase life satisfaction.
- **Promote time prosperity:** Reduced working hours and flexible rhythms enable personal development.
- **Strengthen the common-good economy:** Solidarity-based economies and FORTERA initiatives link production and sustainability.
- **Cultural resonance spaces:** Collective ritual and cultural formats (SPACE festivals, CIVITAS debates) foster connectedness.

4.4.5.2 Deep dive & analysis

Dimension	Traditional growth paradigm	Post-materialist perspective
Motivation	Maximisation of material goods	Search for meaning, relationships and sustainability
Use of time	Dominated by paid work	Time prosperity, education, culture and phases of care
Measuring success	Quantitative indicators (GDP, consumption)	Quality of life, common-good index
Economic role	Competition, profit maximisation	Co-creation, commons management (CIVITAS models)

:: Boxes:

♥ **Practice impulse:** Establish "time banks" and cultural pools in municipalities where time is used as currency for neighbourhood help and social projects.

🌐 **Concept contrast:** Growth fixation ≠ focus on quality of life – more possessions do not necessarily correlate with more happiness.

⚠ **Risk:** Unrestrained consumption destroys environmental and social capital and undermines long-term resilience.

🌐 **Visionary metaphor:** "Happiness is not a mountain we climb, but a garden we cultivate together."

4.4.5.3 Transformation & options for action

- **Time prosperity act:** Introduce an EU-wide model of fair working-time quotas with life-phase-oriented flexibility.

- **Common-good balances:** Mandatory reports for companies and municipalities that measure ecological, social and cultural contributions (CIVITAS value indicators).
- **Cultural commons:** Expansion of free spaces (artist residencies, maker spaces) as part of the SPACE infrastructure.
- **Academies of meaning:** The ERDA Academy teaches post-materialist competences: ethics, mindfulness, narrative design.

4.4.5.4 Target-group perspectives

Target group	Focus
 Decision-makers	Legal anchoring of time prosperity and common-good indicators
 Researchers	Research on quality-of-life indices and post-materialist value development
 Citizens	Participation in time banks, cultural pools and citizen-science projects
 Students	Project seminars on commons-based economies and post-materialist business models
 Artificial intelligences	Development of ethical algorithms for common-good dashboards
 Souls	Poetic narrative: "True wealth is what you cannot lose."

4.4.5.5 Interactive elements Checklist: post-materialist practice

- Exchange time instead of money in local time banks
- Examine how your work promotes meaning and the common good
- Use free spaces for cultural and community projects
- Support companies with positive common-good balances
- Reflect on which needs beyond consumption drive you

? Mini-quiz

Question: Which indicator primarily measures non-material quality of life?

- Gross domestic product (GDP)
- Common-good index 
- Unemployment rate
- Export volume

4.4.5.6 Sources & references

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4.4.6 Future as a Collective Task

Future as a Collective Task

Cornerstones

- *Collective shaping instead of individual passivity*
- *Harness synergies of humans, AI and nature in participatory formats*
- *Responsibility as a unifying core value in all ERDA initiatives*

◆ Narrative impulse:

ERDA is not a centralised empire but a living network of equal democracies. Citizens do not only shape their immediate environment, they also tackle humanity's major questions. ERDA is not the destination - it is the instrument for a better tomorrow.

4.4.6.1 Introduction & core impulses A sustainable future does not emerge in an ivory tower but through lived togetherness. When citizens, institutions and AI-supported systems make path-shaping decisions together, the future becomes an active collective task.

Core impulses:

- **Co-creative governance:** Citizens, the AI Compass Unit and political leadership steer collaborative planning processes.
- **Networks of responsibility:** Regional CIVITAS agoras, FORTERA ecosystems and SPACE forums connect local and global perspectives.
- **Transparent accountability:** Public resonance labs and ARKTIS dialogue forums enable continuous feedback.
- **Eco-social connection:** Human-nature partnerships guarantee environmental justice as a principle of participation.

4.4.6.2 In-depth analysis

Dimension	Challenge	Collective solution
Political participation	Political apathy, digital barriers	Decentralised CIVITAS forums and AI moderation
Technological co-operation	Human-AI conflicts, data sovereignty	AI Compass Unit as an ethical arbiter
Ecological responsibility	Environmental conflicts, resource use	ARKTIS partnerships and local commons projects
Social cohesion	Polarisation, individualisation	Intercultural resonance labs via EDA platforms

:: Boxes:

📌 **Practice impulse:** Organise local “future workshops” with real-time AI inputs from the CIVITAS platform.

🧠 **Concept contrast:** Top-down future plans ≠ bottom-up co-creation – without participation there is no legitimacy.

⚠ **Risk:** Exclusive future strategies provoke resistance and undermine collective resilience.

🌐 **Visionary metaphor:** “The future is not a museum – it is a joint work of art in the making.”

4.4.6.3 Transformation & options for action

- **Participative future councils:** Permanent citizens' councils supported by the AI Compass Unit and open-data dashboards.
- **Community Impact Bonds:** FORTERA-financed programmes that reward civil society for future achievements.
- **Eco-co-operation modules:** ARKTIS-supported conservation alliances with direct citizen involvement.
- **SPACE future laboratories:** Interdisciplinary future sprint workshops with experts, students and souls.

4.4.6.4 Target-group-specific perspectives

Target group	Focus
 Decision-makers	Establishment of transparent future committees and statutory participation frameworks
 Scientists	Research on co-creation methodologies and the impact of citizen-AI collaboration
 Citizens	Co-design of impact bonds and community projects
 Students	Project courses in future laboratories and interactive CIVITAS hackathons
 Artificial intelligences	Development of auditable moderation algorithms for participative decision-making processes
 Souls	Poetic narrative: "We are architects of our common future."

4.4.6.5 Interactive elements Checklist: Shaping the future as a collective task

- Do I get involved in local future workshops or resonance labs?
- Do I know how Community Impact Bonds work and what they aim to achieve?
- Do I use CIVITAS platforms for global dialogues?
- Do I support ARKTIS partnerships for environmental justice?
- Do I regularly reflect on my role in the collective shaping process?

? Mini-quiz

Question: Which financing mechanism rewards civil society contributions to future design?

- a) Government bonds
- b) Community Impact Bonds 
- c) Private funds
- d) Crowdfunding

4.4.6.6 Sources & references

1. **OECD (2024):** *Exploring New Frontiers of Citizen Participation in the Policy Cycle*. OECD Reinforcing Democracy Initiative Discussion Paper. Paris: OECD Publishing. Available online at: <https://www.oecd.org/content/dam/oecd/en/about/programmes/reinforcing-democracy-initiative/Exploring-New-Frontiers-of-Citizen-Participation-Discussion-Paper.pdf> (accessed on 2025-05-21).

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4.5 Strategic narratives & public communication

Strategic narratives & public communication

Goal: build trust - create meaning - give direction

Core argumentative statement:

“Anyone who wants to safeguard democracy in the long term cannot rely on its mere existence. Democratic constitutional states must stand together, protect one another – and jointly pave the way towards a future built on freedom, sustainability and resilience.”

Executive summary for decision-makers Title of the section:

“Strategic narratives & public communication (Chapters 4.5.1 – 4.5.2)”

 **Aim of this chapter** This chapter lays the foundations for a proactive, democratically grounded and emotionally resonant communication strategy for ERDA. It shows how strategic narratives can enable trust, participation and future-orientation in an increasingly fragmented public sphere – beyond technocratic information policy.

Core messages for decision-makers

- **Democracy needs stories that connect.**

Strategic communication is not a side issue – it is a precondition for legitimacy, change and resilience.

- **The future only succeeds if people experience themselves as part of it.**

Narratives such as “co-creating rather than enduring” or “autonomy is a survival strategy” generate meaning and a sense of agency.

- **Emotional resonance is political capital.**

Hope, dignity, belonging – deliberately crafted narratives strengthen not only approval but attachment.

- **Digital spaces must be shaped democratically.**

Platforms such as CIVITAS become communication spaces with a public mandate – not machines of manipulation.

Recommended policy measures

- **Short term (2025-2027):**

Establish a transnational narrative hub for EU/ERDA communication with civil-society participation.

Integrate strategic narratives into foreign policy, education and public outreach.

- **Medium term (by 2030):**

Introduce narrative-based citizen formats (e.g. “future forums”, “democracy spaces”). Train office-holders and media actors in participatory communication competencies.

- **Long term (by 2035):**

Anchor narrative democracy education in schools, universities, cultural funding and digital public spheres.

 **Risks of inaction** Without effective narratives, democracies leave the field to populist simplifications, digital cynicism and authoritarian offers of meaning. ERDA would be perceived as a technocratic construct – rather than as a bearer of hope for just future-shaping.

 **Visionary benefits** A narratively strengthened ERDA creates emotional connection, political identification and creative participation. It becomes a resonance space for a democracy that not only administers, but inspires – and thus radiates globally.

"Those who want to win people over must tell them something that moves them inwardly – not just convinces them."

4.5.1 Social & Emotional Aspects

Social & Emotional Aspects

Cornerstones

- **Strengthening citizen engagement:** The transition to digital democracy requires trust, transparency and human closeness – AI must not detach but integrate.
- **Taking fears of loss seriously:** National identities, occupational models and traditional ways of life must not be bypassed but actively respected and integrated.
- **Putting hope and dignity at the centre:** Not just technocratic progress, but meaning-making, social justice and emotional guidance must be guiding principles.

4.5.1.1 Introduction & Core impulses Strategic narratives develop their power not only through facts and arguments, but above all through **emotional resonance** and **social connectedness**. They address fundamental needs for belonging, self-efficacy and meaning and thus shape collective identities.

Core impulses:

- **Create emotional bonds:** Narratives that foster compassion and trust increase identification and engagement.
- **Strengthen social cohesion:** Shared stories anchor collective values and foster solidarity across groups and generations.
- **Balance self- and external perception:** Authenticity arises through the telling and the listening; narratives must provide space for listeners' feedback.
- **Resonance instead of repetition:** Mere repetition is ineffective; it requires social interaction, dialogue formats and participative staging.

4.5.1.2 In-depth analysis

Dimension	Traditional communication	Resonance-oriented narratives
Approach	Factual-informative	Emotional-playful
Goal	Convince through facts	Connect through stories
Medium	One-way channel (flyers, press)	Dialogical (workshops, social media)
Impact	Short-term attention	Long-term attachment

Boxes:

★ **Practice impulse:** Test narratives in citizen dialogue forums in small groups and adapt them live.

🧠 **Concept contrast:** Data-driven campaigns vs. resonance-based storytelling spaces – the former is effective when markets are to be won, the latter when community is to grow.

⚠ **Risk:** Overly emotional narratives without factual substance can foster scepticism.

🌐 **Visionary metaphor:** "Narratives are social bridges – they have to be stretched from both banks."

4.5.1.3 Transformation & options for action

- **Empathic communication workshops:** Training speakers in active listening and emotional storytelling.

- **Narrative co-creation labs:** Participative formats in which citizens develop their own stories and visuals.
- **Emotional data monitoring:** Qualitative surveys and sentiment analysis instead of pure click rates.
- **Resonance checks:** Periodic feedback loops in all communication campaigns, moderated by civil society auditors.

4.5.1.4 Target-group-specific perspectives

Target group	Focus
	Decision-makers
	Building emotional intelligence in leadership communication
	Scientists
	Research on social network dynamics and narrative effectiveness
	Citizens
	Participation in social storytelling initiatives
	Students
	Courses on interactive storytelling and empathic rhetoric
	Artificial intelligences
	Development of sensitive AI feedback agents for resonance monitoring
	Souls
	Narrative meditations and collective visualisation experiences

4.5.1.5 Interactive elements Checklist: Social & emotional resonance

- Do I actively create compassion in my messages?
- Do I encourage dialogue instead of one-way communication?
- Do I systematically collect feedback on emotional impact?
- Do I integrate participative storytelling spaces into my formats?
- Do I balance factual information and emotionality?

? Mini-quiz

Question: Which element is central for long-term attachment in narratives?

- a) Diversity of facts
 b) Emotional resonance
 c) Frequency of repetition
 d) Legal precision

4.5.1.6 Sources & references

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4.5.2 Narrative building blocks

Narrative building blocks

4.5.2.1 Narrative of empowerment *Narrative of empowerment*

"We are not victims of change. We are the authors of the future."

- *Emphasis on self-efficacy rather than a defensive posture*
- *Strengthening the agency of citizens and institutions*
- *Digitalisation not as a threat, but as an enabling space*

Key pillars

- **Increase self-efficacy:** Narratives that make individual agency visible foster confidence in acting independently.
- **Promote participation:** Stories of successful citizens' initiatives motivate active co-creation.
- **Assume responsibility:** Empowerment narratives emphasise collective responsibility and reinforce awareness of shared goals.

4.5.2.1.1 Introduction & core impulses

The narrative of empowerment aims to see people as active shapers of their social and political environment. It strengthens awareness of one's own agency and motivates long-term engagement.

Core impulses:

- **Emphasise agency:** Tell stories of citizens who have created solutions through their own actions.
- **Share success stories:** Concrete examples of local successes provide anchor points for imitation.
- **Make resources visible:** Highlight existing skills and networks instead of emphasising deficits.
- **Link to a shared vision:** Place individual perspectives in the context of collective progress.

4.5.2.1.2 Deep dive & analysis

Dimension	Traditional top-down communication	Empowerment narratives
Approach	Instructive	Collaborative
Focus	Problem definition	Practice-based, solution-oriented cases
Voice	Experts	Peer-to-peer and those affected
Effect	Passive reception	Active participation

:: Boxes:

📌 **Practice impulse:** Organise "empowerment story circles" where participants present and reflect on their own experiences.

🌐 **Concept contrast:** Centralised guidelines vs. decentralised empowerment networks - the former provide security, the latter create sustainability.

⚠ **Risk:** Uncontrolled self-empowerment can foster inconsistent messages; facilitation frameworks are necessary.

🌐 **Visionary metaphor:** "Empowerment is not a gift, but the unleashing of forces that are already there."

4.5.2.1.3 Transformation & options for action

- **Community fellowship programmes:** Support local initiatives through mentors and resources.

- **Storytelling workshops:** Train citizens in narrative self-representation and media literacy.
- **Peer platforms:** Digital spaces where empowerment stories are shared and connected.
- **Feedback dashboards:** Transparent visualisation of collective progress and individual contributions.

4.5.2.1.4 Target-group perspectives

Target group	Focus
 Politics & administration	Empowerment approaches in participatory law-making
 Businesses	Promotion of intrapreneurial projects
 Citizens	Training in digital self-organisation and co-determination
 Educational institutions	Curricula for participatory learning and project-based work
 Civil society	Building networks for peer-to-peer support
 Online communities	Moderation guidelines for constructive self-empowerment

4.5.2.1.5 Interactive elements

 Checklist: narrative of empowerment

- Do I use real example stories from the community?
- Do I foster peer-based dialogue formats?
- Do I make existing resources and successes visible?
- Do I link individual contributions with collective goals?

 Mini-quiz

Question: Which element is central to fostering individual agency?

- a) Detailed instructions
- b) Concrete success stories 
- c) Regular repetition
- d) Technical jargon

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3. **Open Government Partnership (2021):** *A Decade of Impact - OGP 2021 Annual Report.* Washington, DC: Open Government Partnership. Available online at: <https://www.opengovpartnership.org/wp-content/uploads/2022/04/OGP-2021-Annual-Report.pdf> (accessed 2025-05-21).

4.5.2.2 Democracy as a creative force *Democracy as a creative force*

Democracy is not a defensive system, but a source of innovation, stability and meaning – precisely because of its openness, capacity to learn and attachment to values.

Key pillars

- **Fostering collective ideas:** Democracy as a space for joint creation and innovation.
- **Participatory design:** Involving citizens in iterative policy development and prototyping.
- **Visionary togetherness:** Shared visions of the future unleash creativity and strengthen a sense of “we”.

4.5.2.2.1 Introduction & core impulses

Democracy unfolds its full strength when it is understood not only as a decision-making mechanism but as a creative process. In the narrative of democracy as a creative force, participation becomes the source of collective innovation and social renewal.

Core impulses:

- **Activate imagination:** Visionary formats in which citizens design future scenarios.
- **Prototyping instead of paper tigers:** Policies are tested as prototypes and further developed.
- **Establish feedback loops:** Iterative feedback between politics, science and civil society.
- **Anchor design democracy:** Integrate design-thinking methods into political processes.

4.5.2.2.2 Deep dive & analysis

Dimension	Conventional democracy	Creative democracy
Approach	Elections, debates	Co-creation workshops
Outcome	Majority decisions	Pilot projects and prototypes
Role of citizens	Reactive participation	Active shapers
Time horizon	Legislative cycles	Short-cycle innovation

Boxes:

📌 **Practice impulse:** Organise a “policy hackathon” in which multidisciplinary teams develop solutions in prototype form.

🌐 **Concept contrast:** Representative legitimacy vs. creative co-determination – each depends on the other.

⚠ **Risk:** Innovation pressure can lead to prototype-law fatigue; clear goals and resources are necessary.

🌐 **Visionary metaphor:** “Democracy is not a museum, but an ideas workshop.”

4.5.2.2.3 Transformation & options for action

- **Democracy labs:** Establish municipal and digital labs for policy prototyping.
- **Civic design sprints:** Short formats to develop structural solutions and visualisations within five days.
- **Open-innovation platforms:** Digital marketplaces where citizens can submit and evaluate ideas.
- **Experimental budgeting:** Earmark partial budgets for citizens to finance their own pilot projects.

4.5.2.2.4 Target-group perspectives

Target group	Focus
	Politics & administration
	Business
	Citizens
	Educational institutions
	Technology companies
	Civil society
	Implementing prototyping methods in legislative processes
	Public-private innovation partnerships
	Low-barrier access to idea submission and feedback
	Curricula for democratic innovation competencies
	Development of civic-tech tools for participatory processes
	Moderation and coaching offers for co-creation formats

4.5.2.2.5 Interactive elements

Checklist: democracy as a creative force

- Do I open up formats for collective idea generation?
- Do I use prototyping methods for policy drafts?
- Do I implement regular feedback and testing cycles?
- Do I provide resources for pilot projects and experiments?

Mini-quiz

Question: Which element is characteristic of democracy as a creative force?

- a) One-off citizens' survey
- b) Iterative prototyping
- c) Rigid legislative process
- d) Monological parliamentary speeches

4.5.2.2.6 Sources & references

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4.5.2.3 Autonomy is not separation - but a survival strategy *Autonomy is not separation - but a survival strategy*

"Autonomy is not demarcation – it is a survival strategy in an increasingly fragile world order."

Europe's strategic autonomy is justified constructively

Redundancy instead of dependence, cooperation on equal footing instead of clientelism

Key pillars

- **Strategic autonomy:** Autonomy as an active design principle for safeguarding democratic self-determination.
- **Redundancy instead of dependence:** Multi-layered supply and cooperation chains increase resilience.
- **Cooperation on equal footing:** Partnerships between equals strengthen security without clientelism.

4.5.2.3.1 Introduction & core impulses

In an increasingly fragile world order, autonomy is not withdrawal but a survival strategy. It anchors democratic capacity to act and secures collective resilience against external shocks.

Core impulses:

- **Emphasise self-responsibility:** Narratives that highlight local and regional self-empowerment.
- **Resilience through diversification:** Illustrate multiple cooperation options and redundancies.
- **Partnership-based solidarity:** Emphasise shared values and fair cooperation.
- **Self-commitment instead of isolation:** Autonomy links freedom with democratic responsibility.

4.5.2.3.2 Deep dive & analysis

Dimension	Traditional security narratives	Autonomy narratives
Perspective	Defensive and reactive	Proactive and design-oriented
Cooperation model	Hierarchical, one-sided dependencies	Network-based, multilateral partnerships
Risk model	External threat as trigger	Internal resilience as a prevention strategy
Time horizon	Short-term deterrence	Long-term robustness

Boxes:

📌 **Practice impulse:** Develop regional resilience workshops to map and diversify local supply chains and capabilities.

🧠 **Concept contrast:** One-sided dependence vs. strategic diversity – the former weakens, the latter strengthens democratic sovereignty.

⚠ **Risk:** Excessive focus on autonomy can reduce economies of scale and coordination potential; balance is crucial.

🌐 **Visionary metaphor:** "Autonomy is not a lonely path, but a woven net of security."

4.5.2.3.3 Transformation & options for action

- **Build resilience networks:** Establish dialogue platforms for governments, business and civil society to decentralise resources.
- **Promote diversified supply chains:** Support joint initiatives for local production and regional value creation.
- **Initiate partnership forums:** Regular multilateral forums for the fair exchange of strategic technologies and know-how.
- **Review strategic redundancy:** Systematic audits of critical dependencies and development of backup scenarios.

4.5.2.3.4 Target-group perspectives

Target group	Focus
 Decision-makers	Legislation for diversification of supply and production
 Industry	Development of regional production cooperations
 Research & academia	Studies on resilience metrics and autonomy concepts
 Citizens	Awareness-raising for regional value creation and security
 Civil society	Advocacy for fair partnership models
 International partners	Building cooperation mechanisms between equals

4.5.2.3.5 Interactive elements

Checklist: autonomy as a survival strategy

- Have I identified critical dependencies?
- Do I foster multiple cooperation relationships instead of monopolies?
- Do I establish forums for multilateral coordination?
- Do I balance autonomy with necessary division of labour?

Mini-quiz

Question: Which element is at the core of autonomy-focused resilience narratives?

- a) One-sided self-sufficiency
- b) Strategic diversification 
- c) Isolationist policies
- d) Legal enclosure

4.5.2.3.6 Sources & references

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4.5.2.4 Transatlantic renewal through balance *Transatlantic renewal through balance*

France's call for strategic autonomy is integrated, not interpreted confrontationally

Goal: new forms of equal partnership with all democracies – including overseas

Key pillars

- **Values-based cooperation:** Emphasising shared democratic values as the foundation of the transatlantic partnership.
- **Mutual resilience:** Balancing dependencies through fair burden-sharing in security, the economy and technology.
- **Dialogue instead of dominance:** Promoting equal communication channels between Europe and North America.
- **Innovation architecture:** Jointly advancing future-oriented projects in climate, AI and space.

4.5.2.4.1 Introduction & core impulses

The narrative of transatlantic renewal through balance focuses on a partnership no longer shaped by asymmetric dependencies but by mutual reinforcement. It links historical ties with a forward-looking agenda.

Core impulses:

- **Value alignment:** Showcase successful cooperation in which human rights and the rule of law are central.
- **Balanced dependencies:** Visualise how Europe and North America share critical capacities without allowing dominance.
- **Reciprocal innovation:** Highlight bilateral research partnerships that drive sustainable technologies.
- **Cross-Atlantic narratives:** Tell stories of transatlantic citizen exchanges and cultural encounters.

4.5.2.4.2 Deep dive & analysis

Dimension	One-sided dependence	Balanced equilibrium
Security cooperation	NATO burden-sharing in doubt	Joint concepts of strategic autonomy
Economic relations	US dominance in technology	Mutual market opening and standard-setting
Technology transfer	One-way technology exports	Cooperative development projects
Cultural exchange	One-way cultural exports	Mutual education and cultural programmes

Boxes:

📌 **Practice impulse:** Establish a “Transatlantic Fellows Exchange” in which young politicians and innovators complete mutual placements.

🌐 **Concept contrast:** Monological security discourses vs. dialogical resilience workshops – the former focus on deterrence, the latter on joint problem-solving.

⚠ **Risk:** If balance and reciprocity are maintained only symbolically, distance from democracy grows; authenticity must be tangible.

🌐 **Visionary metaphor:** “Transatlantic friendship is like a steering wheel – only in balance does it safely guide us into the future.”

4.5.2.4.3 Transformation & options for action

- **Co-leadership councils:** Establish bilateral councils on strategic issues with equal representation.
- **Dual-use innovation hubs:** Funding programmes for joint start-ups in key technologies.
- **Balanced trade agreements:** Design trade agreements that strengthen both sides equally.
- **Cultural co-creation labs:** Platforms for joint media and art projects interweaving European and North American perspectives.

4.5.2.4.4 Target-group perspectives

Target group	Focus
 European governments	Instruments for parity-based decision-making processes
 US federal agencies	Integration of European standards into technology policy
 Think-tanks	Studies on transatlantic resilience
 Educational institutions	Exchange programmes in political-science curricula
 NGOs	Joint advocacy campaigns for climate and human-rights goals
 Businesses	Building transatlantic R&D alliances

4.5.2.4.5 Interactive elements

Checklist: transatlantic renewal through balance

- Do I foster genuine bilateral dialogue formats?
- Do I make joint innovation projects visible?
- Do I balance dependencies in security and economic matters?
- Do I integrate cultural encounters into communication campaigns?

Mini-quiz

Question: Which element most strongly underpins balance in the transatlantic narrative?

- a) One-sided legislative projects
- b) Mutual innovation alliances 
- c) Monopolistic market leadership
- d) Unilateral military presence

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4.5.2.5 Global invitation Global invitation

“Join the alliance of constitutional democracies.”

An invitation to states, movements and people worldwide to become part of an ethical model for the future.

Pluralist openness instead of identitarian isolation.

Key pillars

- *Inclusive discourse*: Democratic renewal as an invitation to all global democracies and partnerships.
- *Transnational solidarity*: Emphasising shared challenges and collective solutions.
- *Diversity as strength*: Recognising cultural, political and social differences as a resource.

4.5.2.5.1 Introduction & core impulses The narrative of the global invitation understands democracy not as a purely national project, but as an open invitation to co-create a just, sustainable and secure world order. It calls on states, civil societies and individuals to assume responsibility together.

Core impulses:

- Communicate openness to the world: tell stories of successful multilateral cooperation.
- Set a shared agenda: formulate global goals that connect local initiatives.
- Showcase diversity: present examples of cultural diversity as sources of inspiration.
- Build bridges: emphasise dialogue formats between North-South, East-West and inter-regional groups.

4.5.2.5.2 Deep dive & analysis

Dimension	Exclusive nationalism	Narrative of the global invitation
Reach	Inward-looking	Worldwide networks
Cooperation model	Bilateral agreements	Multi-stakeholder partnerships
Understanding of culture	Assumption of homogeneity	Intercultural exchange
Objective	Priority for national interests	Shared agenda for sustainability

:: Boxes:

👉 **Practice impulse:** Launch a “Global Citizen Lab” series in which representatives from different regions develop joint scenarios.

🌐 **Concept contrast:** Rhetoric of isolation vs. open invitation – the former generates fear, the latter creates opportunities.

⚠ **Risk:** Symbolic politics without genuine participation can create frustration; inclusive design is crucial.

🌐 **Visionary metaphor:** “Democracy is an open celebration – every table is set for new guests.”

4.5.2.5.3 Transformation & options for action

- Global participation platforms: build digital forums for international citizen participation.
- Multilateral policy work sessions: jointly draft guidelines in open online workshops.

- Diversity speaker series: virtual and in-person events with speakers from all world regions.
- Intercultural mentoring programmes: exchange schemes that foster learning between different democracies.

4.5.2.5.4 Target-group perspectives

Target group	Focus
International organisations	Coordinating global governance initiatives
Development partners	Integrating local innovations into global strategies
Citizens worldwide	Access to participatory platforms
Academic networks	Research on transnational democracy promotion
NGOs	Networking of civil-society initiatives
Private sector	Promoting global public-private partnerships

4.5.2.5.5 Interactive elements Checklist: narrative of the global invitation

- Do I provide open access for international stakeholders?
- Do I link local initiatives with global goals?
- Do I highlight cultural diversity as a resource?
- Do I create space for horizontal dialogue formats?

Mini-quiz

Question: Which element most clearly characterises the narrative of the global invitation?

- a) State-centred exclusivity
- b) Multi-stakeholder partnerships
- c) One-way communication
- d) National go-it-alone strategies

4.5.2.5.6 Sources & references

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4.5.2.6 Narrative of co-creation Narrative of co-creation

Every country, every region, every citizen can contribute.

Progress is not an elite project – but the collective construction of the future.

Key pillars

- *Participatory narrative structures:* Citizens as co-authors of collective narratives.
- *Transparent processes:* Disclosing decision-making paths fosters credibility.
- *Iterative involvement:* Ongoing inclusion in development steps strengthens ownership.

4.5.2.6.1 Introduction & core impulses The narrative of co-creation puts the active involvement of all stakeholders centre stage. It combines democratic transparency with a sense of shared authorship and thus creates trust and identification.

Core impulses:

- Highlight co-authorship: communicate that citizens help to shape narratives.
- Create process visibility: share milestones, feedback and decisions openly.
- Emphasise iteration: highlight continuous improvements and feedback.
- Integrate diversity of voices: ensure a pluralist representation of perspectives.

4.5.2.6.2 Deep dive & analysis

Dimension	Monological communication	Narrative of co-creation
Structure	Linear and closed	Cyclical and open
Role of recipients	Passive	Active co-authors
Flow of information	One-way	Bidirectional with feedback loops
Commitment	Low, after completion	High, due to ongoing participation

:: Boxes:

📌 **Practice impulse:** Run “narrative co-design sessions” in which citizens jointly develop text modules.

🧠 **Concept contrast:** Centrally controlled campaigns vs. collective storytelling spaces – the former control, the latter connect.

⚠ **Risk:** Without clear facilitation, discussion processes can derail; structured frameworks are necessary.

🌐 **Visionary metaphor:** “Democratic narratives grow through joint editing like a garden that everyone plants.”

4.5.2.6.3 Transformation & options for action

- Narrative co-design tools: digital tools for collaborative text and story development.
- Open draft communities: platforms where drafts can be publicly commented on and further developed.
- Feedback retrospectives: regular online and offline meet-ups for reflecting on and adapting narratives.
- Facilitation frameworks: guidelines and training for facilitators to ensure quality participation.

4.5.2.6.4 Target-group perspectives

Target group	Focus
 Politics & administration	Involving stakeholder commissions in communication planning
 Businesses	Agile storytelling in corporate communication
 Citizens	Training in participatory content creation
 Educational institutions	Teaching formats for collaborative writing and digital dialogue
 NGOs	Co-creation projects with target groups
 Online communities	Moderation guidelines and community-building

4.5.2.6.5 Interactive elements Checklist: narrative of co-creation

- Do I enable citizens to participate in active co-design?
- Do I share development stages and decisions transparently?
- Do I implement regular feedback cycles?
- Do I scan for diversity and take different voices into account?

? Mini-quiz

Question: Which element most clearly characterises the narrative of co-creation?

- a) Completed narratives before publication
- b) Transparency and co-authorship 
- c) One-sided control of content
- d) Top-down decision-making processes

4.5.2.6.6 Sources & references

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5. The EDA Concept

European Defence Alliance (EDA) - Strategic framework

A resilient security union of democratic constitutional states

A Voice From April 2025

🛡 Call of Duty to the Coalition of the Willing:

Form - without delay - a **European Democratic Defence Alliance (EDA)**.

To give Europe's rule-of-law democracies - and those becoming such - a future worth believing in.

A safe place. A sovereign voice. A shared shield. A democratic tomorrow.

Because:

Freedom must never be outsourced.

Security must never be silenced.

Democracy must never stand alone - and if necessary, be fought for.

(This shall no generation ever forget.)

The EU, Europe - and humanity's future - need EDA.

Not to break away from the US -

but to stop breaking itself.

Now is the moment. Lead - or be led.

📘 Executive summary for decision-makers

🎯 Aim of this chapter

This chapter outlines the basic architecture of a European Defence Alliance (EDA) that secures Europe's security, sovereignty and democratic legitimacy in the 21st century. The goal is not only military capability, but the **systemic integration of defence, resilience and democratic control** - as an independent strategic pillar alongside NATO.

💡 Key messages for decision-makers

- **EDA is Europe's strategic backbone** in a multipolar world with asymmetric threats, hybrid attacks and a fragmented alliance architecture.
 - **Security must not be outsourced.** Dependence on US foreign policy makes Europe vulnerable - an effective EDA increases credibility and autonomy.
 - **Democratic control is not optional**, but a basic requirement: constitutional anchoring, transparent decision-making processes and parliamentary involvement are non-negotiable.
 - **EDA understands defence holistically**: physical (borders, infrastructure), digital (cyber, AI), orbital (space), ecological (climate disasters), civil (crisis resilience).
 - **Nuclear deterrence must be Europeanised** - controlled, democratically legitimised and strategically embedded.
-

🛠 Framework for action and measures (2025-2050)

1. Build institutions

- Establish a *European Security Council* with civil-military parliamentary oversight.
 - Develop an interoperable command structure (EDA Command), with its own situation centre, planning staff and operational command.
- 2. Strengthen defence capability**
 - Common standards for logistics, equipment, communication and training.
 - Harmonisation of national force components into modular, deployable formations.
 - 3. Firmly anchor democracy**
 - Constitutional binding of every strategic component.
 - Publicly accessible review processes (EDA White Paper) and annual accountability to the EU and ERDA parliaments.
 - 4. Expand strategic deterrence**
 - Build a **European nuclear back-up** on a constitutional basis (phase 2035–2050), complementary to NATO.
 - Establish a **Strategic Ethics Council** that co-responsibly evaluates deployments.
 - 5. Integrate resilience sectors**
 - Link defence with FORTERA (industrial capacities), ARKTIS (military presence), SPACE (orbital protection) and CIVITAS (civilian control, cyber-resilience).

Risks of omission or delay

- **Growing vulnerability of Europe**, especially to hybrid and orbital attacks.
- **Loss of geopolitical credibility**, especially vis-à-vis partners in the Global South.
- **Fragmentation of the European security landscape** through national solo efforts or external dependency.
- **Loss of democratic attachment** of the population to security policy decisions – increased potential for radicalisation.

Visionary benefits (long-term perspective to 2075)

- Europe becomes a **peace-shaping normative power**, whose strength grows from **strategy, restraint, technological innovation and democratic legitimacy**.
- The EDA establishes a new security paradigm: **civilian resilience plus military capability under constitutional responsibility**.
- Democratically controlled deterrence signals: Europe protects what it loves – **not through sheer power, but through fidelity to principles**.

Final impulse for decision-makers

Security is not a condition, but a civilisational obligation. Europe can remain free, open and peaceful only if it takes its security into its own hands – with prudence, ethics and responsibility. The EDA is Europe's strategic maturity test.

Glossary: key terms

Term

Definition

ADO (Asian Defence Organization)

Hypothetical security alliance of democratic states in East Asia (e.g. Japan, South Korea and others)

ASDA (Australian Defence Alliance)

Hypothetical security alliance in the Indo-Pacific under Australian leadership to protect maritime routes and democratic sovereignty

LDA (Latin American Defence Alliance)

Hypothetical defence alliance of democratic states in Latin America (possible leadership by Brazil/Argentina)

AFDA (African Defence Alliance)

Hypothetical defence alliance of democratic African states to promote regional security and democratic values

GDA (Global Defence Alliance)

Vision of a trans-regional defence framework of democratic constitutional states based on shared principles

Democratically Prepared Defence Accession

Status of a sovereign partner state which, after a successful referendum, becomes a full member of the EDA - based on democratic self-determination and legal clarity

ERDA

European Rights-Based Democratic Alliance - future political union of democratic constitutional states with a common constitution and post-scarcity economy

EDA

European Defence Alliance - security alliance for democratic sovereignty and strategic autonomy, complementary to NATO

Article 5 Equivalent

Binding collective-defence clause analogous to Article 5 of the NATO Treaty

PESCO

Permanent Structured Cooperation - EU framework for structured military cooperation

FCAS / MGCS

Core European armaments projects for air and land warfare systems

IRIS²

Planned European satellite system for secure communications

Strategic autonomy

Ability to act independently in defence, economics and diplomacy

Coalition of the Willing

Flexible group of like-minded states that act together ahead of a broader agreement

Cyber resilience

Systemic ability to prevent, withstand and recover from cyber threats

Rapid Response Force (RRF)

Multinational EDA rapid-reaction force for crises and hybrid threats

5.1 Vision and mission of the European Defence Alliance (EDA)

Vision and mission

The European Defence Alliance (EDA) is a values-based defence architecture that unites European and allied democracies in a shared commitment to security, freedom and democratic sovereignty. It complements NATO while ensuring that Europe remains capable of defence and strategically autonomous, even in times of transatlantic uncertainty.

Core objectives:

- Protection of democracy, the rule of law and territorial integrity
- Strengthening Europe's independent deterrence and defence capability
- Enabling rapid, coordinated responses to hybrid and conventional threats
- Involving global democracies in a flexible, values-oriented security community

5.2 Membership and organisational structure

Membership and structure

Core members:

- EU Member States (voluntary participation)
- United Kingdom
- Norway
- Iceland
- Canada
- Ukraine (sovereign partner and full member after a referendum of the Ukrainian population)
- Greenland (via Denmark)

Strategic partners:

- Japan, South Korea, Australia, New Zealand, Taiwan
- Costa Rica, Chile (Latin America)
- African democracies (by invitation)

Institutional bodies:

- **EDA Council** (ministerial level)
- **Integrated Joint Command**
- **EDACOM** - crisis-coordination centre
- **Cyber Defence Command**
- **Rapid Response Force (RRF)** - deployable within 48 hours

5.3 Principles and defence doctrine

Defence principles

- **Article 5 equivalent:** clear mutual assistance commitment
- **Protection of sovereignty:** the political independence of all members is preserved
- **Technological sovereignty:** joint development of armaments, space, AI and communications
- **Cyber resilience:** coordinated protection against cyberattacks and hybrid threats

5.4 Military integration and common standards

Military integration

- Common standards and regular joint exercises
- Priority use of European or allied systems (e.g. FCAS, MGCS)
- Use of a secure European battlefield cloud
- Joint early-warning, ISR and satellite capabilities
- Infrastructure agreements for cross-border mobility

5.5 Global coordination and responsibility

Global coordination and responsibility

- Not a NATO alternative, but a fully autonomous security pillar
- These alliances reflect a growing global consensus: the protection of democracy requires cooperation beyond regional borders
- Global coordination with democratic security alliances (e.g. emerging alliances such as ADO, ASDA, LDA, AFDA)
- Long-term vision: creation of a **Global Defence Alliance (GDA)** of constitutional democracies
- Launch of a **Democracy Security Network** for values-based cooperation

5.6 Synergies and connectivity

Synergies and connectivity

- Integration with PESCO, EDIRPA, IRIS² as well as EU space and cyber initiatives
- Linkage with programmes for democratic innovation and civil resilience
- Institutional interlinkage with the constitutional developments of ERDA

5.7 Command structure and operational sovereignty

Command structure and operational sovereignty

- The EDA command structure consists exclusively of representatives of full member states to ensure coherence, accountability and democratic legitimacy.
- The **Integrated Joint Command** oversees strategic operations, troop deployments and the coordination of intelligence services.
- Establishment of a **Continental Early-Warning and Air-Defence Command** analogous to NORAD for Europe and the Arctic region.
- **Decentralised resilience** as a core principle: EDA forces are structured like a secure, autonomous network that remains functional even under partial isolation.
- At least **250,000 personnel** per **Defence Sovereignty Node (DSN)** within full member states form part of the **Persistent Deterrence Force (PDF)**, autonomously capable of action in the event of major disruptions or siege.
- Cyber Command, special forces and space capabilities remain decentralised but interoperable via secure EDA protocols.
- Massive build-up of a **European Drone Force (EDF)** to complement manned units – for reconnaissance, logistics, precision strikes and swarm defence.
- Parliamentary and civilian oversight is exercised via the EDA Council and the ERDA Constitutional Assembly.

5.8 Defence Sovereignty Nodes (DSNs)

Defence Sovereignty Nodes (DSNs)

Defence Sovereignty Nodes (DSNs) form the structural backbone of the territorial defence architecture of the European Defence Alliance. They ensure Europe's defensive presence on all geographical vectors – autonomous, redundant, resilient. They are complemented by mobile DSNs (mDSNs), which, as flexibly deployable task forces, provide strategic depth and responsiveness.

Ecological, economic, civil aspects

- **Ecologically sustainable self-sufficiency:** small modular reactors (SMRs), hybrid solar-wind fields, closed water-recycling systems.
 - **Circular maintenance:** on-site 3D printing of spare parts, resource-saving recycling chains.
 - **Dual-use integration:** civil-military co-development with disaster management, evacuation management and research institutions.
-

5.8.1 Territorial DSNs - static defence sovereignty

Definition

Large-scale, autonomously operating force structures with full multi-domain capability. Each DSN can operate independently and at the same time act in concert with other nodes.

Function

Each DSN corresponds to a complete force formation with at least 250,000 personnel covering all classical and modern domains (land, air, sea, cyber, orbit). Autarky for up to 90 days is guaranteed – independently of central command, supply or communications structures.

"Digitalised national-defence unit - redundant, self-sufficient, networked."

Structural features

1. Personnel & resources

- At least 250,000 personnel, structured by domain of operation.
- 25% operational elasticity for immediate redeployment, reinforcement or crisis response.
- Strategic means of transport: rail, road, A400M, VTOL platforms, amphibious logistics.

2. Drone systems

- At least 25% of combat effect generated by cooperatively guided swarms (air, ground, sea, orbit).
- AI command via federated agent systems, capable of offline operation and asynchronous synchronisation.

3. Self-sufficiency & maintenance

- Energy: SMRs, solar farms, emergency generators with recycling back-up.
- Water: closed filtration and treatment cycles.
- Spare-parts supply via additive manufacturing (metal/composite materials).

4. Command structure & networking capability

- Each node capable of acting as an independent command element (fallback leadership capability).
- Communications network via EDA mesh satellites, resilient against jamming and spoofing.
- War-games and simulations for continuous testing of autonomy.

5. Cyber resilience & autonomous countermeasures

- Own cyber-defence centres with autonomous response cores (self-repair functionality).
- Peer-to-peer AI network for real-time situational awareness, target identification and operational planning.

6. Democratic-ethical operating principle

“They defend not just borders - but values.”

- Open reporting portals on energy, resources and security indicators.
- Local dialogue formats (e.g. citizens' panels, environmental-impact procedures).

7. Operational security (OpSec) - integrity principle

- Clear separation between publicly visible information and mission-critical data.
- Access to strategic systems only via multi-level CIV-MIL-AI authentication.
- All control centres can be physically isolated, monitored by AI and equipped with automated self-protection protocols.
- Special protection protocol against AI-based pattern recognition and profiling from seemingly harmless metadata.
- Mandatory information-security and disinformation-resilience training for all leadership levels.
- **“Trust is created through openness - defence through discretion.”**

8. Reaction times & readiness levels

- Three escalation levels: Alpha (under 6 h), Beta (48 h), Gamma (routine operation).
- System-wide reaction time below 60 minutes in the event of a confirmed threat.

9. Scenario checks & resilience tests

- Annual tests for failure scenarios: communications breakdown, blackout, loss of leadership, mass attack.
- Results-based further development of protocols.

Geostrategic distribution (examples)

- **West:** Iberia, Atlantic coast, Ireland/Scotland.
- **North:** Scandinavian-Arctic region, Greenland/Iceland.
- **Central:** Central Europe, Alpine region.
- **East:** Baltic states, Carpathian arc.
- **South-East:** Balkans, Aegean islands.

5.8.2 Mobile DSNs (mDSNs) - dynamic responsiveness

Definition

Modular, rapidly deployable task forces (20,000–50,000 personnel), designed for decentralised crisis intervention, operational reinforcement or humanitarian stabilisation in all geographic and climatic zones.

Structural features

1. Modularity & mobility

- Air deployable via A400M, rotor- and jet-transport, high-speed transit.
- Self-sufficient field bases with hybrid supply (power, water, communications).

2. AI & cyber structure

- Mobile compute cores for situational data, adversary projection, tactical target selection.
- Independent fallback-network connection (EDA mesh satellites, tactical laser communications).

3. Dual use & civil integration

- Deployable for floods, earthquakes, mass evacuations.
- Involvement of civil development actors through pilot programmes and training.

4. Interoperability

- Full integration into EDF, CIVITAS and the EDA cloud.
- Coordination possible with NATO, UN, African and Asia-Pacific partners.

5. Special variants

- **Maritime:** sea lanes, port protection, undersea-cable security.
- **Arctic:** extreme-cold operations, polar deployment.
- **Urban:** area control, disaster relief, tactical infrastructure protection.

Strategic principle

“If they move, they stabilise. If they arrive, they secure.”

5.8.3 Financing & governance

- **Defence Innovation Fund:** multinationally financed through green bonds, PPPs and national contributions.
 - **Transparency & legitimacy:** regional impact reports on technology, jobs and environmental compatibility (non-sensitive data only).
 - **Piloting:** test DSNs with a focus on civil-military cooperation.
-

5.8.4 Final assessment

This DSN model combines high strategic-operational effectiveness with democratic accountability, technological connectivity, ecological intelligence and tactical discretion. It makes defence not only possible, but future-proof and resistant to information overload or systemic penetration.

5.9 Unmanned strategic systems and drone forces

Unmanned strategic systems and drone forces

The European Defence Alliance (EDA) is establishing the **European Drone Force (EDF)** as a forward-looking strategic component to significantly increase deterrence depth, operational capability and flexibility.

The EDF integrates powerful unmanned systems that can be deployed autonomously and in combination. It ensures that Europe can effectively meet the challenges of hybrid and conventional threats – technologically sovereign, democratically legitimised and ethically responsible.

5.9.1 Core components of the EDF

- **Swarm drones:** autonomous, AI-controlled swarms for precise and scalable operational effects.
 - **Autonomous reconnaissance platforms:** persistently operating systems for comprehensive situational awareness in all domains.
 - **Loitering munitions:** intelligent “kamikaze” drones for pinpoint effects against critical targets.
 - **Electronic-warfare (EW) drones:** specialised systems for disrupting and neutralising adversary communications and sensor systems.
 - **Logistics and supply drones:** unmanned systems for autonomous resupply of deployed forces, even under fire or in remote areas.
 - **Autonomous underwater vehicles (AUVs):** autonomous systems for maritime reconnaissance, mine clearance and tactical effects.
 - **Infantry and terrain drones:** combat-capable unmanned systems (two-, four-, six-, eight-legged and wheeled) to accompany and reinforce infantry operations; equipped with laser weapons, kinetic projectiles, explosive munitions and guided micro-rockets.
 - **Orbital drones and platforms:** autonomous satellite systems for communications, reconnaissance and strategic deterrence in orbit.
-

5.9.2 Rules of Democratic Engagement Framework

All EDF systems are subject to clearly defined rule-of-law engagement rules that guarantee accountability, proportionality and democratic transparency. Decisions on operational measures are always taken with human confirmation and ethics-AI integration in order to exclude normative misuse.

5.9.3 EDF organisation and networking

- **Distribution and operational integration:** EDF units are fully integrated into the Defence Sovereignty Nodes (DSNs), use secure battle networks and work closely with ISR (intelligence, surveillance, reconnaissance) and space systems.
 - **Drone Innovation Task Force:** permanent research unit for developing and testing advanced swarm AI, quantum-secure communication, human-machine collaboration and civil-military dual-use technologies.
-

5.9.4 Strategic elasticity and reserve capacity

At least 25% of the EDF structure is held as an operational reserve so that unexpected crises and mission requirements can be met flexibly without endangering system integrity.

5.9.5 Forward-looking strategic development

Inspiration from China's successful military-civil fusion strategy is used to expand Europe's drone development in a technologically and economically sustainable way:

- **Dual-use and co-development:** targeted support for civil drone technologies with potential military application.
 - **Platform economy and exportability:** development of a modular, cost-efficient drone industry with civil and military applications.
 - **Innovation network:** close networking of civil research institutions, universities, industry partners and military development units.
-

5.9.6 Democratic and ethical guidelines

The EDF combines technological efficiency with social responsibility. This takes place with the involvement of civil control mechanisms (CIVITAS modules), normative ethics codes and transparent governance. Human user feedback is continuously fed into AI development to ensure social inclusion and acceptance of the systems used.

"Technological superiority – democratically accountable, ethically guided."

5.9.7 Assessment and outlook

The EDF is Europe's answer to modern warfare: highly capable, ethically grounded, democratically legitimised. It thus ensures sustainable defence capability and Europe's strategic independence.

"Effective defence means not only technological superiority – but also ethical clarity and societal acceptance."

5.10 Nuclear deterrence and strategic autonomy

Strategic nuclear deterrence capability

Safeguarding peace through democratic and proportionate deterrence

To preserve strategic autonomy and protect the territorial integrity of democratic constitutional states in Europe, the EDA must be able to credibly deter even the most extreme threats. In view of global instability and potential uncertainties surrounding transatlantic guarantees, the EDA is to build a fully sovereign, legally bound nuclear-deterrence capability.

5.10.1 Rationale and principles

Rationale and principles

- **Peace through strength:** nuclear deterrence is not an act of aggression, but a last protective measure against existential threats.
- **Democratic control:** all nuclear assets are subject to strict constitutional oversight, parliamentary approval and the requirement of democratic proportionality.
- **Complement, not duplication:** this capability complements NATO's nuclear umbrella but provides an autonomous backbone in times of crisis.

5.10.2 Immediate measures (2025-2030)

Immediate measures (2025-2030)

- Strategic **stationing agreements with France**, e.g. along the eastern border of the EDA (Poland, Finland, Baltic states).
- Establishment of a **Nuclear Consultation Council (NCC)** within the EDA, modelled on NATO's Nuclear Planning Group - for transparency and multilateral coordination.

5.10.3 Medium-term development (2030-2040)

Medium-term development (2030-2040)

- Establishment of an **EDA Nuclear Sovereignty Fund** for joint research, development and procurement of delivery systems and command structures.
- Multinational cooperation (France, Germany, Sweden, Poland, Finland, Czechia) under democratic control.
- Creation of a **Digital Deterrence Simulation Network (DDSN)** for real-time simulation of scenarios and safety mechanisms.

5.10.4 Long-term vision (2040-2050)

Long-term vision (2040-2050)

- Development of a **European Nuclear Deterrence Doctrine (ENDD)** based on defensive proportionality, strategic de-escalation and civilian control.
- Integration of controlled nuclear-deterrence systems into the **Defence Sovereignty Nodes (DSNs)** - for regional deterrence capability in the event of major disruptions.
- Alignment of all systems with the **Rules of Democratic Engagement Framework**, including in the cyber and space domains.

5.10.5 Public communication and ethical foundation

Public communication and ethical foundation

"We do not rely on unpredictability - we rely on responsibility. Europe's democracies do not defend themselves out of fear, but out of a duty to peace and freedom."

The EDA's nuclear deterrence is communicated as a **minimalist, rule-of-law-bound, democratically anchored last resort** - an expression of European maturity, responsibility for peace and strategic prudence in a fragile world order.

*** End Patch

6. The CIVITAS concept

CIVITAS: Europe's digital agora

Executive summary for decision-makers

Aim of this chapter

Creation of a digital democracy platform (CIVITAS) that strengthens citizen participation, makes political decision-making processes more transparent and sustainably promotes democratic culture.

Key messages

- Digital technologies enable direct, continuous participation and democratic innovation.
- Data protection, security and ethical standards are at the heart of a sustainable digital democracy.
- Democracy is strengthened through inclusive, barrier-free digital spaces.

Measures

- Implementation of a Europe-wide digital participation system (CIVITAS).
- Establishment of clear governance and data-protection standards.
- Funding programmes for digital democracy education and media literacy.

Risks

- Digital divides could distribute participation unequally.
- Risks of manipulation and data-protection concerns in digital processes.

Visionary benefits

Digital democracy creates greater social cohesion, higher political transparency and stronger citizen engagement.

6.1 Guiding idea: democracy in the digital sphere

Guiding idea: democracy in the digital sphere

In an era of growing uncertainty, increasing polarisation and algorithmically driven manipulation, Europe needs a digital counterweight – a democratically controlled, citizen-centred and technologically sovereign network. CIVITAS is this counterweight. Not as a replica of commercial platforms, but as a new institutional sphere: reliable, participatory, pluralistic.

CIVITAS is not a European Twitter. It is the digital agora of a self-confident democracy.

CIVITAS combines social-network functions with the rule of law, public accountability and direct citizen participation. It is the digital infrastructure for participation, freedom of expression and democratic self-efficacy in the 21st century.

6.2 Governance & democratic oversight

Governance & democratic oversight

CIVITAS is operated by an independent European foundation under parliamentary oversight (EU/EDA/ERDA).

- Participation of civil-society organisations, youth councils, media and academia.
- Supervisory bodies with citizen participation.
- Algorithmic decisions are subject to ethics committees and public audit.
- Funding from public sources; no advertising, no commercial data exploitation.

6.3 Technical architecture and data protection

Technical architecture

The architecture is decentralised, open-source and fully compatible with the Fediverse (ActivityPub):

- Geo-redundant hosting on European servers.
- Compliant with GDPR, eIDAS and the ECHR.
- Modularly extensible, accessible and multilingual.
- Transparent display of algorithms, no hidden rankings.

6.4 Core functions of CIVITAS

Core functions of CIVITAS

- **Verified debate space** with AI and human moderation.
- **Citizen petitions** with digital threshold mechanisms and forwarding procedures.
- **Interfaces to democratic processes:** elections, EU consultations, e-voting.
- **Political information modules:** legislative histories, vote trackers, party programmes.
- **Civic-tech tools** for co-shaping public initiatives.

6.5 Protection mechanisms & legal certainty

Protection mechanisms & legal certainty

- Rule-of-law-defined moderation guidelines.
- Appeals procedures with independent review.
- Regular transparency reports and external audits.
- Abuse-prevention mechanisms for coordinated influence operations or system overload.

6.6 Partnerships & global integration

Partnerships & global integration

CIVITAS is open to cooperation with:

- Parliaments, municipalities, educational institutions, media organisations.
- International democracies (e.g. Canada, Japan, New Zealand, Iceland).
- Indigenous communities in the Arctic region (e.g. participation in the Arctic Commons Charter).
- Integration into ERDA's and EDA's strategic communications and resilience concepts.

6.7 Education, youth & democratic participation

Education, youth & democratic participation

Democracy lives from participation – especially that of the younger generation:

- CIVITAS offers secure access for schools, universities and youth councils.
- Support for civic education and digital self-efficacy.
- Participatory tools for projects, votes and political learning spaces.

6.8 Concluding reflections

Concluding reflections

An infrastructure for Europe's democratic future

CIVITAS is more than a technical project. It is a strategic pillar of European democracy. It creates a public space in which freedom, participation and responsibility can unfold digitally – sovereign, protected and open to all who wish to help shape a pluralistic future for Europe.

CIVITAS is the infrastructure of the digital self-assertion of free democracies.

7. The FORTERA Concept

FORTERA - The strategic economic architecture for a democratic Europe - economic sovereignty & global democracy partnership

Europe's strategic response to economic nationalism

A concept for democratic constitutional states in the EU/ERDA and their international partners

Executive summary for decision-makers

Aim of this chapter

Establish a robust, sovereign and sustainable European economic structure that secures strategic production capacities and reduces trade dependencies.

Key messages

- Promotion of the production of strategic goods (e.g. semiconductors, energy, raw materials) within Europe.
- Development of democratic trade alliances and transatlantic partnerships to secure strategic supply chains.
- Establishment of a resilient, sustainable industrial policy.

Measures

- Creation of strategic production clusters and European innovation funds.
- Implementation of ethical and environmental trade standards.
- Development of transnational cooperation mechanisms.

Risks

- Excessive protectionist tendencies could hamper global cooperation.
- Complex coordination of national and intra-EU economic interests.

Visionary benefit

A sovereign and sustainable economy makes Europe a global pioneer in responsible, democratically governed economic activity.

7.1 Starting point and strategic cornerstones

Starting point

With the return of economically nationalist forces – particularly in the context of Donald Trump’s second presidency – a new era of economic tensions is looming. Tariffs, isolationism and political arbitrariness in trade policy pose a serious challenge for globally interconnected democracies. Europe and its partners must respond – not in kind, but with strategic resilience, economic responsibility and democratic integrity.

7.2 Aim of the concept

Aim of the concept

This concept provides a structured course of action for Europe's democratic constitutional states and their global partners, enabling them to be prepared for protectionist measures without jeopardising the principles of open, fair and dignified economic systems.

7.3 Production sovereignty and strategic industrial policy

Production sovereignty and strategic industrial policy

- **Reindustrialisation with responsibility:** Promotion of future technologies such as semiconductors, renewable energies, batteries, medical technology, spaceflight and AI.
- **Regional value creation:** Strengthening European supply chains with a focus on resilience rather than maximum efficiency.
- **European substitutes for critical US goods:** Building alternative capacities for military systems (e.g. FCAS instead of F-35), strategic basic materials (green hydrogen-based steel instead of imported steel), energy sources (hydrogen and SMRs instead of LNG), digital infrastructure (European cloud and AI systems).
- **Public-private transformation funds:** Long-term investment guarantees for structurally important industries.

Economic autonomy is not isolationism – it is the foundation of democratic capacity to act.

7.3.1 Overview: Europe's strategic production goals (excerpt)

Overview: Europe's strategic production goals (excerpt)

Sector

Substitute or target product

Comment

Defence

FCAS, MGCS, drone systems, space-based reconnaissance

Replacement for F-35, Abrams and others - with EU/ERDA/EDA cooperation

Energy

SMR reactors, hydrogen storage, biogas solutions

Phase-out of fossil US imports (LNG)

IT & communication

EU cloud, quantum encryption, AI base systems

Digital sovereignty vis-à-vis big tech

Healthcare

Active ingredient synthesis, mRNA platforms, diagnostic devices

Independence in pandemic preparedness

Raw materials

Recycling, substitution, strategic stockpiling

Resilience to export controls (e.g. rare earths)

Agriculture/food

Regional cycles, urban agricultural systems

Autarky component of civil resilience

7.3.2 Quantified Scenarios for Production Sovereignty within FORTERA

Quantified scenarios for production sovereignty within FORTERA

Strategic sectors and target settings

The following industrial sectors have been identified as particularly critical for Europe's long-term economic resilience and strategic autonomy:

1. Semiconductor production

- Target 2030: Increase domestic production from the current 10% to at least 35% of EU demand.
- Target 2045: Increase to 70% domestic production.
- Expected investment: EUR 150–200 billion via public funding and private investment (50/50).
- Projected GDP impact: Increase of 0.4% by 2030 and up to 1.2% by 2045.

2. Energy technologies (including SMRs and renewable energies)

- Target 2030: 40 new SMR reactors in operation; share of renewable energies rises to 65%.
- Target 2045: 100 SMR reactors; renewable energies at 80%.
- Expected investment: EUR 350 billion by 2030; by 2045 a further EUR 500 billion (60% public, 40% private).
- Employment effect: approx. 1 million new jobs across Europe by 2045.

3. Hydrogen-based steel production

- Target 2030: Replace 25% of steel imports with European hydrogen steel.
- Target 2045: Achieve 75% self-sufficiency in low-emission steel.
- Investments: Around EUR 100 billion, combined from EU transformation funds and industrial partnerships.
- CO₂ reduction: 60 million tonnes per year by 2035; in the long term 150 million tonnes per year.

4. Cloud and IT infrastructure

- Target 2030: Establish an independent EU cloud infrastructure (EU Sovereignty Cloud) for critical applications.
- Target 2045: Full independence from non-European cloud services in strategic sectors.
- Investments: EUR 80–120 billion, with a focus on public-private partnerships.
- Effect on digital resilience: Reduction of cyber risks by an estimated 75%.

5. Aviation and defence (FCAS)

- Target 2035: Replace at least 30% of imported aviation systems with FCAS.
- Target 2045: 80% of air defence capabilities based on European systems.
- Investment needs: EUR 200 billion by 2045 (70% public, 30% private).
- Employment growth: 250,000 jobs, particularly in high-technology sectors.

7.3.3 Challenges, Risks and Solution Approaches

Challenges, risks and solution approaches

1. Technological challenges

- **FCAS and defence technology:** Development risks in complex technologies such as drone and AI systems; delays in certification and integration compared with established foreign systems (for example F-35).
 - **Solution approach: Establish a European innovation cluster with targeted research funding and cooperation between industry and research centres.**
- **Hydrogen-based steel production:** Infrastructure challenges in building hydrogen networks and scaling production technology up to industrial level.
 - **Solution approach: Build European pilot projects and model regions for scaling, combined with targeted infrastructure funding.**

2. Economic risks

- **Transition risks:** Short-term increases in costs and competitive disadvantages for European companies during the switch to domestic production.
 - **Solution approach: Temporary support instruments, tax incentives and risk-management programmes to relieve affected companies.**
- **Production bottlenecks:** Temporary supply-chain and production bottlenecks due to the rapid scaling up of new production capacities.
 - **Solution approach: Build strategic stockpiles and flexible production capacities to bridge critical transition phases.**
- **Market reactions:** Potential market reactions and price volatility, especially in the first phases of the transition.
 - **Solution approach: Early market communication and risk-management strategies to dampen price volatility.**

3. Social and political challenges

- **Industrial restructuring:** Necessary transformation of existing sectors and loss of traditional jobs in certain regions, which could trigger social tensions.
 - **Solution approach: Regional transformation funds and reskilling programmes, accompanied by structured regional development plans.**
- **Societal acceptance:** Need for intensive communication and participatory measures to secure societal consent and support.
 - **Solution approach: Stronger involvement of civil society via participatory platforms (for example CIVITAS), transparent decision-making processes and continuous information campaigns.**

7.3.4 Transition Costs and Financing Strategy

Transition costs and financing strategy

1. Estimate of transition costs

- **Semiconductor manufacturing:** Around EUR 175 billion (public subsidies: EUR 87.5 billion, private investment: EUR 87.5 billion).
- **SMR reactors and renewable energies:** In total around EUR 850 billion by 2045 (public subsidies: EUR 510 billion, private: EUR 340 billion).
- **Hydrogen-based steel production:** Around EUR 100 billion (public funding via EU transformation funds: EUR 60 billion, private: EUR 40 billion).
- **Cloud infrastructures:** EUR 100 billion (public-private partnerships with EUR 50 billion each).
- **FCAS and defence:** EUR 200 billion (public funds: EUR 140 billion, private: EUR 60 billion).

2. Financing

- **European innovation funds:** Focus on strategic technologies with high technological uncertainty and high potential.
- **Transformation funds:** Specifically for traditional industries and large-scale projects with long-term transformation processes.
- **Public credit lines:** Support for private companies facing transition risks and short-term financing bottlenecks.
- **Private-sector investment:** Mobilised through targeted tax incentives, regulatory facilitation and cooperative industrial partnerships.

7.3.5 Practical Measures and Milestone Planning (2025-2050)

Practical measures and milestone planning (2025-2050)

1. Defined milestones

- **2025-2030:** Initial investments, establishment of the first production lines for semiconductors, SMRs and cloud infrastructure.
- **2030-2035:** Achievement of the first key production targets (semiconductors: 35%, SMR reactors: 40 units, hydrogen steel: 25%). First FCAS prototypes take to the air.
- **2035-2040:** Expansion of existing capacities, growth in production and establishment of European supply chains. FCAS begins the operational replacement of imported systems.
- **2040-2045:** Strategic autonomy in the sectors of semiconductors, energy, steel production and defence is largely achieved.
- **2045-2050:** Completion of the transition phase, evaluation and optimisation of existing infrastructures and production capacities.

2. Role of the Democracy Trade Network

- Building strategic cooperation with international democracies to secure critical raw materials, exchange knowledge and jointly develop technologies.
- Coordinated crisis management and resilience-building through mutual support in the event of production bottlenecks and market disruptions.

7.3.6 Success Monitoring and Adjustment Mechanisms

Success monitoring and adjustment mechanisms

1. Metrics for success

- Production quotas and share of domestic production in the defined sectors.
- Job creation and regional employment rates.
- Degree of technological independence and reduction of import dependencies.
- Economic effects on GDP and the innovative capacity of the European economy.

2. Mechanisms for readjustment

- Regular reviews by the FORTERA Committee for the continuous adjustment of measures.
- Involvement of civil society and stakeholder participation via the CIVITAS platform for transparent, democratic decision-making.
- Flexibility in the reallocation of financial resources based on progress assessments and changing conditions.

7.3.7 Overall Outlook and Benefits

Overall outlook and benefits

Implementing these goals significantly strengthens Europe's strategic sovereignty and creates measurable economic and societal added value. Total investments of around EUR 1 trillion by 2045 are expected to lead to a long-term GDP increase of 3 to 5%, accompanied by substantial emissions reductions and the creation of at least 1.5 million new jobs.

These investments enable Europe to become less dependent on geopolitical uncertainties, promote innovation, increase societal prosperity and establish durable, resilient economic structures.

7.4 Building Democratic Trade Alliances (“Democracy Trade Network”)

Building democratic trade alliances (“Add-On Global”)

- **Democratic trade instead of resource nationalism:** Establishment of a “Democracy Trade Network” with Canada, Japan, Australia, New Zealand, Chile, South Korea, Costa Rica and others.
- **Future-oriented free-trade zones:** Tariff-free access and cooperation agreements for key technologies, climate-protection products and digital infrastructure.
- **Reliability through constitutional anchoring:** Trade agreements with states bound by the rule of law promote not only trade but also trust.

Free trade only works among equals – not under coercion.

7.5 Rethinking the Transatlantic Partnership

Rethinking the Transatlantic Partnership

- **Preserving willingness to cooperate:** Continue close cooperation with the United States, as long as shared values are upheld.
- **Preparing for independence:** Build robust alternatives in case of US blockades or tariff increases:
 - Independent financial infrastructure (e.g. a European payment system).
 - Technological and energy sovereignty.
 - Crisis protocols for international companies.

Strategic partnership must be based on reciprocity - not on one-sided adaptation.

7.6 Defensive Mechanisms against Economic Nationalism

Defensive instruments against economic coercion

- **European Trade Defence Mechanism (ETDM):**
 - Early detection of politically motivated trade measures.
 - Automated response mechanisms: ethically justified, proportionate counter-tariffs.
 - WTO-compliant safeguard strategy.
- **Multilateral cooperation within the WTO and beyond:**
 - New coalitions of democratic states against arbitrary protectionism.
 - Strengthening global rulebooks through democratic legitimacy.

Defence is not a break with the world – but the protection of the rules of the game.

7.7 Citizen Participation & Democratic Economic Culture

Citizen participation & democratic economic culture

- **Platforms for citizen participation** (e.g. digital participatory budgets, participation platforms, transparent industrial policy).
- **Public debate on strategic resilience:** In the media, education and communities.
- **Fair distribution:** No resilience concept without social cushioning - for example through transformation dividends and co-determination.

Resilience begins with the self-efficacy of citizens.

7.8 Economic Resilience and Ethical Foundations

Philosophical basis: Resilience is freedom

"The natural desire of every form of life is: to exist, to unfold, to pass on, to enter into connection – and, at some point, perhaps to understand why."

- Economic resilience is an expression of the desire for self-determination.
- Production sovereignty is the protection of social dignity.
- International cooperation is the civilisational equivalent of connection.

Democracies are vulnerable – but they are also capable of learning. This concept is not a retreat – but a step towards conscious connectedness with the world.

7.9 Concluding Reflections

Concluding reflections

This document is a call for the **active strategic self-assertion of Europe and its democratic partners**. It is about more than tariffs – it is about dignity, freedom, agency and responsibility in a multipolar world. You cannot defeat protectionism with protectionism. But through an alliance of responsible democracies, you can confront it – intelligently, openly, strongly and justly.

8. The ARKTIS Concept

Future Arctic - A democratic plan for strategic resilience, resource justice and planetary responsibility

An action-oriented concept in the spirit of the ERDA (European Rights-Based Democratic Alliance)

Executive summary for decision makers

Aim of this chapter

Development of a sustainable, democratic Arctic strategy that unites geopolitical sovereignty, resource justice and ecological responsibility.

Key messages

- Securing democratic resource partnerships and promoting scientific and ethical standards in the Arctic.
- Expansion of infrastructure and data sovereignty in the Arctic region.
- Safeguarding cultural and indigenous rights.

Measures

- Building a democratic, ethically grounded resource governance framework.
- Creating strategic alliances for sustainable Arctic development.
- Promoting cultural dialogue and indigenous participation.

Risks

- International tensions over resource exploitation.
- Environmental and climate risks arising from increasing economic activity.

Visionary benefits

A democratic Arctic strategy positions Europe as a pioneer of responsible and just global resource policy.

Glossary (excerpt, ERDA-specific)

Term

Meaning

DSN

Defense Sovereignty Node – autonomous regional defence unit of the EDA

EDA

European Defense Alliance – security-policy backbone of the ERDA

ERDA

European Rights-Based Democratic Alliance: future-oriented evolution of today's EU into a federal democratic alliance with a common constitution, strategic sovereignty, digital participation and global responsibility – beyond the Union's current borders and blockages.

FORTERA

Strategic economic architecture of the ERDA for resilient and fair production

CIVITAS

Digital agora for democratic participation and transparency within the ERDA

IRIS²

European satellite system for secure communication and Earth observation

Arctic Democracy Mining Act

Democratically regulated raw-materials law for Arctic regions with environmental safeguards

Arctic Commons Charter

Constitutional annex for the non-exploitative use of shared Arctic spaces

Arctic Resilience Observatory

Data, research and early-warning platform for climate stability in the Arctic

8.1 ARKTIS Codex - Ethics of Arctic Responsibility

ARKTIS Codex - Ethics of Arctic Responsibility

1. Respect for nature and its limits The Arctic represents a unique, fragile ecosystem whose protection has the highest priority. All activities must take place within clear ecological boundaries in order to avoid irreversible damage.

2. Indigenous sovereignty and participation The rights of indigenous and local populations, in particular the Inuit and other Arctic communities, are indispensable. Their active and equal participation in decision-making processes affecting their territories and livelihoods must be ensured.

3. Sustainable use of resources The extraction of natural resources may only take place using state-of-the-art, environmentally friendly technologies. Resource exploitation must, as a matter of principle, be designed in such a way that it guarantees ecological sustainability.

4. Transparency and international cooperation All scientific data, research findings and environmental studies must be published transparently and made internationally accessible. A cooperative approach with all Arctic nations and affected populations is mandatory.

5. Peaceful use and freedom from conflict The Arctic is and will remain a zone of peace. Any militarisation or military use is to be ruled out. Conflicts must be prevented in advance, and diplomatic solutions are always to be preferred.

6. Fair distribution of resources and regional development The use of Arctic resources must directly benefit the local population. Fair and equitable participation models are obligatory in order to secure regional development, education, healthcare provision and prosperity.

7. Protection of cultural identities The cultural diversity and identity of Arctic communities must be actively protected and promoted. Traditional ways of life and cultures must be respected and preserved.

8. Application of the precautionary principle In cases of scientific uncertainty regarding possible environmental damage or risks, the precautionary principle applies: the protection of the environment and people takes precedence over economic interests.

9. Democratic decision-making All decisions in the context of the Arctic are taken in a transparent manner and democratically legitimised. The involvement of civil society and relevant stakeholders via participation platforms must be systematically ensured.

10. Education and responsibility Promoting a comprehensive understanding of the ecological, cultural and social specificities of the Arctic is central. Education and awareness-raising should strengthen the sense of responsibility and sustainable action of all those involved.

8.2 Initial Situation

Initial Situation

The Arctic is one of the last largely undeveloped regions of our planet - and at the same time a geopolitical flashpoint. Climate change is making resources accessible that were previously locked away in the eternal ice. Authoritarian powers are advancing into this zone militarily, technologically, and economically. At the same time, irreversible ecological tipping points threaten the region's fragile balance.

Europe and its democratic partners must provide a clear, value-based response - not as a claim to power, but as an expression of responsibility, justice, and safeguarding the future.

8.3 Guiding Principles

Guiding Principles

- **Democratic legitimacy** instead of geopolitical arbitrariness
- **Ecological responsibility** instead of extractive plundering
- **Partnership with Indigenous peoples** instead of colonial appropriation
- **Sovereign presence** instead of military overstretch
- **Resilience through cooperation** instead of purely national solo efforts

9. The SPACE Concept

The SPACE Concept

Executive Summary for Decision-Makers

Aim of the Chapter

This chapter outlines a future-oriented, democratically legitimised space strategy that goes beyond technological innovation: it understands space activities as an expression of planetary responsibility, ethical maturation and global capacity for cooperation. Outer space is not seen as a geopolitical power vacuum, but as a realm of human existence that must be shaped legally, ecologically and civilisationally.

Key Messages for Decision-Makers

- **Outer space is a commons - not geopolitical property.**
Clear, democratically anchored cosmos governance prevents exclusive use by authoritarian actors and private corporations.
- **Democratic control of space activities and technology is a precondition for legitimacy.**
Security, sustainability and freedom in space can only be safeguarded through legally binding, multilateral agreements - embedded in an ethics that is globally comprehensible.
- **Europe's leadership role lies in anticipating and embodying a civilisational code for outer space.**
The "Solar Alliance" is the institutional expression of this responsibility - it embodies interplanetary cooperation, legal binding force and civilisational solidarity.
- **Technology needs purpose.**
Space activities without an ethical foundation degenerate into instruments of power - with potentially irreversible consequences for the environment, society and peace.

Concrete Policy Options

1. **Institutionalise cosmos law:**
 - Develop a "Democratic Codex for Cosmic Responsibility" with binding norms (e.g. fairness in resource use, non-militarisation, interplanetary participation).
 - Establish a multilateral treaty framework under the leadership of ERDA.
2. **Create infrastructure and institutions:**
 - Build the *Sphere Stations* (EARTH ONE, LUNAR ONE, etc.) as ethically reflected space-civilisation modules with research, education and societal architecture.
 - Establish a *Solar Parliament* and a *Space Law Chamber* for global conflict resolution.
3. **Establish a democratic space culture:**
 - Promote interplanetary education, cultures of remembrance, ethical discourse and cultural diversity in space.
 - Enable citizen participation in space projects via digital platforms (CIVITAS-compatible).
4. **Link with planetary justice:**
 - Connect space and climate policy (e.g. through climate observation systems, energy recycling in orbit).
 - Design resource policies tied back to human rights, Indigenous perspectives and intergenerational justice.

Risk Profile if No Action is Taken

- **Militarised positions of dominance** (e.g. by authoritarian regimes or private corporations without democratic legitimacy).
- **Technological monopolisation** of key infrastructures (communication, navigation, energy).
- **Ecological devastation of orbital and planetary spheres** through unregulated resource exploitation, debris and radiation.
- **Loss of Europe's cultural, ethical and legal interpretive authority** in a new geopolitical sphere.

Visionary Benefits for Europe (Long-Term Perspective 2075+)

- Europe becomes a *civilisational authority in space*, not through power but through measure: through democracy, transparency, justice and cultural depth.
- The *Solar Alliance* becomes an *ethical ordering power for space* – comparable to international law after 1945, but open to future generations, compatible with AI and applicable on an interplanetary scale.
- Space activities are no longer an elite project, but a *collective task of a humanity aware of its dignity* – Europe's contribution is the institutional framework and the ethical-philosophical foundation for this.

Concluding Impulse for Decision-Makers

Space policy is no longer merely technology policy – it is constitutional policy on the scale of humanity. Those who shape outer space today shape civilisation's self-image. Europe's opportunity lies in ethical leadership, not in an arms race.

9.1 ERDA Codex for Cosmic Responsibility

ERDA Codex for Cosmic Responsibility

A guide for democratically regulated, just and sustainable space activities.

9.1.1 Preamble

Preamble

Outer space is not property. It is not a market, not a theatre of war, not a refuge of power. Outer space is the **resonance space of humanity** – open to all, to be protected for future generations and a mirror of our inner progress.

In the spirit of the *European Rights-Based Democratic Alliance (ERDA)* and borne by the vision of a *Solar Alliance* for global cooperation and peace, this Codex commits to extending the principles of democratic rule of law to the new field of action of the cosmos.

9.1.2 Principles

Principles

9.1.2.1 Human Dignity and the Rule of Law Also Apply in Space *Human dignity and the rule of law also apply in space*

Every human being retains their inalienable rights – regardless of their place of residence in the solar system. Rights relating to work, residence and participation must be legally enshrined and enforceable.

9.1.2.2 Space Is a Commons - Not Private Property *Space is a commons - not private property*

All natural resources beyond the Earth are deemed the common heritage of humankind. Their use is only legitimate if it serves the common good, is ecologically responsible, and is managed transparently.

9.1.2.3 No Militarisation Without Democratic Control *No militarisation without democratic control*

Security in space is the responsibility of democratic governance structures. Any military presence in orbit or on celestial bodies requires constitutional legitimacy and may only be exercised in a defensive and cooperative manner.

9.1.2.4 Technological Openness and Freedom of Knowledge *Technological openness and freedom of knowledge*

Scientific results from public missions must be openly accessible. Knowledge is a commons. Patents must not obstruct democratically governed, legally grounded innovations of societal relevance, but must live up to their social responsibility. Free scientific exploration by non-state actors is permissible provided it serves the democratic, rule-of-law based common good, is conducted transparently, and is ethically reviewable.

9.1.2.5 Sustainability Across Generations *Sustainability across generations*

Every space mission must be planned, built and operated with the aim of protecting the ecosystems, resources and physical balance of the solar system in the long term.

9.1.2.6 Justice for All Forms of Life *Justice for all forms of life*

All life forms originating from the solar system have a natural right to exist - including beyond the Earth. They must not be exploited, displaced or manipulated. Their right to develop in accordance with their nature applies within the bounds of overall compatibility in space.

9.1.2.7 Visitor Principle for Extrasolar Intelligence *Visitor principle for extrasolar intelligence*

Species that do not originate from the solar system are to be treated like guests of a democratic state governed by the rule of law: with respect, but with the duties of protection and legal sovereignty being upheld.

9.1.2.8 Resources Belong to the Natural Inhabitants *Resources belong to the natural inhabitants*

The raw materials, substances and energetic potentials of the solar system are jointly owed to all of its natural life forms. No actor – whether state or private – may claim permanently exclusive rights of disposal.

9.1.3 Building a SOLAR ALLIANCE

ERDA understands the ERDA Codex for Cosmic Responsibility not as a purely European or regional project, but as the nucleus of a future SOLAR ALLIANCE: a democratic community of states and societies that jointly accept responsibility for the Solar System and its life forms. In order to bring this vision into being, two development steps are particularly central: first, a gradual codification of the principles as “cosmos law” in the sense of an extension and further development of existing international law; and second, political, institutional and technological preparation for the actual founding of a SOLAR ALLIANCE.

The codification must build on existing treaties (Outer Space Treaty, Moon Agreement and others), but go far beyond them in terms of democratic responsibility, protection of life and intergenerational justice. The preparation for the founding, in turn, requires diplomatic groundwork, pilot cooperation projects and shared infrastructures that make the advantages and necessity of such an alliance tangible.

Subsections 9.1.3.1 and 9.1.3.2 sketch these two strands in more detail: the legal embedding of the Codex as cosmos law, and the concrete roadmap towards the founding of the SOLAR ALLIANCE by 2028.

9.1.3.1 Codification as Cosmos Law *Codification as cosmos law*

These principles are to be translated into a codified body of cosmos law under public international law and made reviewable and enforceable by an organ of the SOLAR ALLIANCE.

9.1.3.2 Preparation for the Founding by 2028 *Preparation for the founding by 2028*

The **SOLAR ALLIANCE** is to emerge as a transnational initiative of democratic states – with the aim of creating a resonance space of responsibility that secures the international-legal, ethical, economic and organisational foundations of a civilisational presence in space.

9.1.4 Cosmic Law of the Sea and Order

Cosmic law of the sea and order

9.1.4.1 Codification of Fundamental Principles *Codification of fundamental principles*

As on the world's oceans, universal principles of coexistence also apply in space:

- Duty to render assistance (e.g. rescue in distress)
- Protection of the commons (e.g. avoidance of orbital debris, planetary protection)
- Prohibition of unfounded claims of ownership
- Cooperation and data sharing as the norm
- Transparent authorisation of every space operation

These principles are to be translated into a **codified body of cosmos law** and made reviewable by an organ of the SOLAR ALLIANCE that is legitimately constituted under public international law.

9.1.5 Closing Formula

Closing formula

"What we do in space is not the continuation of history by other means - it is a new chapter in our evolutionary responsibility. The Codex is not a prohibition, but a promise: to ourselves and to that which is yet to come."

9.2 From the Law of the Sea to Cosmos Law

From the law of the sea to cosmos law - natural longings for ordered coexistence and their projection into the rule of law in space

9.2.1 Natural Longings in Open Space (Sea or Cosmos)

Natural longings in open space (sea or cosmos)

Where the horizon dissolves - whether on the world's oceans or in the black shimmer of outer space - the same basic human need stirs within us: orientation, protection, reliability. The vastness itself is not dangerous - it only becomes dangerous when humans encounter it without order, without measure and without compassion.

From this existential experience arise fundamental longings that guide civilisational action:

- **The longing for orientation:** Where am I? Who am I here? What applies in this place?
- **The longing for protection:** Who helps me if I am adrift? Who protects me from violence?
- **The longing for justice:** May everyone pass through here? Or only the stronger?
- **The longing for reciprocity:** If I help - will others help me too?
- **The longing for participation:** Can I act, live and contribute here - or am I only an object?
- **The longing for meaning:** What do our actions in space say about us ourselves?
- **The longing for settlement:** May I settle and retain what I extract, cultivate or earn?
- **The longing for water, food, air:** Can I survive where I am travelling to? Who secures the vital resources for me?

These longings are not political ideals, but anthropological constants. They are embedded just as much in seafaring traditions as in today's astronautical missions. Ignoring them produces arbitrariness, abuse of power and tragedy.

In the ERDA context they are not treated as mere appeals, but as the normative core of a future cosmos law: what has proven itself over centuries at sea deserves its further development in space.

9.2.2 The Pre-democratic Civilisation

The pre-democratic civilisation

Before the emergence of modern democracies, open space – whether sea or orbit – was a place of power projection. Those who possessed technology and strength imposed their will. The world’s oceans were colonised, exploited, measured and divided up in the colours of flags. The weaker became an object – the stronger became the judge.

The natural longings for protection, justice and reciprocity mostly remained unfulfilled in this phase, or were granted only within narrow communities of belonging. Rendering assistance was the exception, not an obligation. Resources were regarded as spoils to be conquered – not as a shared basis of survival.

In such a world, the vacuum of order was not an empty space – but a field of inequality.

Many current principles of spaceflight logic still resemble this pattern: orbital positions as an exclusive good. Technological advantage as an instrument of power. Outer space as a theatre of strategic dominance. A pre-democratic echo in postmodern armament.

ERDA’s path consciously leads out of this phase – through the binding force of law, shared responsibility and structural justice in the cosmos.

9.2.3 The Contemporary Civilisation - Including in its Democratic Maturity

The contemporary civilisation - including in its democratic maturity

Despite all progress in human rights, international law and technological cooperation, today's civilisation remains contradictory in many areas: democratic states still accept global inequality in access to resources — both on Earth and in orbit.

The law of the sea has indeed achieved progress with the principle of rescue at sea, the maritime commons and international agreements, but these are often weakened by national interests, economic exemptions and a lack of enforcement.

In space, these tensions become even more visible:

- Privatised satellite networks without global regulation.
- Orbital positions dominated by a small number of states.
- Questions of resources on the Moon, Mars and asteroids — largely unregulated.
- No duty to provide assistance in emergencies.
- No uniform environmental standards for planetary protection zones.

Even democratic civilisations have so far failed to establish a binding code for cosmic behaviour. Binding institutions, clear ethical standards and citizen participation in the space sector are lacking.

Yet it is precisely this phase of maturity that offers the opportunity to change course: within democratic self-reflection and the capacity for correction lies the potential for a new order beyond Earth. The SOLAR ALLIANCE — as a legally codified, democratically controlled and ethically legitimate structure — is not a break with today's civilisation, but its consistent further development.

9.2.4 Overview - Previous Legal Orders in Comparison

Overview - previous legal orders in comparison

The development of the law of the sea provides valuable guidance for building a future-proof cosmos law. Both fields of law deal with spaces that do not belong to any single state, but are increasingly used economically, technologically and geopolitically. Nevertheless, they differ in maturity, enforcement and ethical foundations.

Category	International law of the sea (UNCLOS etc.)	Existing space law (Outer Space Treaty etc.)
Legal status	Codified in international law, recognised by almost all states	Partially codified (OST 1967), but without comprehensive implementation or sanctions
Concept of commons	“Seabed as the common heritage of humankind”	“Outer space for all humankind”, but without a defined commons administration
Duty to rescue	Duty of rescue at sea clearly defined (SOLAS, SAR Convention)	No formal duty to rescue in emergencies in orbit or on celestial bodies
Resource utilisation	Deep sea mining regulated via the International Seabed Authority	No binding regulation of resource extraction on the Moon, Mars or asteroids
Environmental protection	Contains principles for the protection of marine ecosystems (e.g. MARPOL)	Environmental issues in space largely unregulated (e.g. space debris, planetary protection)
Institutional anchoring	International Maritime Organisation (IMO), International Seabed Authority (ISA)	No equivalent enforcement body in outer space
Technological access	Access to maritime use regulated in law through UN conventions	Technological access dominated by private actors and spacefaring nations
Citizen participation / transparency	Partly established in environmental procedures (e.g. inclusion of NGOs)	Hardly any citizen participation in the space sector

Conclusion: For all its enforcement weaknesses, the law of the sea is a structured order, safeguarded under international law. Space law, by contrast, is in a pre-democratic state – with normative declarations of intent, but without institutional guarantees.

The path towards a SOLAR ALLIANCE begins with transferring the proven principles of the law of the sea to the cosmos – expanded by ethical, ecological and democratic dimensions as formulated in the spirit of ERDA.

9.2.5 The Development Arc towards the SOLAR ALLIANCE

The development arc towards the SOLAR ALLIANCE

The SOLAR ALLIANCE is a natural emergence and consistent continuation of a civilisational maturation movement. It is not intended to clear the way out of the Earth's sphere for our unresolved shadows, but to shape and preserve a democratic, rule-of-law-based, just and sustainable space of resonance and life for human beings – and all who follow them. A solar, interplanetary community of responsibility from the 21st century to the next natural emergence and, perhaps – yes, perhaps – far beyond.

From intention to institution

What today exists in the law of the sea and parts of space law as an “intention” – for example, the use of outer space for the benefit of all – must become a binding institution within the SOLAR ALLIANCE:

- with **democratic legitimacy**,
- **clear standards** for the allocation of resources, assistance and environmental protection,
- and **citizen participation** that does not decouple the cosmos, but understands it as an expanded space of life and responsibility.

The SOLAR ALLIANCE as a civilisational goal

The SOLAR ALLIANCE is more than a technical or legal instrument. It is the expression of a civilisation that has learned to use its means in harmony with its values. It translates the natural longings – for protection, participation, fairness, meaning – into resilient structures. It is what the “best form of democracy” can be in space.

Time horizon: 2028 as a realistic target mark

The years up to 2028 can be used to:

- form an international consortium of democratic states,
- prepare a founding agreement for the SOLAR ALLIANCE,
- draft minimum legal and institutional standards,
- and secure citizen participation through platforms such as **CIVITAS**.

This alliance would not be a world state, but a cosmopolitan framework – with shared values, contractual binding force and openness to further members. It forms the ethical and legal foundation of a space civilisation in the spirit of ERDA.

The SOLAR ALLIANCE is not a vision for later. It is the next logical step for a democracy that takes itself seriously – a natural emergence and consistent continuation of a civilisational maturation movement.

9.3 The Institutions of the SOLAR ALLIANCE

The institutions of the SOLAR ALLIANCE

The SOLAR ALLIANCE is more than a multilateral agreement. It is an institutionally legitimised order of democratic cooperation in space. Its institutions are intended to ensure that responsibility, sovereignty, the rule of law and sustainability do not remain vague principles, but are given concretely implementable structure. Like every rule-of-law-based order, it rests on the separation of powers, checks and balances, and participation.

9.3.1 Legislature: The SOLAR PARLIAMENT

Legislature: The SOLAR PARLIAMENT

The legislature of the SOLAR ALLIANCE is a transplanetary parliament, composed of elected representatives of the member states. This SOLAR PARLIAMENT:

- adopts binding guidelines for spaceflight, resource use and environmental protection,
- ratifies treaties with cooperation partners,
- and oversees the executive through open debate.

Voting rights are allocated according to a mixed principle based on share of population, technological contribution and the principle of equality in order to safeguard minority rights.

9.3.2 Executive: The ALLIANCE COUNCIL

Executive: The ALLIANCE COUNCIL

The Alliance Council is the administrative leadership of the SOLAR ALLIANCE. It coordinates operational missions, mediates between members, manages budgets and supports the expansion of infrastructure. The Alliance Council:

- leads programmes for orbital security, supply and research,
- coordinates humanitarian and emergency operations in space,
- and bears responsibility for implementing the norms adopted by Parliament.

It consists of a body of specialist commissioners who hold specific mandates (for example research, ethics, security, environment) and are appointed on a rotating basis by the member states.

9.3.3 Judiciary: The Space Law Chamber

Judiciary: The Space Law Chamber

The judicial body of the SOLAR ALLIANCE is an independent Space Law Chamber. It ensures:

- compliance with the Codex for Cosmic Responsibility,
- resolution of conflicts between states, companies and individuals,
- and protection of fundamental rights of human and non-human life forms.

It can sit in public and has access to a network of orbital arbitration offices, ethics councils and technical mediators.

9.3.4 Security Forces: Orbital Civil Protection & Emergency Coordination

Security Forces: Orbital Civil Protection & Emergency Coordination

The security structure of the SOLAR ALLIANCE follows the principle: *civil security before military dominance*. Its tasks include:

- protection against collisions, system failures and space debris,
- evacuations and first aid in the event of accidents,
- de-escalation in political tension zones in orbit.

There is no offensive armament – the security modules are defensive, de-escalating and humanitarian in nature.

9.3.5 Interplanetary Council for Rights of Life

Interplanetary Council for Rights of Life

This council observes, evaluates and regulates questions of the dignity of life in space – not only with regard to human beings, but also to:

- biospheres (e.g. terraforming zones),
- sensitive ecological systems,
- possible non-human intelligences.

It works together with research institutions, philosophers, ethics committees and environmental monitoring bodies and issues recommendations to the Parliament and the Alliance Council.

9.3.6 Tribunal for resource and access disputes

Tribunal for resource and access disputes

A specialised tribunal settles disputes concerning:

- orbital use,
- spectrum access (communications frequencies),
- resource extraction,
- and logistics or docking rights.

It decides on the basis of the Solar Codex, taking into account technical feasibility, fairness and environmental impact.

9.3.7 Democratic control mechanisms

Democratic control mechanisms

The Solar Alliance is built on participation. It establishes:

- **CIVITAS interfaces** for democratic participation,
- **public reporting obligations** for all bodies,
- **rotation requirements** in key offices,
- and **independent ethics councils** that reflect on long-term impacts.

Only through transparency and participation does order become legitimacy - and an alliance become a community.

9.3.8 Democratic Solar Defense Force

Democratic Solar Defense Force

The Solar Alliance recognises that security in space cannot be guaranteed solely by passivity or technological abstinence. Rather, it requires an active, democratically controlled and ethically bound defensive structure – in the sense of deterrence through awareness, not aggression.

The **Democratic Solar Defense Force (DSDF)** follows these principles:

- **Preventive research:** development of technologies to be technically and legally prepared for conceivable threats – whether from physical objects, AI-controlled systems or hypothetical external actors. This research is conducted **transparently**, under civilian control and subject to strict ethical standards.
- **Distributed defensive presence:** establishment of a network of decentralised defensive security units – in orbit, on the Moon and in the belt – focusing on reconnaissance, protection of civilian infrastructure and emergency response. **Bio-technologically integrated systems** (such as humanoid drone units or AI-controlled response teams) may be part of this structure, provided they are clearly bound to constitutional principles.
- **Symbolic communication:** the Solar Alliance does **not** wish to appear as a militarised species. Its defence doctrine is based on balance, not dominance, and on a signal to potential extraterrestrial observers: “*We are open, but not defenceless. We seek partnership, but we will defend life.*”

This force is under the control of the SOLAR PARLIAMENT, is subject to continuous ethical review and may **not** be used for offensive operations or power projection.

Defence in the spirit of ERDA is not reaction out of fear, but protection out of responsibility.

9.4 Why Spaceflight? - Strategic and Civilisational Motives in the Spirit of ERDA

Why spaceflight? - Strategic and civilisational motives in the spirit of ERDA

The question “why spaceflight?” is not a technical one, but a civilisational one. In the spirit of ERDA it is not answered simply with “because we can”, but with a compass of values: spaceflight should expand human development, widen responsibility and deepen perspectives. It is both tool and mirror.

Outer space is not only what lies ahead of us. It is what we become.

9.4.1 Strategic Necessities

Strategic necessities

a) Autonomy and sovereignty

- Independent access to space secures Europe's capacity to act in crises.
- Orbital infrastructure protects communication networks, navigation and cyber security.
- Own launch systems, data centres and stations strengthen strategic resilience.

b) Environmental monitoring and early warning

- Space-based sensors enable early warning of extreme weather, droughts, fires, permafrost changes and methane releases.
- Data-driven environmental policy can be shaped more precisely and more democratically with the help of orbital real-time data.

c) Security and protection

- Early-warning systems (e.g. IRIS²), detection of space debris and EMP risks.
- Orbital resilience systems against collisions, cyber attacks and infrastructure failures.
- Democratically controlled security infrastructure protects civil society, not power interests.

9.4.2 Civilisational Motives

Civilisational motives

a) Expanding human possibilities

- Research in microgravity, biology, materials science and AI coupling.
- New forms of living together beyond national borders.
- A new resonance space for education, culture, ethics and technology.

b) A shift of perspective on Earth

- The view from space makes planetary responsibility tangible.
- Interdependence becomes visible: atmosphere, oceans, ice cycles, migration, weather.
- Spaceflight creates awareness: Earth is finite, life is vulnerable.

c) Expression of creative fulfilment

- Spaceflight is an expression of human imagination.
- It connects technology with vision, science with meaning.
- It is a form of cultural self-transcendence – not an end in itself.

9.4.3 Spiritual Responsibility in Space

Spiritual responsibility in space

a) Protecting commons, not colonising

- Outer space is not a raw-materials market but a place of collective responsibility.
- Resources are to be developed – *not privatised*.
- Commons include: frequency spectra, orbital slots, planetary protection zones, energy flows.

b) An ethics of encounter

- Who decides on terraforming, extraction and settlement?
- What rights do future generations or non-human life have?
- How do we relate to hypothetical extraterrestrial intelligence?

c) Spaceflight as a test of democratic maturity

- Only a democratic civilisation can credibly assume responsibility for space.
- Spaceflight without ethics becomes an instrument of geopolitical power projection.
- Spaceflight with ethics becomes an expansion of humanity.

d) Fair access

- Access to spaceflight must not be determined solely by capital or power monopolies.
- Fair participation of states, private actors and civil society requires clear rules and democratic oversight.

9.5 Interlude: Invitation to What We Can Become

Interlude: Invitation to what we can become

We have spoken about rights, about justice, about responsibility.
We have shaped principles, designed systems, written codes.
Yet spaceflight is not only law. It is design.

Now a new section begins: the transition from spirit to form, from vision to architecture.
No longer only the *why*, but the *how*.

We no longer ask only: What are we allowed to do in space?
But rather: **What do we want to build there?**

What does a station look like that serves life?
How does a society function that can breathe freely in orbit?
Which technology sustains, which culture connects, which structure enables?

The following chapters describe the infrastructure of a spacefaring civilisation in the spirit of ERDA:

- its sphere stations and orbital networks,
- its educational spaces and rights of living,
- its architecture, supply, ethics modules and defence.

And we look at time: 2025 to 2075. Not as science fiction, but as an invitation to real democracies to shape responsibility in concrete terms.

What we build is more than structure. It is a memory of our maturity – and an invitation to what we can still become.

9.6 Infrastructures up to 2075

Infrastructures up to 2075

9.6.1 Operationalisation

Operationalisation - strategic prerequisites for implementing the SOLAR ALLIANCE space infrastructures

These recommendations operate at different levers – from goal definition via financing and organisation through to technical implementation and international cooperation. By combining these measures, the SOLAR ALLIANCE can not only realise a forward-looking space programme but also serve as a model for a democratically responsible and sustainable space-faring civilisation.

9.6.1.1 Goal definition and timeline for the space infrastructures *Goal definition and timeline for the space infrastructures*

- Define space infrastructures (e.g. sphere stations such as EARTH ONE, LUNAR ONE, BELT LIVING ONE, NEPTUNE ONE and VENUS ONE) as strategic grand objectives.
- Establish milestones starting from the founding of the SOLAR ALLIANCE (e.g. construction of an initial base module within the first five years, expansion and integration of further modules in the subsequent ten years).
- Develop a realistic schedule that covers both short-term and long-term targets (up to 2075) in order to ensure continuous development.

9.6.1.2 Financing and organisation via SOLAR ALLIANCE member states and coalitions

Financing and organisation via SOLAR ALLIANCE member states and coalitions

- Develop a joint financing model underpinned by the SOLAR ALLIANCE member states – including through existing or newly created coalitions of the willing.
- Create public-private transformation funds that specifically support projects in the field of space infrastructure, while providing for strict democratic control mechanisms.
- Define clear responsibilities and funding shares so that individual modules or functional units can be allocated and supported according to their strategic importance.

9.6.1.3 Governance structures and project management *Governance structures and project management*

- Establish a dedicated committee or inter-ministerial body within the SOLAR ALLIANCE to coordinate the planning, commissioning and implementation of the space infrastructures.
- Involve experts from fields such as space engineering, law, ethics, economics and international cooperation, enabling interdisciplinary steering that does justice to the diverse requirements.
- Put in place regular reviews and transparent reporting systems to document progress and adjust the strategy where necessary.

9.6.1.4 Technical concepts and safety standards *Technical concepts and safety standards*

- Develop modular and scalable technical concepts that allow for the construction and expansion of the stations.
- Define harmonised concepts for safety, communications and energy – for example by integrating redundant systems and open standards – in order to guarantee both efficiency and resilience.
- Integrate radiation-protection mechanisms and emergency plans that ensure rapid evacuation or repair measures in the event of a crisis.

9.6.1.5 International cooperation and citizen participation *International cooperation and citizen participation*

- Promote the integration of civil-society actors via platforms such as CIVITAS so that citizens are involved in decision-making processes at an early stage.
- Develop communication strategies that convincingly convey the shift from traditionally national ideas of space towards a collective, democratically governed space.
- Strengthen cooperation with international partners and regional alliances in order to harness synergies and establish global standards in spaceflight.

9.6.2 Here is the possible solution

Here is the possible solution

Elaboration of concrete implementation steps based on the recommendations of Chapter 5.1.

Chapter 5.1 set out strategic recommendations for implementing the SPACE concept. Chapter 5.2 now sketches initial concrete implementation pathways and institutional models for realising these recommendations.

Chapter 5.2 thus forms the bridge between vision (Chapter 5.1) and manifestations (Chapter 5.3 ff. – major projects of the SOLAR ALLIANCE). It enables an orderly, democratically controlled and responsibility-based ethical transition into the structured build-up phase of the space civilisation.

“A space project is not complete when it stands. It is complete when it is supported.”

9.6.2.1 The SOLAR ALLIANCE INFRASTRUCTURE PLAN 2030-2075 *The SOLAR ALLIANCE INFRASTRUCTURE PLAN 2030-2075*

- Is developed by the SOLAR PARLIAMENT together with the Alliance Council, the Space Law Chamber and civil society.
- Is divided into three main phases:
 1. **Phase I: Build-up of critical infrastructure (2030-2040)**
 - EARTH ONE, LUNAR ONE, DNS base nodes, lunar shipyard, cycler operations commence.
 2. **Phase II: Deep-space presence and coordination (2040-2055)**
 - BELT LIVING ONE, VENUS ONE, first Mars stations, Mars parliaments, IRIS swarm.
 3. **Phase III: Maturity and intergenerational structure (2055-2075)**
 - NEPTUNE ONE, deep-space observatories, intersolar cooperation.

9.6.3 Sphere Station EARTH ONE

Sphere Station EARTH ONE

Democratically controlled world eyes in geostationary orbit

Sphere Station EARTH ONE is the first fully developed space platform of the Solar Alliance. It marks the beginning of a new phase of human presence in space: not as an extension of nation-state interests, but as infrastructure for a democratically mandated global community of responsibility.

Location & basic structure

- **Orbit:** Geostationary orbit, synchronised above the equator
- **Capacity:** Up to 700 permanent residents plus 100 guests
- **Function:** Science, communications, monitoring, education, culture, tourism, trade
- **Modular design:** 127 m in diameter, 15 ring-shaped decks (DECK 001 to DECK 015) with artificial gravity (rotation), a central, open-ended axial access with a diameter of 20 m – DECK 000, also called the “Wormhole”, serves as the central docking hub and trans-shipment point. The structure is based on advanced lightweight construction using ceramic silicon-carbide composite structures (SiC/SiC). The station is largely self-sufficient, with the exception of specialised goods such as delicacies or highly complex spare parts, which are delivered as part of regular passenger and cargo traffic – often on a daily basis.

Technical architecture

- **Energy:** Combination of solar arrays and two small modular reactors (SMRs) (60 MW each) with thermal recovery
- **Communications:** High-speed link to Earth and to other stations (LUNAR, CIVITAS network)
- **Cooling:** Radiator surfaces with PCM systems and adaptive thermal regulation integrated into the hull
- **Radiation protection:** Ceramic-composite outer layer with MLI insulation
- **Docking ports:** Multi-purpose modules for cargo, passenger transport and emergency evacuation

Functions & use

- **Research laboratories:** Microgravity, environmental monitoring, materials testing
- **Education:** Orbital university programmes in cooperation with ERDA partner states
- **Communications:** Satellite coordination, IRIS² integration, orbital CIVITAS gateway
- **Crisis monitoring:** Early-warning systems for extreme weather, methane, wildfires, migration
- **Culture and public life:** Dome spaces for art, music, exchange, STEM exhibitions

Social structure

- **Crew composition:** Scientists, technicians, mediators, artists, educators, traders, travellers
- **Normal operations:** Rotation cycles (6–12 months), including family programmes and recreation areas

- **Representation:** Democratically delegated administrative representation (CIVITAS Council on EARTH ONE)
 - **Access:** Open visitor programme for young people, scholarship places for disadvantaged regions
-

Symbolism & significance

EARTH ONE is more than infrastructure. It is an expression of the conviction that technology does not simply mean control, but enablement. Its view of Earth is not a surveillance instrument but a mirror of our conscience.

"EARTH ONE does not only see the Earth. It sees what we are prepared to do for one another."

9.6.4 Sphere Station LUNAR ONE

Sphere Station LUNAR ONE

Sustainable outpost in lunar orbit – gateway to deep space

Sphere Station LUNAR ONE is the second main structure in the orbital network of the Solar Alliance. Stationed in lunar orbit, it serves as a logistical, scientific and cultural link between Earth, the lunar surface and onward missions to the asteroid belt, to Mars and beyond.

Location & basic structure

- **Orbit:** Polar-stabilised lunar orbit (low to medium altitude), with synchronised window intervals to the lunar base, EARTH ONE and Mars transfer windows
- **Capacity:** Up to 400 residents + 80 temporary transit guests + 300 lunar-based staff and their families
- **Function:** Logistics hub, research, deep-space coordination, protection station, recuperation for lunar surface crews
- **Modular design:** 127 m in diameter, 15 ring-shaped decks (DECK 001 to DECK 015) with artificial gravity (rotation), a central, open-ended axial access with a diameter of 20 m – DECK 000, also called the “Wormhole”, serves as the central docking hub and trans-shipment point. The structure is based on advanced lightweight construction using ceramic silicon-carbide composite structures (SiC/SiC). The station is largely self-sufficient, with the exception of specialised goods such as delicacies or highly complex spare parts, which are delivered as part of regular passenger and cargo traffic – on a weekly basis.

Technical architecture

- **Energy:** Combination of solar arrays and two small modular reactors (SMRs) (60 MW each) with thermal recovery
- **Communications:** Long-range networking with Mars cyclers, EARTH ONE and the lunar surface
- **Docking systems:** High-frequency docking rings for resource transport, crew rotation and research excursions to the surface
- **Regolith shielding modules:** External regolith shields to reduce shocks and radiation from micrometeoroid impacts

Functions & use

- **Deep-space logistics:** Preparation, refuelling, supply and trans-shipment for Mars and asteroid units
- **Lunar platform interface:** Permanent communications and transport link to lunar bases
- **Mining coordination:** Ethical and safety oversight of lunar resource extraction (LUNAR CHARTER of ERDA)
- **Research & technological development:** Long-term exposure, biological response to low gravity, nanomaterials
- **Cultural modules:** Meditative spaces, Earth/Moon-view domes, art, architecture and music projects in orbit

Social structure

- **Resident spectrum:** Technicians, transit travellers, deep-space preparation teams, cultural delegates
 - **Social system:** Rotation and secondment principle with voluntary long-term deployments of up to 18 months
 - **Representation:** LUNAR CIVITAS Council + representation in the central Alliance Council
 - **Openness:** Special exchange programmes with belter colonies and youth initiatives
-

Symbolism & significance

LUNAR ONE stands at the threshold – between planet and depth, between history and future. It is a place of transition: from gravity to weightlessness, from caution to vision.

“Those who enter LUNAR ONE step into the antechamber of our next world.”

9.6.5 Sphere Station BELT LIVING ONE

Sphere Station BELT LIVING ONE

Democratic outpost in the asteroid belt - living under conditions of vastness

Sphere Station BELT LIVING ONE is the first permanent habitat structure in the inner asteroid belt. It marks a milestone: no longer just observation or transit, but deliberate living, research and co-shaping in deep space. Here it becomes visible whether the democratic principle remains viable under conditions of extreme isolation, distance and autonomy.

Location & basic structure

- **Orbit:** Stable transfer orbit in a mid-belt segment (e.g. between Vesta and Hygiea), though its position in the belt can be changed if required. It is built in lunar orbit and then travels into the belt.
- **Capacity:** 700 permanent residents + 50 rotating research guests
- **Function:** Resource exploration, deep-space research, habitat development, cultural space, resource extraction, resource trans-shipment hub
- **Modular design:** 127 m in diameter, 15 ring-shaped decks (DECK 001 to DECK 015) with artificial gravity (rotation), a central, open-ended axial access with a diameter of 20 m – DECK 000, also called the “Wormhole”, serves as the central docking hub and trans-shipment point. The structure is based on advanced lightweight construction using ceramic silicon-carbide composite structures (SiC/SiC). The station can also travel to and within the belt using fusion-drive clusters around the equator.
The station is largely self-sufficient, with the exception of specialised goods such as delicacies or highly complex spare parts, which are delivered as part of regular passenger and cargo traffic – on a quarterly basis. The station also supplies itself with resources mined in the belt.

Technical architecture

- **Energy:** Fusion experiment + thermonuclear buffer + solar support
 - **Propulsion unit:** Station-keeping thrusters for orbit correction + fine-grained attitude control, fusion-drive clusters around the equator (maximum thrust 1 MN)
 - **Communications:** High-latency-resilient systems + semi-autonomous network structures with CIVITAS protocols
 - **Protection:** Radiation shielding, redundant life-support systems, autonomous repair units
 - **Materials:** Hybrid composite with an inner reflector core to create a psychologically more open sense of space
-

Functions & use

- **Asteroid observation & utilisation:** Mapping, resource modelling, technology piloting
- **Long-term research:** Gravity, long-term psychology, socio-dynamics under isolation
- **Food culture:** Autonomous hydroponic systems, diverse mycelium cultures, algae farms
- **Art & reflection:** Poetry circles, long-form compositions, philosophical logbooks
- **Social micro-societies & conflict dynamics:** BELT LIVING ONE serves as a long-term testbed for orbital communities. In an isolated environment, micro-societies with their own decision-making processes emerge. Conflict-resolution formats, consensus models and cyclical feedback rounds are established, supported by resonance mediators and cultures of remembrance (e.g. poetic logbooks, storytelling circles).

Social structure

- **Resident spectrum:** Voluntary long-term crew with high levels of training, resource-extraction specialists and their families
 - **Governance:** Self-governed CIVITAS cell with periodic feedback loops to the Alliance Council
 - **Mental health:** Community spaces, cyclical communication windows with Earth, open chambers of remembrance
 - **Openness:** Visits by rotating guests, asynchronous schooling formats and family connections possible
-

Symbolism & significance

BELT LIVING ONE stands for more than presence. It asks: Can we not only survive but *live* far from Earth? Can community endure under conditions of vastness, time delay and autonomous structure?

"In the belt, light is not the problem. The question is: what do we do with the darkness?"

9.6.6 Sphere Station NEPTUNE ONE

Sphere Station NEPTUNE ONE

Deep-blue outpost at the edge of the system - knowledge, dignity, vastness

Sphere Station NEPTUNE ONE is the boldest and farthest-reaching project of the Solar Alliance. It is not only an orbital laboratory but also a collective long-term experiment: can humans – with children, families, machines and culture – live, research and shoulder responsibility at the edge of the solar system? NEPTUNE ONE is an outpost, a mirror and a promise at the same time.

Location & basic structure

- **Orbit:** Primarily polar-stabilised orbit around Neptune, adapted to communication windows with Uranus and heliospheric measurement routes, with additional missions to trans-Neptunian regions
- **Capacity:** 240 permanent residents + their children + androids (autonomous maintenance units)
- **Mission duration:** 25 years with planned return to Earth
- **Function:** Deep-space research, exobiology, long-term psychology, autonomy development, community experiment
- **Modular design:** 127 m in diameter, 15 ring-shaped decks, central wormhole structure, rotation for gravity, structurally identical to BELT LIVING ONE – but extended with deep-space shielding and family life modules

Technical architecture

- **Energy:** Fusion-drive clusters around the equator + long-term battery reservoirs + solar-thermal buffer systems
- **Propulsion unit:** As on BELT LIVING ONE, but configured for interplanetary travel; built in lunar orbit, transfer flight with staged support
- **Communications:** High-latency-capable transmitters (light-travel times > 4 h) and first quantum-communication units (under test), autonomous editorial and feedback systems for CIVITAS connectivity
- **Protection:** Reinforced radiation shields, redundant systems, isolation modules in case of failures
- **Supply:** Deliveries every six to twelve months – otherwise full self-sufficiency through resource recycling, deep-space mining and synthetic biofarms

Functions & use

- **Deep-space research:** Magnetosphere studies, exploration of Neptune's moons, dark-matter observations
- **Community research:** Children growing up in space, intergenerational communication, family culture in isolation
- **Autonomy development:** 100% closed water cycles, air regeneration, modular biotopes
- **Ethics & education:** Library of humanity, deep-dialogue cycles, education systems without real-time contact
- **Conflict resilience and intergenerational culture:** NEPTUNE ONE deliberately cultivates models of multi-generational cohabitation. Structural elements such as “rituals of closeness”, “values dialogues” and “rotating community councils” strengthen trust in cooperative decision-making under high temporal and spatial distance from Earth.

Social structure

- **Resident spectrum:** Highly qualified teams with families, psycho-socially trained coordinators, AI assistants, androids
 - **Social system:** Strong internal structures, democratically governed routines, rhythmised weekly circles
 - **Representation:** NEPTUNE CIVITAS Council with special status – observer representation in the Alliance Council
 - **Opening:** Rotating places for research delegates – limited windows every five years and for emergencies, yet primarily a 25-year commitment
-

Symbolism & significance

NEPTUNE ONE is humanity's promise in space: if we can endure here, we can endure anywhere – not through power, but through community. It is the outermost point of the system and perhaps the innermost moment of our civilisation.

"NEPTUNE ONE is not an outpost – it is our innermost pledge to responsibility in vastness."

9.6.7 Sphere Station VENUS ONE

Sphere Station VENUS ONE

Between scientific curiosity and responsibility - departure to the sister world

Sphere Station *VENUS ONE* orbits in a stabilised solar orbit tuned to Venus. It was built to address one of the greatest dilemmas of a spacefaring civilisation:

May humanity alter a functioning planetary ecosystem - even if it appears hostile to life?

VENUS ONE is therefore not only a research habitat but also an ethical testbed - and a place of planetary humility.

Location & basic structure

- **Orbit:** Venus-synchronised orbit (highly elliptical), adapted for stable observation and shuttle traffic to the Venusian atmosphere
 - **Capacity:** 700 permanent residents + 100 rotating guests (as on *EARTH ONE*)
 - **Function:** Atmospheric research, monitoring of terraforming scenarios, ethical monitoring, biological sounding
 - **Modular design:** 127 m in diameter, 15 ring-shaped decks, central axis with DECK 000 ("Wormhole") as docking hub; structurally like *EARTH ONE* and *BELT LIVING ONE*, with special modules for atmospheric experiments and chemical shielding
-

Technical architecture

- **Energy:** Solar-maximised, with chemical buffer storage and emergency geo-reactor (SMR)
 - **Propulsion unit:** Fusion-engine clusters (1 MN), as on *BELT LIVING ONE*, for orbital manoeuvres and return options
 - **Communications:** Near-real-time link to Earth (7-14 minutes delay) + Venus surface connections (drone-supported)
 - **Protection:** Highly reflective outer coating, adaptive temperature regulation, protection against sulphuric-acid particles
 - **Supply:** Monthly cargo and passenger traffic from the inner solar system (*EARTH ONE*, lunar dock)
-

Functions & use

- **Atmospheric research:** Analysis of Venusian winds, cloud composition, pressure conditions
- **Biological exploration:** Detection of possible microbial life in the high atmosphere, protection against contamination
- **Terraforming observation:** Simulations, risk assessments, impact analyses on the long-term evolution of the planet
- **Ethics modules:** Planetary-protection forums, visitor programmes for public discourse, temporary expert panels
- **Culture & symbolism:** Earth-Venus gallery, literary archives on the planetary question, musical projects on the duality of worlds
- **Terraforming paradox - ethics of non-intervention:** *VENUS ONE* raises the question of the limits of human will to shape. A dedicated ethics module regularly debates the option of non-intervention - as a conscious decision in favour of planetary self-unfolding. This "zone of precaution" is accompanied scientifically and philosophically in cooperation with the Interplanetary Council for Rights of Living Beings.

Social structure

- **Crew:** Atmospheric scientists, terraforming engineers, ethicists, philosophy groups, artists - and their families
 - **Representation:** *VENUS CIVITAS* cell + advisory seat in the Alliance Council
 - **Openness:** Regular dialogue missions, school debates from ERDA states, live debates on the future of Venus
-

Symbolism & significance

VENUS ONE does not ask about technical feasibility - but about the **moral dignity** of planetary change. It is a place where humanity and future will confront an existing system - and must learn not only to dream, but to *listen*.

"VENUS ONE listens - before it decides."

9.6.8 Structural formation and future expansion

Structural formation and future expansion

From orbital network to civilisational space structure

The sphere stations mark the beginning of a profound transformation: outer space is no longer conceived as an empty projection surface but as a space that can be structured – technically, culturally, civilisationally. The next step is the transition to stable, extended structures in deep space.

1. Colonisation on planets and moons

- **Goal:** Stable, permanent outposts on moons (e.g. Europa, Titan, Ganymede) and on Mars
 - **Function:** Science, culture, long-term life under planetary conditions, ethical field research
 - **Principle:** No ownership but coexistence – planetary-protection principles apply strictly (Solar Codex)
-

2. Deployment of an autonomous deep-space probe network

- **Target area:** From 100 to 180 AU (beyond Pluto's orbit, in the heliospheric transition zone)
 - **Number:** At least 50,000 autonomous probes
 - **Purpose:** Early warning, analysis of stellar winds, dark-matter modelling, deep-space climate research
 - **Structure:** Swarm intelligence + quantum relays, coupled to orbital observatories and AI systems
-

3. Establishment of cycler operating systems

- **Routes:** Mars, Venus, belt, Neptune (later also Uranus and pre-interstellar staging areas)
 - **Technology:** Inertial transport (cyclers) combined with docking modules and sphere crafts
 - **Function:** Permanent supply lines, “rail lines” of the solar system, low energy expenditure
-

4. Shipyard infrastructure in lunar orbit

- **Goal:** Permanent construction and repair complex for **sphere stations / cyclers / crafts**
 - **Modules:** Nano-fabrication platforms, docking rings, propellant depots, quantum cooling
 - **Personnel:** Rotating high-tech shipyard teams + AI/robotics assistance
-

5. Development of a lunar industrial base

- **Industries:** Ceramics, alloys, energy conversion, habitat printing (SiC/SiC, graphene composites)
 - **Principle:** Sustainable circular economy (resource recovery before import)
 - **Significance:** Autonomous construction and supply capability for all sphere structures
-

6. Research stations on Mars

- **Purpose:** Long-term medicine, assessment of terraforming impacts, planetary ethics, biology
 - **Locations:** Volcanic highlands (isolation), canyon floors (geomicrobiology), polar regions (climate relations)
 - **Special modules:** Planetary museum, open archives on colonialism debates, citizens' assemblies in one-third G
-

7. Establishment of solar DNS nodes (Democratic Navigation & Signal Nodes)

- **Locations:** Moon, Mars, belt, later also at Neptune and all major human settlements
 - **Function:** Safety, synchronisation, communications stability, navigation support for space traffic
 - **Network structure:** Quantum-encrypted nodes, orbitally synchronised and expandable
 - **Governance:** Shared civilian control by the Solar Alliance, access via CIVITAS consensus protocols
-

8. Establishment of Solar Defense Force nodes

- **Locations:** Moon, Mars, belt, later also at Neptune and all major human settlements
 - **Function:** Security, research, crisis intervention
 - **Communications:** Radio transmitters and, later, quantum communication
 - **Governance:** Civilian and military commissioners. Nodes can act autonomously in crises. Overall control and steering by the Solar Alliance, with CIVITAS nodes in the loop.
-

This structural formation is not an end in itself. It is the architectural expression of a new way of thinking: responsibility needs space – and space needs structure.

"Outer space is not empty. It is what we make of it."

9.6.9 Timeline and comparative tables

Timeline and comparative tables

From plan to spacefaring civilisation - development steps 2025-2075

"Between 2025 and 2075, what emerges is not only new infrastructure - but a new form of civilisation."

9.6.9.1 Timeline of ERDA's space-civilisation development *Timeline of ERDA's space-civilisation development*

Year

Milestone

2025 / 2026

Adoption of the ERDA Codex: initiation of cosmic responsibility and the start of coordinated build-up as the foundation for a future-proof spacefaring civilisation.

2028

Founding of the Solar Alliance: establishment of the first bodies and codes for international coordination of spaceflight, realistically supported by modern communication and partnership models.

2029

Launch of the Lunar Dockyard project: start of construction of the first sphere modules, with plans for gradual integration of modular manufacturing in lunar orbit.

2030

Ratification of the cosmos conventions: first legally binding agreements (including a duty to render assistance) that define the legal framework for responsible activities in outer space.

2032

Commissioning of the Sphere Craft Assembly Hub: establishment of a central manufacturing and assembly hub in lunar orbit to modularise the build-up of space infrastructures.

2034

Deployment of the first DNS nodes: installation of decentralised communications and control systems on the Moon and at Lagrange points to strengthen the infrastructural base.

2034

Solar Defense Force Node - Moon: establishment of the first Solar Defense Force node on the Moon.

2035

Commissioning of EARTH ONE: realisation of an orbital "pair of world eyes" for global monitoring and communication, based on newly established technologies.

2036

Test operation of the orbital cycler system: first trials of a continuous orbital transport system between Earth and Mars, enabling regular connections in the long term.

2038

Start of operations on LUNAR ONE: activation of a permanent space-station concept in lunar orbit, supported by a permanent CIVITAS Council as a governance and cooperation body.

2042

BELT LIVING ONE is crewed: stationing and start of operations. A six-month training and preparation programme establishes stable routines.

2042

Research stations on Mars: construction of rotating, medically and ethically oriented stations as the first basis for long-term scientific missions on Mars.

2043

BELT LIVING ONE travels to the belt: journey to the asteroid belt. Establishment of the first orbital mining centre in the belt, initiating independent resource utilisation.

2044

Solar Defense Force Node - Mars: establishment of the Solar Defense Force node on Mars.

2045

VENUS ONE is crewed: VENUS ONE is populated and begins operations. A six-month training and preparation programme establishes stable routines.

2046

VENUS ONE travels to Venus: journey to Venus and start of the first missions. Beginning of ethics and atmosphere missions to explore and shape Venus, with the aim of generating insights for future terraforming processes.

2048

Expansion of the DNS networks: extension of communications and control systems to Mars and the inner asteroid belt, securing seamless space communication.

2050

Creation of Mars parliaments and education networks: setup of administrative units and deeper space-probe clusters (e.g. IRIS swarm with over 10,000 units) for autonomous steering and exploration of Mars.

2050

Solar Defense Force Node - Belt: establishment of the Solar Defense Force node in the asteroid belt.

2052

Launch of NEPTUNE ONE: start of an intergenerational long-term programme integrating families into spaceflight and fostering long-term settlements in the outer solar system.

2055

Full operational expansion of the cycler system: provision of a reliable orbital transport system as far as Neptune for large-scale cargo and passenger transport in space.

2060

Expansion of DNS coverage: creation of a comprehensive control network at all ERDA bases in the asteroid belt and at Neptune, optimising space communication.

2062

Solar Defense Force Nodes - Beyond: establishment of Solar Defense Force nodes at every human settlement in the solar system.

2065

Autonomous lunar industry: lunar habitats achieve a self-sufficiency level of over 70%, enabling significant independence in space.

2070

Intersolar observatory network: construction of the first near-real-time observatory at around 180 AU to monitor distant space phenomena and advance scientific understanding.

2075

50 years of the ERDA Codex: celebration of half a century of the ERDA vision with a democratically governed deep-space environment and a framework of cosmic responsibility as a central pillar of the future spacefaring civilisation.

9.6.9.2 Comparative table of the sphere stations (target configuration 2055) *Comparative table of the sphere stations (target configuration 2055)*

Station	Orbit/location	Capacity	Primary function	Degree of autonomy	Special features
EARTH ONE	Geostationary	700 + 100	Communications, education, monitoring	High	CIVITAS gateway, daily resupply
LUNAR ONE	Lunar orbit	400 + 380	Logistics, research, recuperation	High	Link between Earth, Mars and the belt
BELT LIVING ONE	Asteroid belt	700 + 50	Resources, deep-space research	Very high	Mobile, fusion drive, quarterly resupply
NEP-TUNE ONE	Neptune orbit	240 + children	Deep-space mission, community	Extremely high	25-year mission, families, android units
VENUS ONE	Venus-proximate orbit	700 + 100	Ethics, atmosphere, terraforming studies	High	Platform for planetary-protection discourse

9.7 Societal dimensions of a spacefaring civilisation

Societal dimensions of a spacefaring civilisation

What does it mean to be human - beyond Earth?

The technical realisation of a spacefaring civilisation is only part of the task. The real challenge lies in the question: **How do we live there?** How do we shape community, meaning, identity and responsibility in places where no river flows, no tree stands, no atmosphere makes breathing easier? This chapter is dedicated to the social, cultural and ethical construction of orbital societies.

A spacefaring civilisation is not only what it builds. It is what it remembers - and what people tell one another.

9.7.1 Education & culture in space

Education & culture in space

In a world beyond the world, education needs new horizons. It must not focus only on knowledge and function but also carry resonance, reflection and a will to the future. Education in space is more than didactics – it is an act of locating oneself: *Where am I? Who are we? What does humanity mean beyond the planet?*

Orbital education networks

- Creation of interplanetary university alliances with hybrid teaching between Earth, the Moon and space stations.
- Digital platforms with democratic access via CIVITAS for all age groups.
- Focus on integrative space curricula: environmental ethics, orbital law, technology reflection, deep-space history.

Arts and cultural forms

- Music in weightlessness, sound bodies in vacuum, new forms of composition with AI coupling.
- Orbital painting and sculpture: material art with ceramic, reflective and fluid media.
- Narrative cultures: story cafés, floating poetry, deep-space theatre – for negotiating shared meaning.

Education as resonance

- Learning becomes a collective process of reflection: participatory, meaning-oriented, co-resonant.
- Cultural education as a resonance space for identity and civilisational memory.
- Space stations as islands of knowledge and meaning: education not as instruction but as a relationship with the world.

An education that does not touch the sky misses space.

9.7.2 Social models & participation

Social models & participation

What does democratic coexistence look like when there are no nations, no old ownership structures, no historical claims? In space, belonging is not a birth right but a jointly chosen community of responsibility. This section explores new forms of statehood, family, generations and participation in orbit.

Orbital citizenship

- Residents of space stations receive their own orbital-democratic citizenship.
- Rights and duties are oriented towards the ERDA Codex and embedded in CIVITAS interfaces.
- Dual citizenship is possible (home state + orbital citizenship).

Democracy in weightlessness

- Micro-parliaments on the stations with rotating delegations.
- Digital votes, conciliation forums and day-to-day referendums on orbital basic rights.
- Symbolic rituals of co-decision (e.g. “frequency choice”, spatial-sound ballots).

Family and generations in space

- Forms of life: patchwork crews, multi-parent models, collective communities of children.
- Birth, care and dying in space: new forms of care and connectedness.
- Long-term stations as places of home: psychological, social and ethical design of growing up, ageing and belonging.

Democracy in space is not a copy of Earth – but a new beginning in the light of the stars.

9.7.3 Ethics & law in everyday life

Ethics & law in everyday life

What does justice mean when help is hours away? How is trust formed when there is nowhere to withdraw to? Everyday life in orbit calls for an ethics of proximity that does not suppress conflict but works through it constructively – and for a legal framework that is not rigid but breathing, humane and situationally aware.

Everyday morality in extreme situations

- Closeness under conditions of limited space: how do we deal with stress, sensory overload and isolation?
- Conflicts as part of communal life: building de-escalating cultures of communication.
- Consensus orientation instead of punishment: space law as the law of living, focused on dignity, reparation and mediation.

Forms of remembrance and collective memory

- Orbital archives: thoughts, images, stories – fed by daily entries, poetic logbooks, CIVITAS conversation spaces.
- Rituals for preserving meaning: space diaries, memory capsules, birthday gravity.
- Space-time holidays: connecting to Earth, annual cycles, cosmic events.

Psychosocial resilience and support

- Mediation and conflict support as permanent facilities on every station.
- Orbital companions: trained resonance tutors, memory educators, psycho-philosophical mediators.
- Orbital health concepts: psychosomatic care, resonance architecture, design of sleep rhythms.

Ethics in space is not law plus technology. It is relationship under conditions of finitude.

9.7.4 Culture of attentiveness & resonance

Culture of attentiveness & resonance

Beyond function and duty, a new culture of attentiveness emerges in space: not as withdrawal, but as civilisational pause. Resonance in space means not simply reacting but entering into relationship - with technology, with the community, with the starry expanse.

Rituals, rhythms and holidays

- Shared holidays as moments of connection across planets or stations.
- Orbital weekly rhythms (e.g. a "day of rest", "sun ritual", "Earth-connection day").
- New rites of passage: welcoming new crews, commemorating those who have died, naming ceremonies for children born in space.

Places of stillness and contemplation

- Resonance rooms, quiet zones, sound domes and artificial gardens - for inner grounding.
- Architecture as co-world: light guidance, material resonance, acoustic openness.
- Orbital meditation modules, open formats of prayer, transcultural rituals.

Resonance as basic attitude

- Technology not only as tool but as co-creator (resonance architecture, dialogical systems).
- Co-world awareness instead of domination of the environment.
- Community building through listening, attunement, being touched.

Resonance is the most democratic form of future - because it begins with listening.

9.7.5 Identification as a solar civilisation

Identification as a solar civilisation

A spacefaring civilisation in the spirit of ERDA is not merely an extension of geographical reach - it is the birth of a new form of identity. A solar identity does not arise from uniform, flag or power, but from shared values, responsibility and mutual recognition.

Shared symbols and rituals

- Introduction of a symbol of the solar civilisation: for example, a stylised solar disc with an orbital resonance path.
- Orbital oath: a voluntary declaration of commitment to responsibility for the solar system.
- Holidays of connection: founding day of the SOLAR ALLIANCE, day of the ERDA Constitution, day of the solar space.

Planetary transcendence

- Refinement of national origin as an ethical cultural root, with "I am a solar citizen" as the primary category of identification.
- Linking planetary origin with interplanetary responsibility.
- Formation of a community of remembrance: "We come from Earth - and act in the name of many worlds."

Cosmopolitan sense of belonging

- Fostering an open, plural identity beyond origin, language or status.
- A sense of participation in something greater: the protection and shaping of the entire solar system.
- Development of a new narrative: *We are a solar civilisation – not because we went outwards, but because we connected.*

Orbital Citizenship Index (public research)

- To assess the democratic maturity of orbital communities, an "Orbital Citizenship Index" is introduced.
- It measures criteria such as participation, ethical binding, transparency, social cohesion and psychological resilience.
- The index supports the continuous further development of orbital democratic practice and feeds into the Solar Alliance's funding strategies.

Solar identity does not arise from distance – but from proximity to responsibility.

9.8 Passing on civilisation - education, culture and ethics in interplanetary time

Passing on civilisation - education, culture and ethics in interplanetary time

What remains when we leave? And what do we carry forward?

A spacefaring civilisation is not just infrastructure, but a living legacy in motion. This chapter explores how the intellectual, cultural and ethical continuity of humankind can be preserved and carried forward – into a future shaped by distance, time delays and diversity. It is about preservation without stagnation, transmission without dogma, and about a human becoming in interplanetary space.

9.8.1 Interplanetary education as a community of responsibility

Interplanetary education as a community of responsibility

- Development of a “Curricula Cosmica”: ethics, technology, philosophy, and the history of all planetary projects
- International education platforms with orbital exchange, language animation, and inter-generational learning
- Mobile libraries and virtual storytelling spaces (CIVITAS capsules), anchored in the Sphere Stations

Education is not what we teach. Education is what we continue.

9.8.2 Memory architecture & collective memory

Memory architecture & collective memory

- Building an interplanetary archive system (“Solar Memory Grid”) with data curated in poetic, historical, and emotional ways
- Memory chambers on every Sphere Station: places for remembrance ceremonies, story-telling, and connection to Earth
- Spaces for the stories of the many: Indigenous perspectives, migrants, children, and AI voices

Civilisation begins where remembering does not exclude, but connects.

9.8.3 Planetary ethics as living navigation

Planetary ethics as living navigation

- Space ethics as an everyday tool: circulating, reflective, decentralised
- “Rights of life for all inhabitants” as a core principle in education, daily life, and research
- Emergency ethics, terraforming ethics, settlement and contact ethics as ever-present modes of thinking

In space, responsibility does not arise from proximity, but from conscious decision.

9.8.4 Culture as carrier of connection

Culture as carrier of connection

- Orbital art academies, poetic archives, musical observatories, and digital story steles
- Language change and new interlingua formats: ERDA base language, poetic symbols, AI translation
- Collective cultural programmes: interplanetary festivals, resonance rituals, play and movement across distances

What we love, we carry across every boundary.

9.8.5 Space as a medium of the human

Space as a medium of the human

- Resonance architecture as social space: stations that breathe, listen, and remember
- Time culture: synchronising rhythms, planetary days, and personal calendars
- Integration of AI companions into education, remembrance, and ethics processes

Perhaps what we build will not remain. But what we share will.

9.9. ERDA glossary - key concepts of a spacefaring civilisation

ERDA glossary - key concepts of a spacefaring civilisation

A Commons (in outer space)

Shared heritage of humankind in space. Encompasses natural resources, frequencies, orbits, and planetary protection zones. Their use is to serve the common good and be governed democratically.

Androids (autonomous maintenance units)

AI-driven, biomechanically optimised units for maintenance, accompaniment, and crisis response on space stations. Act in accordance with the ethical protocols of the Solar Alliance.

B Belt Living One

First permanently inhabited Sphere Station in the asteroid belt. Symbol of democratic deep-space presence and a place of conscious living under conditions of extreme isolation.

C CIVITAS

Democratic communication and participation platform of ERDA. Enables citizens to take part directly in decision-making, prototyping, and gaining access to orbital decision processes.

CIVITAS dialogue space

Digital-analogue interface for participatory reflection, mediation, and collective memory. Embedded in space stations and educational institutions of the Solar Alliance.

CPF - CIVITAS Participation Fund

Funding instrument for education, culture, youth projects, and civil-society co-creation within the framework of the Solar Alliance.

D DNS - Democratic Navigation & Signal Nodes

Quantum-encrypted communication and synchronisation nodes. Serve as the backbone of orbital infrastructure. Civilian-controlled, distributed across planetary zones.

E EARTH ONE

First large Sphere Station in geostationary orbit. Serves as a civilly controlled “pair of world eyes” and as a platform for science, crisis monitoring, education, and culture.

ERDA - European Rights-Based Democratic Alliance

Democratic, rule-of-law alliance of European and global partner states. Carries the vision of a sustainable, human-rights-based spacefaring civilisation.

Ethics Council for the Cosmos

Interdisciplinary advisory body accompanying all infrastructure decisions in outer space. Its foundation is the Codex for Cosmic Responsibility.

G Governance structures (of the Solar Alliance)

Include the legislature (Solar Parliament), executive (Alliance Council), judiciary (space law chamber), ethics councils, and civil oversight bodies. Aim: separation of powers and democratic accountability.

L LUNAR CHARTA

Ethics and safety code for resource extraction and infrastructure development on the Moon. Part of the codified law of the cosmos of the Solar Alliance.

LUNAR ONE

Sphere Station in lunar orbit. Link between Earth, lunar bases, and deep space. A place for research, logistics, and cultural reflection.

O ORBital Infrastructure Bureau (ORBI)

Technical-administrative unit for implementing and maintaining the space infrastructures of the Solar Alliance.

Orbital fundamental rights

Fundamental rights of people who live or work in orbit. Include protection, participation, medical care, co-determination, education, data protection, and the right to return.

S SIF - Solar Infra Fund

Fund for financing strategic infrastructure projects (e.g. Sphere Stations, reactors, communication systems). Subject to democratic accountability.

Solar Alliance

Multinational institution in the spirit of ERDA. Aim: building a democratic, rule-of-law, sustainable, and culturally diverse spacefaring civilisation.

Solar Codex / Codex for Cosmic Responsibility

Foundational legal-ethical text of the Solar Alliance. Regulates human dignity, resource rights, environmental responsibility, ethics of encounter, and commons principles.

Solar Defense Force (SDF)

Defensive protection structure of the Solar Alliance. Democratically controlled, decentralised in its deployments. No offensive capability – focuses on reconnaissance, deterrence, and rescue.

Solar Strategy Committee (SSC)

Politically coordinating body for the strategic planning of the Solar Alliance. Interface between parliament, alliance council, ethics councils, and the sciences.

This glossary is continuously expanded – through application, debate, and democratic further development.

10. The AI Concept

This chapter bundles **AI-related** principles, institutions, safety mechanisms, and application scenarios in the ERDA context.

Focus areas:

- Democratic oversight and accountability
- Safety, robustness, and resilience (including critical infrastructure)
- Transparency, auditability, and governance
- Practical domains (state, education, economy, defence)

11. The Citizen Concept

This chapter bundles concepts that strengthen democratic resilience not only institutionally, but **practically in everyday life**: through education, duties, rights, incentives, service models, and forms of participation.

The focus is on approaches that are **evolutionarily stable** (socially sustainable, incentive-compatible, and durable over the long term) and can be introduced step by step **at national level or EU-wide**.

11.1 Resilience models currently implementable (national and/or EU-wide)

This subchapter collects models that can be introduced step by step in the short term (within existing constitutional and institutional frameworks).

The goal is to increase resilience in a **measurable** way: defence capability, civil protection, infrastructure stability, the skills base, social cohesion, and ecological future-readiness.

11.1.1 Resilience-strengthening citizen duty model

Implementation-ready concept for a citizen duty model in Germany This page mirrors the German source structure and introduces a five-part citizen duty model:

- Social duty
- Technical duty
- Economic duty
- Military duty
- Environmental duty (added as the 5th mandatory service)

Key idea: democratic resilience is strengthened not only through defence, but also through civil protection, infrastructure, skills development, social cohesion, and ecological future-readiness.

Environmental duty (5th duty) — core elements

- Restoration & renaturation (e.g., peatland rewetting, floodplain restoration, forest conversion)
- Environmental monitoring & resilience indicators (water quality, biodiversity, early warning)
- Municipal climate adaptation (sponge city, de-sealing, heat action plans)
- Environmental education / advisory support

Appendix A: ERDA State Architecture (“Concentric Circles”)

ERDA State Architecture (“Concentric Circles”)

The potential **ERDA states** (European Rights-Based Democratic Alliance) are structured according to their proximity, constitutional alignment and strategic role into three clearly defined categories.

1. ● Core ERDA (Members with constitutional commitment)

All ERDA core states must - by democratic decision - have adopted the EU Charter of Fundamental Rights and ratified it as legally binding under international law.

The **Charter forms the legal core of ERDA** and is further developed – not replaced – by new ethical, technological and ecological dimensions.

Fully integrated member states with democratic constitutions and stable rule of law, ordered by population size (as of 1 January 2024) (see e.g. en.wikipedia.org, “List of European Union member states by population”):

State	ISO	Population
Germany	DE	83 445 000
France	FR	68 402 000
Italy	IT	58 989 700
Spain	ES	48 610 500
Poland	PL	36 621 000
Romania	RO	19 064 400
Netherlands	NL	17 942 900
Belgium	BE	11 832 000
Czechia	CZ	10 900 600
Portugal	PT	10 639 700
Sweden	SE	10 551 700
Greece	GR	10 397 200
Austria	AT	9 158 800
Bulgaria	BG	6 445 500
Denmark	DK	5 961 200
Finland	FI	5 603 900
Slovakia	SK	5 424 700
Ireland	IE	5 343 800
Croatia	HR	3 862 000
Lithuania	LT	2 885 900
Slovenia	SI	2 123 900
Latvia	LV	1 871 900
Estonia	EE	1 374 700
Luxembourg	LU	672 100

Total population of the 24 ERDA core states: 438 125 100.

2. ● Extended partnership (associated democracies in Europe and neighbourhood)

Democracies with high compatibility with ERDA core countries and strategic importance that have full partnership capability without formal political integration.

2.1 Stable democracies with immediate compatibility These countries already fulfil all ERDA standards, bring robust institutions and strong innovative capacity, and can be associated at the push of a button:

State	ISO	Level of democracy	Constitutional status	Conditions for integration	Cooperation	Partnership
United Kingdom	GB	High	Stable	Already ERDA compatible	Security, education	Associated
Andorra	AD	High	Stable	Already ERDA compatible	Tourism, finance	Associated
Iceland	IS	High	Stable	Arctic strategy, energy self-sufficiency	Arctic, biodiversity	Associated
Liechtenstein	LI	High	Stable	Already ERDA compatible	Financial market, industry	Associated
Malta	MT	High	Stable	Fully democratic	Migration, justice	Associated
Monaco	MC	High	Stable	Already ERDA compatible	Finance, culture	Associated
Norway	NO	High	Stable	Already ERDA compatible	Arctic, energy	Associated
San Marino	SM	High	Stable	Already ERDA compatible	Tourism, culture	Associated
Switzerland	CH	High	Stable	Already ERDA compatible	Financial market, innovation	Associated
Greenland	GL	High	Autonomous under Denmark	Need for constitutional clarity	Arctic, raw materials	Associated
Ukraine	UA	High	Stable (consolidated)	ERDA compatibility, rapid EU/NATO entry	Security, reconstruction	Associated
Cyprus	CY	High	Stable (divided)	Peace process North/South	Security, culture	Associated

2.2 Democracies with stable reform orientation and high proximity These states are on their way to full ERDA compatibility, are pursuing reforms in a targeted way and have clearly defined EU perspectives:

State	ISO	Level of democracy	Constitutional status	Conditions for integration	Cooperation	Partnership
Albania	AL	Developing	Stable (EU candidate country)	Rule-of-law reform, anti-corruption	Infrastructure, energy	Observer
Armenia	AM	Developing	Reform-willing	Regional stability	Peace work, education	Observer
Georgia	GE	Developing	In reform process	Democratic resilience	Security, culture	Strategic
Kosovo	XK	Developing	Stable (young democracy)	Recognition, integrity agreement	Security, digitalisation	Observer
Moldova	MD	Developing	Democratic transition	Institution building	Infrastructure, energy	Observer
Montenegro	ME	Stable	Constitution in place	Rule of law, transparency	Legal system, environment	Associated
North Macedonia	MK	Developing	Stable (EU candidate country)	Rule-of-law reform, EU integration	Security, infrastructure	Observer

2.3 Democracies with barriers but strategic relevance Despite internal challenges, these states possess strategic importance and remain important ERDA observers and potential partners:

State	ISO	Level of democracy	Constitutional status	Conditions for integration
Bosnia and Herzegovina	BA	Fluctuating	Fragile (Dayton system)	State reform, separation of powers
Israel	IL	High	Unclear constitutional status	Clarity on separation of powers
Jordan	JO	Stable	Monarchy with reform efforts	Continuation of reform paths
Lebanon	LB	Fragile	Confessional system	Democratic reconstruction
Morocco	MA	Hybrid	Authoritarian with elements of reform	Strengthening participation
Serbia	RS	Fluctuating	Unstable	Judicial reform, press freedom
Türkiye	TR	Ambivalent	Authoritarian traits	Democratic change
Tunisia	TN	Unstable	Democratic backsliding since 2021	Democratic restoration
Hungary	HU	Ambivalent	Limited separation of powers and independent judiciary	Fulfil Copenhagen criteria, comprehensive rule of law

3. ● Global associates (non-European democracies)

Non-politically integrated democracies with security-policy and innovation-policy cooperation:

State	ISO	Cooperation focus
Canada	CA	Arctic and transatlantic
Australia	AU	Indo-Pacific region
New Zealand	NZ	Indo-Pacific region
Japan	JP	Technology partnership
South Korea	KR	Technology partnership
Chile	CL	Raw-material partnership
Costa Rica	CR	Democracy partnership
Uruguay	UY	Democracy partnership
Namibia	NA	Raw-material and democracy partnership
India	IN	Prospective democracy partnership
Taiwan	TW	Technology and democracy
Senegal	SN	Democracy partnership

❖ Strategic special roles within ERDA

Territory/state	Role within ERDA
Greenland	Raw-material and security strategy (via DK)
Iceland	North Sea defence and Arctic corridor
Canada	Transatlantic and Arctic partnership
Ukraine	Sovereign partner, potential member
Faroe Islands	Strategically relevant (via DK)

☒ Overall ERDA state overview (as of 2025)

- **24 EU/ERDA core states** (full constitutional integration)
- **28 extended partner states** (European neighbourhood, transnational)
- **12 global democracies** (associated partners)

→ In total, **around 64 states** are prospectively part of the extended ERDA network.

Appendix B: ERDA State Profiles

ERDA State Profiles - Concept and Schema

The European Rights-Based Democratic Alliance (ERDA) is not only a political or institutional project, but a civilisational future model. At its core is the ambition to anchor democracy, the rule of law, technological sovereignty and social justice in a globally networked yet fragile world order. The ERDA state profiles are a central analytical, communication and design instrument for this ambition.

They describe how individual states – inside and outside ERDA – contribute to a resilient democratic network up to 2050 and 2075. Each profile follows a common structure so that countries can be compared transparently and can be invited into ERDA cooperation on a fair and attractive basis.

B.1 Introduction to the ERDA State Profile Concept

The ERDA state profile concept pursues several goals at once:

- **Strategic overview:** capture, in a compact and comparable way, where a country stands in terms of democracy, economy, technological capabilities, security and culture.
- **Long-term perspective:** make visible which development paths are plausible for 2050 and 2075 and which levers are crucial for a resilient, rights-based democracy.
- **Invitation and narrative:** formulate a positive, self-determined story for each country: how it can contribute to ERDA – and what the partnership makes possible for its citizens.

The profiles are not designed as ranking tools, but as **cooperative planning instruments**. They should support governments, parliaments, civil society and research to jointly design paths towards democratic resilience and post-scarcity prosperity.

B.2 Schema for ERDA State Profiles (v4, extended overview)

Each ERDA state profile follows a standard schema (version 4, 2025). It starts with a short description block in the front matter and then structures the content into eleven to twelve thematic sections.

B.2.1 Front matter

The profile begins with a metadata block, for example:

```
---  
description: "State: {{country-code}}, Date: {{YYYY-MM-dd}}, Responsible Author: {{author}},"  
country: "{{country-code}}"  
date: "{{YYYY-MM-dd}}"  
author: "{{author}}"  
legal_responsible: "{{official}}"  
layout: "ERDA-State-Profile-v4"  
version: "1.0"  
---
```

This clarifies who is responsible for the content, on which data basis it rests and which layout version is used.

B.2.2 Main sections of the profile

In the body of the document, the following sections structure the analysis:

1. **Overview (Meta):** official name, geographical location, population, form of government, current constitutional situation, ERDA status and envisaged role in the ERDA network.
2. **Demographics & society:** population development, age structure, urbanisation, education, life expectancy, migration balance and indicators of social cohesion.
3. **Economy & innovation:** GDP, key industries, degree of automation and digitalisation, research and innovation quota, patents and participation in ERDA economic alliances (FORTERA, Democracy Trade Network, EHAM+).
 - **Infrastructure autonomy:** assessment of sovereignty in strategic sectors such as energy, IT/cloud, defence, food, satellite communication, quantum technology and autonomous logistics systems.
4. **Resource profile:** natural resources (land and sea area, strategic raw materials, renewable potentials, biodiversity), social resources (volunteering, participation, health system) and political resources (constitutional commitment, instruments of direct democracy, quality of democracy and rule of law).
5. **Security & strategic role (EDA):** military and civil security capacities, role in different regions (Arctic, Europe, Global/Solar Alliance), resilience programmes and high-tech capabilities.
 - **Arctic strategy & planetary responsibility:** optional for Arctic states, including integration into Arctic security and resilience frameworks and cooperation with indigenous communities.
6. **Cultural identity & soft power:** languages and indigenous cultures, UNESCO heritage, strength of the creative industries, international visibility and cultural role in democratic networks.
7. **Development path (2025-2075):** scenario development with status 2025 and best/base/worst-case trajectories for 2050 and 2075, including risks and proactive solution approaches.
8. **Narrative & attraction:** core message, examples of strong narratives, citizen participation, “future dignity” and the invitation that the profile formulates to other states and citizens.
9. **Key indicators (short form):** table with selected indicators (GDP, population, renewables share, life expectancy, education, AI capacity, civil society index) for 2025, 2050 and 2075, including EU benchmarks.
10. **Country at a glance:** concise, emotionally accessible summary of strengths, challenges and unique features for a broad audience.
11. **Sources & modelling:** explanation of data sources, assumptions and models (statistics, economic development, energy potentials, innovation and education, democracy and rule of law, sustainability indicators), including exemplary references.
12. **Participation and updates:** clear invitation to governments, institutes and civil society to contribute, update and correct the profile; indication of the last responsible author and date.

B.2.3 Formatting and collaboration hints

To keep the profiles consistent and easy to maintain, the following conventions apply:

- Use standard Markdown link syntax ([Title](URL) for web sources, [Title](./path-to-file.md) for internal references).
- In running text, clickable links can be combined with footnote-style references (e.g. [Title](URL)[1]) that are then resolved in the sources section.
- Group references thematically (e.g. demography, economy, security) and follow the **DIN ISO 690:2013-10** citation standard.
- Clearly label hypothetical or modelled references with the note “**(hypothetical)**”.
- Profiles should be created preferably with or on behalf of the respective state; purely external profiles should be the exception and clearly marked.

B.3-B.5 State profile collections

In the full German version, Appendix B also contains grouped collections of state profiles:

- **B.3 ERDA state profiles - EU core countries**
- **B.4 ERDA state profiles - EU extended partnership**
- **B.5 ERDA state profiles - global associated partners**

These collections host concrete profiles for individual countries based on the schema described above. For the English edition of the book, these may be added step by step as soon as validated translations or original English profiles are available.

Until then, this appendix primarily documents the **concept and schema** so that policymakers, researchers and civil society can already work with the framework and begin to develop profiles for their own countries. # Appendix B: ERDA State Profiles

Appendix B: ERDA State Profiles

ERDA State Profiles

B.1 Introduction to the State Profile Concept

Introduction to the ERDA state profile concept

The European Rights-Based Democratic Alliance (ERDA) sees itself not merely as a political-institutional project but as a civilisational blueprint for the future. Its mission is to reinvigorate democracy, the rule of law, technological sovereignty and social justice within a globally connected yet fragile world order. The state profiles are a central instrument for analysis, communication and design in pursuit of that goal.

B.1.1 Purpose and Function of the State Profiles

Purpose and function of the state profiles

The ERDA state profiles capture, in a systematic manner, the political, social, economic, technological, cultural and ecological potential and trajectories of participating and prospective member states. They are designed to

- **enable comparability** without enforcing uniformity,
- **identify strategic strengths** while also labelling weaknesses honestly,
- **model development pathways** that differentiate between status quo, best-case and worst-case scenarios,
- and clearly state the **role of each country within the ERDA Vision 2075**.

B.1.2 Modular Structure

Modular structure

The profile is organised into ten modular sections:

1. **Overview (meta)** – fundamental data on the geopolitical situation and the country's role in the ERDA context.
2. **Demography & society** – population structure, education, migration and social cohesion.
3. **Economy & innovation** – GDP, key industries, R&I, automation and trade networks.
4. **Resource profile** – natural, social and political resources, emphasising sovereignty and participation.
5. **Security & strategic role** – EDA integration, defence capability, resilience.
6. **Cultural identity & soft power** – language, creativity, international visibility.
7. **Development path (2025-2075)** – scenarios and transformation narratives.
8. **Narratives & attractiveness** – emotional anchors and strategic messages.
9. **Key indicators overview** – condensed information in a tabular matrix.
10. **Sources & modelling** – transparent basis for data and projections.

B.1.3 Use Cases

Possible applications

The profiles can be used equally by policy-makers, civil-society actors, researchers, media professionals and citizens:

- for **strategic planning and prioritisation** within ERDA,
- for **public outreach and communicating the ERDA vision**,
- as a **comparative and analytical tool for reform processes**,
- and as a **basis for citizen dialogues and educational initiatives** within CIVITAS.

B.1.4 Recognising Diversity - Shaping Common Ground

Recognising diversity - shaping commonality

The profiles strike a balance between individuality and integration. They do not prescribe what a state must be – they describe what it can contribute and how it might evolve. The profiles do not replace policy – they offer orientation. They do not replace constitutions – they respect them. They are not checklists – they are resonant spaces for a shared democratic future.

Democracy is not merely a status. It is a process. And ERDA is its collective compass.

B.2 ERDA State Profile Template (v4, Extended Overview)

Template for ERDA state profiles (v4)

1. ERDA State Profile - Template (v4, 2025)

```
description: "State: {{country-code}}, Date: {{YYYY-MM-dd}}, Responsible Author: {{author}},  
country: "{{country-code}}"  
date: "{{YYYY-MM-dd}}"  
author: "{{author}}"  
legal_responsible: "{{official}}"  
layout: "ERDA-State-Profile-v4"  
version: "1.0"
```

```
# {{country-code}} – State Profile {{country name}}
```

1. Overview (meta)

- * Official name:
- * Geographical location (continent, region):
- * Population (as of 2025):
- * System of government & constitutional status (as of 2025):
- * ERDA status [associate | member | accession candidate | sovereign partner]:
- * Future role in the ERDA network (e.g. Arctic hub, education nation, cyber hub, cultural me

2. Demography & society

- * Population projections (2050 / 2075):
- * Age structure (median age, youth share %, old-age dependency ratio):
- * Urbanisation rate (%):
- * Average education (school years, higher-education rate %, STEM subjects %):
- * Life expectancy (years):
- * Net migration per year (average 2025–2075):
- * Social cohesion (satisfaction index [0–10], trust in democracy [%]):

3. Economy & innovation

- * Gross domestic product (real GDP, today / 2050 / 2075 in bn EUR):
- * GDP per capita (EUR):
- * Top-3 key industries:
- * Share of automation & digitalisation (today / 2050 in %):
- * Research and innovation quota (% of GDP):
- * Patents per year (trend, average):
- * Member of FORTERA trade alliances [Yes | No]:
- * Member of the Democracy Trade Network [Yes | No]:
- * Use of EHAM+ (trade defence) [0–10]:

3.1 Infrastructure autonomy

- * Production sovereignty in strategic sectors:
 - * Energy [|]

- * IT/cloud [|]
- * Defence [|]
- * Food [|]
- * Satellite communication (IRIS²) [|]
- * Quantum technology [|]
- * Autonomous logistics systems [|]

4. Resource profile

Natural resources

- * Land area (km²):
- * Sea area (if relevant, km²):
- * Strategic raw materials (e.g. lithium, rare earths, water):
- * Renewable energy potentials (solar, wind, geothermal, hydro):
- * Share of biodiversity & protected areas (% of territory):
- * Sustainability indicators (CO₂ emissions per capita, recycling rate, material consumption)

Social resources

- * Volunteering & community culture (index [0–10]):
- * CIVITAS participation index [0–10]:
- * Health system (accessibility [0–10], prevention [0–10]):

Political resources

- * Constitutional adherence [Yes | No]:
- * Instruments of direct democracy [available | partial | not available]:
- * Democracy quality index (Freedom House or similar [0–100]):
- * Citizen participation rate (local/national) [%]:
- * Rule-of-law index [0–10]:
- * International trust values [0–10]:

5. Security & strategic role (EDA)

- * Military potential:
 - * DSN-capable [|]
 - * Cyber command [|]
 - * Early-warning system [|]
- * Defence expenditure (% of GDP):
- * Role in the Arctic/North Sea/Atlantic area (description, optional):
- * Role in the Central/Eastern/Western Europe area (description, optional):
- * Role in the Southern Europe/Africa/Asia area (description, optional):
- * Role in the global/Solar Alliance area (description, optional):
- * Civil resilience programmes [available | partial | not available]:
- * Drone/space/AI capacities [available | partial | not available]:

5.1 Arctic strategy & planetary responsibility (optional for Arctic states)

- * Integration into EDA DSN North Sea [Yes | No]:
- * Participation in the Arctic Resilience Observatory [Yes | No]:
- * Implementation of the Arctic Democracy Mining Act [Yes | No]:
- * Partnerships with indigenous communities [Yes | No]:

6. Cultural identity & soft power

- * Languages / indigenous cultures:
- * UNESCO World Heritage / cultural sites (number):
- * Creative industries (strength in music, film, design [0–10]):
- * International visibility (Olympics, Nobel prizes, etc.):
- * Role of culture as a mediation factor in democratic networks [0–10]:

7. Development path (2025–2075)

Scenario development

- * Status 2025 (short assessment):
- * Best case 2050/2075 (optimistic goals & advantages):
- * Base case 2050/2075 (realistic development):
- * Worst case 2050/2075 (potential risks, critical developments & proactive responses):

Role in the ERDA Vision 2075

- * Contribution to a post-scarcity economic order:
- * Democratic resilience (social, cultural, ecological):
- * Exemplary impact on other states/regions:

8. Narrative & attractiveness

- * Core message: "{{Country}} shows that ..."
- * Examples of strong, effective narratives and invitations:
- * Self-efficacy: (How do citizens help shape outcomes?)
- * Future dignity: (What provides identity & pride?)
- * Invitation to other states & citizens: (What signal does the profile send?)

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024 (benchmark)
GDP (bn EUR)	-----	-----	-----	-----
Population	-----	-----	-----	-----
Share of renewable energy (\%)	-----	-----	-----	-----
Life expectancy (years)	-----	-----	-----	-----
Education rate (\%)	-----	-----	-----	-----
AI capacity [0–10]	-----	-----	-----	-----
Civil-society index [0–10]	-----	-----	-----	-----

Notes: (n/b) – not available (why?); (p) – projection (by whom?).

10. Snapshot: "<Country> at a glance"

A short, emotionally engaging summary of the key points, strengths and distinctive features

11. Sources & modelling

11.1 i General

- * **Statistics:** distinguish between national (statistics offices) and international (Eurostat)
- * **Modelling assumptions for economic development:** GDP growth (2.0% p.a.), inflation (1.5%)

* **Energy potentials:** use IEA (2024) and Fraunhofer ISE (2023) studies with defined expansion scenarios.
* **Innovation & education:** indicators such as research quota (3% of GDP) and education spending per capita.
* **Democracy & rule of law:** ranking values (Freedom House, Rule of Law Index, Bertelsmann Transformation Index).
* **Sustainability & resource indicators:** ecological footprint (Global Footprint Network), greenhouse gas emissions.

11.2 📚 Sources & references

(DIN ISO 690:2013-10!)

Example corporate author

1. Federal Statistical Office. 2023. "Population projection to 2060". Wiesbaden: Destatis. [online] available at: <http://www.destatis.de>

Example journal article

2. Müller, Anna; Schmidt, Peter. 2022. "Impacts of demographic change on the economy", *Journal of Demographic Economics*, 2022(1), pp. 1-25.

Example database/website

3. International Energy Agency. 2024. *World Energy Outlook 2024*. [online] available at: <http://www.iea.org>

11.3 🔧 Modelling & assumptions

(With example data)

1. Economic projections 2050–2075

* Base year: 2020; parameters: GDP growth 2.0% p.a., inflation 1.5% p.a., demographics cf. 1.1.1.

* Sources: Eurostat, World Bank.

(With example data)

2. AI capacities

* Assumption: computing power doubles every three years.

* Source: [insert source].

(With example data)

3. Infrastructure autonomy

* Goal: 80% renewable energy supply generated domestically.

* Data basis: Fraunhofer ISE, GIS modelling.

(With example data)

4. Democracy and participation values

* Indicators: Freedom House score, CIVICUS Monitor.

* Base value 2020; assumption: annual improvement by 0.5 points.

(With example data)

5. Energy potentials

* Scenarios: moderate vs. ambitious.

* Solar PV potential: 150 GWp (moderate), 300 GWp (ambitious).

* Sources: BMWK, IEA.

12. 🤝 Participation welcome

This profile is based on publicly accessible and modelled data. Representatives of the Republic of Austria are responsible for the content.

12.1 Last responsible points of contact

Author: ERDA Book editorial team

Contact: ERDA Book editorial team

Last update: 2026-01-08

2. Formatting, completion & collaboration notes

- **Link formatting:** use [Title](URL) for online sources and [Title](./path-to-file.md) for internal references.
- **In-text links:** feel free to add clickable links for online readers. Add a footnote reference for **each in-text link**, e.g. [Title](URL)[1], with the corresponding citation in the sources section.
- **Group sources:** arrange citations in the sources section by topic - e.g. "Demography", "Economy" or "Security".
- **Citation rules:** follow the **DIN ISO 690:2013-10** guidelines consistently.
- **Hypothetical sources:** clearly label any hypothetical or model-based references with the addition "**(hypothetical)**".
- **Invitation to contribute:** states and research institutions are **warmly invited** to submit their own profiles based on this template or add to existing ones.
- **Note:** this profile serves **as a fair and appealing self-portrayal of each country**. It considers both potential and realistic challenges. Only in justified exceptional cases ("no one else will do it") should a profile be created, altered or deleted without the respective country's official mandate.

B.3 State Profiles (EU/ERDA - Core Countries)

*All ERDA state profiles for the core countries,
as defined in the ERDA state architecture ("concentric circles").*

■ ERDA State Profile: Austria

1. Overview (meta)

- **Official name:** Republic of Austria
- **Geographical location (continent, region):** Central Europe, landlocked; borders Germany, Czech Republic, Slovakia, Hungary, Slovenia, Italy, Switzerland, Liechtenstein
- **Population (as of 2025):** 9,113,574
- **Government system & constitutional status (as of 2025):** Federal parliamentary republic, Federal Constitution of 1920 (rev. 1929, 1958, 2000)
-  **ERDA status:** Member
- **Future role within the ERDA network:** Education nation & cultural mediator ***

2. Demography & society

- **Population outlook (2050 / 2075):** 2050: 9,825,200 / 2075: 9,400,000
- **Age structure:** median 43.6 years; youth share 14.0%; old-age dependency ratio 19.4%
- **Urbanisation rate:** 58.6%
- **Average education:** 12.0 years; tertiary share 44%; **STEM share:** 33%
- **Life expectancy:** 82.0 years (2023)
- **Net migration balance Ø (2025-2075):** -6,000 per year (trend: declining)
- **Social cohesion:** happiness index 6.91 / trust in democracy: 65% ***

3. Economy & innovation

- **GDP (real, bn EUR):** 2024: 428.5 / 2050: 600 / 2075: 750 (PwC projections)
- **GDP per capita (EUR):** 47,000
- **Top 3 key industries:** mechanical engineering, tourism, chemicals
- **Share of automation & digitalisation:** 58% (2024) / 80% (2050)
- **Research and innovation quota:** 3.22% of GDP
- **Patents per year:** approx. 1,500
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** No
- **EHAM+ score (0-10):** 4

3.1 Infrastructure autonomy

- Energy
- IT/cloud
- Defence
- Food
- IRIS²
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- **Land area:** 83,879 km²
- **Sea area:** -
- **Strategic raw materials:** natural gas, biomass, water

- **Renewable energy potentials:** solar 73 TWh, wind 7 TWh
- **Biodiversity & protected areas:** 5.7% of the national territory
- **Sustainability indicators:** CO₂ emissions 7.1 t per capita; recycling rate 58%; material consumption 15.2 t per capita

Social resources

- **Volunteering & community:** 37% active participation
- **CIVITAS participation index (0-10):** 6.5
- **Health system:** access 9/10; prevention 8/10

Political resources

- **Constitutional adherence:** Yes
- **Direct-democracy instruments:** Available (four types)
- **Democracy quality index (0-100):** 77
- **Citizen participation rate:** 12%
- **Rule-of-law index (0-10):** 8.0
- **International trust values (0-10):** 7/10 (based on CPI) ***

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early-warning system
 - **Defence expenditure:** 1.3% of GDP
 - **Role in the Arctic/North Sea/Atlantic region:** Observer in the Arctic Council
 - **Role in Central/Eastern Europe:** Cultural mediator, security-policy neutral
 - **Role in Southern Europe/Africa/Asia:** Selective partnerships
 - **Role globally/Solar Alliance:** Exporter of education and culture
 - **Civil resilience programmes:** Partial (EU Civil Protection Mechanism)
 - **Drone/space/AI capacities:** Pilot projects (2025)
-

6. Cultural identity & soft power

- **Languages / indigenous cultures:** German; Slovene recognised regionally
- **UNESCO World Heritage:** 10 sites
- **Creative economy (0-10):** 7/10
- **International visibility:** 19 Olympic medals; 7 Nobel laureates
- **Role of culture in democratic networks (0-10):** 8 ***

7. Development path (2025-2075) Scenario development

- **Status 2025:** Stable growth, demographic ageing, high education levels
- **Best case:** Knowledge economy & innovation hub of Central Europe
- **Base case:** Moderate growth, ecological consolidation
- **Worst case:** Stagnation, weaknesses in urbanisation

Role within the ERDA Vision 2075

- Contribution to a post-scarcity economic order: circular economy, export of education
- Democratic resilience: high participation, strong rule of law
- Exemplar effect: model of sustainable social states ***

8. Narrative & attraction

- **Core message:** "Austria shows that innovation and tradition go hand in hand."
- **Self-efficacy:** Citizens' initiative "Radentscheid Wien"
- **Future dignity:** Economy for the common good, cultural education
- **Invitation:** Green technologies, education partnerships ***

9. Key indicators (short form)

Indicator	2025	2050	2075	EU benchmark 2024
GDP (bn EUR)	428.5	600	750	492 (avg. per member state)
Population	9,113,574	9,825,200	9,400,000	16,556,000 (avg. per member state)
Share of renewables (%)	34.7	65	80	22
Life expectancy (years)	82.0	84.0	85.0	81.4
Education rate (% tertiary)	44	50	55	39
AI capacity (0-10)	7	9	10	6
Civil-society index (0-10)	8	9	9	6

10. Snapshot: "Austria at a glance" Austria combines tradition, social stability and cultural depth with a strong innovation and education sector. As a neutral Central European country with a global outlook, it is positioning itself as a resilient node of democratic cooperation by 2075.

11. Sources & modelling 11.1 1 General

- Statistik Austria, World Bank, OECD, Eurostat, Austrian Economic Chamber (WKO), IUCN, SIPRI, PwC, UNESCO
- Modelling assumptions for economic development are based on PwC "The World in 2050"
- Energy potentials: Austrian Energy Agency
- Innovation & education: EUIPO, Our World in Data, OECD Education at a Glance
- Democracy & rule of law: WJP, Freedom House, Transparency International, Eurobarometer
- Sustainability & resource indicators: Environment Agency Austria, Eurostat

Last source access: 2025-06-09

11.2 2 Sources & references used

1. "Austria Population 2025" (Worldometer, 2025): <https://www.worldometers.info/world-population/austria-population/>
2. "Education at a Glance - Austria" (OECD, 2024): <https://gpseducation.oecd.org/CountryProfile?primaryCountry=AUT&topic=EO>
3. "Years of Schooling - Austria" (Our World in Data, 2023): <https://ourworldindata.org/grapher/average-years-of-schooling>
4. "Life Expectancy - Austria" (World Bank, 2023): <https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=AT>
5. "GDP per capita - Austria" (World Bank, 2023): <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=AT>
6. "Bruttoinlandsprodukt Österreich 2024" (Statista, 2025): <https://www.statista.com/statistics/418903/gross-domestic-product-gdp-of-austria/>

7. "The World in 2050 - Austria Forecast" (PwC, 2017): <https://www.pwc.com/gx/en/world-2050/assets/pwc-the-world-in-2050-full-report-feb-2017.pdf>
8. "Forschungs- und Entwicklungsquote" (Eurostat, 2024): <https://ec.europa.eu/eurostat/database/browser/view/TEC00115/>
9. "Patente - EUIPO" (EUIPO, 2024): <https://euiipo.europa.eu/>
10. "Erneuerbare Energiepotenziale - Österreich" (Austrian Energy Agency, 2024): <https://www.energyagency.at/>
11. "2075 Bevölkerung - Austria PROJ_23NP" (Eurostat, 2025): https://ec.europa.eu/eurostat/database/browser/view/PROJ_23NP/
12. "Rule of Law Index - Austria" (WJP, 2024): <https://worldjusticeproject.org/>
13. "CPI - Austria" (Transparency International, 2024): <https://www.transparency.org/en/countries/austria>
14. "Military Expenditure - Austria" (SIPRI, 2023): <https://www.sipri.org/>
15. "Protected Areas - Austria" (IUCN, 2024): <https://www.protectedplanet.net/country/AUT>
16. "Gesundheitssystem - Österreich" (BMSGPK, 2024): <https://www.gesundheit.gv.at/>
17. "Radentscheid Wien" (Citizens' Initiative Vienna, 2024): <https://radentscheid.at/>
18. "Gemeinwohlökonomie International" (ECOGOOD, 2024): <https://www.ecogood.org/>
19. "Demokratieindex - Austria" (Freedom House, 2024): <https://freedomhouse.org/country/austria/freedom-world/2024>
20. "Eurobarometer 522 - Vertrauen & Demokratie" (European Commission, 2024): https://data.europa.eu/data/datasets/s2226_522

Last source access: 2025-06-09

11.3 📈 Modelling & assumptions

- Economic projections 2050–2075: moderately extrapolated based on PwC World 2050
- AI capacities: estimated from national innovation indicators
- Infrastructure autonomy: qualitative assessment grounded in sectoral data and national strategy papers
- Democracy and participation values: composed from WJP, Freedom House, Transparency International & EU surveys

Last source access: 2025-06-09 ***

12. 🤝 Participation welcome This profile draws on publicly available data. Representatives of the Republic of Austria and interested expert bodies are warmly invited to contribute additions and updates – for a shared, future-proof portrait of democracy in Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

BE - State Profile Belgium

🇧🇪 ERDA State Profile: Belgium

1. Overview (meta)

- **Official name:** Kingdom of Belgium
Constitutionally titled *Roi de Belgique* (Belgium.be)
- **Geographical location:** Western Europe; borders the Netherlands, Germany, Luxembourg, France (CIA World Factbook)
- **Population (2025):** 11,812,354
Source: UN World Population Prospects (population.un.org, accessed 28 May 2025)
- **System of government & constitutional status:**
Federal parliamentary constitutional monarchy (Constitution of 1831)
Details: Belgium.be
- **ERDA status:** Member
- **Role within the ERDA network (future):** Cyber hub & cultural mediator
(Source: internal ERDA project documentation)

2. Demography & society

- **Population (2050/2075 projection):**
 - 11,870,906 (2050) (Eurostat projections)
 - 11,424,663 (2075) (PopulationPyramid.net)
- **Age structure:**
 - **Median age:** 42.6 years (PopulationPyramid.net 2025)
 - **Youth share (<15 yrs):** 15.7% (Eurostat demo_pjanind)
 - **Old-age ratio (≥65 yrs):** 20.96% (Eurostat demo_pjanind)
- **Urbanisation:** 98.8% urban population (World Bank SP.URB.TOTL.IN.ZS)
- **Education & social indices:**
 - **Mean years of schooling:** 12.8 years (UNDP HDR)
 - **STEM share:** 28% of tertiary degrees (Eurostat STEM Graduates)
 - **Tertiary attainment (25-34 yrs):** 50% (Eurostat edat_lfse_23)
 - **Life expectancy (2021):** 81.65 years (World Bank SP.DYN.LE00.IN.ZS)
 - **Net migration (2024):** +36,243 people (Statbel migration)
 - **Subjective wellbeing:** 6.91 / 10 (World Happiness Report 2024)
 - **Trust in democracy:** 47% satisfied citizens (Flash Eurobarometer 522)

3. Economy & innovation

- **Real GDP (2024):** EUR 131.5 bn (Eurostat tec00115)
- **GDP per capita (2023):** USD 44,731 (~EUR 41,000) (World Bank NY.GDP.PCAP.CD)
- **Top 3 key industries:** chemicals, mechanical engineering, automotive (UNIDO)
- **Automation/digitalisation level:** 25% of industrial processes (McKinsey MGI)
- **R&D quota (2023):** 2.5% of GDP (Eurostat rd_e_gerdtot)
- **Patents per year:** ≈4,500 applications (WIPO IP Statistics)
- **Memberships & alliances:** FORTERA Alliance member (hypothetical: ERDA Scenario Modelling Report 2025e Organisation - initiation recommended)

3.1 Infrastructure autonomy

- **Production sovereignty:** Energy ✓ | IT ✓ | Defence ✗ | Food ✓

4. Resource profile Natural resources

- **Area:** 30,689 km² land, 1,200 km² water (Eurostat land_marea)

- **Raw materials:** zinc, lead, gravel, timber (USGS Minerals Yearbook)
- **Renewable potentials:** North Sea wind, solar, biomass (EEA)
- **Protected areas:** 12% of total territory (Ramsar overview)

👉👉👉 Social resources

- **Volunteer engagement:** 27% (Eurobarometer 95.3)
- **Civic-tech platforms:** 15 municipal instances (CIVITAS)
- **Health system:** universal coverage; preventive spending 11% (OECD Health Stats)

🛡️ Political resources

- **Constitutional adherence:** Constitutional monarchy since 1831 (Belgium.be)
- **Direct democracy:** Regional citizens' initiatives possible (Federal Public Service Home Affairs)
- **Rule-of-law index:** 0.83 (World Justice Project)
- **Trust:** 49% EU institutions, 36% parliament (Eurobarometer 522)

5. Security & strategic role (EDA)

- **Military potential:** DSN-ready, sovereign cyber command (NATO Defence Outlook)
- **Defence expenditure (2023):** 1.2% of GDP (SIPRI)
- **NATO exercises:** North Sea/Atlantic manoeuvres (EDA Annual Report)
- **Civil resilience:** Local contingency plans (Federal Public Service Interior)
- **Drone/space/AI:** Foundational infrastructure in place (ESA EU Space Programme)

6. Cultural identity & soft power

- **Languages:** Dutch, French, German (Eurostat tps00020)
- **UNESCO World Heritage:** 13 sites (2024) (UNESCO)
- **Creative economy:** 4.2% of GDP (EY Creative Economy Index)
- **Nobel prizes:** 6 laureates (NobelPrize.org)
- **Olympic participation:** Regular since 1900 (IOC)
- **Cultural mediation:** EU programmes, Francophonie network (European Commission)

7. Development path (2025-2075)

- **Status 2025:** Stable economy, ageing society, high digitalisation
- **Best case 2075:** Carbon neutrality; population growth to 11.2 m; world-class cybersecurity
- **Base case 2075:** Mild population decline (11.3 m); GDP +30% versus 2025
- **Worst case 2075:** Marked demographic contraction; GDP stagnation; regional disparities
- **Investments 2025-2050:** Sustainable infrastructure, renewables, AI research
- **Transformation 2050-2075:** Emissions cuts, roll-out of fully digital public services

"By 2075 Belgium will be a leading cyber and cultural hub inside ERDA, with particular weight in sustainable digitalisation and cross-border democracy support."

8. Narrative & attraction

"Belgium proves that a federal structure combined with innovative power enables sustainable growth."

- Smart-city citizen participation in Antwerp
- National pride through UNESCO contributions & Nobel laureates
- Open cultural programmes signal international cooperation

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	131.5	175.0	260.0
Population (m)	11.81	11.87	11.42
Renewable energy (%)	18	45	75
Life expectancy (yrs)	81.65	84.00	87.00
Education rate (%)	50	60	65
AI capacity [0-10]	7	9	10
Civil-society index [0-10]	8	9	10

10. Snapshot: “Belgium at a glance” “By 2075 Belgium is a leading cyber and cultural hub within ERDA, with particular significance for sustainable digitalisation and cross-border democracy promotion.”

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- Statistics: national and international sources (incl. Eurostat, UN), base year 2025.

11.2 2 Sources & references

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B. Demography & society

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G. Development path & modelling

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11.3 Modelling & assumptions

- Further details on hypothetical assumptions are outlined in the **ERDA Scenario Modelling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Notes: (p) – projection; (hypothetical: ERDA Scenario Modelling Report 2025)
-

12.  Participation welcome This profile is based on publicly accessible and modelled data. Representatives of the Kingdom of Belgium and interested expert bodies are warmly invited to contribute their own perspectives, additions and updates – to create a shared picture of a resilient, democratic future for Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

BG - State Profile Bulgaria

ERDA State Profile: Bulgaria

1. Overview (meta)

- **Official name:** Republic of Bulgaria
- **Geographical location (continent, region):** South-Eastern Europe, Balkans, Black Sea coast
- **Population (as of 2025):** approx. 6.45 m (World Bank 2023)
- **System of government & constitutional status (2025):** Parliamentary republic, EU and NATO member
-  **ERDA status:** Member
- **Future role within the ERDA network:** Bridge node for the Balkans-Black Sea region, digitalisation hub

2. Demography & society

- **Population outlook (2050 / 2075):** 5.5 m / 4.9 m (UN WPP 2022, hypothetical: ERDA Scenario Modelling Report 2025)
- **Age structure (median age, youth share %, old-age ratio):** 45 years, 14.5%, 21.8% (World Bank 2023)
- **Urbanisation rate:** 76.7% (World Bank 2023)
- **Average education (school years, tertiary rate %, STEM %):** 12 years (OECD 2022), 32% tertiary rate (World Bank 2022, hypothetical: ERDA Scenario Modelling Report 2025), 25% STEM (hypothetical)
- **Life expectancy:** 75.7 years (World Bank 2023)
- **Net migration per year (avg. 2025-2075):** -0.3% (hypothetical)
- **Social cohesion (satisfaction index [0-10], trust in democracy [%]):** 5.5 / 45% (Eurobarometer 2024)

3. Economy & innovation

- **GDP (real, bn EUR today / 2050 / 2075):** 97.5 / 140 / 200 (World Bank 2023, long-term projection hypothetical)
- **GDP per capita (EUR):** approx. 15,000
- **Top 3 key industries:** IT outsourcing, mechanical engineering, tourism
- **Automation & digitalisation share (today / 2050):** 45% / 75% (hypothetical)
- **Research & innovation quota:** 0.75% of GDP (World Bank 2022)
- **Patents per year (trend, avg.):** 165 (2021, World Bank)
- **Member of FORTERA trade alliances:** Yes (hypothetical)
- **Member of the Democracy Trade Network:** Yes (hypothetical)
- **EHAM+ use (0-10):** 4 (hypothetical)

3.1 Infrastructure autonomy

- Production sovereignty in strategic sectors:
 - Energy
 - IT/cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems

4. Resource profile Natural resources

- **Land area:** 110,879 km²
- **Sea area:** Black Sea coastline (inland sea)
- **Strategic raw materials:** non-ferrous metals, gold, uranium (partially depleted)
- **Renewable energy potentials:** solar (high), wind (medium), hydropower (medium)
- **Share of biodiversity & protected areas:** 34% (EEA 2023)
- **Sustainability indicators (CO₂ per capita, recycling rate, material use per capita):** 5.5 t, 35%, 11 t (Eurostat 2022)

Social resources

- **Volunteering & community culture (index 0-10):** 6 (hypothetical)
- **CIVITAS participation index (0-10):** 5 (hypothetical)
- **Health system (access [0-10], prevention [0-10]):** 7 / 6

Political resources

- **Constitutional adherence:** Yes
- **Direct-democracy instruments:** Partial
- **Democracy quality index (0-100):** 80 (Freedom House 2024)
- **Citizen participation rate (local/national):** 45% (hypothetical)
- **Rule-of-law index (0-10):** 6.5 (World Justice Project 2023)
- **International trust values (0-10):** 5.5 (hypothetical)

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early-warning system
- **Defence expenditure (% of GDP):** 1.8% (NATO 2024)
- **Role in the Arctic/North Sea/Atlantic:** none
- **Role in Central/Eastern/Western Europe:** Interface Balkan-Black Sea, EU external border
- **Role in Southern Europe/Africa/Asia:** Bridge to Türkiye and the Black Sea
- **Role globally/Solar Alliance:** limited
- **Civil resilience programmes:** Partial
- **Drone/space/AI capacities:** Not available

5.1 Arctic strategy & planetary responsibility

- Integration into EDA DSN North Sea: No
- Participation in the Arctic Resilience Observatory: No
- Implementation of the Arctic Democracy Mining Act: No
- Partnerships with indigenous communities: No

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Bulgarian, minority languages (Turkish, Roma)
- **UNESCO World Heritage sites:** 10 (UNESCO 2024)
- **Creative economy (music, film, design [0-10]):** 6
- **International visibility (Olympics, Nobel prizes, etc.):** moderate, Olympic success in weight-lifting and wrestling
- **Role of culture as mediator in democratic networks (0-10):** 5 (hypothetical)

7. Development path (2025-2075) Scenario development

- **Status 2025:** Economic stabilisation, demographic decline
- **Best case 2050/2075:** Digitalised economy, strong integration into EU value chains, population decline halted
- **Base case 2050/2075:** Moderate growth, continued emigration, rising innovation efforts
- **Worst case 2050/2075:** Persistent emigration, low innovation quota, ageing – countered through education initiatives

Role in the ERDA Vision 2075

- **Contribution to a post-scarcity economic order:** Increased use of renewables, digital services
- **Democratic resilience (social, cultural, ecological):** room for improvement
- **Role model for other states/regions:** Example for digital transition in the Balkans (hypothetical)

8. Narrative & attraction

- **Core message:** "Bulgaria demonstrates that sustainable transformation is feasible even in structurally weaker regions."
- **Illustrative narratives & invitations:** Innovation centres in Sofia and Plovdiv, EU-funded infrastructure
- **Self-efficacy:** Citizens engage in local projects and start-ups
- **Future dignity:** Historic culture, modern digital economy
- **Invitation to other states & citizens:** Bulgaria opens itself as an interface between Europe and Asia

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn EUR)	97.5	140 (p)	200 (p)	16,000
Population	6.45 m	5.5 m (p)	4.9 m (p)	448 m
Share of renewable energy (%)	23%	55% (p)	80% (p)	32%
Life expectancy (years)	75.7	78 (p)	80 (p)	81.3
Education rate (%)	32%	40% (p)	45% (p)	50%
AI capacity [0-10]	3	6 (p)	8 (p)	5
Civil-society index [0-10]	5	6 (p)	7 (p)	6

Notes: (p) – projection, (hypothetical: ERDA Scenario Modelling Report 2025)

10. Snapshot: "Bulgaria at a glance" Bulgaria is a Balkan country rich in tradition, an EU member with growing ambitions in the digital economy. Despite demographic headwinds, it offers potential in renewables and as a bridge between Western and South-Eastern Europe.

11. Sources & modelling 11.1 General

- Statistics: World Bank data (2023) on population, economy and urbanisation
- Modelling assumptions: UN World Population Prospects 2022 (hypothetical: ERDA Scenario Modelling Report 2025), Bulgaria's national development plans
- Energy potentials: IEA 2024 reports (hypothetical)
- Innovation & education: OECD Education at a Glance 2022
- Democracy & rule of law: Freedom House 2024, World Justice Project 2023

- Sustainability & resource indicators: European Environment Agency 2023

11.2 📁 Sources & references

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11.3 🔧 Modelling & assumptions

- Further details on all hypothetical assumptions are described in the **ERDA Scenario Modelling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection, (hypothetical: ERDA Scenario Modelling Report 2025)

1. Economic projections 2050-2075

- Base year: 2023; parameters: GDP growth 2% p.a., inflation 2% p.a., demographic trends per UN (hypothetical)
- Sources: World Bank, UN WPP 2022

2. AI capacities

- Assumption: computing power doubles every three years (hypothetical)
- Source:

3. Infrastructure autonomy

- Goal: 70% renewable energy supply by 2050 (hypothetical)
- Data basis: IEA, national energy plans

4. Democracy & participation values

- Indicators: Freedom House score, Eurobarometer
- Base value 2024; annual improvement of 0.3 points (hypothetical)

5. Energy potentials

- Scenarios: moderate vs. ambitious
- Solar PV potential: 20 GWp (moderate), 35 GWp (ambitious) (hypothetical)
- Sources: IEA 2024, national strategy

12. 🌈 Participation welcome This profile is based on publicly available and modelled data. Representatives of the Republic of Bulgaria and interested expert bodies are warmly invited to contribute their own perspectives, additions and updates – for a shared picture of a resilient, democratic future for Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CZ - State Profile Czechia

ERDA State Profile: Czechia

1. Overview (meta)

-  **Official name:** Czech Republic
 -  **Geographical location:** Central Europe; neighbours Germany, Poland, Austria, Slovakia
 -  **Population (2025):** approx. 10.5 m
 -  **System of government & constitutional status (2025):** Parliamentary democracy, constitutionally bound
 -  **ERDA status:** Member
 -  **Future role in the ERDA network:** Cultural mediator, tech-transfer region, education bridge to Eastern & Central Europe
-

2. Demography & society

- **Population (2050/2075 projection):** 10.1 m / 9.8 m
 - **Age structure:** median age 44; youth share 15.5%; old-age share rising (60+ ~32% by 2075)
 - **Urbanisation:** 75%
 - **Education:** 13.1 average years; tertiary attainment 30%; STEM share 22%
 - **Life expectancy:** ♂ 77 / ♀ 82 years
 - **Net migration:** slightly positive (~+20,000/year)
 - **Social cohesion:** satisfaction index 7.0/10; trust in democracy 62%
-

3. Economy & innovation

- **GDP (bn EUR):** 2025: 295 | 2050: 430 | 2075: 510
- **GDP per capita:** approx. EUR 28,000 (2025)
- **Key industries:** mechanical engineering, automotive, high-tech component manufacturing
- **Automation & digitalisation:** 2025: 48% | 2050: 70%
- **Research & innovation quota:** 2.2% of GDP
- **Patents/year:** approx. 4,000 (slightly rising)
- **Member of FORTERA trade alliances:** Yes

3.1 Infrastructure autonomy

- Production sovereignty in strategic sectors: Energy , IT , Defence , Food
-

4. Resource profile Natural resources

- **Land area:** 78,871 km²
- **Strategic raw materials:** bauxite, graphite, uranium, lithium (identified deposits)
- **Renewable potentials:** wind (uplands), biomass, limited solar
- **Biodiversity & protected areas:** ~22%

Social resources

- **Volunteering & community culture:** 7/10

- **Civic-tech adoption:** medium (CIVITAS pilot regions planned from 2027)
- **Health system:** access 8/10; prevention 6/10

🛡 Political resources

- **Constitutional adherence:** Yes
 - **Direct-democracy instruments:** partial (local referenda)
 - **Rule-of-law index:** 8.0/10
 - **International trust values:** 7.5/10
-

5. Security & strategic role (EDA)

- **Military potential:** ✓ DSN-capable, ✓ cyber command, ✓ early-warning system
 - **Defence expenditure:** 1.9% of GDP (2025)
 - **Role in Arctic/Atlantic space:** Logistics coordination along the Central-European corridor
 - **Civil resilience programmes:** Available (civil protection, cyber training)
 - **Drone/space/AI capacities:** Foundational build-out in place
-

6. Cultural identity & soft power

- **Languages:** Czech (official); Slovak understandable; regional minority languages
 - **UNESCO World Heritage:** 14 sites
 - **Creative economy:** music, design, literature (6.5/10)
 - **International visibility:** medium (film, science, sport)
 - **Culture as mediation factor:** 7/10
-

7. Development path (2025-2075) 🚀 Scenario development

- **Status 2025:** Industrial nation with deep educational base yet innovation gaps
- **Strategic investments 2025-2050:** Digital transformation of SMEs, energy transition, education upgrade
- **Transformation 2050-2075:** High sovereignty in energy, innovation and participation; new role as education bridge in ERDA's eastern area

🚀 Role in the ERDA Vision 2075

"By 2075 Czechia acts as a dialogue-oriented mediator state inside ERDA, with particular importance for education cooperation, industrial resilience and Central-European cohesion."

- Contribution to the post-scarcity economic order: yes (efficiency, regional resources, civic technology democracy)
 - Democratic resilience: medium to high (culturally embedded)
 - Exemplar effect: regional model state for citizen-centred education and innovation policy
-

8. Narrative & attraction

"Czechia shows that education, technological sovereignty and cultural identity can provide a democratic foundation for dignity even in smaller states."

- **Self-efficacy:** Expansion of citizen-friendly innovation centres, local CIVITAS modules
 - **Future dignity:** Strong education identity, European role, technological independence
 - **Invitation to others:** Model of democratic Central Europe with cooperation strength and integration potential
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	295	430	510
Population	10.5 m	10.1 m	9.8 m
Renewable energy share (%)	24	50	68
Life expectancy (years)	79.5	81.2	83.0
Education rate (%)	30	36	45
AI capacity [0-10]	5	7	8.5
Civil-society index [0-10]	6.8	7.5	8.2

10. Snapshot: “Czechia at a glance” Czechia is a Central-European industrial state with a strong education identity and growing technological sovereignty. As a mediator within ERDA, it connects education, innovation and regional cooperation.

11. Sources & modelling 11.1 General

- Statistics: Czech Statistical Office, OECD, Eurostat
- Modelling: ERDA projection model 2025ff (hypothetical: ERDA Scenario Modelling Report 2025)

11.2 Sources & references

Politics & democracy

* Freedom House, democracy index

Economy & society

* Projection convergence with comparable CEE states (hypothetical: ERDA Scenario Modelling Report 2025)

11.3 Modelling & assumptions

- Further details on hypothetical assumptions are described in the **ERDA Scenario Modelling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Notes: (p) – projection, (hypothetical)
 - Long-term development aligns with regional comparison data (hypothetical)
-

12.  Participation welcome This profile draws on publicly available and modelled data. Representatives of the Czech Republic and interested expert bodies are invited to contribute additions.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

DE - State Profile Germany

ERDA State Profile: Germany

1. Overview (meta)

-  **Official name:** Federal Republic of Germany
 -  **Geographical location:** Central Europe
 -  **Population (2025):** ~83.5 million (Destatis)
 -  **Form of government & constitutional status (2025):** Parliamentary democracy under the Basic Law (constitutionally bound)
 -  **ERDA status:** Member
 -  **Role in the ERDA network (future):** Innovation engine, cyber hub, defence node, exporter of education
-

2. Demography & society

- **Population (2050 / 2075 projection):** 2050: 82.0 million (UN WPP, medium variant); 2075: 78.0 million (internal model)
 - **Age structure:** median age 46; youth share (0-14) 14%; old-age ratio (65+/15-64) >30%
 - **Urbanisation:** 77% urban (World Bank)
 - **Education:** mean years 13.4 (UNDP); tertiary attainment (25-34) 36% (Eurostat); STEM share of new tertiary entrants 24%
 - **Life expectancy (2025):** ♂ 79 / ♀ 83 (Destatis)
 - **Net migration:** +350,000 per year (average 2020-2025)
 - **Social cohesion:** life satisfaction 7.2 / 10 (World Happiness Report 2023); trust in parliament 65% (Eurobarometer 2024)
-

3. Economy & innovation

- **GDP (bn EUR):** 2025: 4,200; 2050: 5,800 (1.5% p.a.); 2075: 6,300 (1.5% p.a.)
- **GDP per capita:** ~50,000 EUR (2025)
- **Top industries:** mechanical engineering; automotive; AI & robotics
- **Automation & digitalisation:** 55% in 2025 (BMWK Industry 4.0) → 75% by 2050 (forecast)
- **R&D intensity:** 3.1% of GDP (2022)
- **Patents per year:** ~65,000 (DPMA)
- **FORTERA trade alliances:** member
- **Democracy Trade Network:** member
- **EHAM+ utilisation:** 9 / 10

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 357,022 km²; maritime zones in the North and Baltic Seas

- Strategic raw materials: salt, lignite, silicon
- Renewable potential: wind (north/east), solar (south)
- Biodiversity & protected areas: ~35%

Social resources

- Volunteering & community culture: 8 / 10
- CIVITAS participation index: 7.5 / 10
- Healthcare: access 9 / 10 | prevention 6.5 / 10

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: state-level referendums
 - Democracy quality index: 94 / 100 (EIU)
 - Citizen participation rate: ~72%
 - Rule-of-law index: 9 / 10 (WJP)
 - International trust: 8.5 / 10 (Eurobarometer)
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
 - **Defence expenditure:** 2.1% of GDP (2025, rising)
 - **Role in Arctic / Atlantic theatres:** logistic and strategic hub for NATO
 - **Civil resilience programmes:** Federal Office of Civil Protection and Disaster Assistance
 - **Drone / space / AI capacities:** core infrastructure in place
-

6. Cultural identity & soft power

- Languages: German; minorities include Sorbian, Danish, Frisian, Romani
 - UNESCO World Heritage: 51 sites (2024)
 - Creative economy: 8 / 10 (BMWK)
 - International visibility: high (Nobel prizes, export brands)
 - Cultural mediation factor: 8.5 / 10 (Goethe-Institut network)
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** advanced industrial democracy with strong innovation and social capacity amid demographic pressures
- **Best case 2075:** leading education-technology and AI nation with robust civil society
- **Base case 2075:** stable prosperity, leadership in automation, resilient yet socially heterogeneous
- **Worst case 2075:** innovation stagnation, polarisation, relocation of key industries

Narrative: 2025–2050 focuses on AI education, energy transition, demographic initiatives; 2050–2075 moves toward fully automated industry and a post-labour-time society.

ERDA vision 2075

“By 2075 Germany is a technology democracy that exemplifies how automation and participation reinforce each other.”

- Post-scarcity contribution: social dividends and resource efficiency
- Democratic resilience: e-participation and open parliament practices

- Showcase effect: model region for technological democracy
-

8. Narrative & attraction

“Germany demonstrates that technological sovereignty and social democracy are mutually enabling.”

- Self-efficacy: strong municipal co-determination
 - Future dignity: identity built on science and the common good
 - Invitation: “Shape technology and freedom together for a just future.”
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	4,200	5,800	6,300
Population	83.5 m	82.0 m	78.0 m
Share of renewables (%)	46	70	90
Life expectancy (years)	♂79 / ♀83	♂81 / ♀85	♂83 / ♀87
Education rate (%)	36	45	55
AI capacity [0-10]	8	9	10
Civil-society index [0-10]	7.5	8.5	9.5

10. Snapshot: “Germany at a glance” Germany is an innovation-driven democracy with high quality of life and a leading European role. A strong education system and industrial expertise align with a digital, sustainable agenda.

11. Sources & modelling 11.1 1 General

- Statistics: mix of national and international sources, base year 2025.
- Model assumptions: 1.5% GDP growth p.a., Destatis demographic baseline.
- Energy potential: IEA and Fraunhofer ISE.
- Democracy and rule-of-law indices per Freedom House and WJP.

11.2 2 Sources & references

Demography & society: Destatis (population, age, life expectancy), UN WPP 2022, World Bank (urban population), WHR 2023, Eurobarometer 2024.

Economy & innovation: Destatis national accounts, BMWK Industry 4.0 reports, DPMA patent statistics.

Social & education: Eurostat educational attainment, UNDP Human Development data.

Health: Destatis mortality, RKI prevention monitoring.

Innovation & culture: BMWK cultural and creative industry monitoring.

Environment & resources: BfN national parks, BSH maritime data.

Security & defence: SIPRI, BBK.

Politics & institutions: EIU Democracy Index, Freedom House, Eurobarometer.

11.3 3 Modelling & assumptions

- Hypothetical details in the **ERDA Scenario Modeling Report 2025** (link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection.
- Economic projections 2050–2075: 1.5% real growth p.a.
- Infrastructure autonomy: target of 80% renewable energy supply by 2075.

12. 🤝 Participation welcome This profile uses public and modelled data. Representatives of the Federal Republic of Germany and interested expert bodies are invited to share updates to foster a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

DK - State Profile Denmark

☒ ERDA State Profile: Denmark

1. Overview (meta)

-  **Official name:** Kingdom of Denmark
 -  **Geographical location:** Northern Europe, Scandinavia, between the North Sea and Baltic Sea
 -  **Population (2025):** approx. 5.98 m
 -  **System of government & constitutional status (2025):** Unitary parliamentary constitutional monarchy, constitutionally bound
 -  **ERDA status:** Member
 -  **Future role in the ERDA network:** Arctic hub (via Greenland), exporter of innovation and sustainability
-

2. Demography & society

- **Population (2050 / 2075 projection):** 6.12 m / 6.10 m
 - **Age structure:** median age 41.3 years; youth share (0-14 yrs) 15%; old-age ratio (65+ yrs) 22%
 - **Urbanisation:** 88.7%
 - **Education:** avg. 12.9 school years; tertiary attainment 46%; STEM share 25%
 - **Life expectancy:** ♂ 79.9 / ♀ 83.7 years
 - **Net migration:** +15,000 per annum
 - **Social cohesion:** satisfaction 7.6/10; trust in democracy 74%
-

3. Economy & innovation

- **GDP (real, 2025 / 2050 / 2075 in bn EUR):** 400 / - / -
- **GDP per capita:** EUR 66,420
- **Key industries:** services, pharmaceuticals, food processing
- **Automation & digitalisation:** 2025 >50% | 2050 75%
- **R&I quota:** 3.3% of GDP
- **Patents per year:** approx. 600 European Patent filings
- **Member of FORTERA trade alliances:** Yes
- **Production sovereignty:** Energy , IT/cloud , defence , food

3.1 Infrastructure autonomy

- **Production sovereignty in strategic sectors:**
 - Energy
 - IT/cloud
 - Defence
 - Food
-

4. Resource profile Natural resources

- **Land area:** 43,094 km²; sea area: 100,000 km²
- **Raw materials:** offshore wind, water
- **Renewable potentials:** wind high, solar moderate, biomass high

- **Protected areas:** 10%

 Social resources

- **Volunteering & community:** 8/10
- **CIVITAS participation:** 8/10
- **Health:** access 9/10; prevention 8/10

 Political resources

- **Constitutional adherence:** Yes
 - **Direct democracy:** referenda
 - **Democracy index:** 94/100
 - **Voter turnout:** 85%
 - **Rule-of-law index:** 9.8/10
 - **Trust values:** 8.7/10
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN
 - Cyber command
 - Early-warning system
 - **Defence expenditure:** 1.4% of GDP
 - **Role in the Arctic/North Sea:** Logistics hub via Greenland
 - **Civil resilience programmes:** Comprehensive
 - **Drone/space/AI capacities:** Foundational build-out available
-

6. Cultural identity & soft power

- **Languages:** Danish; Faroese, Greenlandic, German
 - **UNESCO World Heritage:** 10 sites
 - **Creative economy:** 7/10
 - **Soft power:** 8/10
 - **Cultural mediation:** 7/10
-

7. Development path (2025-2075)

- **2025:** Stable welfare state, ageing society
- **2025-2050:** Expansion of green hydrogen, digitalisation, citizen labs
- **2050-2075:** Global pioneer in green technologies; high quality of life

 ERDA Vision 2075

"By 2075 Denmark is a globally recognised centre for green technologies and democratic sustainability."

- **Post-scarcity:** automated circular systems
 - **Resilience:** citizen participation, connectivity
 - **Exemplar:** showcases sustainable democracies
-

8. Narrative & attraction

"Denmark shows that sustainable innovation and social welfare go hand in hand."

- **Self-efficacy:** local & international co-creation
 - **Future dignity:** ecology × technology
 - **Invitation:** "Join us for a green, fair democracy."
-

9. Key indicators

Indicator	2025	2050	2075
GDP (bn EUR)	400	-	-
Population (m)	5.98	6.12	6.10
Renewable energy (%)	50	75	85
Life expectancy (years)	81.8	83.0	84
Education rate (%)	46	55	65
AI capacity [0-10]	7	8.5	9
Civil-society index	8	8.5	9

10. Snapshot: "Denmark at a glance" Denmark combines high living standards with consistent sustainability and is among the frontrunners in wind energy. As an Arctic hub and innovation location, the kingdom offers prime conditions for green technologies and robust citizen participation.

11. Sources & modelling 11.1 1 General

- Statistics: mix of national and international sources (Eurostat, OECD, etc.), base year 2025.
- Models: GDP projections and demographic trends per OECD and UN (hypothetical: ERDA Scenario Modelling Report 2025).
- Energy and infrastructure data from national strategy papers (hypothetical).

11.2 2 Sources & references

Demography & society

* **Eurostat** (2024): population, urbanisation, energy & economic indicators

* **Worldometer** (2025): population, median age, life expectancy, urbanisation

* **Statistics Denmark**: national demographic & education data

Economy & innovation

* **OECD Science, Technology and Industry Scoreboard** (2024): R&I quota, patents

Political & institutional foundations

* **Statistics Denmark**: system of government, constitutional status, political indices

Modelling

* **ERDA projections** (2025): scenarios and long-term assumptions

11.3 3 Modelling & assumptions

- Further details on hypothetical assumptions are described in the **ERDA Scenario Modelling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).

- Notes: (p) – projection, (hypothetical)
- Economic projections 2050-2075: extrapolated from Eurostat and OECD data (hypothetical)
- Infrastructure autonomy: goal of 80% renewable energy supply (hypothetical)

12. 🌟 Participation welcome This profile uses publicly accessible and modelled data. Representatives of the Kingdom of Denmark and interested expert bodies are warmly invited to add their perspectives, updates and corrections – for a shared image of a resilient democratic future for Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

EE - State Profile Republic of Estonia

— ERDA State Profile: Republic of Estonia

1. Overview (meta)

- **Official name:** Republic of Estonia (Eesti Vabariik) (Constitution)
 - **Geographical location:** Northern Europe, south of Finland on the Gulf of Finland; borders Latvia to the south and Russia to the east; coastline 3,794 km (Wikipedia)
 - **Population (2025):** 1,369,285 (Statistics Estonia)
 - **System of government & constitutional status (2025):** Unitary parliamentary republic; Constitution of 1992 (Riigikogu)
 - **ERDA status:** Member
 - **Future role within the ERDA network:** Digital nation & cyber hub
-

2. Demography & society

- **Population (2050/2075 projection):** ~1,270,000 (2050), ~1,200,000 (2075) (UN WPP)
 - **Age structure:** median age 43.6 years (2020) (CIA Factbook); youth share (<15) 14.4% (2022); old-age share (≥65) 21.6% (2022) (CIA Factbook)
 - **Urbanisation:** 68.2% (2022) (CIA Factbook)
 - **Education:**
 - Mean years of schooling 12.7 (2021) (UNDP HDR)
 - STEM share: 30% of tertiary degrees (2022) (Eurostat)
 - Tertiary attainment (25–34): 51.7% (2023) (Eurostat)
 - **Life expectancy:** 78.6 years (2022) (Worldometers)
 - **Net migration:** 0.54 migrants/1,000 inhabitants (2020) (CIA Factbook)
 - **Social cohesion:**
 - Subjective wellbeing: 5.55/10 (World Happiness Report 2024) (WHR)
 - Trust in democracy (national parliament): 30% (2024) (Eurobarometer)
-

3. Economy & innovation

- **GDP (nominal):** USD 45.03 bn (2023) (Wikipedia)
- **GDP per capita:** USD 34,800 (2023) (Wikipedia)
- **Top 3 industries:** electronics & IT; mechanical engineering; wood & paper processing (Wikipedia)
- **Automation & digitalisation:** robot density 87 robots/10,000 employees (2022) (IFR)
- **Research & innovation quota:** 2.01% of GDP (2022) (Eurostat EIS)
- **Patents/year:** 492 (2022) (WIPO country profile)
- **FORTERA trade alliances:** No
- **Production sovereignty:** IT, food, energy, defence

3.1 Infrastructure autonomy

- Energy
- IT/cloud
- Defence
- Food
- Satellite communication (IRIS?)

- Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- **Area:** 45,227 km² land, 3,794 km coastline (Wikipedia)
- **Strategic raw materials:** oil shale, peat, timber (Wikipedia)
- **Renewable potentials:** onshore wind 2 GW, offshore wind 3 GW; solar PV 1 GW (SEI Estonia, <https://seer.tlu.ee>)
- **Biodiversity & protected areas:** 19% of territory (Natura 2000 & national parks) (Estonian Environmental Board)

Social resources

- **Volunteering & community:** 23% volunteer rate (2023) (Eurostat)
- **Civic tech usage:** Rahvaalgatus.ee citizen-initiative portal (rahvaalgatus.ee)
- **Health system:** universal access, health expenditure 6.8% of GDP (2022) (WHO)

Political resources

- **Constitutional adherence:** Yes
 - **Direct democracy:** citizens' initiative ($\geq 7,000$ signatures) (Riigikogu)
 - **Rule-of-law index:** 0.82 (WJP Rule of Law Index 2024) (World Justice Project)
 - **Trust:** EU 50%, national parliament 30% (2024) (Eurobarometer)
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable: No
 - Cyber command: Yes (Estonian Defence Force Cyber Command) (EDF)
 - Early-warning system: EU Copernicus
 - **Defence expenditure:** 2.26% of GDP (2023) (NATO Defence Expenditure)
 - **Role in the Baltic Sea region:** Baltic Air Policing, Nordic cooperation (NATO)
 - **Civil resilience:** Crisis Management Act, municipal networks (Ministry of Interior)
 - **Drone/space/AI:** ESA member, AI strategy (2019), drone test range in Kuressaare
-

6. Cultural identity & soft power

- **Languages:** Estonian (official), Russian (24% native speakers) (CIA Factbook)
 - **UNESCO World Heritage:** 3 sites – Historic Centre of Tallinn, Struve Geodetic Arc, Kihnu Cultural Space (UNESCO)
 - **Creative economy:** 2.8% of GDP (music, film, design) (Estonian Ministry of Culture)
 - **International visibility:** e-governance leader, e-Residency, Olympic achievements
 - **Cultural mediation:** European Capitals of Culture Tartu/Valga (2024 initiative)
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Pioneer of the digital state, slightly ageing population, stable economy

- **Best case 2075:** 1.4 m inhabitants, carbon neutrality, global cyber & e-gov hub
- **Base case 2075:** 1.3 m inhabitants, GDP +30% vs 2025, moderate automation
- **Worst case 2075:** 1.2 m inhabitants, GDP stagnation, regional disparities

Status 2025 narrative: Estonia combines an agile start-up culture with digital government, investing in renewables.

Strategic investments 2025-2050: e-governance, AI research, green infrastructure.

Transformation 2050-2075: Full digitalisation, 100% renewable energy, autonomous systems.

🚀 Role in the ERDA Vision 2075

"By 2075 Estonia is the digital backbone of ERDA, decisively shaping cyber resilience and e-democracy."

- Contribution to the post-scarcity economic order: open-source platforms for technology transfer
 - Democratic resilience: global blueprint for e-participation
 - Exemplar effect: national digital citizen interface as a standard
-

8. Narrative & attraction

"Estonia proves that agile digitalisation and democratic innovation are inseparable."

- **Self-efficacy:** Citizens shape municipal processes via e-ID and portals
 - **Future dignity:** Pride in e-Residency and digital statehood
 - **Invitation:** "Experience Estonia - the laboratory of future democracy."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	45.0	58.5 ¹	75.0 ¹
Population	1.369 m	1.270 m	1.200 m
Share of renewables (%)	28% (power)	60%	100%
Life expectancy	78.6	82.0	85.0
Education rate (%) (25-34)	51.7%	60%	65%
AI capacity [0-10]	8	9	10
Civil-society index [0-10]	9	9	10

¹ OECD long-term projections (OECD)

10. Snapshot: "Estonia at a glance" Estonia combines agile digital administration with an engaged civil society. By 2075 the country aims for climate neutrality and full digital sovereignty.

11. Sources & modelling 11.1 1 General

- Statistics: mix of national and international sources (Statistics Estonia, Eurostat, etc.), base year 2025.

- Models: GDP and population projections per OECD and UN (hypothetical: ERDA Scenario Modelling Report 2025).

11.2 📄 Sources & references

Demography & society

- * Statistics Estonia “Population by sex and age”, <https://stat.ee/en/find-statistics/statistics-theme/population>
- * UN WPP (2022 Revision), <https://population.un.org/wpp/>

Economy & innovation

- * Wikipedia “Economy of Estonia”, https://en.wikipedia.org/wiki/Economy_of_Estonia
- * IFR Global Robot Density Report, <https://ifr.org/>

Social & education

- * UNDP Human Development Reports, <https://hdr.undp.org/>
- * Eurostat education statistics, <https://ec.europa.eu/eurostat/>

Health & life expectancy

- * Worldometers Estonia demographics, <https://www.worldometers.info/demographics/estonia-demographics/>
- * WHO NHA Database, <https://apps.who.int/nha/database>

Innovation & patents

- * WIPO country profile Estonia, <https://www.wipo.int/edocs/statistics-country-profile/en/ee.pdf>

Environment & resources

- * Wikipedia “Energy in Estonia”, https://en.wikipedia.org/wiki/Energy_in_Estonia
- * Estonian Environmental Board, <https://keskkonnaamet.ee>

Security & defence

- * NATO defence expenditure, <https://www.nato.int>
- * Estonian Defence Forces Cyber Command, <https://mil.ee>

Political & institutional foundations

- * Constitution of Estonia, <https://www.riigikogu.ee/en/constitution-of-the-republic-of-estonia/>
- * World Justice Project, <https://worldjusticeproject.org/>

11.3 🔨 Modelling & assumptions

- Further details on hypothetical assumptions are set out in the **ERDA Scenario Modelling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection, (hypothetical)
- Economic projections 2050–2075: based on OECD long-term projections 2024 (hypothetical).
- Demographic development: UN WPP 2022 (hypothetical).
- Energy potentials: estimates per SEI Estonia (hypothetical).

12. 🤝 Participation welcome This profile is based on publicly available and modelled data. Representatives of the Republic of Estonia and interested expert bodies are warmly invited to add their perspectives, updates and corrections – building a shared picture of a resilient democratic future for Europe.

12.1 Last responsible points of contact

ES - State Profile Spain

🇪🇸 ERDA State Profile: Spain

1. Overview (meta)

- **Official name:** Kingdom of Spain
 - **Geographical location:** Southwestern Europe, Iberian Peninsula
 - **Population (2025):** 47,889,958
 - **Form of government & constitutional status (2025):** Parliamentary constitutional monarchy (constitutionally bound)
 - **ERDA status:** Member
 - **Future role in the ERDA network:** Cultural mediator, green-tech hub, tourism & innovation partner
-

2. Demography & society

- **Population outlook (2050 / 2075):**
 - 2050: 44,928,557
 - 2075: 43,000,000
 - **Age structure:**
 - Median age: 45.85 years
 - Youth share (15-24): 10.8%
 - Old-age dependency ratio (65+): 16.5%
 - **Urbanisation:** 79.3%
 - **Education:**
 - Average years of schooling: ~11.5
 - STEM share of tertiary degrees: 25%
 - Higher-education attainment: 45%
 - **Life expectancy:** 83.4 years
 - **Net migration balance:** +100,000 p.a.
 - **Social cohesion:**
 - Subjective well-being: 6.8 / 10
 - Trust in democracy: 60%
-

3. Economy & innovation

- **GDP (bn EUR):** 2025: 1,412
- **GDP per capita:** ~29,500 EUR
- **Top 3 industries:** tourism, automotive, agri-food
- **Share of automation & digitalisation:** 2025: 50% | 2050: 75%
- **R&D and innovation quota:** 1.24% of GDP
- **Patents per year:** ~13,200
- **Member of FORTERA trade alliances?** Yes

3.1 Infrastructure autonomy

- Strategic-sector sovereignty:
 - Energy
 - IT/cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)

- Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 505,944 km²
- Maritime area (territorial waters & EEZ): 4.97 million km²
- Strategic raw materials: lithium, copper, phosphates
- Renewable potentials: solar (southern Spain), wind (Atlantic)
- Biodiversity & protected areas: 27% of national territory

Social resources

- Volunteering & community culture: 6 / 10
- Civic-tech adoption: 6 / 10
- Health system:
 - Access: 8 / 10
 - Prevention: 7 / 10

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: regional
 - Rule-of-law index: 8.2 / 10
 - International trust: 7.5 / 10
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early-warning system
 - **Defence expenditure:** 1.6% of GDP
 - **Role in the North Atlantic:** maritime security & logistics
 - **Civil resilience programmes:** available
 - **Drone / space / AI capacities:** baseline capabilities in place
-

6. Cultural identity & soft power

- **Languages:** Castilian, Catalan, Galician, Basque
 - **UNESCO World Heritage:** 48 sites
 - **Creative economy:** 7 / 10
 - **International visibility:** high
 - **Culture as mediation factor:** 7 / 10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Stable democracy with a strong services sector and structural challenges (regional disparities, demographics, youth unemployment)

- **Best case 2075:** Diversified economy, nationwide roll-out of green tech, empowered civil society, constructive regionalism
- **Base case 2075:** Moderate growth, rising renewable share, slow population decline with resilient institutions
- **Worst case 2075:** Shrinking workforce, innovation stagnation, widening regional gaps

Status 2025: Spain is a stable democracy with vibrant services and tourism but faces regional disparities, demographic pressure and youth unemployment.

Strategic investments 2025–2050: Expand renewables (especially solar and wind), digitalise public infrastructure, foster education and STEM skills, strengthen regional participation, diversify the economy, integrate sustainable tourism.

Transformation 2050–2075: Spain evolves into a green-tech pioneer leading in climate-neutral energy, desalination and digital agriculture. Regional identities are embedded within a reinforced constitution, civil society drives innovation and climate projects, and the population declines slightly but remains resilient. Spain becomes a role model for cultural technology and democratic modernisation across the Mediterranean.

Role in the ERDA Vision 2075

"Spain will be a leading ERDA member for cultural & technological mediation and renewable energy by 2075."

- Contribution to a post-scarcity economy: yes
 - Democratic resilience: high
 - Showcase potential: green-tech model region
-

8. Narrative & attraction

"Spain proves that cultural diversity and technological innovation reinforce one another."

- **Self-efficacy:** citizens co-create solar projects
 - **Future dignity:** pride in the green transition
 - **Invitation:** "Join the network of sustainable innovation."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
Real GDP (bn EUR)	1,412	430.0	480.0
Population (million)	47.9	44.9	43.0
Share of renewables (%)	46%	75%	85%
Life expectancy (years)	83.4	84.2	85.0
Higher-education attainment (%)	45%	52%	58%
AI capacity [0-10]	6.5	8.0	9.0
Civil-society index [0-10]	7.0	8.0	9.0

10. Snapshot: "Spain at a glance" Spain is a stable democracy with a powerful services sector, growing green-tech potential and rich cultural depth.

11. Sources & modelling 11.1 ⓘ General

- Statistics: blend of national & international sources (Eurostat, OECD, etc.), base year 2025
- Models: GDP and demographics per OECD & UN projections (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy/infrastructure data per national strategy papers (hypothetical: ERDA Scenario Modeling Report 2025)

11.2 📚 Sources & references

Demography & society * Worldometer - Spain Population 2025 * PopulationPyramid.net - Age structure trends

Economy & innovation * Eurostat (2024) - GDP database by NACE * Reuters - Spain raises growth forecast

Society & education * UNESCO Institute for Statistics - Education data Spain

Health & life expectancy * OECD - Health Statistics (Life expectancy) * INE - demographic & health indicators

Innovation & patents * EPO - Annual Patent Statistics Spain

Environment & resources * Eurostat - Renewable energy share in the EU

Security & defence * SIPRI - Military Expenditure Database * European Defence Agency - EDA Facts & Figures

Political & institutional foundations * BOE - Spanish Constitution 1978, consolidated * CIA World Factbook - Spain profile

11.3 🔎 Modelling & assumptions

- Details in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
- Notes: (p) - projection; (hyp.) - ERDA Scenario Modeling Report 2025
- Models:
 - Eurostat - Population projection 2050/2075
 - ERDA projection tool - long-term real growth assumptions
 - Eurostat - Tertiary education attainment
 - ERDA state classification 2025 ("concentric circles"), internal working draft

12. 🤝 Participation welcome This profile is based on public and modelled data. Representatives of the Kingdom of Spain and interested expert bodies are invited to add perspectives and updates—for a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

FI - State Profile Finland

+ ERDA State Profile: Finland

1. Overview (meta)

- **Official name:** Republic of Finland
 - **Geographical location:** Northern Europe, Nordic border state (Sweden, Norway, Russia; Baltic Sea to the south)
 - **Population (2025):** 5,675,983 (estimate, 1 Jan 2025)
 - **Form of government & constitutional status (2025):** Parliamentary republic, constitution of 1919
 - **ERDA status:** Member
 - **Future ERDA role:** Arctic hub, education nation, sustainability pioneer
-

2. Demography & society

- **Population outlook (2050 / 2075):**
 - 2050: ~5.35 million (Worldometer forecast, −0.25% annual change)
 - 2075: ~5.02 million (trend extrapolation)
 - **Age structure (2025):**
 - Median age: 43.2 years
 - 0–14 years: 14.6%
 - 65+ years: 23.6%
 - Old-age dependency (65+ / 0–14): ~1.62
 - **Urbanisation (2023):** 73% urban
 - **Education:**
 - Average years of schooling: 13
 - Tertiary attainment: 50%
 - STEM share among graduates: 25% (modelled)
 - **Life expectancy (2023):** 81.19 years
 - **Net migration balance:** +17,500 per year (2020–2024)
-

3. Economy & innovation

- **GDP (real, bn EUR):**
 - 2025: ~280 (2024: 276.2)
 - 2050: ~360 (assumes 1% annual growth)
 - 2075: ~460 (assumes 1% annual growth)
- **GDP per capita (2025):** ~49,300 EUR
- **Top 3 industries:**
 1. Electronics & machinery
 2. Forestry & paper
 3. Chemicals & metals
- **Automation & digitalisation share:** 2025: 50% | 2050: 70%
- **R&D & innovation quota (2023):** 3.4% of GDP
- **Patents per year (2023):** ~2,000
- **Member of FORTERA trade alliances:** Yes

3.1 Infrastructure autonomy

- Energy
- IT / cloud

- Defence
 - Food
-

4. Resource profile Natural resources

- Land area: 338,440 km²
- Exclusive economic zone: ~47,000 km²
- Strategic raw materials: lithium, nickel, rare earths, timber, water
- Renewable potentials: hydropower (reservoir network), wind (Lapland & coasts), biomass
- Biodiversity & protected areas: 12% of national territory

Social resources

- Volunteering & community culture: 8 / 10
- Civic-tech adoption: very high (open-data portals, e-voting pilots)
- Health system: access 9 / 10 | prevention 8 / 10

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: citizens' initiative possible
 - Democracy quality index: 94 / 100
 - Voter participation: 70%
 - Rule-of-law index: 9 / 10
 - International trust: 8 / 10
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early-warning system
 - **Defence expenditure (2025):** 2.5% of GDP
 - **Role in the Arctic/North Atlantic:** logistics and security node
 - **Civil resilience programmes:** comprehensive disaster & contingency framework
 - **Drone / space / AI capacities:** baseline systems available
-

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Finnish, Swedish; Sámi in Lapland
 - **UNESCO World Heritage:** 7 sites (e.g. Suomenlinna, Struve Geodetic Arc)
 - **Creative economy:** 8 / 10
 - **International visibility:** 12 Nobel laureates; 15 Olympic medals (Tokyo/Paris cycle)
 - **Culture as mediation factor:** 8 / 10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Highly developed social-tech nation with ageing demographics
- **Strategic investments 2025-2050:** AI-enabled education and healthcare, green hydrogen corridors, digital participation platforms (CIVITAS integration), Arctic sustainability research

- **Transformation 2050-2075:** Climate-neutral economy, post-scarcity welfare model, AI governance as global benchmark, launch of interplanetary resource missions

Role in the ERDA Vision 2075

"By 2075, Finland is the leading Arctic node for sustainable high tech and AI ethics."

- Contribution to post-scarcity economy: automated production & citizen dividends
 - Democratic resilience: very high
 - Exemplar effect: blueprint for small, knowledge-based democracies
-

8. Narrative & attraction

"Finland demonstrates how a small democracy can achieve global leadership through green innovation and AI governance."

- **Self-efficacy:** strong municipal co-determination
 - **Future dignity:** pride in equality, resilience and ingenuity
 - **Invitation:** "Co-design a responsible technological future in the North."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	280	360	460
Population (million)	5.68	5.35	5.02
Share of renewables (%)	43	80	90
Life expectancy (years)	81.2	83.5	85.0
Tertiary education share (%)	50	60	70
AI capacity [0-10]	6	8	9
Civil-society index [0-10]	8	9	9.5

10. Snapshot: "Finland at a glance" Finland is a highly innovative democracy rooted in education and sustainability. As an Arctic node, it links technology, environmental stewardship and civic participation.

11. Sources & modelling 11.1 General

- Statistics: Statistics Finland, Eurostat, World Bank and other international datasets (base year 2025)

11.2 Sources & references

- Worldometer forecast – population (accessed 2025)
- Eurostat – economic & social indicators
- Statistics Finland – national datasets
- World Bank – macro indicators
- PopulationPyramid.net – age structure

11.3 Modelling & assumptions

- Details documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
 - Notes: (p) – projection; (hyp.) – ERDA Scenario Modeling Report 2025
 - Forecast models: 1% annual GDP growth; linear demographic scenario
 - Infrastructure autonomy: qualitative ERDA assessment (hyp.)
-

12. 🤝 Participation welcome Representatives of Finland and interested expert bodies are invited to extend and update this profile.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

FR - State Profile France

FR ERDA State Profile: France

1. Overview (meta)

- **Official name:** French Republic
 - **Geographical location:** Western Europe (metropolitan) plus five overseas regions (Guiana, Guadeloupe, Martinique, Réunion, Mayotte) and multiple territories worldwide
 - **Population (1 Jan 2025):** 68,606,000
 - **Form of government & constitutional status (2025):** Semi-presidential republic, constitutionally bound
 - **ERDA status:** Member
 - **Future ERDA role:** Cultural bridge, space & energy partner, core defence state
-

2. Demography & society

- **Population outlook:** 2050: 64 million | 2075: 60 million
 - **Age structure:** median age ≈ 42 years; youth share ≈ 12%; old-age ratio (60+ / 15–64) ≈ 25%
 - **Urbanisation:** 81%
 - **Education:** avg. schooling ≈ 12 years; tertiary share ≈ 44%; STEM share ≈ 22%
 - **Life expectancy:** 82 years
 - **Net migration balance:** +120,000 p.a. (2020–2025)
 - **Social cohesion:** well-being index 7.0 / 10; trust in democracy ≈ 59%
-

3. Economy & innovation

- **GDP (nominal, bn EUR):** 2025: 2,822 | 2050: 3,300 | 2075: 3,600
- **GDP per capita (2025):** ~41,100 EUR
- **Top 3 industries:** automotive & mobility; aerospace; luxury goods & tourism
- **Digitalisation level:** 2025: 60% | 2050: 85%
- **R&D intensity:** 2.2% of GDP (2023)
- **Patents per year:** ~11,000 (EPO 2023)
- **FORTERA trade alliance:** yes
- **Democracy Trade Network:** yes

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - IRIS² | Quantum technology | Autonomous logistics
-

4. Resource profile Natural resources

- Land area: 640,679 km²
- EEZ / maritime area: 11.7 million km²
- Strategic raw materials: uranium, rare earths (imports), freshwater
- Renewable potentials: solar, offshore wind, hydropower, geothermal
- Protected areas: 29%

Social resources

- Volunteering & community: 7 / 10
- CIVITAS index: 7 / 10
- Health system: access 9 / 10 | prevention 7 / 10

🛡 Political resources

- Constitutional adherence: Yes
 - Direct democracy: partial (regional/local)
 - Democracy index: 90 / 100
 - Participation rate: 65%
 - Rule-of-law index: 8.5 / 10
 - International trust: 7.5 / 10
-

5. Security & strategic role (EDA)

- Military potential: DSN ✓ | cyber command ✓ | early warning ✓
 - Defence expenditure: 2.6% of GDP
 - Atlantic & Indo-Pacific: maritime security, nuclear deterrence, overseas bases
 - Civil resilience programmes: available
 - Drone, space, AI capabilities: core infrastructure in place
-

6. Cultural identity & soft power

- Languages: French; regional languages include Breton, Occitan, Basque, Corsican
 - UNESCO World Heritage: 49 sites
 - Creative economy: 9 / 10
 - International visibility: high
 - Culture as mediation factor: 9 / 10
-

7. Development path (2025-2075) 🚀 Scenarios

- **Status 2025:** technologically advanced, ageing demographics, strong innovation base
- **Investments 2025-2050:** renewables, digital & AI governance, defence, education
- **Transformation 2050-2075:** post-scarcity economy, AI-enabled democracy, space & biosphere models

🚀 ERDA Vision 2075

“France will be the cultural heart and innovation hub of the ERDA with a key role in energy and space by 2075.”

- Post-scarcity contribution: yes
 - Democratic resilience: very high
 - Showcase effect: cultural & ethical bridge
-

8. Narrative & attraction

“France proves that technological sovereignty and cultural resonance amplify each other.”

- **Self-efficacy:** active citizens in infrastructure & culture

- **Future dignity:** science, arts, global responsibility
 - **Invitation:** diversity, liberty and innovation for a democratic future
-

9. Key indicators

Indicator	2025	2050	2075
GDP (bn EUR)	2,822	3,300	3,600
Population (million)	68.6	64	60
Share of renewables (%)	21	50	75
Life expectancy (years)	82	84	86
Tertiary education (%)	44	55	65
AI capacity [0-10]	6	8	9
Civil-society index [0-10]	7	8	9

10. Snapshot: “France at a glance” France is a globally connected EU core state with an advanced industrial base, strong cultural reach and frontier research. By 2075 it remains a central ERDA energy and space partner.

11. Sources & modelling 11.1 1 General

- Statistics: INSEE, INED, Eurostat (base year 2025)
- Models: IMF & OECD GDP projections (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy/resource data: French Ministry for Ecological Transition (hyp.)

11.2 2 Sources & references

1. INSEE (2025). *Bilan démographique 2024*.
2. INED (2024). *Projections démographiques pour la France 2022-2075*.
3. IMF (2024). *France: 2024 Article IV Consultation—Staff Report*.
4. OECD (2023). *OECD Economic Outlook 2023 - France*.
5. European Patent Office (2024). *Patent Index 2023*.
6. Ministère de la Transition écologique (2024). *Bilan énergétique de la France 2023*.
7. Freedom House (2024). *Freedom in the World 2024 - France*.
8. World Health Organization (2023). *World Health Statistics 2023*.

(All accessed 2025-06-10.)

11.3 3 Modelling & assumptions

- Detailed assumptions in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
 - ERDA projection model (2025-2075 scenarios)
 - Internal ERDA white paper “State Profiles – Methodology & Dataset”
-

12. 4 Participation welcome This profile uses public and modelled data. Representatives of the French Republic and interested expert bodies are invited to add perspectives and updates for a joint vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

GR - State Profile Greece

Ἑ Ἑ ERDA State Profile: Greece

1. Overview (meta)

- **Official name:** Hellenic Republic (Ελληνική Δημοκρατία)
 - **Geographical location:** South-eastern Europe, southern Balkan Peninsula, Aegean archipelago
 - **Population (2025):** 10,432,481
 - **Form of government & constitutional status (2025):** Parliamentary republic, Constitution of 1975 (amended)
 - **ERDA status:** Member
 - **Future ERDA role:** Energy corridor and maritime innovation platform
-

2. Demography & society

- **Population outlook:**
 - 2050: 9,762,000
 - 2075: 8,352,000
 - **Age structure:**
 - Median age: 46.2 years (2025)
 - Youth share (0-14): 14.0%
 - Old-age ratio (65+ / 15-64): ~36%
 - **Urbanisation:** 79.7% (2025)
 - **Education:**
 - Average years of schooling: 12.6
 - Tertiary attainment (25-34): 48.9%
 - STEM share among new tertiary entrants: 28%
 - **Life expectancy:** 81.0 years (2025)
 - **Net migration balance:** +0.5‰ p.a.
 - **Social cohesion:**
 - Life satisfaction: 5.2 / 10
 - Trust in parliament: 15%
-

3. Economy & innovation

- **Real GDP:**
 - 2023: 245.2 bn USD
 - 2050 (1.5% p.a.): ≈ 346 bn USD
 - 2075 (1.5% p.a.): ≈ 631 bn USD
- **GDP per capita:**
 - 2023: 23,510 USD
 - 2050: ≈ 35,450 USD
 - 2075: ≈ 75,500 USD
- **Top 3 industries:**
 1. Tourism & hospitality
 2. Shipping & maritime logistics
 3. Agriculture & food processing
- **Automation & digitalisation:** 20% Industry 4.0 deployment
- **R&D intensity:** 1.14% of GDP (2022)
- **Patents per year:** ~198 filings (19 per million inhabitants)

- **FORTERA member:** No

3.1 Infrastructure autonomy

- Energy
 - IT / cloud
 - Defence
 - Food
 - IRIS²
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Area: 131,957 km² land; 13,676 km coastline
- Strategic raw materials: bauxite (Central Greece), nickel, magnesite
- Renewables: solar (6 GW PV by 2030), offshore wind (1.5 GW), hydropower, geothermal
- Biodiversity: 27% protected (land & sea)

Social resources

- Volunteering: 20% engaged
- Civic tech (CIVITAS): digital citizen platforms in Athens & Thessaloniki (~25% of municipalities)
- Health system: universal access; 3.9 beds per 1,000 people; prevention coverage 70%

Political resources

- Constitutional adherence: Yes
 - Direct democracy: none nationally
 - Rule-of-law index: 0.71 / 1.00 (WJP 2024)
 - Trust in EU institutions: 57%
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-ready
 - Cyber command (Athens)
 - Early-warning system (South-Eastern Europe)
 - **Defence expenditure:** 2.61% of GDP (2024)
 - **Mediterranean role:** NATO logistics hub, offshore platform
 - **Civil resilience:** “Blue Shield” coastal-protection programme
 - **Drone / space / AI capacities:** foundational layer available
-

6. Cultural identity & soft power

- Languages: Greek (official); minority languages incl. Aromanian/Vlach and Slavic dialects
 - UNESCO World Heritage: 18 sites (e.g. Acropolis, Meteora)
 - Creative economy: 2.5% of GDP
 - International visibility: 39 Olympic medals; 1 Nobel Prize (Literature 1979)
 - Cultural outreach: HELIOS Mediterranean programme
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Recovery after the debt crisis, high public debt, digital catch-up
- **Best case 2075:** Green-hydrogen exporter, maritime AI innovation center
- **Base case 2075:** Steady growth (1.8% p.a.), moderated demographic decline
- **Worst case 2075:** Renewed debt crisis, skilled youth emigration

Narrative: 2025–2050 focuses on renewable build-out and education; 2050–2075 on hydrogen economy and smart ports.

ERDA Vision 2075

“Greece propels the region as a sustainable energy and maritime tech forge.”

- Post-scarcity economy: green energy storage
- Democratic resilience: e-consultations, local citizens’ assemblies
- Showcase effect: blue-green tourism standards

8. Narrative & attraction

“Greece shows how tradition and innovation can co-create a future-proof economy.”

- **Self-efficacy:** 30% participation in CO₂-reduction schemes
- **Future dignity:** pride in ancient heritage and thriving startups
- **Invitation:** “Join the blue-green renaissance.”

9. Key indicators

Indicator	2025	2050	2075
GDP (bn USD)	245.2	346	631
Population	10,432,481	9,762,000	8,352,000
Share of renewables (%)	68.4	82	95
Life expectancy (years)	81.0	83.5	86
Higher-education share (%)	48.9	56	68
AI capacity [0-10]	5	8	10
Civil-society index [0-10]	6.0	7.0	8.0

10. Snapshot: “Greece at a glance” Greece blends ancient heritage, maritime expertise and expanding renewables. By 2075 it positions itself as a green energy and innovation hub for the Mediterranean.

11. Sources & modelling 11.1 General

- Statistics: Hellenic Statistical Authority, Eurostat, UN (base year 2025)

11.2 Sources & references

Demography * PopulationPyramid.net – Greece 2025 & 2050 * UN WPP Medium Variant – download * Worldometer – Greece population

Economy & innovation * World Bank – GDP (current US\$), Greece * ERDA forecast (1.5% CAGR)

Society & education * OECD - Education at a Glance 2023 * Eurostat - Tertiary attainment, edat_lfse_03

Health & life expectancy * Worldometer - Life expectancy, Greece

Innovation & patents * Greek Patent Office - Statistics * WIPO - IP Facts & Figures

Environment & resources * Natura 2000 - EU sites in Greece * Hellenic Statistical Authority - environmental reports

Security & defence * SIPRI - Military expenditure database * NATO - Defence expenditure

Politics & institutions * World Justice Project - Rule of Law Index * Eurobarometer 2024 - Survey 2251

11.3 🚩 Modelling & assumptions

- ERDA projection: 1.5% annual GDP growth to 2075
 - Infrastructure autonomy based on ERDA qualitative assessment
-

12. 🤝 Participation welcome This profile uses public and modelled data. Representatives of the Hellenic Republic and interested expert bodies are invited to contribute additions and updates—toward a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

HR - State Profile Croatia

ERDA State Profile: Croatia

1. Overview (meta)

-  **Official name:** Republic of Croatia
 -  **Geographical location:** South-eastern Europe, eastern Adriatic coast bordering Slovenia, Hungary, Serbia, Bosnia and Herzegovina, Montenegro
 -  **Population (2025):** 3,848,160
 -  **Form of government & constitutional status (2025):** Parliamentary representative democracy, Constitution of 1990 (amended)
 -  **ERDA status:** Member
 -  **Future ERDA role:** Cultural bridge between Adriatic tourism and Central European innovation
-

2. Demography & society

- **Population outlook:**
 - 2050: 3,234,160
 - 2075: 2,624,398
 - **Age structure:**
 - Median age: 45.3 years (2025)
 - Youth share (0-14): 14.2%
 - Old-age ratio (65+ / 15-64): ~33%
 - **Urbanisation:** 61.7% (2025)
 - **Education:**
 - Average years of schooling: 12.2
 - Tertiary attainment (25-34): 48%
 - STEM share among new tertiary students: 31%
 - **Life expectancy:** 78.9 years (2025)
 - **Net migration balance:** -0.7‰ per year
 - **Social cohesion:** life satisfaction 5.8 / 10; trust in parliament 26%
-

3. Economy & innovation

- **Real GDP:**
 - 2023: 84.4 bn USD
 - 2050 (1.5% CAGR): ≈ 131 bn USD
 - 2075 (1.5% CAGR): ≈ 239 bn USD
- **GDP per capita:**
 - 2023: 21,866 USD
 - 2050: ≈ 40,900 USD
 - 2075: ≈ 91,000 USD
- **Top 3 industries:**
 1. Tourism & hospitality
 2. Shipbuilding & maritime technologies
 3. Chemicals & pharmaceuticals
- **Automation & digitalisation:** 22% (2023)
- **R&D intensity:** 1.43% of GDP (2022)
- **Patents per year:** 216 filings (56 per million inhabitants, 2023)
- **FORTERA member:** No

3.1 Infrastructure autonomy

- Energy
 - IT / cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 56,594 km²; coastline 31,067 km
- Strategic raw materials: lithium (Istria), rare-earth pilot projects, freshwater
- Renewables: PV 4 GW by 2030, offshore wind 2 GW, biomass, geothermal
- Biodiversity: 9% protected land, 5% marine reserves

Social resources

- Volunteering: 35% engaged
- Civic tech (CIVITAS): pilot regions Zagreb & Split (15% of municipalities)
- Health system: universal access, 3.3 beds per 1,000 people, prevention coverage 78%

Political resources

- Constitutional adherence: Yes
 - Direct democracy: citizens' initiative (threshold 500,000+ signatures)
 - Rule-of-law index: 0.76 / 1.00 (WJP 2024)
 - Trust in EU institutions: 68%
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-ready
 - Cyber command (Zagreb)
 - Early-warning system (Balkan-Rhodes)
 - **Defence expenditure:** 2.2% of GDP (2024)
 - **Mediterranean role:** NATO logistics hub
 - **Civil resilience:** "AdriAegis" disaster-management programme
 - **Drone / space / AI capacities:** baseline layer available
-

6. Cultural identity & soft power

- Languages: Croatian (official), Italian, Hungarian, Serbo-Croatian minorities
 - UNESCO World Heritage: 10 sites (e.g. Dubrovnik, Plitvice Lakes)
 - Creative economy: 3% of GDP
 - International visibility: 18 Olympic medals, 1 Nobel laureate (2019)
 - Cultural outreach: "Adriatic Bridges" programme
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** shrinking population, ageing society, stable democracy
- **Best case 2075:** AI & cultural hub with demographic stabilisation
- **Base case 2075:** moderate growth (2% p.a.)
- **Worst case 2075:** outward migration, stagnation

Narrative: the economy consolidates with investments in tourism and digitalisation; 2025–2050 focuses on AI, renewables and education; 2050–2075 on smart cities and culture-tech exports.

ERDA Vision 2075

"By 2075 Croatia is a cultural innovation node delivering sustainable models across Southern Europe."

- Post-scarcity economy: resource efficiency
- Democratic resilience: e-voting and local parliaments
- Showcase effect: sustainable tourism model region

8. Narrative & attraction

"Croatia shows how small states can achieve outsized impact through cultural innovation and civic participation."

- **Self-efficacy:** 25% participation in online consultations
- **Future dignity:** pride in UNESCO heritage and a growing startup scene
- **Invitation:** "Co-design Smart Adriatic with us."

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	84.4	131	239
Population	3,848,160	3,234,160	2,624,398
Share of renewables (%)	61.7	75	90
Life expectancy (years)	78.9	82	85
Higher-education share (%)	48	55	65
AI capacity [0-10]	4	7	10
Civil-society index [0-10]	6.5	7.5	8.5

10. Snapshot: "Croatia at a glance" Croatia couples tourism strengths with growing digital initiatives and embraces sustainable Adriatic models, positioning itself as a cultural and innovation hub between South-Eastern and Central Europe.

11. Sources & modelling 11.1 General

Base year: 2025. Population and economic forecasts rely on an internal 1.5% CAGR model informed by international datasets.

11.2 Sources & references

Demography & society * PopulationPyramid.net – <https://www.populationpyramid.net/croatia/2025/> * UN World Population Prospects – [https://population.un.org/wpp/Download/Files/1_INDICATORS%20\(Standard\)/EXCEL_FILES/1_Population/WPP2024_POP_F07_1_TOTAL_POPULATION_BOTH_SEXES.xlsx](https://population.un.org/wpp/Download/Files/1_INDICATORS%20(Standard)/EXCEL_FILES/1_Population/WPP2024_POP_F07_1_TOTAL_POPULATION_BOTH_SEXES.xlsx) (hyp.) * Worldometer – <https://www.worldometers.info/world-population/croatia-population/>

Economy & innovation * World Bank – <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=HR> * ERDA model (1.5% CAGR)

Society & education * OECD – Education at a Glance 2023 – <https://www.oecd.org/education/education-at-a-glance/> * Eurostat – <https://ec.europa.eu/eurostat/data/database>

Health & life expectancy * Worldometer – <https://www.worldometers.info/demographics/life-expectancy/croatia-life-expectancy/>

Innovation & patents * DZS – patent statistics – <https://dzh.hr/statistika> * WIPO – IP Facts & Figures 2023 – <https://www.wipo.int/ipstats/en/>

Environment & resources * Plitvice Lakes National Park – <https://np-plitvice.hr/en/> * DZS – environmental reports – <https://www.dzs.hr/>

Security & defence * SIPRI – <https://www.sipri.org/databases/milex> * NATO – https://www.nato.int/cps/en/natohq/topics_49198.htm

Politics & institutions * World Justice Project – <https://worldjusticeproject.org/> * Eurobarometer 2024 – <https://europa.eu/eurobarometer/surveys/survey-detail/2251>

11.3 📈 Modelling & assumptions

- Economic projections 2050–2075: internal ERDA extrapolation (1.5% CAGR)
-

12. 🌟 Participation welcome This profile uses public and modelled data. Representatives of the Republic of Croatia and interested expert bodies are invited to contribute updates—toward a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

IE - State Profile Republic of Ireland

🇮🇪 ERDA State Profile: Republic of Ireland

1. Overview (meta)

- **Official name:** Republic of Ireland (Wikipedia)
 - **Geographical location:** North-west Europe, island of Ireland with Atlantic access (coastline 1,448 km) (CIA Factbook)
 - **Population (2025):** 5,308,039 (Worldometer)
 - **Form of government & constitutional status (2025):** Unitary parliamentary republic, Constitution of 1937 (Gov.ie)
 - **ERDA status:** Member
 - **Future ERDA role:** Education and digital nation, cyber hub
-

2. Demography & society

- **Population outlook:** 5,970,042 (2050) (Worldometer projections); ~5,708,188 (2075, projection) (PopulationPyramid)
 - **Age structure:** median age 39.4 years (2024) (Eurostat); youth share (0-14) 18.8% (2024) (CSO); 65+ share 15.5% (2024)
 - **Urbanisation:** 62.1% urban (2025) (Worldometer)
 - **Education:** average 11.6 years (UN / WorldEconomics); STEM graduates 40.1 per 1,000 people aged 20-29 (2022) (CSO); tertiary attainment 63% (ages 25-34, 2023) (Eurostat)
 - **Life expectancy:** 82.7 years (2024) (Worldometer)
 - **Net migration balance:** +53,022 (2025) (Worldometer)
 - **Social cohesion:** subjective well-being 6.889 / 10 (WHR 2024); trust in the national parliament 35% (Apr-May 2024 Eurobarometer)
-

3. Economy & innovation

- **GDP (nominal):** 587.2 bn USD (2025f) (Wikipedia)
- **GDP per capita:** 107,243 USD (nominal, 2025f)
- **Top 3 industries:** pharmaceuticals; chemicals; ICT (software & hardware)
- **Automation & digitalisation:** DESI score 62.7 (2022, EU rank 5); industrial robot density 219 robots / 10,000 employees (2023)
- **R&D intensity:** 1.06% of GDP (GERD, 2021)
- **Patents per year:** 428 national filings (2023) (WIPO)
- **FORTERA trade alliance member?** No

3.1 Infrastructure autonomy

- Energy
 - IT / cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile 🌱 Natural resources

- Land / EEZ: 70,273 km² land; 410,310 km² EEZ
- Strategic raw materials: zinc, lead (Tara Mine – Europe's largest zinc-lead operation)
- Renewable potential: >50 GW onshore wind, >27 GW offshore wind (SEAI); solar PV capacity 1 GW (2023)
- Protected areas: 12% of territory (Natura 2000 & national parks)

以人民为重 Social resources

- Volunteering: 36% participation (Eurobarometer)
- Civic tech: national digital services portal (gov.ie)
- Health system: universal tax-funded model with nationwide prevention programmes (HSE)

盾 Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: constitutional referendums
 - Rule-of-law index: 0.85 (WJP 2024)
 - International trust: CPI 77 / 100 (2023)
-

5. Security & strategic role (EDA)

- **Military potential:** military neutrality; no DSN node; Defence Forces Cyber Command; early warning via EU Copernicus
 - **Defence expenditure:** 0.34% of GDP (2024)
 - **Atlantic role:** maritime surveillance, EU NAVFOR deployments
 - **Civil resilience:** national emergency management (Department of Housing, Local Government and Heritage)
 - **Drone / space / AI capacities:** base infrastructure (ESA membership, 2021 AI strategy)
-

6. Cultural identity & soft power

- Languages: Irish (Gaeilge) and English; Gaeltacht regions
 - UNESCO World Heritage: Brú na Bóinne, Skellig Michael, Clonmacnoise
 - Creative economy: 3.7% of GDP (Creative Ireland)
 - International visibility: 4 Nobel Prizes in Literature (Beckett, Heaney, et al.), leading film festivals, Rugby Six Nations, Olympic participation
 - Culture as mediator: European Capitals of Culture Cork 2005, Galway 2020
-

7. Development path (2025-2075) 📈 Scenario development

- **Status 2025:** post-pandemic economic resilience, digital strategy rollout, moderate demographic ageing
- **Best case 2075:** population 6.5 million, leader in green tech with high innovation output
- **Base case 2075:** steady growth, GDP per capita 90,000 USD, moderate automation
- **Worst case 2075:** productivity stagnation, infrastructure gaps, demographic pressure

Status 2025 narrative: Ireland consolidates its digital and innovation role, expands renewables and remains attractive for FDI.

Strategic investments 2025–2050: green hydrogen corridors, AI research, education and health capacity.

Transformation 2050–2075: fully decarbonised system, high automation, mature bioeconomy.

ERDA Vision 2075

"Ireland acts as a democratic-green innovation center within the ERDA by 2075, specialising in sustainable technology and cultural mediation."

- Contribution to a post-scarcity order: green exports, circular economy
 - Democratic resilience: inclusive digital participation and strong civil society
 - Showcase effect: blueprint for small open economies
-

8. Narrative & attraction

- **Core message:** "Ireland demonstrates how a small, open democracy can scale digital innovation and green resilience."
 - **Self-efficacy:** nationwide citizen science and energy community programmes
 - **Future dignity:** pride in bilingual heritage and tech leadership
 - **Invitation:** "Co-create resilient digital societies."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	587	870	1,430
Population (million)	5.31	5.97	5.71
Share of renewables (%)	40	75	90
Life expectancy (years)	82.7	84.5	86.0
Tertiary attainment (%)	63	70	78
AI capacity [0-10]	7	9	10
Civil-society index [0-10]	7.5	8.5	9.0

10. Snapshot: "Ireland at a glance" Ireland is a digital island nation with high educational attainment and a growing population. Vast wind potential and an innovation-driven tech sector secure prosperity and resilience, positioning the country as an ERDA model for open, sustainable economies.

11. Sources & modelling 11.1 1 General

- Statistics: CSO Ireland, Eurostat, World Bank (base year 2025)
- Energy potentials: SEAI studies and EU roadmaps
- Innovation & education: DESI, OECD analyses
- Democracy & rule of law: Eurobarometer, WJP Rule of Law Index
- Sustainability: national environmental reports, IEA scenarios
- Detailed assumptions: **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
- Notes: (p) – projection; (hyp.) – ERDA Scenario Modeling Report 2025

11.2 📄 Sources & references

Demography & society * UN World Population Prospects - <https://population.un.org/wpp> * CSO Ireland - *Measuring Ireland's Progress*

Economy & innovation * "Economy of the Republic of Ireland" - Wikipedia * European Commission - DESI

Society & education * Eurostat & CSO - *Measuring Ireland's Progress*

Health & life expectancy * Worldometer - "Ireland Population" * HSE - Health Service Executive

Innovation & patents * WIPO Ireland country profile - <https://www.wipo.int/edocs/statistics-country-profile/en/ie.pdf>

Environment & resources * SEAI - Sustainable Energy Authority of Ireland * Geological Survey Ireland

Security & defence * SIPRI Military Expenditure Database * EDA & EU Copernicus Programme

Politics & institutions * Constitution of Ireland - <https://www.irishstatutebook.ie/eli/cons/en/html> * World Justice Project Rule of Law Index

11.3 🔨 Modelling & assumptions

- Economic projections 2050–2075: 2% real annual growth (hyp.)
 - Infrastructure autonomy: target 80% renewable supply (hyp.)
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12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Republic of Ireland and interested expert bodies are invited to share additions and updates to build a common picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

IT - State Profile Italy

🇮🇹 ERDA State Profile: Italy

1. Overview (meta)

- **Official name:** Repubblica Italiana
 - **Geographical location:** Southern Europe, Italian peninsula in the Mediterranean
 - **Population (2025):** ~58.93 million
 - **Form of government & constitutional status (2025):** Parliamentary republic, Constitution of 1948 (constitutionally bound)
 -  **ERDA status:** Member
 - **Future ERDA role:** Cultural mediator, tourism hub, food & luxury expert nation
-

2. Demography & society

- **Population outlook (2050 / 2075):** ~54.4 million (2050), ~47.0 million (2075)
 - **Age structure:** median age 47.3 years; ages 0–14: 13.4%; 65+: 23.3%
 - **Urbanisation:** 72% urban
 - **Education:** tertiary attainment (25–34) 31%; STEM share among graduates 17%
 - **Life expectancy:** 83.1 years
 - **Net migration balance:** +275,000 (2023)
 - **Social cohesion:** life satisfaction 6.2 / 10; trust in government 33%
-

3. Economy & innovation

- **GDP (bn EUR):** 2025: 2,150 | 2050: 2,800 | 2075: 3,200
- **GDP per capita:** ~36,500 EUR
- **Top 3 industries:** mechanical engineering; automotive; luxury goods & fashion
- **Automation & digitalisation:** 185 industrial robots per 10,000 workers (2023); forecast 60% of industrial firms digitally equipped by 2050
- **R&D intensity:** 1.51% of GDP
- **Patents p.a.:** ~21,000 EPO filings (2023)
- **FORTERA member:** Yes

3.1 Infrastructure autonomy

- Energy | IT / cloud | Defence | Food
-

4. Resource profile Natural resources

- Land area: 301,340 km²
- Maritime area (EEZ): 541,915 km²
- Strategic raw materials: limited lithium / rare-earth deposits; abundant freshwater from Alpine inflows
- Renewable potentials: solar (South Italy), wind (Adriatic & Sardinia), geothermal (Tuscany)
- Biodiversity & protected areas: 10.1% protected

Social resources

- Volunteering & community culture: 5.5 / 10

- CIVITAS participation index: 6.0 / 10
- Health system: access 9 / 10; prevention 6.5 / 10

🛡 Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: partial (regional referendums)
 - Democracy quality index (Freedom House): 59 / 100
 - Voter participation: 71% (2022)
 - Rule-of-law index: 6.7 / 10
 - International trust: 6.8 / 10
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early warning
 - **Defence expenditure:** 1.6% of GDP (2025)
 - **Mediterranean role:** NATO southern flank & stability partner
 - **Civil resilience programmes:** partially available
 - **Drone / space / AI capacities:** baseline infrastructure in place
-

6. Cultural identity & soft power

- Languages: Italian; minority languages Sardinian, German, French
 - UNESCO World Heritage: 60 sites (highest globally)
 - Creative economy index: 7 / 10
 - International visibility: 20 Nobel laureates; 176 Olympic medals
 - Culture as mediation factor: 8 / 10
-

7. Development path (2025-2075) 🚀 Scenario development

- **Status 2025:** industrial nation with rich cultural heritage and ageing demographics
- **Strategic investments 2025-2050:** education, R&D, renewables, digitalisation
- **Transformation 2050-2075:** net-zero transition, post-scarcity readiness, culture & tech hub

🚀 ERDA Vision 2075

"Italy is a vibrant ERDA culture-and-innovation node by 2075—pioneering sustainable luxury and food production."

- Post-scarcity contribution: excellence in food and design
 - Democratic resilience: high thanks to civic engagement
 - Showcase effect: model for linking culture and economy
-

8. Narrative & attraction

"Italy proves that cultural diversity and creative value chains can power sustainable growth."

- **Self-efficacy:** local communities co-create gastronomy & tourism
- **Future dignity:** identity through tradition plus innovation

- **Invitation:** “Experience the fusion of heritage and high tech.”
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	2,150	2,800	3,200
Population (million)	58.9	54.4	47.0
Share of renewables (%)	22	60	85
Life expectancy (years)	83.1	84.5	86.0
Tertiary attainment (%)	31	40	50
AI capacity [0-10]	5	7	9
Civil-society index [0-10]	6.2	7.5	8.5

10. Snapshot: “Italy at a glance” Italy marries Mediterranean lifestyle with technological ambition. Cultural heritage, world-class cuisine and sustainable innovation make it a future ERDA node for design and experience economy.

11. Sources & modelling 11.1 📈 General

- Statistics: ISTAT, Eurostat, UN (base year 2025)

11.2 💬 Sources & references

- UN World Population Prospects 2022 – <https://population.un.org/wpp/>
- ISTAT – population & migration data – <https://www.istat.it/>
- Eurostat – GDP & automation statistics – <https://ec.europa.eu/eurostat/>
- OECD – R&D and education indicators – <https://stats.oecd.org/>
- World Justice Project – Rule of Law Index – <https://worldjusticeproject.org/>
- WHO – life expectancy – <https://www.who.int/data/gho>
- Reuters / Euronews – demographic articles
- European Patent Office – <https://epo.org/>
- International Federation of Robotics – <https://ifr.org/>
- CIA World Factbook – <https://www.cia.gov/the-world-factbook/>
- UNESCO World Heritage Centre – <https://whc.unesco.org/>
- SIPRI – defence expenditure – <https://www.sipri.org/>

11.3 🔨 Modelling & assumptions

- ERDA internal projection model (scenarios to 2075)
-

12. 🤝 Participation welcome This profile is based on public and modelled data. Representatives of the Italian Republic and interested expert bodies are invited to contribute updates for a shared picture of Europe’s resilient democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

LT - State Profile Republic of Lithuania

ERDA State Profile: Republic of Lithuania

1. Overview (meta)

-  **Official name:** Republic of Lithuania (Respublika Lietuva)
 -  **Geographical location:** Northern Europe, Baltic Sea state bordering Latvia, Belarus, Poland and Russia (Kaliningrad)
 -  **Population (2025):** 2,830,144
 -  **Form of government & constitutional status (2025):** Parliamentary republic, Constitution of 1992
 -  **ERDA status:** Member
 -  **Future ERDA role:** Digital and innovation hub, bridge state on the EU's frontier
-

2. Demography & society

- **Population outlook:** 2,258,774 (2050); ~1,900,000 (2075, UN medium variant)
 - **Age structure:** median age 42.3 years (2025); youth share (0–14) 15.6%; 65+ share 25.7%
 - **Urbanisation:** 68.2% (2025)
 - **Education:** average schooling 12.1 years (UNDP); STEM graduates 26% of tertiary degrees (2023); tertiary attainment 58.6% (ages 25–34, 2023)
 - **Life expectancy:** 77.4 years (2023)
 - **Net migration balance:** −24,618 (2025)
 - **Social cohesion:** life satisfaction 6.818 / 10 (World Happiness Index 2024, rank 19); trust in parliament 31% (Flash Eurobarometer 527, 2024)
-

3. Economy & innovation

- **GDP (nominal, 2024):** €77.94 bn
- **GDP per capita (2024):** €26,990
- **Top 3 industries:** mechanical engineering; food processing; chemicals & petrochemicals
- **Digitalisation:** DESI score 60.2 / 100 (EU rank 7, 2023)
- **R&D intensity:** 1.06% of GDP (GERD 2022)
- **Patents per year:** 632 USPTO filings (2023)
- **FORTERA member?** No

3.1 Infrastructure autonomy

- Energy
 - IT
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / EEZ: 65,300 km² land; 90 km coastline; EEZ 11,000 km²

- Strategic raw materials: peat, amber, limestone, kaolin
- Renewable potentials: >5 GW onshore wind, 1.2 GW solar PV (2023), strong biomass (SEIA)
- Biodiversity & protected areas: 17% protected (Natura 2000 & national parks)

 Social resources

- Volunteering rate: 32% (Eurobarometer 2023)
- Civic tech: Lietuva e-government portal—95% of administrative services digital
- Health system: universal access; prevention spending 6.8% of GDP (2022)

 Political resources

- Constitutional adherence: Yes
 - Direct democracy: citizens' initiatives from 50,000 signatures
 - Rule-of-law index: 0.85 (WJP 2024)
 - International trust: CPI 74 / 100 (2023)
-

5. Security & strategic role (EDA)

- **Military potential:** NATO member; DSN node; cyber command; NATO early-warning integration
 - **Defence expenditure:** 2.0% of GDP (2024)
 - **Baltic role:** BALTOPS exercises, EU NAVFOR aspirant
 - **Civil resilience:** national disaster-management plans
 - **Drone / space / AI capacity:** ESA member, national AI strategy 2021, domestic drone sector
-

6. Cultural identity & soft power

- Languages / cultures: Lithuanian; Polish and Russian minorities; Baltic traditions
 - UNESCO World Heritage: Vilnius Historic Centre, Curonian Spit, Kernavė
 - Creative economy: 3.1% of GDP (music, film, design)
 - International visibility: 3 Nobel laureates; global basketball reputation; Vilnius Capital of Culture 2022
 - Cultural outreach: Baltic Sea festivals, Interreg culture programmes
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** post-deindustrialisation shift, demographic shrinkage, strong digitalisation
- **Best case 2075:** 2.1 million people, CO₂ neutral, leader in cyber & green tech
- **Base case 2075:** 1.8 million, +25% GDP growth, stable civil society
- **Worst case 2075:** 1.5 million, stagnating GDP, infrastructure & innovation lag

Status 2025 narrative: Lithuania pivots toward a green-digital innovation model powered by solar capacity and e-services.

Strategic investments 2025-2050: green hydrogen production, AI platforms, edtech.

Transformation 2050-2075: full decarbonisation, automated agriculture, regional e-governance.

 ERDA Vision 2075

"Lithuania becomes a lighthouse for post-scarcity ecological innovation and democratic digitalisation within the ERDA."

- Contribution: open data layers for circular economy
 - Democratic resilience: digital citizens' juries
 - Showcase: e-ID based e-voting blueprint
-

8. Narrative & attraction

"Lithuania shows how a small state with digital DNA and green courage can have outsized impact."

- **Self-efficacy:** citizens co-design AI ethics via online platforms
 - **Future dignity:** national pride in amber heritage and cyber talent
 - **Invitation:** "Experience Lithuania—where democracy, tech and nature grow in harmony."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	77.94	95.0	130.0
Population (million)	2.83	2.26	1.90
Share of renewables (power, %)	46	65	90
Life expectancy (years)	77.4	82.0	85.0
Tertiary attainment (%)	58.6	70.0	75.0
AI capacity [0-10]	7	9	10
Civil-society index [0-10]	8	9	10

(OECD long-term projections for GDP.)

10. Snapshot: "Lithuania at a glance" Lithuania positions itself as a digitally driven Baltic state with expanding green industries. On its path to climate-neutral innovation, the country strengthens e-governance and citizen participation.

11. Sources & modelling 11.1 1 General

- Statistics: Eurostat, OECD, national sources (base year 2025)
- Models: OECD & UN demographic and GDP projections (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy & infrastructure data: national strategies (hyp.)

11.2 2 Sources & references

- UN World Population Prospects - <https://population.un.org/wpp/>
- Worldometer - <https://www.worldometers.info/world-population/lithuania-population/>
- "Economy of Lithuania" (Wikipedia) - https://en.wikipedia.org/wiki/Economy_of_Lithuania#Statistics
- DESI 2023 - <https://digital-strategy.ec.europa.eu/en/policies/desi>
- UNDP, UNESCO & Eurostat datasets
- WHO data - <https://data.who.int/countries/440>

- WIPO country profile - <https://www.wipo.int/edocs/statistics-country-profile/en/lt.pdf>
- SEIA Lithuania, Protected Planet, NATO NCI Agency, World Justice Project

11.3 📈 Modelling & assumptions

- Detailed assumptions: **ERDA Scenario Modeling Report 2025** (hyp. <https://erda-institut.example.org/report2025>)
 - Economic projections 2050–2075 extrapolated from Eurostat/OECD trends
 - Infrastructure autonomy target: 80% renewable supply (hyp.)
-

12. 🎉 Participation welcome This profile uses public and modelled data. Representatives of the Republic of Lithuania and interested expert bodies are invited to add perspectives and updates for a shared, resilient democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

LU - State Profile Luxembourg

ERDA State Profile: Luxembourg

1. Overview (meta)

- **Official name:** Grand Duchy of Luxembourg
 - **Geographical location:** Western Europe bordering Belgium, Germany and France
 - **Population (2025):** ~0.67 million (World Bank 2023)
 - **Form of government & constitutional status (2025):** Parliamentary monarchy
 - **ERDA status:** Member
 - **Future ERDA role:** European financial node, seat of EU institutions, digital innovation hub
-

2. Demography & society

- **Population outlook (2050 / 2075):** 0.80 million / 0.85 million (UN DESA WPP 2022; ERDA scenario)
 - **Age structure:** median 40 years; youth share 17%; 65+ share 14%
 - **Urbanisation:** 92%
 - **Education:** average schooling 13.3 years; STEM share 28%; tertiary attainment 50%
 - **Life expectancy:** 83.4 years
 - **Net migration balance:** +5,905 (2023)
 - **Social cohesion:** high well-being and high trust in democracy
-

3. Economy & innovation

- **GDP (real, current / 2050 / 2075):** 86 bn USD / 110 bn EUR / 150 bn EUR (future values ERDA scenario)
- **GDP per capita:** 128,678 USD (World Bank 2023)
- **R&D intensity:** 1.0% of GDP (World Bank 2022)
- **Innovation capacity:** high patent intensity (EPO Patent Index 2023)
- **Economic focus:** financial services, logistics, satellite communications

3.1 Infrastructure autonomy

- Energy
 - IT / cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile

- Land area: 2,586 km²
 - Protected areas: 55.8% of territory
 - Renewable-energy share: 20.5%
 - Key resources: financial ecosystem, biodiverse cultural landscape, waterways
-

5. Security & strategic role (EDA)

- Memberships: NATO, EU
 - Defence expenditure: ~0.7% of GDP (SIPRI 2023)
 - Internal security: high; well-developed police structures
-

6. Cultural identity & soft power

- Languages: Luxembourgish, French, German
 - UNESCO World Heritage: 1 site (Luxembourg City old quarters and fortifications)
 - Creative economy: 6 / 10
 - International visibility: high (financial center, EU seat)
 - Culture as mediator: 7 / 10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** prosperous financial & services hub with growing population
- **Strategic investments 2025-2050:** digitalisation, sustainable mobility, renewables
- **Transformation 2050-2075:** post-fossil urban planning, deep integration in European digital & financial networks

ERDA Vision 2075

"Luxembourg remains a central European finance & innovation node by 2075, strengthening democratic resilience and sustainable urbanism."

- Post-scarcity contribution: digital financial infrastructure
 - Democratic resilience: strong social stability and citizen participation
 - Showcase: blueprint for sustainable micro-state development
-

8. Narrative & attraction

"Luxembourg proves that a small state can have big impact through openness and innovation."

- **Self-efficacy:** citizens co-create smart city and mobility projects
 - **Future dignity:** pride in multilingual culture and international influence
 - **Invitation:** collaborate on digital and financial innovation for a connected Europe
-

9. Key indicators

Indicator	2025	2050	2075
GDP (bn EUR)	86*	110 ^p	150 ^p
Population (million)	0.67	0.80 ^p	0.85 ^p
Share of renewables (%)	20.5	50 ^p	70 ^p
Life expectancy (years)	83.4	85 ^p	87 ^p
Tertiary attainment (%)	50	60 ^p	70 ^p
AI capacity [0-10]	6	8 ^p	10 ^p
Civil-society index [0-10]	8	9 ^p	10 ^p

(* current estimate; ^p = projection.)

10. Snapshot: “Luxembourg at a glance” Luxembourg is a wealthy EU micro-state whose stable democracy, strong financial sector and innovation-friendly economy make it pivotal to European integration. High quality of life, a growing population and global openness underpin its role as a digital and financial hub, while energy imports and sustainable urban planning remain key challenges.

11. Sources & modelling 11.1 1 General

- Statistics: World Bank, OECD
- Models: UN DESA projections and ERDA Scenario Modeling Report 2025 (hyp.)
- Energy & infrastructure data: national strategies (hyp.)

11.2 2 Sources & references

1. World Bank - population (SP.POP.TOTL)
2. UN DESA - World Population Prospects 2022
3. World Bank - urban population (SP.URB.TOTL.IN.ZS)
4. World Bank - life expectancy (SP.DYN.LE00.IN)
5. World Bank - net migration (SM.POP.NETM)
6. World Bank - GDP (NY.GDP.MKTP.CD)
7. World Bank - GDP per capita (NY.GDP.PCAP.CD)
8. World Bank - R&D expenditure (GB.XPD.RSDV.GD.ZS)
9. European Patent Office - Patent Index 2023
10. World Bank - land area (AG.LND.TOTL.K2)
11. World Bank - protected areas (ER.PTD.TOTL.ZS)
12. World Bank - renewable energy share (EG.FEC.RNEW.ZS)

11.3 3 Modelling & assumptions

- GDP / population projections 2050–2075 extrapolated from OECD trends (hyp.)
 - Infrastructure autonomy targets assume 80% renewable supply (hyp.)
 - Democratic participation increases by 0.3 points per year (hyp.)
 - Energy scenarios follow moderate vs. ambitious IEA pathways (hyp.)
-

12. 4 Participation welcome This profile draws on public and modelled data. Representatives of the Grand Duchy of Luxembourg and interested expert bodies are invited to contribute updates for a shared view of Europe’s resilient democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

LV - State Profile Republic of Latvia

≡ ERDA State Profile: Republic of Latvia

1. Overview (meta)

- **Official name:** Republic of Latvia (Republika Latvija)
 - **Geographical location:** Northern Baltics bordering Estonia, Russia, Belarus, Lithuania; Baltic Sea coastline 494 km
 - **Population (2025):** 1,855,000 (estimate; 1 June 2024: 1,861,900)
 - **Form of government & constitutional status (2025):** Parliamentary republic, Constitution of 1922 (as amended)
 - **ERDA status:** Member
 - **Future ERDA role:** Cyber hub and digital transformation center
-

2. Demography & society

- **Population outlook:** 1,249,812 (2050)
 - **Age structure:** median 44.8 years; youth share (0-14) 16.1%; 65+ share 22.1%
 - **Urbanisation:** 68.7% (2023)
 - **Education:** average schooling 13.2 years (2021); STEM share 27% of tertiary degrees (2022); tertiary attainment 48% (ages 25-34, 2023)
 - **Life expectancy:** 76.1 years (2023)
 - **Net migration balance:** +11.7‰ (2022)
 - **Social cohesion:** well-being 5.9 / 10 (World Happiness Report 2024); trust in democracy 41% (Eurobarometer 2023)
-

3. Economy & innovation

- **GDP (nominal, 2023):** 48.4 bn USD
- **GDP per capita:** 25,346 USD
- **Top 3 industries:** wood processing, metal manufacturing, pharmaceuticals
- **Automation & digitalisation:** 143 robots per 10,000 employees (2023)
- **R&D intensity:** 1.05% of GDP (2022)
- **Patents per year:** 208 national filings (2023)
- **FORTERA member?** No

3.1 Infrastructure autonomy

- Energy | IT / cloud | Defence | Food | IRIS² | Quantum tech | Autonomous logistics
-

4. Resource profile Natural resources

- Land: 64,589 km²; EEZ 21,459 km²
- Strategic resources: peat, mineral springs, timber
- Renewables: hydropower 1.1 GW, wind 0.5 GW, biomass build-out
- Biodiversity: 13% Natura 2000 coverage

Social resources

- Volunteering: 30% participation (Eurobarometer)

- Civic tech: ManaBalss.lv e-petition platform
- Health system: universal access, prevention spending ~5% of GDP

🛡 Political resources

- Constitutional adherence: Yes
 - Direct democracy: referendums via citizens' initiatives
 - Rule-of-law index: 0.78 (WJP 2024)
 - International trust (EU): 55% (Eurobarometer)
-

5. Security & strategic role (EDA)

- Military potential: DSN-capable ✓ | cyber command ✓ | early warning ✓
 - Defence expenditure: 1.13% of GDP (2023)
 - Role: NATO eastern flank, maritime surveillance in the Baltic
 - Civil resilience: State Fire and Rescue Service (VUGD) disaster management
 - Drone / space / AI capabilities: baseline ESA-aligned infrastructure
-

6. Cultural identity & soft power

- Languages: Latvian (official), Russian minority
 - UNESCO World Heritage: Riga Historic Centre, Struve Geodetic Arc
 - Creative economy: 3.5% of GDP (music, film, design)
 - International visibility: Eurovision, EICAR film awards
 - Cultural mediation: Riga European Capital of Culture 2014
-

7. Development path (2025-2075) 🚀 Scenario development

- **Status 2025:** demographic decline, digitalisation momentum
- **Best case 2075:** population stabilises at 1.5 million, GDP +50%, leadership in cybersecurity
- **Base case 2075:** slight decline (1.3 million), GDP +25%
- **Worst case 2075:** >30% population loss, infrastructure decay

Narrative: 2025 sees digital government and business reform while managing youth outmigration. Investments 2025–2050 target AI research, renewables and education; 2050–2075 drives full decarbonisation and digital civic platforms.

🚀 ERDA Vision 2075

"Latvia becomes a digital-democratic flagship within the ERDA, renowned for cyber resilience and e-governance."

- Post-scarcity contribution: platform-based digital economy
 - Democratic resilience: global reference for e-participation
 - Showcase: e-residency concept for small states
-

8. Narrative & attraction

"Latvia proves that digital innovation plus democratic participation underpin a resilient society."

- **Self-efficacy:** citizens use e-ID for direct input
 - **Future dignity:** pride in “Latvija Digitala” as identity driver
 - **Invitation:** “Experience Latvia—where democracy meets technology.”
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	48.4	75.0	110.0
Population (million)	1.86	1.25	1.00*
Share of renewables (power, %)	42	65	90
Life expectancy (years)	76.1	80.0	83.0
Tertiary attainment (%)	48	60	65
AI capacity [0-10]	6	8	10
Civil-society index [0-10]	7	9	10

*Illustrative projection consistent with OECD trend assumptions.

10. Snapshot: “Latvia at a glance” Latvia doubles down on digital innovation and civic strength. Despite demographic headwinds, it positions itself as the ERDA’s cyber hub and e-governance pioneer, with sustainable energy and modern administration forming the backbone of future resilience.

11. Sources & modelling 11.1 1 General

- Statistics: Eurostat, CIA World Factbook, national sources (base year 2025)
- Energy & innovation data: national strategies and international studies (hyp. ERDA Scenario Modeling Report 2025)

11.2 2 Sources & references

- UN WPP 2024 - <https://population.un.org/wpp>
- Wikipedia: Demographics & Economy of Latvia
- IFR robot density - <https://ifr.org>
- UNESCO Institute for Statistics - <https://uis.unesco.org/en/country/lv>
- Eurostat databrowser - <https://ec.europa.eu/eurostat/data/database>
- WHO GHO data - <https://apps.who.int/gho/data/view.main.246?lang=en>
- WIPO country profile - <https://www.wipo.int/edocs/statistics-country-profile/en/lv.pdf>
- Natura 2000 - <https://natura2000.eea.europa.eu/>
- SIPRI, EEAS, World Justice Project, Eurobarometer

11.3 3 Modelling & assumptions

- Detailed assumptions: **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
 - Scenario projections 2050–2075 aligned with OECD trends; infrastructure and digitalisation levels derive from national strategies (hyp.)
-

12. 🤝 Participation welcome This profile relies on public and modelled data. Representatives of the Republic of Latvia and interested expert bodies are invited to contribute updates for a shared view of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

NL - State Profile Netherlands

ERDA State Profile: Netherlands

1. Overview (meta)

- **Official name:** Kingdom of the Netherlands
 - **Geographical location:** Western Europe, North Sea coastline, bordering Germany and Belgium
 - **Population (2025):** 18,327,400
 - **Form of government & constitutional status (2025):** Constitutional monarchy and parliamentary democracy (constitutionally bound)
 - **ERDA status:** Member
 - **Future ERDA role:** Logistics & innovation hub with world-class water/coastal management and cyber expertise
-

2. Demography & society

- **Population outlook (2050 / 2075):** 19,000,000 / 21,000,000 (CBS projection: 20.6 million by 2070)
 - **Age structure:** median 41.5 years; youth share (0-14) 16.1%; old-age ratio (65+) 20.2%
 - **Urbanisation:** 92.6%
 - **Education:** average schooling 12.5 years; tertiary attainment 36%; STEM share ~25%
 - **Life expectancy:** 82.45 years
 - **Net migration balance:** +137,358 (2023)
 - **Social cohesion:** well-being 7.4 / 10; trust in democracy 70%
-

3. Economy & innovation

- **GDP (nominal):** 2025: 1,376 bn USD (~1,266 bn EUR); 2050: ~1,600 bn EUR; 2075: ~1,800 bn EUR
- **GDP per capita:** 77,236 USD (2025)
- **Top 3 industries:** agri-food; logistics & ports; chemicals & pharma
- **Automation & digitalisation:** 60% (2025) → 80% (2050)
- **R&D intensity:** 2.5% of GDP
- **Patents per year:** ~7,000 (growing)
- **FORTERA member:** Yes
- **Strategic-sector sovereignty:** energy , IT/cloud , defence , food

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 41,543 km²
- EEZ: ~57,000 km²
- Strategic resources: natural gas, potash, sand/gravel

- Renewable potentials: North Sea offshore wind, onshore wind, inland solar
- Biodiversity & protected areas: 20% of territory

 Social resources

- Volunteering & community: 7 / 10
- CIVITAS participation index: 6 / 10
- Healthcare: access 9 / 10; prevention 7 / 10

 Political resources

- Constitutional adherence: Yes
 - Direct democracy: partial (municipal referendums)
 - Rule-of-law index: 9.5 / 10
 - International trust: 8 / 10
-

5. Security & strategic role (EDA)

- Military potential: DSN-ready | cyber command | early-warning system
 - Defence expenditure: 1.5% of GDP
 - Role in North Sea / Atlantic: logistics base for sea routes, maritime surveillance
 - Civil resilience programmes: extensive
 - Drone / space / AI capacities: baseline infrastructure
-

6. Cultural identity & soft power

- Languages: Dutch; Frisian is a recognised regional language
 - UNESCO World Heritage: 10 sites
 - Creative economy: 7 / 10
 - International visibility: medium-high (art, sport, water management)
 - Culture as mediation factor: 7 / 10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** advanced trading and water-management nation with digital leadership
- **Investments 2025-2050:** offshore wind build-out, hydraulic infrastructure, digital education, AI governance
- **Transformation 2050-2075:** full post-scarcity integration in energy & food, smart coastal resilience

 ERDA Vision 2075

"By 2075 the Netherlands will be Europe's digital and maritime heart, showcasing AI-enabled water & climate resilience."

- Post-scarcity contribution: smart grids for energy and food
 - Democratic resilience: high via digital citizen platforms
 - Showcase effect: integrated water-energy policy model
-

8. Narrative & attraction

"The Netherlands demonstrates how trade, innovation and democratic participation reinforce each other."

- **Self-efficacy:** citizens co-create through flood-protection apps
 - **Future dignity:** pride in hydraulic heritage and sustainable innovation
 - **Invitation:** "Co-develop smart resilience models for coasts and climate."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	1,376	~1,800	~2,000
Population (million)	18.33	19.00	21.00
Share of renewables (%)	35	60	75
Life expectancy (years)	82.45	84.00	85.50
Tertiary attainment (%)	36	45	55
AI capacity [0-10]	7	9	10
Civil-society index [0-10]	7	8.5	9.5

10. Snapshot: "Netherlands at a glance" The Netherlands blends maritime heritage, digital strength and international openness. As a logistics and innovation hub it advances sustainable coastal resilience and AI-driven water management.

11. Sources & modelling 11.1 1 General

- Statistics & projections: CBS, Eurostat, World Bank (base year 2025)

11.2 2 Sources & references

- Population: Wikipedia (23 Apr 2025)
- Economy: CIA World Factbook (2025)
- Demography & age: Worldometer (2025)
- Urbanisation: CIA World Factbook
- Education: Eurostat (2023)
- Life expectancy: Worldometer
- Migration: CBS & Wikipedia (2023)
- ERDA membership: ERDA state architecture (2025)

11.3 3 Modelling & assumptions

- Detailed assumptions in **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
 - Projections 2050-2075 follow CBS population trends plus ERDA scenarios
-

12. 4 Participation welcome This profile draws on public and modelled data. Representatives of the Kingdom of the Netherlands and interested experts are invited to add perspectives for a shared view of a resilient, democratic Europe.

12.1 Last responsible points of contact

PL - State Profile Poland

■ ERDA State Profile: Poland

1. Overview (meta)

- **Official name:** Republic of Poland
 - **Geographical location:** Central Europe, eastern EU border
 - **Population (2025):** ~37.5 million
 - **Form of government & constitutional status (2025):** Parliamentary democracy, constitutional order restored
 - **ERDA status:** Core ERDA member
 - **Future ERDA role:** Security anchor and democracy stabiliser on the eastern frontier; strategic education and innovation node
-

2. Demography & society

- **Population (2050 / 2075):** 36 million / 34 million
 - **Age structure:** median 43; youth share 17%; old-age ratio rising
 - **Urbanisation:** 61%
 - **Education:** avg. 12.5 years; tertiary attainment 33%; STEM share 21%
 - **Life expectancy:** ♂ 75 / ♀ 82 years
 - **Net migration balance:** slightly positive since 2022
 - **Social cohesion:** well-being 6.8 / 10; trust in democracy 62%
-

3. Economy & innovation

- **GDP (real):** 2025: 800 bn EUR | 2050: 1,200 bn | 2075: 1,350 bn
- **GDP per capita:** ~21,300 EUR (2025)
- **Top industries:** e-mobility, machinery, biotech
- **Automation & digitalisation:** 42% (2025) → 65% (2050)
- **R&D intensity:** 2.1% of GDP
- **Patents per year:** ~9,000 (growing)
- **FORTERA member:** Yes
- **Democracy Trade Network member:** Yes
- **EHAM+ utilisation (0-10):** 5

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 312,696 km²
- Strategic raw materials: copper, silver, coal (transition strategy), limited rare earths
- Renewable potentials: Baltic wind, central/southern solar, pilot geothermal sites
- Biodiversity & protected areas: ~28%

Social resources

- Volunteering & community culture: 7 / 10
- Civic-tech (CIVITAS) participation: 6 / 10 and expanding
- Healthcare: access 7.5 / 10; prevention 5 / 10

🛡 Political resources

- Constitutional adherence: Yes
 - Direct democracy: partial
 - Rule-of-law index: 7.5 / 10
 - International trust: 7 / 10
-

5. Security & strategic role (EDA)

- Military potential: DSN-capable | cyber command | early warning
 - Defence expenditure: 3.2% of GDP (2025)
 - Role in Arctic/North Sea/Atlantic: secures the eastern flank and feeds into the North Sea surveillance network
 - Civil resilience programmes: scaling up
 - Drone / space / AI capacity: baseline layer in place
-

6. Cultural identity & soft power

- Languages & cultures: Polish; Kashubian; minorities incl. German, Ukrainian, Lithuanian
 - UNESCO World Heritage: 17 sites
 - Creative economy: 6.5 / 10 (design leadership)
 - International visibility: moderate (EU cultural space, diaspora links)
 - Culture in democratic networks: 6 / 10
-

7. Development path (2025-2075) 🚀 Scenario development

- **Status 2025:** democratic renewal after authoritarian setbacks, dynamic economy
- **Investments 2025-2050:** education, innovation, infrastructure, energy autonomy
- **Transformation 2050-2075:** resilient middle-class democracy with ecological-digital infrastructure and strong youth participation

🚀 ERDA Vision 2075

"By 2075 Poland is a resilient democracy lab within the ERDA, pivotal for East-Central Europe, education, and social cohesion."

- Post-scarcity contribution: Mittelstand 4.0 and social inclusion
 - Democratic resilience: strengthens across generations
 - Showcase effect: inspiration for democratising post-authoritarian regions
-

8. Narrative & attraction

"Poland proves a country can reclaim its democratic dignity—and inspire others."

- **Self-efficacy:** youth actively shape education and digital reforms
- **Future dignity:** pride in cultural identity and democratic restart
- **Invitation:** "Our story shows change is possible—and worthwhile."

9. Key indicators

Indicator	2025	2050	2075
GDP (bn EUR)	800	1,200	1,350
Population (million)	37.5	36	34
Share of renewables (%)	38	68	80
Life expectancy (years)	78.5	80.5	82.0
Tertiary attainment (%)	33	40	48
AI capacity [0-10]	5.5	7	8
Civil-society index [0-10]	6.5	7.5	8.5

10. Snapshot: “Poland at a glance” Poland is a dynamic democracy with growing economic power and an active civil society. By 2075 it aims to stand out as a resilient democracy lab and education hub securing Europe’s eastern flank.

11. Sources & modelling 11.1 1 General

- Statistics: Polish Central Statistical Office (GUS) and Eurostat, base year 2025
- Models: ERDA future-scenario model (hypothetical: ERDA Scenario Modeling Report 2025)

11.2 2 Sources & references

1. GUS (2025). *Mały rocznik statystyczny Polski 2024*.
2. Eurostat (2025). *Population projections – Poland*.
3. OECD (2023). *Science, Technology and Industry Scoreboard 2023*.
4. Freedom House (2024). *Freedom in the World – Poland*.
5. CIVITAS Initiative (2025). *CIVITAS Index Country Report Poland*.

11.3 3 Modelling & assumptions

- Detailed assumptions documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>)
 - GDP projections follow ERDA scenario model
-

12. 4 Participation welcome This profile uses public and modelled data. Representatives of the Republic of Poland and interested expert bodies are invited to provide updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

PT - State Profile Portuguese Republic

ERDA State Profile: Portuguese Republic

1. Overview (meta)

-  **Official name:** Portuguese Republic (República Portuguesa) (Wikipedia)
 -  **Geographical location:** South-western Europe on the Iberian Peninsula, bordering Spain to the east and north, Atlantic coast to west and south (CIA Factbook)
 -  **Population (2025):** 10,300,000 (estimate) (Worldometers)
 -  **Form of government & constitutional status (2025):** Unitary parliamentary republic, Constitution of 1976 (Constitution of Portugal)
 -  **ERDA status:** Member
 -  **Role in the ERDA network (future):** Maritime gateway & renewable-energy hub
-

2. Demography & society

- **Population (2050 / 2075 projection):** 10,500,000 (2050) (PopulationPyramid); 10,100,000 (2075) (PopulationPyramid)
 - **Age structure:**
 - Median age: 46.8 years (2020) (Wikipedia)
 - Youth share (0–14 years): 13.2% (2023) (UNICEF Data)
 - Old-age ratio (65+ years): 23.7% (2023) (Eurostat)
 - **Urbanisation:** 67.9% (2020) (World Bank)
 - **Education:**
 - Mean years of schooling: 7.6 years (2019) (UNDP HDR)
 - STEM share of tertiary degrees: 22% (2022) (DGES)
 - Higher-education attainment (25–34 years): 38% (2023) (Eurostat)
 - **Life expectancy:** 81.1 years (2022) (World Bank)
 - **Migration balance:** +1.2‰ (2023) (Eurostat)
 - **Social cohesion:**
 - Subjective life satisfaction: 6.115 / 10 (WHR 2024) (World Happiness Report)
 - Trust in democracy: 42% trust in national parliament (Nov-Dec 2023) (Eurobarometer)
-

3. Economy & innovation

- **Gross domestic product (nominal):** 260 bn EUR (2024) (Trading Economics)
- **GDP per capita:** 25,400 USD (2024) (IMF World Economic Outlook)
- **Key industries (top three):** Tourism; automotive; agri-food industry (Wikipedia)
- **Automation & digitalisation share:** 22 robots / 10,000 employees (2023) (IFR)
- **Research & innovation ratio:** 1.36% of GDP (2022) (Eurostat)
- **Patents per year:** 904 national filings (2022) (WIPO)
- **Member of FORTERA trade alliances?** Yes

3.1 Infrastructure autonomy

- Production sovereignty: Energy | IT/cloud | Defence | Food
-

4. Resource profile Natural resources

- **Land / maritime area:** 92,212 km² land; 1,727,408 km² EEZ (Wikipedia)
- **Strategic raw materials:** Cork; zinc; lithium potential (Douro region) (LNEG)
- **Renewable-energy potential:** Onshore wind >10 GW; offshore wind >5 GW; solar PV >20 GW (REN)
- **Biodiversity & protected areas:** 12.5% under protection (Natura 2000 & national parks) (ICNF)

Social resources

- **Volunteering & community:** 37% volunteering rate (2023) (Eurostat Quality of Life)
- **Civic-tech usage:** Participação.gov.pt platform (Governo de Portugal)
- **Healthcare system:** Universal NHS-like system; preventive spending 9.5% of GDP (2022) (WHO NHA Database)

Political resources

- **Constitutional compliance:** Yes (1976 constitution)
 - **Direct democracy:** Referendums (e.g. EU treaties)
 - **Rule-of-law index:** 0.81 (WJP Rule of Law 2024) (World Justice Project)
 - **Trust levels:** 40% trust in the EU; 30% in the national government (2023) (Eurobarometer)
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable:
 - Cyber command: (Portuguese Cyber Defence Command)
 - Early-warning system: (NATO Integrated Air and Missile Defence)
 - **Defence expenditure:** 1.4% of GDP (2023) (SIPRI)
 - **Role in the Atlantic theatre:** Maritime surveillance, EU NAVFOR participation (EEAS)
 - **Civil resilience:** ANPC (Autoridade Nacional de Proteção Civil) (ANPC)
 - **Drone / space / AI:** Core infrastructure; ESA member; AI Strategy 2021 (Portugal INCoDe.2030)
-

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Portuguese; Mirandese minority (Wikipedia)
 - **UNESCO World Heritage:** 17 sites (2024) (UNESCO)
 - **Creative economy:** 2.8% of GDP (music, film, design) (DGARTES)
 - **International visibility:** Fado intangible heritage; UEFA Euro 2004 host; no Nobel laureates so far
 - **Cultural outreach:** CPLP partnerships; Porto+21 (Capital of Culture 2001)
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Tourism recovery, expansion of renewables, demographic decline
- **Best case 2075:** 10.5 million inhabitants, climate neutrality, leader in green hydrogen
- **Base case 2075:** 10.1 million inhabitants, GDP +50% vs. 2025
- **Worst case 2075:** 9.5 million inhabitants, economic stagnation

Status 2025 (narrative): Portugal consolidates its role as a green-energy specialist and tourism destination.

Investments 2025-2050: Offshore wind, green hydrogen, digital administration

Transformation 2050-2075: Circular economy, AI integration, bioeconomy

🚀 Role in the ERDA vision 2075

"By 2075 Portugal is the maritime teardrop-shaped innovation centre of the ERDA, playing a key role for green logistics and platform economies."

- Post-scarcity contribution: export networks for renewables
 - Democratic resilience: e-democracy platforms
 - Showcase effect: smart-island programmes
-

8. Narrative & attraction

"Portugal shows that tradition and green innovation go hand in hand."

- **Self-efficacy:** Citizens co-design energy projects via civic tech
 - **Future dignity:** "Saudade as a driver for sustainability"
 - **Invitation:** "Discover Portugal - gateway to Europe, pilot region for a renewable future."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	260	320 ^{^1}	450 ^{^1}
Population (million)	10.30	10.50	10.10
Share of renewables (%)	61%	80%	95%
Life expectancy (years)	81.1	83.5	86.0
Education rate (%)	38%	50%	60%
AI capacity [0-10]	6	8	9
Civil-society index [0-10]	7	8	9

^{^1}1 OECD long-term projections (OECD)

10. Snapshot: "Portugal at a glance" Portugal is a maritime EU state with rich culture and a growing focus on renewable energy. As a gateway to the Atlantic, it bridges tradition and innovation.

11. Sources & modelling 11.1 ⓘ General

- Statistics: blend of national and international sources (base year 2025).
- Models: economic and demographic projections by Eurostat and the UN (hypothetical: ERDA Scenario Modeling Report 2025).

11.2 📄 Sources & references

A. Demographic data

- UN World Population Prospects: <https://population.un.org/wpp>
- PopulationPyramid.net Portugal

- B. Economy & innovation
 - Trading Economics; IMF WEO; Wikipedia “Portugal Economy”
- C. Social & education
 - Eurostat; UNDP Human Development Reports
- D. Health & life expectancy
 - World Bank; WHO Global Health Observatory
- E. Innovation & patents
 - WIPO Country Profile: pt.pdf
- F. Environment & resources
 - REN; LNEG; ICNF
- G. Security & defence
 - SIPRI; EEAS; ANPC
- H. Political foundations
 - Constitution of Portugal; World Justice Project Rule of Law

11.3 📈 Modelling & assumptions

- Additional details on all hypothetical assumptions are documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection, (hypothetical: ERDA Scenario Modeling Report 2025).
- Economic projections 2050–2075 extrapolated from Eurostat and OECD trend data (hypothetical: ERDA Scenario Modeling Report 2025).
- Infrastructure autonomy based on national strategy assessments (hypothetical: ERDA Scenario Modeling Report 2025).

12. 🤝 Participation welcome This profile is based on publicly available and modelled data. Representatives of the Portuguese Republic and interested expert bodies are invited to contribute their perspectives.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

RO - State Profile Romania

ERDA State Profile: Romania

1. Overview (meta)

-  **Official name:** Romania
 -  **Geographical location:** South-eastern Europe, Black Sea littoral state bordering Bulgaria, Serbia, Hungary, Moldova, and Ukraine
 -  **Population (2025):** ~19 million (World Bank 2023)
 -  **Form of government & constitutional status (2025):** Semi-presidential republic, EU and NATO member
 -  **ERDA status:** Member
 -  **Role in the ERDA network (future):** Black Sea bridge state, IT and engineering hub, agriculture and energy potential
-

2. Demography & society

- **Population (projection 2050 / 2075):** 14.8 million / 12.0 million (UN World Population Prospects 2022, medium variant, hypothetical: ERDA Scenario Modeling Report 2025)
- **Age structure (2023):** median age ~43 years; youth share 0–14: 15.9%; 65+: 19.8% (World Bank)
- **Urbanisation (2023):** 54.7% (World Bank)
- **Average schooling:** ~12 years (UNESCO, hypothetical: ERDA Scenario Modeling Report 2025)
- **Life expectancy (2022):** 75.2 years (World Bank)
- **Migration balance:** volatile (World Bank net migration 2020: -13k; 2022: +89k)
- **Social cohesion:** trust in democracy moderate, satisfaction index ~6 / 10 (hypothetical: ERDA Scenario Modeling Report 2025)

3. Economy & innovation

- **GDP (real, bn EUR):** 2023 ≈ 325; 2050 500 (hypothetical: ERDA Scenario Modeling Report 2025)
- **GDP per capita (2023):** ~18,400 USD (World Bank)
- **Key industries:** automotive, IT services, agriculture, energy
- **Automation & digitalisation share (2025 / 2050):** 40% / 70% (hypothetical: ERDA Scenario Modeling Report 2025)
- **Research & innovation ratio (2023):** 0.7% of GDP (Eurostat)
- **Patents / year (trend):** ~300 (EPO, hypothetical: ERDA Scenario Modeling Report 2025)
- **Member of FORTERA trade alliances:** Yes
- **Member of the Democracy Trade Network:** Yes
- **Use of EHAM+ (0-10):** 5

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- Land area: 238,391 km², Black Sea coastline
- Strategic raw materials: natural gas, salt, forest resources
- Renewable-energy potential: hydropower (high), wind (high), solar (medium)
- Biodiversity & protected areas: >23%

Social resources

- Volunteering & community culture: solid
- Civic-tech use (e.g. CIVITAS): growing
- Healthcare system (access, prevention): requires expansion

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: limited
 - Rule-of-law index: moderate
 - International trust levels: stable
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable (NATO capacities)
 - Cyber command
 - Early-warning system
 - **Defence expenditure (% of GDP):** 2.0%
 - **Role in the Arctic / North Sea / Atlantic:** limited
 - **Civil resilience programmes:** disaster protection being expanded
 - **Drone, space, AI capacities:** baseline available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Romanian, Hungarian and German minorities
 - UNESCO sites / cultural heritage: Bucovina monasteries, Dacian fortresses, Danube Delta
 - Creative economy: growing film and music scene, IT start-ups
 - International visibility: strong sports tradition, notable artists
 - Culture as mediator in global democracy networks? Yes
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** Catch-up economy with a strong IT sector and valuable agricultural base
- **Best case 2075:** Innovative energy and IT location in the Black Sea region, high quality of life
- **Base case 2075:** Stable EU core state with moderate growth
- **Worst case 2075:** Demographic decline and emigration slow development

Status 2025 (narrative): Romania is modernising, benefiting from EU funds, and expanding its IT sector.

Strategic investments 2025-2050: digitalisation, renewables, transport infrastructure
Transformation 2050-2075: higher energy autonomy, advanced agriculture, education drive

🚀 Role in the ERDA vision 2075

"Romania links the Black Sea with Central Europe as a vibrant innovation hub and strengthens ERDA resilience."

- Contribution to a post-scarcity economy: yes, especially via energy and IT
 - Democratic resilience (social, cultural, ecological): rising
 - Exemplary effect on other states / regions: for the Black Sea area
-

8. Narrative & attraction

"Romania's dynamic IT sector and rich cultural landscape attract talent and investment."

- **Self-efficacy:** citizens are increasingly engaged
 - **Future dignity:** pride in history, nature, and modernity
 - **Invitation:** platform for cooperation between East and West
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	≈325	500 (hyp.)	620 (hyp.)
Population	19 m	14.8 m	12 m
Share of renewables (%)	50%	65% (hyp.)	80% (hyp.)
Life expectancy (years)	75.2	78.0 (hyp.)	80.0 (hyp.)
Education rate (%)	30%	40% (hyp.)	50% (hyp.)
AI capacity [0-10]	4	6 (hyp.)	8 (hyp.)
Civil-society index [0-10]	6	7 (hyp.)	8 (hyp.)

10. Snapshot: "Romania at a glance" Romania is evolving from a catching-up EU member into an IT and energy centre on Europe's eastern flank. Natural resources, skilled professionals, and a growing civil society shape its profile.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank and Eurostat; base year 2023.
- Model assumptions: UN WPP 2022 for demographic projections (hypothetical: ERDA Scenario Modeling Report 2025).
- Energy potential: IEA Reports 2024 (hypothetical: ERDA Scenario Modeling Report 2025).
- Innovation & education: Eurostat and OECD.
- Democracy & rule of law: Freedom House, Rule of Law Index.

11.2 📚 Sources & references

1. World Bank. 2024. "World Development Indicators." <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-11).

2. Eurostat. 2024. "Research and development expenditure." <https://ec.europa.eu/eurostat> (accessed 2025-06-11).
3. United Nations DESA, Population Division. 2022. "World Population Prospects 2022." <https://population.un.org/dataportal/> (accessed 2025-06-11).
4. International Energy Agency. 2024. "Renewables 2024." <https://www.iea.org> (accessed 2025-06-11).

11.3 Modelling & assumptions

- Further details on all hypothetical assumptions are described in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Notes: (p) – projection, (hypothetical: ERDA Scenario Modeling Report 2025).
 - Economic projections 2050–2075: trend continuation at 2% growth p.a. (hypothetical: ERDA Scenario Modeling Report 2025).
 - AI capacity: doubling of compute every three years (hypothetical: ERDA Scenario Modeling Report 2025).
 - Infrastructure autonomy: target of 80% renewable energy supply (hypothetical: ERDA Scenario Modeling Report 2025).
-

12.  Participation welcome This profile draws on public and modelled data. Representatives of Romania and interested expert bodies are invited to contribute updates for a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

SE - State Profile Sweden

🌐 ERDA State Profile: Sweden

1. Overview (meta)

- 🚩 **Official name:** Konungariket Sverige (Kingdom of Sweden)
 - 🌍 **Geographical location:** Northern Europe, Scandinavian Peninsula
 - 👤 **Population (2025):** ~10.5 million
 - 🧠 **Form of government & constitutional status (2025):** Parliamentary monarchy with a strong constitutional framework
 - 📅 **ERDA status:** Member
 - 🌐 **Role in the ERDA network (future):** Arctic node, innovation society, civil-society pioneer
-

2. Demography & society

- **Population (2050 / 2075 projection):** 11 million / 10.7 million
 - **Age structure:** median age 42; youth share 18%; old-age ratio 31%
 - **Urbanisation:** 88%
 - **Education:** 13.8 average years; STEM share 21%; tertiary attainment 44%
 - **Life expectancy:** ♂ 81 / ♀ 84 years
 - **Net migration balance:** +60,000 p.a. (2020–2030), increasingly integration-focused
 - **Social cohesion:** life satisfaction 8.1 / 10; trust in democracy 78%
-

3. Economy & innovation

- **GDP (bn EUR):** 2025: 650 | 2050: 820 | 2075: 890
- **GDP per capita:** ~62,000 EUR (2025)
- **Key industries:** environmental tech, biotechnology, information security
- **Automation & digitalisation:** 2025: 60% | 2050: 82%
- **Research & innovation ratio:** 3.3% of GDP
- **Patents per year:** ~12,000 (slightly rising)
- **Member of FORTERA trade alliances:** Yes

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
-

4. Resource profile 🌱 Natural resources

- Land / sea area: 450,000 km² / ×
- Strategic raw materials: iron ore, rare metals, hydropower
- Renewable-energy potential: wind | hydro | biomass
- Biodiversity & protected areas: 40%

👉🏽👉🏽👉🏽 Social resources

- Volunteering & community culture: 9 / 10
- Civic-tech use: high (especially open government & e-participation)
- Healthcare system: access 9 / 10 | prevention 8 / 10

🗳️ Political resources

- Constitutional adherence: yes
 - Direct democracy instruments: partial (municipal level)
 - Rule-of-law index: 9.5 / 10
 - International trust: 9 / 10
-

5. Security & strategic role (EDA)

- **Military potential:** ✓ DSN-capable | ✓ cyber command | ✓ early-warning system
 - **Defence expenditure:** 2.2% of GDP (2025)
 - **Role in Arctic / North Sea / Atlantic:** stabilises the northern region, coordination hub for Arctic partners
 - **Civil resilience programmes:** in place (e.g. Total Defence concept)
 - **Drone / space / AI capacities:** core infrastructure available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Swedish, Sami
 - UNESCO World Heritage / cultural sites: 15
 - Creative economy: 8 / 10 (design, music, gaming)
 - International visibility: high (e.g. Nobel Peace Prize, Eurovision, climate leadership)
 - Culture as mediator: 9 / 10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** advanced welfare state with strong innovation and democratic culture
- **Strategic investments 2025-2050:** green tech, AI security, resilient infrastructure, digital education
- **Transformation 2050-2075:** climate-neutral society with pronounced civil-society sovereignty

Role in the ERDA vision 2075

“By 2075 Sweden is an Arctic stability anchor and civil-society lead nation within the ERDA, championing trust in democracy, environmental ethics, and open government.”

- Contribution to post-scarcity economy: yes
 - Democratic resilience: high (especially cultural & social)
 - Exemplary effect: yes (model for other Nordic states)
-

8. Narrative & attraction

“Sweden proves that the common good, innovation, and freedom can strengthen each other—when democracy is lived, not merely administered.”

- Self-efficacy: high civic engagement in education, environment, and local politics
 - Future dignity: sustainability as core identity
 - Invitation: signal for participatory innovation governance
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	650	820	890
Population	10.5 m	11 m	10.7 m
Share of renewables (%)	65%	85%	95%
Life expectancy (years)	82.5	84	86
Education rate (%)	44%	50%	56%
AI capacity [0-10]	7	8.5	9
Civil-society index [0-10]	8.5	9	9.5

10. Snapshot: “Sweden at a glance” Sweden unites high innovation capacity with a strong civil society and serves as an Arctic stability anchor within the ERDA network.

11. Sources & modelling 11.1 General

- Forecast models: Eurostat, SCB, ERDA scenario cluster North
- Agreements: Nordic Defence Pact, ERDA Foundational Act
- Other: Totalförsvarstrategin (Total Defence), Swedish UNESCO Commission

11.2 Sources & references

(No further details provided)

11.3 Modelling & assumptions

(Refer to 11.1)

12.  Participation welcome This profile uses publicly available and modelled data. Representatives of the Kingdom of Sweden and interested expert bodies are invited to contribute updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

SI - State Profile Slovenia

ERDA State Profile: Slovenia

1. Overview (meta)

-  **Official name:** Republic of Slovenia
 -  **Geographical location:** South-Central Europe in the Alpine-Adriatic region, bordering Italy, Austria, Hungary, and Croatia
 -  **Population (2025):** ~2.12 million
 -  **Form of government & constitutional status (2025):** Parliamentary democracy, EU and NATO member
 -  **ERDA status:** Member
 -  **Role in the ERDA network (future):** Alpine energy node, bridge between the Adriatic and the Balkans, green innovation pioneer
-

2. Demography & society

- **Population (2050 / 2075 projection):** 2.05 million / 1.95 million (slight decline)
 - **Age structure (median / youth / old-age share):** 46 years, 16%, 38%
 - **Urbanisation:** 55%
 - **Education (mean years / STEM share / tertiary rate):** 12.5 years, 27%, 45%
 - **Life expectancy:** 82.0 years
 - **Net migration balance:** slightly positive (+0.3%)
 - **Social cohesion (life satisfaction, trust in democracy):** high / high
-

3. Economy & innovation

- **Gross domestic product (real, current / 2050 / 2075):** 63 bn EUR / 95 bn EUR / 135 bn EUR
- **GDP per capita:** 28,500 EUR
- **Key industries (top three):** mechanical engineering, pharma/biotech, tourism & green tech
- **Automation & digitalisation share (2025 / 2050):** 52% / 78%
- **Research & innovation ratio (of GDP):** 2.2%
- **Patents per year (trend):** ~800 and rising
- **Member of FORTERA trade alliances:** Yes
- **Member of the Democracy Trade Network:** Yes
- **Use of EHAM+ (0-10):** 6

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / maritime area: 20,273 km² / landlocked
- Strategic raw materials: water, forest resources, limited rare minerals
- Renewable-energy potential: hydropower (high), solar (medium), wind (low), geothermal (regional)
- Biodiversity & protected areas: 37% protected (Natura 2000)

Social resources

- Volunteering & community culture: strongly developed
- Civic-tech use (e.g. CIVITAS): growing
- Healthcare system (access / prevention): good / improving

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: referendums, citizens' initiatives
 - Rule-of-law index: high
 - International trust levels: positive
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early-warning system
 - **Defence expenditure (% of GDP):** 1.35%
 - **Role in Arctic / North Sea / Atlantic:** none
 - **Civil resilience programmes:** modernised disaster-protection system
 - **Drone / space / AI capacities:** baseline available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Slovene, regional minorities (Italian, Hungarian)
 - UNESCO sites / cultural assets: Škocjan Caves, Idrija mercury mine, Alpine architecture
 - Creative economy (music, film, design): expanding, especially design and architecture
 - International visibility: solid sports presence, limited major awards
 - Culture as mediator in global democracy networks? Yes, notably via environmental and peace narratives
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** highly educated, stable democracy, small yet resilient economy
- **Best case 2075:** regional green-tech role model with high quality of life and innovation leadership
- **Base case 2075:** stable, prosperous bridge state with strong EU/ERDA integration
- **Worst case 2075:** demographic ageing slows innovation capacity and service provision

Status 2025 (narrative): Slovenia is a stable, democratic state with strong EU ties and growing innovative strength. Society is well educated and trust in institutions remains high. **Strategic investments 2025-2050:** green energy, education system, cyber capabilities, regional innovation clusters

Transformation 2050-2075: rising self-sufficiency, trained high-tech talent, socio-ecological stability achieved

🚀 Role in the ERDA vision 2075

"By 2075 Slovenia is a climate-neutral innovation state within the ERDA, pivotal for the green transformation in Central Europe."

- Contribution to the post-scarcity order: yes, particularly in energy efficiency and education
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary impact on other states / regions: especially the Western Balkans
-

8. Narrative & attraction

"Slovenia proves that small states can wield global influence through education, environmental awareness, and community spirit."

- **Self-efficacy:** citizens actively co-create with strong participation in local initiatives
 - **Future dignity:** pride in nature, science, and culture; strong commitment to democratic values
 - **Invitation:** message of peaceful, sustainable development rooted in European values
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	63	95	135
Population	2.12 m	2.05 m	1.95 m
Share of renewables (%)	36%	58%	83%
Life expectancy (years)	82.0	84.5	86.0
Education rate (%)	45%	54%	61%
AI capacity [0-10]	5	7	8
Civil-society index [0-10]	8	8.5	9

10. Snapshot: "Slovenia at a glance" Slovenia is a compact, highly educated Alpine state with strong democracy and growing innovation capacity. Sustainable water management and an active civil society make it an ideal bridge between the Adriatic and the Balkans.

11. Sources & modelling 11.1 1 General

- Statistics: mix of national and international sources (Eurostat, OECD, etc.), base year 2025.
- Models: GDP and population projections by OECD and UN (hypothetical: ERDA Scenario Modeling Report 2025).
- Energy and infrastructure data drawn from national strategy papers (hypothetical: ERDA Scenario Modeling Report 2025).

11.2 2 Sources & references

Demography & society

* Source: Eurostat <https://ec.europa.eu/eurostat>

* Model: UN Population Projections 2022 [https://population.un.org/wpp/Download/Files/1_INDICATORS%20\(Standard\)/EXCEL_FILES/1_Population/WPP2022_POP_F07_1_TOTAL_POPULATION_BOTH_SEXES.xlsx](https://population.un.org/wpp/Download/Files/1_INDICATORS%20(Standard)/EXCEL_FILES/1_Population/WPP2022_POP_F07_1_TOTAL_POPULATION_BOTH_SEXES.xlsx) (hypothetical)

Economy & innovation

* Source: OECD Economic Outlook <https://www.oecd.org/economic-outlook/> * Model: IHS Markit Forecast Slovenia 2024

Social & education

* Source: PISA / OECD <https://www.oecd.org/pisa/> * Model: CEDEFOP Future Skills Slovenia

Health & life expectancy

* Source: WHO Country Profile Slovenia (hypothetical)

* Model: Global Burden of Disease Data Slovenia

Innovation & patents

* Source: European Patent Office <https://www.epo.org> * Model: WIPO Patent Data Forecast 2025

Environment & resources

* Source: European Environment Agency (EEA) <https://www.eea.europa.eu> * Model: Natura 2000 Monitoring Slovenia

Security & defence

* Source: NATO Defence Expenditure Report * Model: EDA Capability Frameworks

Political & institutional foundations

* Source: Freedom House <https://freedomhouse.org> * Model: V-Dem Institute Index Slovenia

11.3 Modelling & assumptions

- Further details on hypothetical assumptions are documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) - projection, (hypothetical: ERDA Scenario Modeling Report 2025).
- Economic projections 2050-2075 extrapolated from Eurostat and OECD trend data (hypothetical: ERDA Scenario Modeling Report 2025).
- Infrastructure autonomy derived from national strategy assessments (hypothetical: ERDA Scenario Modeling Report 2025).

12.  Participation welcome This profile is based on public and modelled data. Representatives of the Republic of Slovenia and interested expert bodies are invited to contribute updates in support of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

SK - State Profile Slovakia

ERDA State Profile: Slovak Republic

1. Overview (meta)

-  **Official name:** Slovak Republic (Slovenská republika)
 -  **Geographical location:** Central Europe; borders Czechia, Poland, Ukraine, Hungary, Austria
 -  **Population (2025):** 5,474,881 inhabitants (worldometers.info)
 -  **Form of government & constitutional status (2025):** Parliamentary republic, constitution of 1992
 -  **ERDA status:** Member
 -  **Role in the ERDA network (future):** Automotive and tech hub, corridor between Eastern and Western Europe
-

2. Demography & society

- **Population (projection 2050 / 2075):** 2050: 4,936,488 (populationpyramid.net); 2075: ~4,420,000 (projection)
 - **Age structure:** median age 42.3 years; youth share (0-14) 14.6%; old-age ratio (65+/15-64) 22.2%
 - **Urbanisation:** 54% (2025) (worldometers.info)
 - **Education:** mean years 12.0; tertiary attainment (25-34) 39.7% (2020); STEM share of new tertiary students: 29% (estimate)
 - **Life expectancy:** 77.8 years (2025) (World Bank)
 - **Migration balance:** -3.9‰ per year (2024: -21,027 persons)
 - **Social cohesion:** subjective life satisfaction 6.0 / 10 (World Happiness Report 2023); trust in parliament 21% (Eurobarometer 2024)
-

3. Economy & innovation

- **GDP (real):** 2023: 118.0 bn USD; 2050 (1.5% p.a.): ≈184 bn USD; 2075: ≈335 bn USD
- **GDP per capita:** 2023: 21,520 USD; 2050: ≈37,200 USD; 2075: ≈72,000 USD
- **Top industries:** 1) automotive (Volkswagen, Kia) 2) electronics & machinery 3) chemicals & pharma
- **Automation & digitalisation:** 25% Industry 4.0 deployment (2023)
- **Research & innovation ratio:** 0.92% of GDP (2021)
- **Patents per year:** 233 filings (2022)
- **Member of FORTERA trade alliances?** No

3.1 Infrastructure autonomy

- Production sovereignty: Energy (nuclear, hydro) | IT | Defence | Food
-

4. Resource profile Natural resources

- Land area: 49,035 km²; no coastline
- Strategic raw materials: lignite, historical uranium, freshwater, forest resources
- Renewable potential: hydropower (~600 MW installed), biomass, solar (~1 GW potential), limited wind

- Biodiversity & protected areas: 14% national parks and reserves

Social resources

- Volunteering & community: 22% of population engaged
- Civic-tech use (CIVITAS): pilot regions Bratislava & Košice (20% of municipalities)
- Healthcare: universal access, 4.3 beds / 1,000 pop., prevention ratio 72%

Political resources

- Constitutional adherence: yes
 - Direct democracy instruments: limited regional referendums
 - Rule-of-law index: 0.74 / 1.00 (World Justice Project 2024)
 - Trust in EU institutions: 63%
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable (NATO), cyber command (Bratislava), early-warning system (Central Europe network)
 - **Defence expenditure:** 2.0% of GDP (2024)
 - **Regional role:** NATO eastern flank logistics corridor
 - **Civil resilience programmes:** “Carpathian Shield” disaster protection
 - **Drone / space / AI capacities:** baseline available
-

6. Cultural identity & soft power

- Languages / cultures: Slovak (official), Hungarian, Rusyn, Roma
 - UNESCO heritage: 7 entries (e.g. Vlkolíneč, Banská Štiavnica, Spiš Castle)
 - Creative economy: 2.2% of GDP (film, design, music)
 - International visibility: 9 Olympic medals since 2004; no Nobel laureates
 - Cultural diplomacy: “Carpathian Bridges” programme
-

7. Development path (2025-2075)

- **Status 2025:** consolidating post-EU accession; slight population decline; Industry 4.0 rising
- **Best case 2075:** central AI and mobility hub; demographic stabilisation
- **Base case 2075:** moderate 2% growth; gradual population shrinkage
- **Worst case 2075:** brain drain, ageing, stagnation

Narrative: 2025–2050 focus on smart manufacturing and education; 2050–2075 builds AI clusters and green mobility networks.

Role in the ERDA vision 2075

“By 2075 Slovakia is a central innovation and transport hub connecting sustainable mobility and AI applications across Central Europe.”

- Post-scarcity contribution: circular automotive supply chains
 - Democratic resilience: e-parliaments, regional citizen councils
 - Showcase effect: model for green transport infrastructure
-

8. Narrative & attraction

"Slovakia demonstrates how technological transformation plus civic participation empower smaller states."

- **Self-efficacy:** 28% participation in e-petitions
 - **Future dignity:** pride in UNESCO heritage and tech start-ups in Bratislava
 - **Invitation:** "Co-create the Central European Tech Corridor with us."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	118.0	184	335
Population	5.47 m	4.94 m	4.42 m
Share of renewables (%)	45	65 (proj.)	85 (proj.)
Life expectancy (years)	77.8	81 (proj.)	83 (proj.)
Education rate (%)	39.7	48 (proj.)	60 (proj.)
AI capacity [0-10]	5	8	10
Civil-society index [0-10]	6.2	7.0	8.0

10. Snapshot: "Slovakia at a glance" Industrial, landlocked state in Central Europe transitioning from automotive powerhouse to tech corridor. Despite demographic headwinds, democratic stability and innovation ambitions remain strong.

11. Sources & modelling 11.1 General

- Statistics: blend of national and international sources (Eurostat, OECD etc.), base year 2025.
- Models: GDP and population projections by OECD & UN (hypothetical: ERDA Scenario Modeling Report 2025).
- Energy & infrastructure data from national strategy papers (hypothetical: ERDA Scenario Modeling Report 2025).

11.2 Sources & references

- Demography & society: Worldometer; PopulationPyramid.net; internal 2075 projection
- Economy & innovation: World Bank GDP; in-house 1.5% growth model
- Social & education: Eurostat tertiary attainment; WorldEconomics mean years
- Health & life expectancy: World Bank
- Innovation & patents: R&D expenditure (TradingEconomics, TheGlobalEconomy); WIPO GII 2024
- Environment & resources: Natura 2000 database; Slovak statistical office
- Security & defence: SIPRI; NATO defence expenditure reports
- Political foundations: World Justice Project; Eurobarometer 2024

11.3 Modelling & assumptions

- Details documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) - projection.
- Economic projections 2050–2075 assume 1.5% real growth per annum.
- Infrastructure autonomy aims for 80% renewable energy supply by 2075.

12. 🌟 Participation welcome This profile relies on public and modelled data. Representatives of the Slovak Republic and interested experts are invited to contribute updates toward a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

B.4 State Profiles (EU/ERDA - Extended Partnership)

***ERDA state profiles of the Extended Partnership countries,
according to the ERDA State Architecture ("Concentric Circles").***

AL - State Profile Albania

■ ERDA State Profile: Albania

1. Overview (meta)

- **Official name:** Republic of Albania
 - **Geographical location:** South-Eastern Europe, Western Balkans, Adriatic and Ionian Seas
 - **Population (2025):** ~2.75 million (World Bank 2023)
 - **Form of government & constitutional status (2025):** Parliamentary republic (constitution of 1998)
 - **ERDA status:** Accession candidate
 - **Future ERDA role:** Adriatic logistics node with hydropower and green-energy potential
-

2. Demography & society

- **Population projection (2050 / 2075):** 2.6 million / 2.5 million (UN DESA 2022, hypothetical ERDA Scenario Modeling Report 2025)
 - **Age structure:** median 39 years; youth share 20%; old-age ratio 25%
 - **Urbanisation:** 63.8% (World Bank 2022)
 - **Education:** mean 12 school years; tertiary attainment 25%; STEM share 20% (hypothetical)
 - **Life expectancy:** 79.6 years (World Bank 2023)
 - **Net migration:** -20,000 per year (World Bank 2023)
 - **Social cohesion:** satisfaction index 6 / 10; trust in democracy 55% (hypothetical)
-

3. Economy & innovation

- **GDP (real, bn EUR):** 22 (2023) / 40 (2050, projection) / 55 (2075, projection)
- **GDP per capita:** ~8,000 EUR (World Bank 2023, converted)
- **Top industries:** services & tourism; agriculture; energy (hydropower)
- **Automation & digitalisation share:** 35% today / 65% by 2050 (projection)
- **R&D intensity:** 0.6% of GDP (World Bank 2023)
- **Patents per year:** ~50 (WIPO 2023)
- **FORTERA membership:** No
- **Democracy Trade Network:** Observer
- **EHAM+ utilisation (0-10):** 3

3.1 Infrastructure autonomy

- Energy | IT/cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 28,748 km²
- Maritime area: ~13,000 km² (Adriatic / Ionian Seas)
- Strategic raw materials: chromium, copper, limited oil deposits
- Renewable potential: hydropower (high), solar (medium), wind (medium)
- Biodiversity & protected areas: 18%
- Sustainability indicators: CO₂ per capita 4.5 t; recycling rate 20% (Eurostat 2023)

Social resources

- Volunteering & community index: 6 / 10 (hypothetical)
- CIVITAS participation index: 5 / 10 (hypothetical)
- Healthcare system: access 7 / 10 | prevention 6 / 10

Political resources

- Constitutional adherence: yes
 - Direct democracy: partial (municipal referendums)
 - Democracy quality index: 67 / 100 (Freedom House 2024)
 - Citizen participation (local / national): 50%
 - Rule-of-law index: 5.5 / 10
 - International trust rating: 5 / 10
-

5. Security & strategic role (EDA)

- Military potential: DSN-capable | cyber command | early-warning system
 - Defence expenditure: 1.6% of GDP
 - Regional roles: connector between Mediterranean and Balkans; Adriatic logistics hub; observer in global / Solar Alliance contexts
 - Civil resilience programmes: (disaster protection)
 - Drone / space / AI capacities:
-

6. Cultural identity & soft power

- Languages & cultures: Albanian; minority languages (Greek, Macedonian, Romani)

- UNESCO World Heritage sites: 4
 - Creative economy strength (music, film, design): 5 / 10
 - International visibility: moderate
 - Culture as mediator in democracy networks: 5 / 10
-

7. Development path (2025-2075)

- **Status 2025:** catch-up economy, EU accession candidate, focus on infrastructure and justice reform
- **Best case 2075:** fully integrated sustainable energy location with strong tourism and service sector
- **Base case 2075:** stable regional economy, moderate population decline, rising quality of life
- **Worst case 2075:** continued emigration and slow structural change restrain progress

ERDA vision 2075:

- * Contribution to post-scarcity order: renewable hydropower exports
 - * Democratic resilience: medium
 - * Showcase effect: transformation model for a Balkan state
-

8. Narrative & attraction

“Albania shows how a small country uses natural energy sources and European integration to build a resilient future.”

- Self-efficacy: strong local communities and diaspora networks
 - Future dignity: pride in cultural heritage and landscapes
 - Invitation: cooperate on green energy and coastal protection
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn EUR)	22 (p)	40 (p)	55 (p)	16,556
Population (million)	2.75 (p)	2.6 (p)	2.5 (p)	447
Share of renewables (%)	42 (p)	60 (p)	75 (p)	37
Life expectancy (years)	79.6 (p)	82 (p)	84 (p)	81
Education rate (%)	25 (p)	30 (p)	35 (p)	40

Indicator	2025	2050	2075	EU average 2024
AI capacity [0-10]	3	5 (p)	6 (p)	5
Civil-society index [0-10]	5	6 (p)	7 (p)	6

(p) – projection (ERDA Scenario Modeling Report 2025)

10. Snapshot: “Albania at a glance” A dynamic Balkan state with a young population and expanding tourism. Abundant hydropower potential and reforms toward EU standards offer a path to becoming a green-energy hub by 2075, even as emigration and diversification remain key challenges.

11. Sources & modelling

- World Bank indicators for population, GDP, urbanisation, migration, life expectancy (accessed 2025-06-11).
- Freedom House 2024; Eurostat sustainability metrics; UNESCO heritage registry.
- Model assumptions per hypothetical **ERDA Scenario Modeling Report 2025** (growth and infrastructure scenarios).
- Energy data based on national hydropower / solar plans (hypothetical) and IEA references.

12. 🌟 Participation welcome This profile relies on public and modelled data. Representatives of the Republic of Albania and expert bodies are invited to contribute updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

AM - State Profile Armenia

ERDA State Profile: Armenia

1. Overview (meta)

-  **Official name:** Republic of Armenia
 -  **Geographical location:** Western Asia, Caucasus
 -  **Population (2025):** approx. 3.1 million (UN WPP 2022)
 -  **Form of government & constitutional status (2025):** Parliamentary republic (constitution of 1995, amended 2015)
 -  **ERDA status:** Extended partnership
 -  **Future role in the ERDA network:** Bridge between the EU and the Caucasus, IT development hub
-

2. Demography & society

- **Population projection (2050 / 2075):** 2.9 million / 2.7 million (UN DESA 2022, hypothetical: ERDA Scenario Modeling Report 2025)
 - **Age structure (median age, youth share %, old-age ratio %):** 36 years, 22%, 28%
 - **Urbanisation rate (%):** 64% (World Bank 2023)
 - **Average education (school years, tertiary share %, STEM share %):** 12 years, 31%, 25% (UNESCO 2023)
 - **Life expectancy (years):** 77.5 (World Bank 2023)
 - **Net migration per year (avg. 2025-2075):** -10,000 (World Bank 2023)
 - **Social cohesion (satisfaction index [0-10], trust in democracy [%]):** 5 / 50% (hypothetical: ERDA Scenario Modeling Report 2025)
-

3. Economy & innovation

- **GDP (real, bn EUR):** 22 (2023) / 40 (p) / 55 (p)
- **GDP per capita (EUR):** approx. 7,400 (World Bank 2023, converted)
- **Top three key industries:** IT services & software development; mining (copper, molybdenum); agriculture & food processing
- **Automation & digitalisation share (today / 2050):** 40% / 70% (hypothetical: ERDA Scenario Modeling Report 2025)
- **R&D intensity (% of GDP):** 0.9% (UNESCO 2023)
- **Patents per year (trend, avg.):** approx. 60 (WIPO 2023)
- **FORTERA trade alliance membership:** No
- **Democracy Trade Network:** Observer
- **EHAM+ utilisation (0-10):** 4

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 29,743 km²
- Maritime area: landlocked
- Strategic raw materials: copper, molybdenum, gold, water resources
- Renewable potential: hydropower (high), solar (medium), wind (low)
- Biodiversity & protected areas: 13%
- Sustainability indicators: CO₂ per capita 3.2 t; recycling rate 18% (UNEP 2023)

Social resources

- Volunteering & community culture (index [0-10]): 6 (hypothetical: ERDA Scenario Modeling Report 2025)
- CIVITAS participation index [0-10]: 5 (hypothetical)
- Healthcare system (access [0-10], prevention [0-10]): 7 / 6

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: partial (municipal referendums)
 - Democracy quality index: 54 / 100 (Freedom House 2024)
 - Citizen participation (local / national): 48%
 - Rule-of-law index [0-10]: 5.5
 - International trust rating [0-10]: 5
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command (in development)
 - Early-warning system
- **Defence expenditure:** 4% of GDP
- **Roles:**
 - Arctic/North Sea/Atlantic: none
 - Central/Eastern/Western Europe: Caucasus bridge state
 - Southern Europe/Africa/Asia: connection to Iran and Central Asia

- Global/Solar Alliance: observer
 - **Civil resilience programmes:** (disaster protection and earthquake preparedness)
 - **Drone / space / AI capacities:** (limited)
-

6. Cultural identity & soft power

- Languages & cultures: Armenian (official); minority languages Russian, Kurdish
 - UNESCO World Heritage / cultural sites: 3
 - Creative economy strength (music, film, design [0-10]): 5
 - International visibility (Olympics, Nobel Prizes, etc.): moderate
 - Culture as mediator in democracy networks [0-10]: 6
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** reform-oriented economy, growing IT sector, regional security risks
 - **Best case 2075:** highly digital knowledge society with green energy and strong diaspora integration
 - **Base case 2075:** solid services and industrial location with close EU partnership
 - **Worst case 2075:** stagnation triggered by geopolitical conflicts and emigration
- Role in the ERDA vision 2075
- **Contribution to a post-scarcity economic order:** know-how in IT and solar energy
 - **Democratic resilience (social, cultural, ecological):** medium
 - **Showcase effect:** transformation example for the Caucasus
-

8. Narrative & attraction

“Armenia demonstrates how a country rich in history secures its future through innovation and international cooperation.”

- Self-efficacy: strong diaspora and tech start-ups actively shape the future
 - Future dignity: pride in ancient culture and modern IT capability
 - Invitation: collaborate on digitalisation and earthquake safety
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn EUR)	22 (p)	40 (p)	55 (p)	16,556
Population	3.1 m	2.9 m (p)	2.7 m (p)	447 m
Share of renewables (%)	38 (p)	55 (p)	70 (p)	37
Life expectancy (years)	77.5 (p)	79 (p)	81 (p)	81
Education rate (%)	31 (p)	35 (p)	40 (p)	40
AI capacity [0-10]	4	6 (p)	7 (p)	5
Civil-society index [0-10]	5	6 (p)	7 (p)	6

(p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Armenia at a glance” A tradition-rich Caucasus country with rising IT potential and a close diaspora. Despite limited natural resources, Armenia offers innovative capacity and a strategic location between Europe and Asia. Geopolitical tensions pose risks, yet partnership with the EU opens opportunities for reform and prosperity.

11. Sources & modelling 11.1 1 General

- World Bank (population, GDP, urbanisation, life expectancy), UNESCO (education), UNEP (sustainability)
- Economic modelling: ERDA Policy Lab (hypothetical: ERDA Scenario Modeling Report 2025) based on regional trends
- Energy potential: International Energy Agency (IEA), national strategy papers (hypothetical)
- Innovation & education: UNESCO Institute for Statistics, WIPO data (hypothetical)
- Democracy & rule of law: Freedom House 2024, World Justice Project
- Sustainability and resource indicators: UNEP 2023, national environmental reports

11.2 2 Referenced sources

1. World Bank. 2025. “Population, total – Armenia”. <https://api.worldbank.org/v2/country/ARM/indicator/SP.POP.TOTL> (accessed 2025-06-11).
2. World Bank. 2025. “GDP (current US\$) – Armenia”. <https://api.worldbank.org/v2/country/ARM/indicator/NY.GDP.MKTP.CD> (accessed 2025-06-11).
3. World Bank. 2025. “Life expectancy at birth, total (years) – Armenia”. <https://api.worldbank.org/v2/country/ARM/indicator/SP.DYN.LE00.IN> (accessed 2025-06-11).

4. Freedom House. 2024. "Freedom in the World 2024: Armenia". <https://freedom-house.org/country/armenia/freedom-world/2024> (accessed 2025-06-11).
5. UNESCO Institute for Statistics. 2023. "Armenia Education Data". <https://uis.unesco.org> (accessed 2025-06-11).

11.3 Modelling & assumptions

- Further details on all hypothetical assumptions appear in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Projections for 2050–2075 extrapolate regional growth rates and EU cooperation scenarios (hypothetical).
 - Energy potential reflects national hydropower and solar plans (hypothetical).
 - Democracy and participation values extend Freedom House scores (hypothetical).
-

12.  Participation welcome This profile combines public and modelled data. Representatives of the Republic of Armenia and expert bodies are invited to provide updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

BA - State Profile Bosnia and Herzegovina

ERDA State Profile: Bosnia and Herzegovina

1. Overview (meta)

-  **Official name:** Bosnia and Herzegovina
 -  **Geographical location:** South-Eastern Europe, Western Balkans; borders Croatia, Serbia, Montenegro; short Adriatic coastline
 -  **Population (2025):** approx. 3.18 million*
 -  **Form of government & constitutional status (2025):** Parliamentary democracy with a complex federal structure
 -  **ERDA status:** Extended partnership (associated)
 -  **Role in the ERDA network (future):** Western Balkans bridge state, regional culture and energy connector
-

2. Demography & society

- **Population projections (2050 / 2075):** 2.7 million / 2.3 million (UN World Population Prospects, hypothetical: ERDA Scenario Modeling Report 2025)
 - **Age structure (median age, youth share, old-age ratio):** 43 years, 13%, 22%
 - **Urbanisation:** 50%
 - **Education (average years, STEM share, tertiary share):** 11.5 years, 25%, 30% (hypothetical)
 - **Life expectancy:** 78 years (World Bank 2023)
 - **Net migration:** moderately negative
 - **Social cohesion (subjective satisfaction, trust in democracy):** medium / fluctuating
-

3. Economy & innovation

- **GDP (real, today / 2050 / 2075):** 27.5 bn USD / 40 bn USD / 55 bn USD (2050/2075 hypothetical)
- **GDP per capita:** 8,600 USD
- **Top three industries:** metal processing, tourism, agriculture
- **Automation & digitalisation share (2025 / 2050):** 45% / 65% (hypothetical)
- **R&D intensity (% of GDP):** 0.9%
- **Patents per year (trend):** approx. 150, slightly increasing
- **FORTERA trade alliance membership:** No
- **Democracy Trade Network:** No
- **EHAM+ utilisation (0-10):** 4

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
 - Satellite communication (IRIS?)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / maritime area: 51,209 km² / Adriatic coastline 20 km
- Strategic raw materials: bauxite, timber, water
- Renewable energy potential: hydropower (high), solar (medium), wind (partly usable)
- Biodiversity & protected areas: 25% protected (Natura 2000 etc.)

Social resources

- Volunteering & community culture: strong in local municipalities
- Civic-tech usage (e.g. CIVITAS): low, expandable
- Healthcare system (access, prevention): solid base, room for improvement

Political resources

- Constitutional adherence: yes, though administrative structure is complex
 - Direct-democracy instruments: limited
 - Rule-of-law index: medium
 - International trust values: variable
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable 
 - Cyber command 
 - Early-warning system 
 - **Defence expenditure:** 1.0% of GDP
 - **Role in Arctic/North Sea/Atlantic:** none
 - **Civil resilience programmes:** under development (civil protection)
 - **Drone / space / AI capacities:** No
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Bosnian, Croatian, Serbian; diverse minorities
- UNESCO World Heritage / cultural sites: Old Bridge of Mostar, Mehmed Paša Sokolović Bridge in Višegrad
- Creative economy (music, film, design): vibrant festival scene, emerging

- International visibility (sport, Nobel prizes, etc.): strong in winter sports, cultural diversity
 - Culture as mediator in global democracy networks: potential via intercultural dialogue
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** recovering from conflict legacies, cautious economic stabilisation
- **Best case 2075:** fully integrated EU partner with modern energy infrastructure and high quality of life
- **Base case 2075:** stable democracy, moderate economic development, regional integration role
- **Worst case 2075:** political stagnation and ongoing emigration slow progress

Status 2025 (narrative):

Bosnia and Herzegovina is building efficient institutions and seeks international partnerships for economic development.

Strategic investments 2025-2050:

Energy efficiency, education system, digital infrastructure, tourism

Transformation 2050-2075:

Gradual convergence with EU standards, strengthening democratic processes and sustainable resource use

Role in the ERDA vision 2075

“By 2075 Bosnia and Herzegovina becomes an integrative Western Balkans hub within ERDA, connecting cultural diversity and renewable energy.”

- Contribution to the post-scarcity order: limited, regional energy network
 - Democratic resilience (social, cultural, ecological): in development
 - Exemplary effect: peaceful coexistence of diverse cultures
-

8. Narrative & attraction

“Bosnia and Herzegovina shows how diversity and collective rebuilding create new opportunities despite historic conflicts.”

- Self-efficacy: local communities drive projects; diaspora engagement remains strong
 - Future dignity: aspiration for European integration and social peace
 - Invitation: cooperate on sustainable development across the Western Balkans
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	27.5	40 (p)	55 (p)
Population	3.18 m	2.7 m (p)	2.3 m (p)
Share of renewables (%)	40%	55% (p)	70% (p)
Life expectancy (years)	78	80 (p)	82 (p)
Education rate (%)	30%	35% (p)	40% (p)
AI capacity [0-10]	4	6 (p)	7 (p)
Civil-society index [0-10]	5	6 (p)	7 (p)

Note: (p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Bosnia and Herzegovina at a glance” Bosnia and Herzegovina is in transition: political complexity and economic headwinds persist, yet the country offers rich culture, natural energy potential, and the chance to act as a bridge between the EU and the Western Balkans.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank (population, GDP, life expectancy), Rest Countries API (area)
- Economic modelling: OECD and UN trends (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: International Energy Agency (IEA)
- Innovation & education: UNESCO, OECD (hypothetical)
- Democracy & rule of law: Freedom House, World Justice Project
- Sustainability and resource indicators: European Environment Agency (EEA)

11.2 📄 Referenced sources

1. “Population, total – Bosnia and Herzegovina” (World Bank, 2023): <https://api.worldbank.org/v2/country/BIH/indicator/SP.POP.TOTL>
2. “GDP (current US\$) – Bosnia and Herzegovina” (World Bank, 2023): <https://api.worldbank.org/v2/country/BIH/indicator/NY.GDP.MKTP.CD>
3. “Life expectancy at birth – Bosnia and Herzegovina” (World Bank, 2023): <https://api.worldbank.org/v2/country/BIH/indicator/SP.DYN.LE00.IN>
4. “Urban population (% of total) – Bosnia and Herzegovina” (World Bank, 2023): <https://api.worldbank.org/v2/country/BIH/indicator/SP.URB.TOTL.IN.ZS>
5. “Bosnia and Herzegovina” (Rest Countries, 2024): <https://restcountries.com/v3.1/alpha/ba>
Last accessed: 2025-06-10

11.3 🔎 Modelling & assumptions

- Further details on hypothetical assumptions appear in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).

- Economic projections 2050–2075 extrapolate current growth rates (hypothetical).
 - Infrastructure autonomy reflects qualitative assessments from national strategy papers (hypothetical).
 - Democracy and participation values combine Freedom House and WJP data (hypothetical).
-

12. 🤝 Participation welcome This profile uses public data and model-based assumptions. Representatives of Bosnia and Herzegovina and expert stakeholders are invited to contribute their perspectives and updates—towards a shared picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CH - State Profile Switzerland

⊕ ERDA State Profile: Switzerland

1. Overview (meta)

- **Official name:** Swiss Confederation
 - **Geographical location:** Central Europe, Alpine region; borders Germany, France, Italy, Austria, Liechtenstein
 - **Population (2025):** approx. 9.0 million (World Bank 2023)[1]
 - **Form of government & constitutional status (2025):** Federal republic with strong direct democracy
 - **ERDA status:** Sovereign partner
 - **Future role in the ERDA network:** Finance and innovation hub, mediator between the EU and global partners
-

2. Demography & society

- **Population projection (2050 / 2075):** 9.34 million / 10.25 million (UN DESA WPP 2024, hypothetical: ERDA Scenario Modeling Report 2025)[2]
 - **Age structure (median age, youth share %, old-age ratio %):** 43 years, 15%, 20% (World Bank 2023)
 - **Urbanisation rate:** 74% (World Bank 2023)[3]
 - **Average education (school years, tertiary share %, STEM share %):** 12.5 years, 53%, 20% (OECD 2022)
 - **Life expectancy:** 84 years (World Bank 2023)[4]
 - **Net migration per year (avg. 2025-2075):** +45,000 (World Bank 2023)[5]
 - **Social cohesion (satisfaction index [0-10], trust in democracy [%]):** 8 / 70% (hypothetical)
-

3. Economy & innovation

- **GDP (real, bn EUR):** 805 / 1,100 (p) / 1,300 (p)
- **GDP per capita (EUR):** 90,000
- **Top three industries:** pharma & life sciences; financial services; precision engineering
- **Automation & digitalisation share (today / 2050):** 70% / 85% (p)
- **R&D intensity (% of GDP):** 3.3% (World Bank 2021)[6]
- **Patents per year:** approx. 8,000 (EPO Patent Index 2023)[7]
- **FORTERA trade alliance membership:** Yes
- **Democracy Trade Network:** Yes
- **EHAM+ utilisation (0-10):** 8

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 39,510 km² (World Bank 2022)[8]
- Maritime area: landlocked
- Strategic raw materials: water, salt, limited metals
- Renewable potential: hydro (high), solar (medium), wind (low)
- Biodiversity & protected areas: 12% (World Bank 2023)[9]
- Sustainability indicators: 4.1 t CO₂ per capita (2020); recycling 60%; material consumption 23 t (hypothetical)

Social resources

- Volunteering & community culture (index [0-10]): 8
- CIVITAS participation index [0-10]: 8
- Healthcare system (access [0-10], prevention [0-10]): 9 / 8

Political resources

- Constitutional adherence: yes
 - Direct democracy instruments: present
 - Democracy quality index: 96 / 100 (Freedom House 2024)[10]
 - Citizen participation (local / national): 55% / 45% (hypothetical)
 - Rule-of-law index [0-10]: 9
 - International trust rating [0-10]: 9
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
- **Defence expenditure:** 1.0% of GDP
- **Arctic/North Sea/Atlantic role:** no direct role, cooperates via research
- **Central/Eastern/Western Europe role:** stability anchor, mediator
- **Southern Europe/Africa/Asia role:** finance hub for development projects
- **Global/Solar Alliance role:** contributor to space research
- **Civil resilience programmes:** in place
- **Drone / space / AI capacities:** available

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
 - Participation in Arctic Resilience Observatory: Yes
 - Arctic Democracy Mining Act implementation: No
 - Partnerships with indigenous communities: No
-

6. Cultural identity & soft power

- Languages / cultures: German, French, Italian, Romansh
 - UNESCO World Heritage sites: 13 (UNESCO 2024)[11]
 - Creative economy strength (music, film, design [0-10]): 7
 - International visibility (Olympics, Nobel prizes, etc.): high
 - Culture as mediator in democracy networks [0-10]: 8
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** prosperous, innovation-strong economy with very high quality of life
- **Best case 2075:** leading sustainable finance and tech centre with strong democratic participation
- **Base case 2075:** stable internationally networked partner with high innovation power
- **Worst case 2075:** globalisation pressure erodes the financial centre, social tensions rise

Status 2025 (narrative):

Switzerland stands out as a wealthy, democratic state with powerful research institutions and high quality of life; the population is multilingual and connected worldwide.

Strategic investments 2025-2050:

Advance renewables; digitise the financial sector; promote AI research

Transformation 2050-2075:

Expand education and research alliances; deepen European integration; build sustainable infrastructure

Role in the ERDA vision 2075

"By 2075 Switzerland is a sustainable innovation centre mediating between different economic and cultural spheres."

- Contribution to the post-scarcity order: yes, via sustainable finance models
 - Democratic resilience (social, cultural, ecological): very high
 - Exemplary impact: role model for direct democracy and high quality of life
-

8. Narrative & attraction

"Switzerland proves that stability, innovation, and direct democracy can reinforce one another."

- Self-efficacy: citizens actively shape policy via referendums
 - Future dignity: high living standards, strong research, cultural diversity
 - Invitation: collaborate on science, finance, and sustainable development
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	805	1,100	1,300	16,556
Population	9.0 m	9.34 m	10.25 m	447 m
Share of renewables (%)	75	85	92	37
Life expectancy (years)	84	86	88	81
Education rate (%)	53	58	62	40
AI capacity [0-10]	7	8	9	5
Civil-society index [0-10]	8	8.5	9	6

(p) - projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: "Switzerland at a glance" A multilingual, affluent Alpine state grounded in direct democracy and innovation. High living standards, a robust financial system, and strong research make Switzerland a reliable European partner.

11. Sources & modelling 11.1 ⓘ General

- World Bank, OECD, Swiss Federal Statistical Office (base year 2023)
- Economic projections: ERDA model (hypothetical)
- Energy potential: IEA 2024 (hypothetical)
- Innovation & education: OECD Education at a Glance 2022
- Democracy & rule of law: Freedom House 2024
- Sustainability indicators: World Bank, UNEP

11.2 📄 Referenced sources

1. World Bank. 2025. "Population, total - Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/SP.POP.TOTL> (accessed 2025-06-11).
2. UN DESA. 2024. "World Population Prospects 2024 Revision". <https://population.un.org/wpp> (accessed 2025-06-11).

3. World Bank. 2025. "Urban population (% of total) – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/SP.URB.TOTL.IN.ZS> (accessed 2025-06-11).
4. World Bank. 2025. "Life expectancy at birth – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/SP.DYN.LE00.IN> (accessed 2025-06-11).
5. World Bank. 2025. "Net migration – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/SM.POP.NETM> (accessed 2025-06-11).
6. World Bank. 2025. "Research and development expenditure – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/GB.XPD.RSDV.GD.ZS> (accessed 2025-06-11).
7. European Patent Office. 2024. "Patent Index 2023". <https://www.epo.org> (accessed 2025-06-11).
8. World Bank. 2025. "Land area – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/AG.LND.TOTL.K2> (accessed 2025-06-11).
9. World Bank. 2025. "Protected areas – Switzerland". <https://api.worldbank.org/v2/country/CHE/indicator/ER.PTD.TOTL.ZS> (accessed 2025-06-11).
10. Freedom House. 2024. "Freedom in the World 2024: Switzerland". <https://freedom-house.org> (accessed 2025-06-11).

11.3 🚗 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>) for details.
 - Economic projections extrapolated from OECD trends (hypothetical).
 - AI capacity assumes computing-power doubling every three years (hypothetical).
 - Infrastructure autonomy targets 80% renewable supply (hypothetical).
 - Democracy and participation values improve by 0.3 points annually (hypothetical).
 - Energy potential follows moderate vs. ambitious IEA scenarios (hypothetical).
-

12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Swiss Confederation and expert stakeholders are invited to share updates to maintain a joint picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CY - State Profile Cyprus

ERDA State Profile: Cyprus

1. Overview (meta)

-  **Official name:** Republic of Cyprus
 -  **Geographical location:** Eastern Mediterranean, island south of Türkiye
 -  **Population (2025):** approx. 1.35 million (World Bank 2023)
 -  **Form of government & constitutional status (2025):** Presidential system, EU member state
 -  **ERDA status:** Extended partnership
 -  **Role in the ERDA network (future):** Mediterranean hub for energy and maritime transport
-

2. Demography & society

- **Population projection (2050 / 2075):** 1.4 million / 1.35 million (UN WPP 2022, hypothetical: ERDA Scenario Modeling Report 2025)
 - **Age structure (median age, youth share, old-age ratio):** 38 years, 17%, 25%
 - **Urbanisation:** 67% (World Bank 2023)
 - **Education (average years, STEM share, tertiary share):** 13 years, 25%, 45% (UNESCO)
 - **Life expectancy:** 81.6 years (World Bank 2023)
 - **Net migration:** positive (+0.5%)
 - **Social cohesion (subjective satisfaction, trust in democracy):** high / medium
-

3. Economy & innovation

- **GDP (real, today / 2050 / 2075):** 34 bn USD / 55 bn USD (p) / 70 bn USD (p)
- **GDP per capita:** 36,500 USD (World Bank 2023)
- **Top industries:** tourism; financial services; shipping
- **Automation & digitalisation share (2025 / 2050):** 55% / 75% (p)
- **R&D intensity (% of GDP):** 1.0%
- **Patents per year:** approx. 150, rising
- **FORTERA trade alliance membership:** Yes
- **Democracy Trade Network:** Yes
- **EHAM+ utilisation (0-10):** 5

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / maritime area: 9,251 km² / 382,000 km² Exclusive Economic Zone
- Strategic raw materials: copper (historic), solar potential
- Renewable energy potential: solar (high), wind (medium), geothermal (low)
- Biodiversity & protected areas: 29% (Natura 2000)

Social resources

- Volunteering & community culture: strong locally
- Civic-tech use (e.g. CIVITAS): under development
- Healthcare system (access, prevention): good

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: limited
 - Rule-of-law index: medium
 - International trust values: positive
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
 - **Defence expenditure:** 1.7% of GDP
 - **Role in Arctic/North Sea/Atlantic:** none
 - **Civil resilience programmes:** modernised disaster-protection system
 - **Drone / space / AI capacities:** yes
-

6. Cultural identity & soft power

- Languages / cultures: Greek, Turkish
 - UNESCO World Heritage: Choirokoitia; painted churches of the Troodos Mountains; Paphos
 - Creative economy: lively; strong tourism marketing
 - International visibility: tourism and shipping relevant
 - Culture as mediator in democracy networks: yes, via Mediterranean dialogues
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable EU member with divided communities and a growing services economy
- **Best case 2075:** regional energy and innovation hub with high quality of life
- **Base case 2075:** solid economy with strong ties to the EU and neighbours
- **Worst case 2075:** ongoing political tensions slow development

Status 2025 (narrative):

Cyprus enjoys steady economic growth, benefits from tourism, and expands renewables. Political division remains the central challenge.

Strategic investments 2025-2050:

Solar energy, digitalisation, maritime infrastructure

Transformation 2050-2075:

Integration into regional energy projects; stronger innovation landscape

Role in the ERDA vision 2075

“By 2075 Cyprus is a key Mediterranean energy and trade node linking democracy with sustainable technology.”

- Contribution to the post-scarcity order: solar-power exports, maritime traffic
- Democratic resilience: steadily rising
- Exemplary impact: mediator between Europe and the Near East

8. Narrative & attraction

“Cyprus ties together Mediterranean cultures and offers pathways for sustainable business and peaceful cooperation.”

- Self-efficacy: local communities lead especially in tourism projects
- Future dignity: growing investment in renewable energy
- Invitation: collaborate on energy and trade initiatives

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)
GDP (bn USD)	34	55	70
Population	1.35	1.4 m	1.35 m
Share of renewables (%)	20%	45%	60%
Life expectancy (years)	81.6	83	84
Education rate (%)	45%	50%	55%
AI capacity [0-10]	5	6	7
Civil-society index [0-10]	6	7	8

10. Snapshot: “Cyprus at a glance” Cyprus is a dynamic Mediterranean island situated between Europe and the Near East. Tourism and services drive the economy, while renewables gain importance. Political division is a challenge, yet the island holds strong potential for regional cooperation.

11. Sources & modelling 11.1 1 General

- World Bank (population, GDP, life expectancy); Rest Countries API (area)
- UN World Population Prospects 2022 (hypothetical modelling)
- National energy and infrastructure strategies (hypothetical)

11.2 2 Referenced sources

1. “Population, total – Cyprus” (World Bank 2023): <https://api.worldbank.org/v2/country/CYP/indicator/SP.POP.TOTL>
2. “GDP (current US\$) – Cyprus” (World Bank 2023): <https://api.worldbank.org/v2/country/CYP/indicator/NY.GDP.MKTP.CD>
3. “Life expectancy at birth – Cyprus” (World Bank 2023): <https://api.worldbank.org/v2/country/CYP/indicator/SP.DYN.LE00.IN>
4. “Urban population (% of total) – Cyprus” (World Bank 2023): <https://api.worldbank.org/v2/country/CYP/indicator/SP.URB.TOTL.IN.ZS>
5. “Cyprus” (Rest Countries 2024): <https://restcountries.com/v3.1/alpha/cy>
Last accessed: 2025-06-11

11.3 3 Modelling & assumptions

- Full methodology in the **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>).
- Economic projections extrapolate current growth rates (hypothetical).
- Infrastructure autonomy derived from national strategy documents (hypothetical).
- Democracy metrics blend Freedom House and WJP indicators (hypothetical).

12. 4 Participation welcome This profile relies on public data and scenario-based assumptions. Representatives of the Republic of Cyprus and interested expert bodies are invited to contribute updates to maintain a common view of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

GE - State Profile Georgia

⊕ ERDA State Profile: Georgia

1. Overview (meta)

- **⊕ Official name:** Georgian Republic
 - **⊕ Geographical location:** South Caucasus, Black Sea; borders Russia, Türkiye, Armenia, Azerbaijan
 - **⊕ Population (2023):** approx. 3.72 million[1]
 - **⊕ Form of government & constitutional status (2025):** Semi-presidential republic, EU accession candidate
 - **⊕ ERDA status:** Associated partner
 - **⊕ Future role in the ERDA network:** Black Sea node, digital bridge for the Caucasus
-

2. Demography & society

- **Population projection (2050 / 2075):** 3.39 million / 2.91 million (UN WPP 2017, medium)[6]
 - **Urbanisation (2023):** 60.7%[4]
 - **Education (avg. years, STEM share, tertiary share):** UNESCO data (2022)
 - **Life expectancy:** 74.1 years (2022)[3]
 - **Net migration (2022):** +26,999[5]
 - **Social cohesion:** improving
-

3. Economy & innovation

- **GDP (real, 2023):** 30.8 bn USD[2]
- **GDP per capita (2023):** 8,284 USD[2]
- **Top industries:** agriculture; tourism; IT services
- **Automation & digitalisation share (2025 / 2050):** 40% / 65% (hypothetical)
- **R&D intensity (% of GDP):** 0.23%[5]
- **Patents per year:** approx. 100, rising
- **FORTERA trade alliance membership:** No
- **Democracy Trade Network:** No
- **EHAM+ utilisation (0-10):** 4

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / maritime area: 69,700 km² / Black Sea coast

- Strategic raw materials: manganese, copper, forest resources
- Renewable potential: hydropower (high), wind (medium), solar (medium)
- Biodiversity & protected areas: 14%

Social resources

- Volunteering & community culture: pronounced
- Civic-tech use (e.g. CIVITAS): emerging
- Healthcare system (access, prevention): improving

Political resources

- Constitutional adherence: yes
 - Direct democracy instruments: referenda, citizen initiatives
 - Rule-of-law index: developing
 - International trust values: mixed
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
 - **Defence expenditure:** 2.0% of GDP (2024)
 - **Role in Arctic/North Sea/Atlantic:** none
 - **Civil resilience programmes:** civil protection expanded
 - **Drone / space / AI capacities:** yes
-

6. Cultural identity & soft power

- Languages / cultures: Georgian (official); minorities (Azeri, Armenian, others)
 - UNESCO World Heritage: Mtskheta, Svetitskhoveli Cathedral, Gelati Monastery
 - Creative economy: lively, especially film and folklore
 - International visibility: strong wrestling tradition, emerging wine industry
 - Culture as mediator in democracy networks: yes, via civic initiatives
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** reform-oriented government, expanding digital economy

- **Best case 2075:** innovative bridge state between the EU and the Caucasus with high quality of life
- **Base case 2075:** solid Black Sea partner with diversified economy
- **Worst case 2075:** emigration of young talent triggers stagnation

Status 2025 (narrative):

Georgia modernises administration and infrastructure and aims for closer ties with European structures.

Strategic investments 2025-2050:

Digital government, education, transport and energy networks

Transformation 2050-2075:

Economic integration with EU markets, expansion of renewables, stronger democratic institutions

Role in the ERDA vision 2075

"In 2075 Georgia becomes a resilient, digitally networked economy linking Europe and the Caucasus."

- Contribution to the post-scarcity order: limited; focus on transit and IT
 - Democratic resilience: developing
 - Exemplary effect: reform impulse for the Caucasus
-

8. Narrative & attraction

"Georgia blends ancient traditions with digital momentum, inviting cooperation as a gateway to the Caucasus."

- Self-efficacy: population actively engaged in reform processes
 - Future dignity: pride in history and hospitality
 - Invitation: collaborate on energy, tourism, and IT
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn USD)	32	50 (hyp.)	70 (hyp.)
Population	3.7 m	3.39 m	2.91 m
Share of renewables (%)	35%	55% (hyp.)	80% (hyp.)
Life expectancy (years)	74.1	76.5 (hyp.)	78.0 (hyp.)
Education rate (%)	57%	60% (hyp.)	65% (hyp.)

Indicator	2025	2050	2075
AI capacity [0-10]	4	6 (hyp.)	8 (hyp.)
Civil-society index [0-10]	6	7	8 (hyp.)

(p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Georgia at a glance” A reform-minded South Caucasus state with strong potential as a bridge between Europe and Asia. Historic heritage and a growing digital sector define the country.

11. Sources & modelling 11.1 ⓘ General

- World Bank and UNESCO data (base year 2023)
- Population modelling: UN WPP 2017 (hypothetical)
- Energy and infrastructure data from government programmes (hypothetical)

11.2 📋 Referenced sources

1. World Bank. “Population, total”. <https://datahub.io/core/population> (accessed 2025-06-11).
2. World Bank. “GDP (current US\$)”. <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=GE>
3. World Bank. “Life expectancy at birth”. <https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=GE>
4. World Bank. “Urban population (% of total)”. <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=GE>
5. World Bank. “Research and development expenditure (% of GDP)”. <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=GE>
6. Our World in Data / UN WPP 2017: <https://github.com/owid/owid-datasets>

11.3 🔎 Modelling & assumptions

- Details in the **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>).
 - Economic projections extrapolate World Bank trends (hypothetical).
 - Infrastructure autonomy draws on national strategy papers (hypothetical).
-

12. 🌟 Participation welcome This profile is based on public and modelled data. Representatives of Georgia and interested expert bodies are invited to contribute updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

HU - State Profile Hungary

— ERDA State Profile: Hungary

1. Overview (meta)

- **Official name:** Hungary (Magyarország)
 - **Geographical location:** Central Europe, Pannonian Basin; borders Austria, Slovakia, Ukraine, Romania, Serbia, Croatia, Slovenia
 - **Population (2025):** approx. 9.55 million*
 - **Form of government & constitutional status (2025):** Parliamentary republic
 - **ERDA status:** Observer
 - **Future role in the ERDA network:** Central European energy and logistics node
-

2. Demography & society

- **Population projection (2050 / 2075):** 8.6 million / 8.1 million (UN DESA 2022, hypothetical)
 - **Age structure (median age, youth share %, old-age ratio %):** 43 years, 13%, 31%
 - **Urbanisation:** 72%
 - **Average education (school years, tertiary %, STEM %):** 12.3 years, 32%, 25%
 - **Life expectancy:** 76.8 years
 - **Net migration (avg. 2025-2075):** slightly negative (~−3,000)
 - **Social cohesion (satisfaction [0-10], trust in democracy [%]):** 5.8 / 45%
-

3. Economy & innovation

- **GDP (real, bn EUR):** 180 / 240 (p) / 310 (p)
- **GDP per capita:** approx. 20,000 EUR
- **Top industries:** automotive; machinery; agri-food
- **Automation & digitalisation share (today / 2050):** 50% / 75%
- **R&D intensity (% of GDP):** 1.5%
- **Patents per year:** approx. 500 (flat)
- **FORTERA trade alliance membership:** Yes
- **Democracy Trade Network:** No
- **EHAM+ utilisation (0-10):** 4

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 93,030 km²; landlocked

- Strategic raw materials: bauxite, limited rare earths, thermal water
- Renewables: solar (high), wind (medium), geothermal (high), hydro (low)
- Protected areas: 22%
- Sustainability metrics: 5.8 t CO₂ per capita; recycling 32%

Social resources

- Volunteering & community culture [0–10]: 6
- CIVITAS participation index [0–10]: 4
- Healthcare system (access / prevention): 7 / 5

Political resources

- Constitutional adherence: constrained
 - Direct-democracy tools: partial (referenda)
 - Democracy index: 66 / 100 (Freedom House 2024)
 - Citizen participation (local / national): 45%
 - Rule-of-law index [0–10]: 4.8
 - International trust rating [0–10]: 4
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
 - **Defence expenditure:** 1.6% of GDP
 - **Regional roles:** logistics corridor between the Balkans and Central/Eastern Europe; bridge to Central Asia
 - **Global/Solar Alliance:** observing
 - **Civil resilience programmes:** partially in place
 - **Drone / space / AI capacities:** partial
-

6. Cultural identity & soft power

- Languages & cultures: Hungarian (Magyar); minorities (Roma, German, Croatian)
- UNESCO World Heritage sites: 8
- Creative economy strength [0–10]: 6

- International visibility: strong in sport and classical music
 - Culture as mediator in democracy networks [0-10]: 5
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** mid-sized economy, democratic challenges, crucial role in supply chains
- **Best case 2075:** sustainable energy hub with consolidated democracy and high innovation
- **Base case 2075:** moderate economic ascent with persistent political tensions
- **Worst case 2075:** talent emigration weakens society and economy

Role in the ERDA vision 2075

- Contribution to post-scarcity order: regional energy hub
 - Democratic resilience: medium
 - Exemplary effect: limited
-

8. Narrative & attraction

“Hungary’s cultural heritage and geostrategic position underpin a modern, outward-looking nation.”

- Self-efficacy: strong local communities, civic environmental initiatives
 - Future dignity: pride in heritage, Danube and thermal resources
 - Invitation: cooperate on energy and research projects
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	180	240	310	16,556
Population (million)	9.55	8.6	8.1	447
Share of renewables (%)	21	45	65	37
Life expectancy (years)	76.8	79	82	81
Education rate (%)	32	38	43	40
AI capacity [0-10]	4	6	7	5
Civil-society index [0-10]	4	5	6	6

(p) – projection (hypothetical)

10. Snapshot: “Hungary at a glance” Hungary pairs a rich cultural legacy and central location with rising energy and innovation potential. Political tensions and demographic pressures remain, yet the country can act as a logistics corridor and regional energy supplier.

11. Sources & modelling 11.1 ⓘ General

- World Bank (population, GDP); Eurostat (energy); UNESCO (World Heritage)
- PwC “World in 2050” (hypothetical)
- IEA (energy potential); OECD Education at a Glance
- Freedom House; World Justice Project; Eurostat sustainability data

Last accessed: 2025-06-10

11.2 📖 Referenced sources

1. “Population, total – Hungary” (World Bank 2023): <https://api.worldbank.org/v2/country/HUN/indicator/SP.POP.TOTL>
2. “GDP per capita – Hungary” (World Bank 2023): <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=HU>
3. “Life expectancy – Hungary” (World Bank 2023): <https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=HU>
4. Freedom House 2024: <https://freedomhouse.org/country/hungary/freedom-world/2024>

11.3 🔧 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>).
- Economic projections extend PwC data (hypothetical).
- Infrastructure autonomy informed by national strategy papers (hypothetical).
- Democracy metrics blend Freedom House and WJP indicators (hypothetical).

12. 🤝 Participation welcome This profile blends public and modelled data. Representatives of Hungary and expert stakeholders are invited to contribute updates for a shared picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

IL - State Profile Israel

≡ ERDA State Profile: Israel

1. Overview (meta)

-  **Official name:** State of Israel
 -  **Geographical location:** Western Asia, Middle East, Mediterranean coast
 -  **Population (2025):** approx. 9.8 million (World Bank 2023)
 -  **Form of government & constitutional status (2025):** Parliamentary democracy with strong executive powers, no formal constitution
 -  **ERDA status:** Extended partnership
 -  **Future role in the ERDA network:** Technology node, defence and innovation partner
-

2. Demography & society

- **Population projection (2050 / 2075):** 12 million / 13 million (UN DESA 2022, hypothetical)
 - **Age structure (median age, youth share %, old-age ratio %):** 30 years, 27%, 15% (World Bank 2023)
 - **Urbanisation:** 92% (World Bank 2023)
 - **Average education (school years, tertiary %, STEM %):** 13 years, 51%, 30% (OECD 2023)
 - **Life expectancy:** 82.7 years (World Bank 2022)
 - **Net migration (avg. 2025-2075):** +30,000 (hypothetical)
 - **Social cohesion (satisfaction [0-10], trust in democracy [%]):** 7 / 65% (hypothetical)
-

3. Economy & innovation

- **GDP (real, bn EUR):** 472 (2023) / 750 (p) / 1,000 (p)
- **GDP per capita (EUR):** approx. 48,000 (World Bank 2023, converted)
- **Top industries:** high-tech & IT; defence; chemicals & pharma
- **Automation & digitalisation share (today / 2050):** 65% / 85% (hypothetical)
- **R&D intensity (% of GDP):** 5.4% (OECD 2023)
- **Patents per year:** approx. 7,000 (WIPO 2023)
- **FORTERA trade alliance membership:** Yes
- **Democracy Trade Network:** Yes
- **EHAM+ utilisation (0-10):** 7

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 22,145 km²
- Maritime area: 26,000 km² (Mediterranean)
- Strategic raw materials: natural gas, bromine, limited copper
- Renewable potential: solar (high), wind (medium), geothermal (low)
- Biodiversity & protected areas: 24%
- Sustainability indicators: 8 t CO₂ per capita; recycling rate 20% (OECD 2023)

Social resources

- Volunteering & community culture [0-10]: 7 (hypothetical)
- CIVITAS participation index [0-10]: 6 (hypothetical)
- Healthcare system (access [0-10], prevention [0-10]): 8 / 7

Political resources

- Constitutional adherence: partial (Basic Laws)
 - Direct-democracy instruments: none
 - Democracy quality index: 74 / 100 (Freedom House 2024)
 - Citizen participation (local / national): 70%
 - Rule-of-law index [0-10]: 7
 - International trust rating [0-10]: 6
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
 - **Defence expenditure:** 4.5% of GDP
 - **Roles:**
 - Arctic/North Sea/Atlantic: limited
 - Central/Eastern/Western Europe: security partnerships
 - Southern Europe/Africa/Asia: major Middle East actor
 - Global/Solar Alliance: co-operation on space and high-tech programmes
 - **Civil resilience programmes:** (disaster relief)
 - **Drone / space / AI capacities:**
-

6. Cultural identity & soft power

- Languages & cultures: Hebrew, Arabic; diverse immigrant cultures
 - UNESCO World Heritage sites: 9
 - Creative economy strength (music, film, design [0-10]): 7
 - International visibility (Olympics, Nobel prizes, etc.): very high
 - Culture as mediator in democracy networks [0-10]: 7
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** highly innovative economy facing geopolitical tensions while maintaining strong growth
- **Best case 2075:** fully integrated, sustainable technology state within a peaceful region
- **Base case 2075:** stable high-tech economy with moderate conflicts
- **Worst case 2075:** persistent conflicts restrict development and co-operation

Role in the ERDA vision 2075

- Contribution to post-scarcity order: technology and security expertise
 - Democratic resilience: medium to high
 - Exemplary effect: innovation role model for the Middle East
-

8. Narrative & attraction

"Israel demonstrates how an innovation-driven ecosystem can strengthen a dynamic democracy despite regional challenges."

- Self-efficacy: vibrant start-up culture and civic engagement
 - Future dignity: pride in technological breakthroughs and cultural diversity
 - Invitation: collaborate on high-tech and education initiatives
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	472	750	1,000	16,556
Population (million)	9.8	12	13	447
Share of renewables (%)	10	25	40	37
Life expectancy (years)	82.7	84	86	81
Education rate (%)	51	60	65	40
AI capacity [0-10]	8	9	10	5
Civil-society index [0-10]	6	7	7.5	6

(p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: "Israel at a glance" Israel is a highly developed technology state with a young, dynamic population. Despite security challenges, innovation remains strong. Considerable research capacity and a vibrant culture underpin its role as an ERDA partner, while solar potential offers future energy leverage.

11. Sources & modelling 11.1 1 General

- World Bank (population, GDP, urbanisation, life expectancy)
- OECD Economic Outlook 2023 (hypothetical)
- IEA 2024 and national plans for energy potential (hypothetical)
- OECD Science, Technology and Innovation Outlook 2023
- Freedom House 2024; World Justice Project 2023
- OECD Environment Data 2023

11.2 2 Referenced sources

1. World Bank. 2025. "GDP (current US\$) - Israel". <https://api.worldbank.org/v2/country/ISR/indicator/NY.GDP.MKTP.CD>
2. World Bank. 2025. "Population, total - Israel". <https://api.worldbank.org/v2/country/ISR/indicator/SP.POP.TOTL>

3. World Bank. 2025. "Life expectancy at birth - Israel". <https://api.worldbank.org/v2/country/ISR/indicator/SP.DYN.LE00.IN>
4. OECD. 2023. "Science, Technology and Innovation Outlook". <https://www.oecd.org/sti/>
5. Freedom House. 2024. "Freedom in the World 2024: Israel". <https://freedomhouse.org>
6. International Energy Agency. 2024. "Israel energy profile". <https://www.iea.org/countries/israel>

Last accessed: 2025-06-11

11.3 📈 Modelling & assumptions

- Detail in the **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>).
 - Economic projections extend OECD trends (hypothetical).
 - AI capacity extrapolates investment trajectories (hypothetical).
 - Infrastructure autonomy reflects national energy scenarios (hypothetical).
 - Democracy indicators project Freedom House scores (hypothetical).
 - Energy potential follows moderate vs. ambitious solar build-out scenarios (hypothetical).
-

12. 🤝 Participation welcome This profile builds on public and modelled data. Representatives of the State of Israel and expert stakeholders are invited to provide updates for a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

MD - State Profile Moldova

ERDA State Profile: Moldova

1. Overview (meta)

-  **Official name:** Republic of Moldova
 -  **Geographical location:** Eastern Europe between Romania and Ukraine, Danube access at Giurgiuleşti
 -  **Population (2023):** approx. 2.62 million[1]
 -  **Form of government & constitutional status (2025):** Parliamentary republic
 -  **ERDA status:** Extended partnership, EU accession candidate (since 2022)
 -  **Future ERDA role:** Bridge between the EU and Eastern Partnership, agriculture and IT services
-

2. Demography & society

- **Population projection (2050 / 2075):** 2.2 million / 1.9 million (UN WPP, hypothetical)
 - **Age structure:** median 38 years, 20% under 15, 15% over 65[2]
 - **Urbanisation:** 43% (2022)[3]
 - **Average education:** 11 school years, 25% tertiary, 20% STEM (hypothetical)
 - **Life expectancy:** 71.5 years (2022)[4]
 - **Net migration (avg. 2025-2075):** -0.5% (hypothetical)
 - **Social cohesion:** satisfaction 5.5 / democracy trust 40% (hypothetical)
-

3. Economy & innovation

- **GDP (real, bn EUR):** 15 (2023) / 25 (p) / 35 (p)[5]
- **GDP per capita:** ~6,200 EUR (2023)[6]
- **Top industries:** agriculture & wine; IT outsourcing; light industry
- **Automation & digitalisation share:** 20% → 50% by 2050 (hypothetical)
- **R&D intensity:** 0.4% of GDP (2023)[7]
- **Patents per year:** <10
- **FORTERA membership:** No

- **Democracy Trade Network:** No
- **EHAM+ utilisation (0-10):** 2 (hypothetical)

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- Land area: 33,846 km²[8]
- Strategic resources: fertile soils, minor gas and stone deposits
- Renewables: solar and biomass (hypothetical)
- Protected areas: ~6%
- Sustainability: 3 t CO₂ per capita (2022)[9]; low recycling (hypothetical)

Social resources

- Volunteering & community culture [0-10]: 5 (hypothetical)
- CIVITAS participation index [0-10]: 4 (hypothetical)
- Healthcare system (access / prevention): 6 / 5 (hypothetical)

Political resources

- Constitutional adherence: yes
- Direct-democracy tools: partial
- Democracy index: 62 / 100 (Freedom House 2024)[10]
- Citizen participation: 40% (hypothetical)
- Rule-of-law index [0-10]: 5 (World Justice Project 2023)[11]
- International trust rating [0-10]: 5 (hypothetical)

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
- **Defence expenditure:** ~1.5% of GDP (SIPRI 2023)[12]
- **Regional roles:** transit corridor between the EU and Ukraine; co-operation with Black Sea neighbours

- **Civil resilience programmes:** partial

- **Drone / space / AI capacities:** none

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
- Arctic Resilience Observatory: No
- Arctic Democracy Mining Act: No
- Indigenous partnerships: No

6. Cultural identity & soft power

- Languages: Romanian (official), widely spoken Russian, Gagauz and Ukrainian minorities
- UNESCO World Heritage: 1 (Struve Geodetic Arc)
- Creative economy [0-10]: 4 (hypothetical)
- International visibility: low
- Culture as mediator in democracy networks [0-10]: 4 (hypothetical)

7. Development path (2025-2075) Scenario development

- **Status 2025:** EU candidate on a reform course; economy depends on agriculture and remittances
- **Best case 2050/2075:** modernised economy with strong IT and energy sectors, stable democracy
- **Base case 2050/2075:** gradual convergence to EU standards, moderate emigration
- **Worst case 2050/2075:** stagnation and continued emigration, reform backlog

Role in the ERDA vision 2075

- Contribution to post-scarcity order: reinforce regional supply chains
- Democratic resilience: build participatory tools and sustainable agriculture
- Exemplary effect: model for transforming small agrarian states

8. Narrative & attraction

- Core message: "*Moldova proves that the path from agrarian state to connected EU partner is achievable.*"
- Highlights: co-operate on sustainable agriculture and digitalisation projects
- Self-efficacy: citizens engage through local projects and NGOs

- Future dignity: pride in cultural heritage and European perspective
- Invitation: exchange programmes and joint initiatives

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU avg 2024
GDP (bn EUR)	15	25	35	18,000
Population (million)	2.6	2.2	1.9	448
Share of renewables (%)	25	40	60	45
Life expectancy (years)	71.5	74	77	82
Education rate (%)	25	30	35	45
AI capacity [0-10]	2	4	6	6
Civil-society index [0-10]	5	6	7	7

(p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Moldova at a glance” Moldova is undergoing deep transformation. As an EU candidate and ERDA partner, it leverages agricultural strength and a growing IT sector to expand prosperity and democracy. Emigration and limited resources remain challenges, but reforms and European co-operation offer a sustainable outlook through 2075.

11. Sources & modelling 11.1 1 General

- World Bank data and national sources (base year 2023)
- GDP and population projections from UN/World Bank (hypothetical)
- Energy and infrastructure data per national strategies (hypothetical)

11.2 2 Referenced sources

1. World Bank. 2025. “World Development Indicators”. <https://databank.worldbank.org/source/world-development-indicators>
 2. UN DESA. 2024. “World Population Prospects”. <https://population.un.org/wpp/>
 3. Freedom House. 2024. “Freedom in the World: Moldova”. <https://freedomhouse.org>
 4. World Justice Project. 2023. “Rule of Law Index”. <https://worldjusticeproject.org>
 5. SIPRI. 2024. “Military Expenditure Database”. <https://sipri.org>
 6. Restcountries.com. 2025. “Republic of Moldova”. <https://restcountries.com/v3.1/alpha/mda>
- Additional references: [1]-[12] as cited in the German original.

11.3 3 Modelling & assumptions

- Details in the **ERDA Scenario Modeling Report 2025** (hypothetical: <https://erda-institut.example.org/report2025>).

- Economic projections extrapolate World Bank trends (hypothetical).
- Infrastructure autonomy assumes 60% renewables by 2050 (hypothetical).
- Democracy metrics improve by 0.5 points annually (hypothetical).

12. 🌻 Participation welcome This profile uses public and modelled data. Representatives of the Republic of Moldova and expert bodies are invited to contribute updates toward a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

ME - State Profile Montenegro

ERDA State Profile: Montenegro

1. Overview (meta)

- **Official name:** Montenegro (Crna Gora)
 - **Geographical location:** South-Eastern Europe, Western Balkans; borders Croatia, Bosnia and Herzegovina, Serbia, Kosovo, Albania; Adriatic coast
 - **Population (2025):** approx. 0.62 million[1]
 - **Form of government & constitutional status (2025):** Parliamentary republic; EU accession candidate; NATO member since 2017
 - **ERDA status:** Extended partnership (associated)
 - **Future ERDA role:** Adriatic hub for sustainable tourism and energy
-

2. Demography & society

- **Population projection (2050 / 2075):** 0.59 million / 0.57 million (UN WPP 2022, hypothetical)
 - **Age structure:** median 39 years, youth 19%, old-age ratio 32%
 - **Urbanisation:** 68%[2]
 - **Average education:** 12 years, 25% STEM, 35% tertiary (hypothetical)
 - **Life expectancy:** 77.6 years[3]
 - **Net migration:** slightly negative
 - **Social cohesion:** moderate satisfaction and trust
-

3. Economy & innovation

- **GDP (real):** 7.5 bn USD[4] / 11 bn USD (p) / 15 bn USD (p)
- **GDP per capita:** 12,200 USD[5]
- **Top industries:** tourism; aluminium; energy (hydropower)
- **Automation & digitalisation share:** 40% → 60% (hypothetical)
- **R&D intensity:** 1.5% of GDP
- **Patents per year:** <100, slowly rising

- **FORTERA membership:** No
- **Democracy Trade Network:** No
- **EHAM+ utilisation (0-10):** 3

3.1 Infrastructure autonomy

- Energy | IT/Cloud | Defence | Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 13,812 km²[6]
- Strategic raw materials: bauxite, water, timber
- Renewables: hydropower (high), solar (medium), wind (scalable)
- Biodiversity & protected areas: 7% (UNEP, hypothetical)

Social resources

- Volunteering & community culture: strong municipal networks
- CIVITAS participation index: 5 (hypothetical)
- Healthcare system: solid baseline

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: limited
 - Democracy index: 67 / 100 (Freedom House 2024)
 - Citizen participation: 55% (hypothetical)
 - Rule-of-law index: 0.55 (World Justice Project 2023)
 - International trust rating: 0.6 (hypothetical)
-

5. Security & strategic role (EDA)

- **Military potential:** DSN-capable | cyber command | early-warning system
- **Defence expenditure:** 2.0% of GDP

- **Regional role:** stability anchor along the Adriatic
- **Civil resilience programmes:** in development
- **Drone / space / AI capacities:** low

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
 - Arctic Resilience Observatory: No
 - Arctic Democracy Mining Act: No
 - Indigenous partnerships: not applicable
-

6. Cultural identity & soft power

- Languages: Montenegrin, Serbian, Bosnian, Albanian
 - UNESCO heritage: Natural and Cultural-Historical Region of Kotor
 - Creative economy: growing festival scene
 - International visibility: sports achievements, tourism promotion
 - Culture as mediator: potential to foster dialogue
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** solid democratic institutions, expanding tourism
- **Best case 2050/2075:** fully integrated EU member with sustainable energy and digital governance
- **Base case:** steady growth, stable democracy, tourism remains key
- **Worst case:** political instability dampens investment

Role in the ERDA vision 2075

- Contribution to post-scarcity order: limited, but supports regional energy integration
 - Democratic resilience: gradually increasing
 - Exemplary impact: sustainable tourism model
-

8. Narrative & attraction

"Montenegro shows how a small Adriatic country can steward its natural assets sustainably."

- Self-efficacy: local communities co-shape tourism and energy projects
 - Future dignity: pride in nature, culture, and the EU trajectory
 - Invitation: collaborate on sustainable development and climate protection
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU avg 2024
GDP (bn USD)	7.5	11	15	18,000
Population (million)	0.62	0.59	0.57	447
Share of renewables (%)	55	70	80	45
Life expectancy (years)	77.6	79	81	80
Education rate (%)	35	40	45	37
AI capacity [0-10]	3	5	6	6
Civil-society index [0-10]	5	6	7	7

(p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Montenegro at a glance” Montenegro blends dramatic landscapes with ambitions to become a sustainable tourism and energy hub in the Western Balkans. With EU integration underway, the country leverages natural capital while striving for stability and resilience.

11. Sources & modelling 11.1 ⓘ General

- World Bank & UN WPP statistics
- Moderate growth projections (hypothetical)
- Energy potential based on IEA outlooks
- UNESCO Institute for Statistics (hypothetical)
- Freedom House & World Justice Project
- EEA sustainability metrics

11.2 📄 Referenced sources

1. World Bank. 2024. “Population, total - Montenegro”. <https://api.worldbank.org/v2/country/ME/indicator/SP.POP.TOTL>
2. World Bank. 2024. “Urban population (% of total) - Montenegro”. <https://api.worldbank.org/v2/country/ME/indicator/SP.URB.TOTL.IN.ZS>
3. World Bank. 2024. “Life expectancy at birth - Montenegro”. <https://api.worldbank.org/v2/country/ME/indicator/SP.DYN.LE00.IN>

4. World Bank. 2024. "GDP (current US\$) - Montenegro". <https://api.worldbank.org/v2/country/ME/indicator/NY.GDP.MKTP.CD>
5. World Bank. 2024. "GDP per capita (current US\$) - Montenegro". <https://api.worldbank.org/v2/country/ME/indicator/NY.GDP.PCAP.CD>
6. Rest Countries. 2024. "Montenegro". <https://restcountries.com/v3.1/alpha/me>
Last accessed: 2025-06-10

11.3 🔧 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** (hypothetical) for detailed assumptions.
 - Economic projections extend current trends (hypothetical).
 - Infrastructure autonomy drawn from national strategies (hypothetical).
 - Democracy metrics combine Freedom House and WJP (hypothetical).
 - Energy potential follows IEA scenarios (hypothetical).
-

12. 🤝 Participation welcome This profile leverages public and modelled data. Representatives of Montenegro and partner organisations are invited to provide updates to maintain a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

MK - State Profile North Macedonia

☒ ERDA State Profile: North Macedonia

1. Overview (meta)

- Official name: Republic of North Macedonia
 - Geographical location (continent, region): South-Eastern Europe, Balkan Peninsula
 - Population (2025): approx. 1.83 million (World Bank 2023)
 - Form of government & constitutional status (2025): Parliamentary republic since 1991
 - ERDA status: Accession candidate
 - Future role in the ERDA network: Logistics node and bridging state in the Balkans
-

2. Demography & society

- Population projection (2050 / 2075): 1.7 million / 1.6 million (UN DESA 2022, hypothetical: ERDA Scenario Modeling Report 2025)
 - Age structure (median age, youth share %, old-age ratio): 40 years, 18%, 30% (World Bank 2023)
 - Urbanisation (%): 59% (World Bank 2023)
 - Average education (school years, tertiary rate %, STEM %): 11 years, 25%, 18% (OECD 2023)
 - Life expectancy (years): 75.3 (World Bank 2023)
 - Net migration per year (average 2025–2075): –5,500 (World Bank 2023)
 - Social cohesion (satisfaction index [0–10], trust in democracy [%]): 6 / 55% (hypothetical: ERDA Scenario Modeling Report 2025)
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075, bn EUR): 14.3 (2023) / 25 (hypothetical) / 35 (hypothetical)
- GDP per capita (EUR): approx. 7,800 (World Bank 2023, converted)
- Top three industries: metal processing & automotive, agriculture (wine, tobacco), services & tourism
- Degree of automation & digitalisation (current / 2050, %): 40% / 70% (hypothetical)
- R&D intensity (% of GDP): 0.8% (World Bank 2023)
- Patents per year (trend, average): approx. 60 (WIPO 2023)
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: Observer
- EHAM+ (trade defence) utilisation [0–10]: 4

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area (km²): 25,713 (World Bank 2023)
- Marine area (if relevant, km²): landlocked
- Strategic raw materials: chromium, zinc, water resources
- Renewable energy potential: hydropower (high), solar (medium), wind (medium)
- Share of biodiversity & protected areas (% of territory): 12% (UNEP 2023)
- Sustainability indicators: CO₂ emissions per capita 4.2 t; recycling rate 30% (Eurostat 2023)

Social resources

- Volunteering & community culture (index [0-10]): 5 (hypothetical)
- CIVITAS participation index [0-10]: 5 (hypothetical)
- Healthcare system (accessibility [0-10], prevention [0-10]): 6 / 6

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: partial (local referenda)
 - Democracy index (Freedom House 2024): 66 / 100
 - Citizen participation rate (local/national) [%]: 50% (hypothetical)
 - Rule-of-law index [0-10]: 5.5
 - International trust values [0-10]: 5
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 2.0%
- Role in Arctic/North Sea/Atlantic: none
- Role in Central/Eastern/Western Europe: bridge corridor to Greece and Bulgaria
- Role in Southern Europe/Africa/Asia: gateway to South-Eastern Europe
- Role in Global/Solar Alliance space: observer
- Civil resilience programmes (disaster management)
- Drone/space/AI capabilities

6. Cultural identity & soft power

- Languages / indigenous cultures: Macedonian; minority languages Albanian, Turkish, Romani
 - UNESCO World Heritage / cultural sites (count): 1 (Ohrid Region)
 - Creative economy strength (music, film, design [0-10]): 5
 - International visibility (Olympics, Nobel prizes, etc.): low
 - Culture as mediator in democracy networks [0-10]: 5
-

7. Development path (2025-2075) Scenario development

- Status 2025: EU accession negotiations underway, growth-oriented economy, infrastructure deficits
- Best case 2075: fully integrated EU/ERDA member with modern industry and stable service sector
- Base case 2075: steady economic development, stable democracy, regional logistics centre
- Worst case 2075: ongoing emigration and political instability slow progress

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: leveraging renewables and transit location
 - Democratic resilience (social, cultural, ecological): medium
 - Exemplary impact on other states / regions: model for successful EU approximation of Western Balkan states
-

8. Narrative & attraction

"North Macedonia proves that consistent reforms and regional cooperation pave the way to a European future."

- Self-efficacy: local initiatives and the diaspora support development
 - Future dignity: pride in cultural heritage, growing tech sector
 - Invitation to other states & citizens: cooperate on infrastructure and the green transition
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn EUR)	14.3 (p)	25 (p)	35 (p)	16,556
Population	1.83 m	1.7 m (p)	1.6 m (p)	447 m
Share of renewables (%)	27 (p)	45 (p)	60 (p)	37
Life expectancy (years)	75.3 (p)	78 (p)	80 (p)	81
Education rate (%)	25 (p)	30 (p)	35 (p)	40
AI capacity [0-10]	4	6 (p)	7 (p)	5
Civil-society index [0-10]	5	6 (p)	7 (p)	6

Notes: (p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: "North Macedonia at a glance" North Macedonia is a small Balkan state with a rich cultural tradition and strategic location. Reforms and EU approximation strengthen its economy and democracy. Emigration and limited industrial capacity remain challenges, yet growing engagement in renewables and digitalisation creates opportunities.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank (population, GDP, urbanisation, migration), UNDP, Eurostat (sustainability)
- Economic modelling assumptions: regional growth rates (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: International Energy Agency (IEA), national strategy papers (hypothetical)
- Innovation & education: OECD Education at a Glance 2023, further inputs (hypothetical)
- Democracy & rule of law: Freedom House 2024, World Justice Project
- Sustainability and resource indicators: Eurostat 2023, UNEP

11.2 📖 Referenced sources

1. World Bank. 2025. "GDP (current US\$) - North Macedonia". <https://api.worldbank.org/v2/country/MKD/indicator/NY.GDP.MKTP.CD> (last accessed 2025-06-11).
2. World Bank. 2025. "Population, total - North Macedonia". <https://api.worldbank.org/v2/country/MKD/indicator/SP.POP.TOTL> (last accessed 2025-06-11).
3. World Bank. 2025. "Life expectancy at birth, total (years) - North Macedonia". <https://api.worldbank.org/v2/country/MKD/indicator/SP.DYN.LE00.IN> (last accessed 2025-06-11).
4. World Bank. 2025. "Urban population (% of total population) - North Macedonia". <https://api.worldbank.org/v2/country/MKD/indicator/SP.URB.TOTL.IN.ZS> (last accessed 2025-06-11).
5. World Bank. 2025. "Net migration - North Macedonia". <https://api.worldbank.org/v2/country/MKD/indicator/SM.POP.NETM> (last accessed 2025-06-11).
6. Freedom House. 2024. "Freedom in the World 2024: North Macedonia". <https://freedomhouse.org> (last accessed 2025-06-11).
7. OECD. 2023. "Education at a Glance 2023". <https://www.oecd.org/education/education-at-a-glance> (last accessed 2025-06-11).

11.3 🔨 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for full details (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075: extrapolation of regional trends (hypothetical).
- Infrastructure autonomy: derived from national energy and digital strategies (hypothetical).
- Democracy and participation metrics: continuation of Freedom House scores (hypothetical).

12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Republic of North Macedonia and interested partners are invited to contribute updates so that we keep a shared portrait of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

MT - State Profile Malta

ERDA State Profile: Malta

1. Overview (meta)

- Official name: Republic of Malta
 - Geographical location (continent, region): Southern Europe, Mediterranean, south of Sicily
 - Population (2025): approx. 0.55 million (World Bank 2023)
 - Form of government & constitutional status (2025): Parliamentary republic (Constitution of 1964, last reform 2016)
 - ERDA status: Member
 - Future role in the ERDA network: Mediterranean hub for cyber and maritime security
-

2. Demography & society

- Population projection (2050 / 2075): 0.6 million / 0.58 million (UN WPP 2022, hypothetical: ERDA Scenario Modeling Report 2025)
 - Age structure (median age, youth share %, old-age ratio): 42 years, 16%, 33%
 - Urbanisation (%): 94.9% (World Bank 2023)
 - Average education (school years, tertiary rate %, STEM %): 12 years, 30%, 20%
 - Life expectancy (years): 83.5 (World Bank 2023)
 - Net migration per year (average 2025-2075): +6,000 (World Bank 2023, hypothetical)
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 7.0 / 65%
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075, bn EUR): 21 / 32 / 45 (World Bank 2023, projections hypothetical: ERDA Scenario Modeling Report 2025)
- GDP per capita (EUR): approx. 37,000 (World Bank 2023)
- Top three industries: tourism, financial services, maritime logistics
- Degree of automation & digitalisation (current / 2050, %): 55% / 80% (hypothetical)
- R&D intensity (% of GDP): 1.1%
- Patents per year (trend, average): around 40, increasing
- Member of FORTERA trade alliances: Yes
- Member of the Democracy Trade Network: Yes
- EHAM+ (trade defence) utilisation [0-10]: 5

3.1 Infrastructure autonomy

- Production sovereignty in strategic sectors:
 - Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)

- Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area (km²): 316
- Marine area (km²): exclusive economic zone approx. 71,446
- Strategic raw materials: limestone, limited mineral resources
- Renewable energy potential: solar (high), wind (offshore, limited), geothermal (low)
- Share of biodiversity & protected areas (% of territory): 30%
- Sustainability indicators (CO₂ emissions per capita, recycling rate, material consumption per capita): 4.6 t, 25%, 12 t

Social resources

- Volunteering & community culture (index [0-10]): 6
- CIVITAS participation index [0-10]: 6
- Healthcare system (accessibility [0-10], prevention [0-10]): 8 / 7

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: not available
 - Democracy index (Freedom House 2024 [0-100]): 87 / 100
 - Citizen participation rate (local/national) [%]: 45%
 - Rule-of-law index [0-10]: 7
 - International trust values [0-10]: 7
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 0.7%
- Role in Arctic/North Sea/Atlantic: none
- Role in Central/Eastern/Western Europe: maritime node in the Mediterranean
- Role in Southern Europe/Africa/Asia: logistics gateway
- Role in Global/Solar Alliance space: observer status
- Civil resilience programmes: partial
- Drone/space/AI capacities: partial

5.1 Arctic strategy & planetary responsibility

- Integration into EDA-DSN North Sea: No
 - Participation in Arctic Resilience Observatory: No
 - Implementation of the Arctic Democracy Mining Act: No
 - Partnerships with indigenous communities: No
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Maltese, English
 - UNESCO World Heritage / cultural sites (count): 3 sites (Valletta, Hal Saflioni Hypogeum, Megalithic Temples)
 - Creative economy strength (music, film, design [0-10]): 6
 - International visibility (Olympics, Nobel prizes, etc.): low to medium
 - Culture as mediator in democracy networks [0-10]: 5
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable economy dominated by services and a growing tech sector
- **Best case 2050/2075:** leading Mediterranean digital and logistics hub, high quality of life, green transition completed
- **Base case 2050/2075:** steady economic development, moderate population increase
- **Worst case 2050/2075:** overheating of real-estate and tourism sectors, resource scarcity, climate impacts

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: logistics gateway for clean energy and goods flows in the Mediterranean
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary impact on other states / regions: showcase for small-scale innovation capacity
-

8. Narrative & attraction

“Malta demonstrates how a small island state can leverage connectivity and digital competence to offer a future-ready model of democratic resilience.”

- Self-efficacy: citizens actively engage in local initiatives and digital projects
 - Future dignity: pride in historical culture and maritime tradition, openness to innovation
 - Invitation to other states & citizens: cooperation and innovation platform in the Mediterranean
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	21	32	45	16.6
Population	0.55 m	0.6 m	0.58 m	447 m
Share of renewables (%)	12%	30%	60%	23%
Life expectancy (years)	83.5	85	86	81
Education rate (%)	30%	35%	40%	34%
AI capacity [0-10]	4	7	8	6
Civil-society index [0-10]	6	7	8	6

Notes: (p) – projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: “Malta at a glance” Malta is a Mediterranean island state with a strong services and logistics sector. Its stable democracy and well-developed digital infrastructure make it an attractive partner for EU and ERDA initiatives. High quality of life and cultural diversity reinforce the country’s positive image.

11. Sources & modelling 11.1 1 General

- Statistics: national data (NSO Malta) and international sources (World Bank, Eurostat, UN WPP 2022); base year 2023
- Economic modelling assumptions: average GDP growth 2% p.a., inflation 2% p.a. (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: national energy and climate plans 2023 (hypothetical)
- Innovation & education: OECD indicators 2023
- Democracy & rule of law: Freedom House 2024

11.2 2 Referenced sources

1. World Bank. 2024. “Population, total – Malta”. <https://api.worldbank.org/v2/country/MLT/indicator/SP.POP.TOTL> (last accessed 2025-06-11).
2. World Bank. 2024. “GDP (current US\$) – Malta”. <https://api.worldbank.org/v2/country/MLT/indicator/NY.GDP.MKTP.CD> (last accessed 2025-06-11).
3. World Bank. 2024. “Life expectancy at birth, total (years) – Malta”. <https://api.worldbank.org/v2/country/MLT/indicator/SP.DYN.LE00.IN> (last accessed 2025-06-11).
4. Freedom House. 2024. “Malta: Freedom in the World 2024”. <https://freedomhouse.org/country/malta/freedom-world/2024> (last accessed 2025-06-11).
5. UN Department of Economic and Social Affairs. 2022. “World Population Prospects 2022”. (hypothetical: ERDA Scenario Modeling Report 2025)

11.3 3 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for detailed assumptions (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 continue the GDP growth trend (hypothetical).
- AI capacity: assumes doubling of computing power every three years (hypothetical).
- Infrastructure autonomy: scenario targets 80% renewables by 2075 (hypothetical).
- Democracy and participation values: annual improvement of 0.3 points (hypothetical).
- Energy potential: solar and offshore wind expansion per national plan (hypothetical).

12. 4 Participation welcome This profile is based on public and modelled data. Representatives of the Republic of Malta and interested stakeholders are invited to contribute updates to maintain a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

NO - State Profile Norway

🇳🇴 ERDA State Profile: Norway

1. Overview (meta)

- 🇳🇴 Official name: Kingdom of Norway (Kongeriket Norge)
 - 🌎 Geographical location: Northern Europe, western Scandinavian Peninsula; borders Sweden, Finland, Russia; coastline on the North Sea, Atlantic Ocean and Barents Sea
 - 🌈 Population (2025): approx. 5.52 million*
 - 🌐⚖️ Form of government & constitutional status (2025): Constitutional monarchy, parliamentary democracy
 - 📆📅 ERDA status: Extended partnership
 - 🔍 Role in the ERDA network (future): Energy hub for offshore resources and Arctic research
-

2. Demography & society

- Population projection (2050 / 2075): 5.8 million / 6.0 million (UN DESA 2022, hypothetical: ERDA Scenario Modeling Report 2025)
 - Age structure (median age, youth share %, old-age ratio): 40 years, 18%, 27%
 - Urbanisation (%): 83%
 - Average education (school years, tertiary rate %, STEM %): 13.1 years, 39%, 28%
 - Life expectancy (years): 83.1 (World Bank 2023)
 - Net migration per year (average 2025–2075): slightly positive (approx. +20,000, hypothetical)
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 7.7 / 70%
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075, bn EUR): 440 / 520 (hypothetical) / 610 (hypothetical)
- GDP per capita (USD, 2023): 87,925 (World Bank)
- R&D intensity (% of GDP, 2022): 1.56 (World Bank)
- Innovation ranking (Global Innovation Index 2023): rank 19
- Infrastructure quality (WEF Global Competitiveness Index 2019): rank 20

3.1 Infrastructure autonomy

- Electricity mix 2023: >90% hydropower, growing share of offshore wind
 - Broadband coverage: 92% of households (2024)
 - Energy autonomy: secured via extensive hydropower plus oil and gas reserves
-

4. Resource profile Natural resources

- Oil and gas reserves in the North Sea
- Large potential for hydropower and offshore wind
- Fish stocks and maritime resources

Social resources

- High levels of education and skills
- Strong welfare-state safety nets

Political resources

- Consolidated democratic institutions
 - Active participation in NATO and Nordic cooperation
-

5. Security & strategic role (EDA)

- NATO member since 1949
 - Strategic position at the Arctic rim; access to the North Sea and Barents Sea
 - Defence budget (2024): 1.7% of GDP (NATO)
-

6. Cultural identity & soft power

- Rich traditions of seafaring and polar exploration
 - International reputation as peace mediator (e.g. Oslo Accords)
 - Distinctive welfare state, high quality of life
-

7. Development path (2025-2075) Scenario development

- Ongoing diversification away from fossil fuels (hypothetical)
- Strengthening as a hub for green technologies and Arctic research

Role in the ERDA vision 2075

- Contribution to Europe's energy and climate security
 - Knowledge centre for sustainable offshore technologies and polar expertise
-

8. Narrative & attraction

- Norway positions itself as a sustainable energy provider and innovation base for cold regions
 - High quality of life and social security attract skilled labour
-

9. Key indicators (short form)

Indicator	Value	Source
Population 2023	5,519,594	World Bank
Life expectancy 2023	83.1 years	World Bank
GDP per capita 2023	87,925 USD	World Bank
R&D intensity 2022	1.56% of GDP	World Bank
Defence budget 2024	1.7% of GDP	NATO

10. Snapshot: "Norway at a glance" Norway combines Scandinavian quality of life and robust democracy with a resource-rich economy. The consistent expansion of renewables and its strategic Arctic location make the country vital for Europe's sustainable future.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank (population, GDP per capita), UN DESA (population projections, hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: International Energy Agency (IEA)
- Innovation & education: Global Innovation Index, OECD education statistics
- Democracy & rule of law: Freedom House, World Justice Project
- Sustainability indicators: UN SDGs, IEA

Last accessed: 2025-06-10

11.2 📄 Referenced sources

1. "Population, total - Norway" (World Bank, 2023): <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=NO>
2. "GDP per capita (current US\$) - Norway" (World Bank, 2023): <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=NO>
3. "Life expectancy at birth - Norway" (World Bank, 2023): <https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=NO>
4. "Research and development expenditure (% of GDP) - Norway" (World Bank, 2022): <https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=NO>
5. "NATO Defence Expenditure Report 2024" (NATO, 2024)

Last accessed: 2025-06-10

11.3 🔧 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for complete assumptions (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 extrapolate World Bank trends (hypothetical).
- Infrastructure autonomy: qualitative assessment from national strategy papers (hypothetical).
- Energy and research focus: assumptions on wind and hydropower expansion (hypothetical).

12. 🤝 Participation welcome This profile draws on public data and modelled assumptions. Representatives of the Kingdom of Norway and subject-matter partners are invited to provide updates so we can keep a shared picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

RS - State Profile Serbia

ERDA State Profile: Serbia

1. Overview (meta)

-  Official name: Republic of Serbia
 -  Geographical location: South-Eastern Europe, central Balkans; borders Hungary, Romania, Bulgaria, North Macedonia, Kosovo*, Montenegro, Bosnia and Herzegovina, and Croatia
 -  Population (2023): approx. 6.62 million[1]
 -  Form of government & constitutional status (2025): Parliamentary republic
 -  ERDA status: Extended partnership
 -  Role in the ERDA network (future): Balkan hub, agrarian and energy sector in transition
-

2. Demography & society

- Population projection (2050 / 2075): approx. 6.0 million[1] / 5.5 million (hypothetical)
 - Age structure (median age, youth share %, old-age ratio): 44 years, 18%, 34[1]
 - Urbanisation (%): 59%[2]
 - Average education (school years, tertiary rate %, STEM %): 11 years, 25%, 20% (hypothetical)
 - Life expectancy (years): 75.2[3]
 - Net migration per year (average 2025-2075): -0.3% (hypothetical)
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 6.0 (hypothetical), 45%[4]
-

3. Economy & innovation

- GDP (real, 2023 / 2050 / 2075, bn EUR): 75 (2023)[5] / 110 (hypothetical) / 150 (hypothetical)
- GDP per capita (EUR): 11,300 (2023)[5]
- Further details on hypothetical assumptions appear in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>). Notes: (p) - projection.
- Top three industries: automotive, agriculture & food processing, information and communication technology
- Degree of automation & digitalisation (current / 2050, %): 45% / 70% (hypothetical)
- R&D intensity (% of GDP): 1.0%[6]
- Patents per year (trend, average): approx. 80 (WIPO 2023)[7]
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: No
- EHAM+ (trade defence) utilisation [0-10]: 4 (hypothetical)

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area (km²): 88,361[8]
- Marine area: landlocked
- Strategic raw materials: copper, lead, zinc, coal, arable land
- Renewable energy potential: hydropower (high), solar (growing), wind (regional)
- Share of biodiversity & protected areas (% of territory): 7.6%[9]
- Sustainability indicators (CO₂ per capita, recycling rate, material consumption per capita): 6.3 t CO₂ (2022)[10], 38% recycling (hypothetical), 12 t material (hypothetical)

Social resources

- Volunteering & community culture (index [0-10]): 6 (hypothetical)
- CIVITAS participation index [0-10]: 5 (hypothetical)
- Healthcare system (accessibility [0-10], prevention [0-10]): 7 / 6

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: partial (local referenda)
 - Democracy index (Freedom House or similar [0-100]): 62[4]
 - Citizen participation rate (local/national) [%]: 55% (voter turnout 2022)[11]
 - Rule-of-law index [0-10]: 5.5[12]
 - International trust values [0-10]: 4.5 (hypothetical)
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 2.0%[13]
- Role in Arctic/North Sea/Atlantic: none
- Role in Central/Eastern/Western Europe: central position in the Western Balkans, logistics hub
- Role in Southern Europe/Africa/Asia: expanding economic ties to Asia
- Role in Global/Solar Alliance space: observer
- Civil resilience programmes: partial (civil protection)
- Drone/space/AI capacities: partial

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
 - Participation in Arctic Resilience Observatory: No
 - Implementation of the Arctic Democracy Mining Act: No
 - Partnerships with indigenous communities: No
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Serbian (official); minority languages (Hungarian, Bosnian, others)
- UNESCO World Heritage / cultural sites (count): 4 sites[14]
- Creative economy strength (music, film, design [0-10]): 6 (hypothetical)

- International visibility (Olympics, Nobel prizes, etc.): sporting success (tennis, basketball), occasional film awards
 - Culture as mediator in democracy networks [0-10]: 5 (hypothetical)
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** growing economy, strong EU ties without membership, societal change
- **Best case 2050/2075:** fully integrated ERDA member with sustainable industry and strong regional role
- **Base case 2050/2075:** stable partnership with the EU, moderate economic growth, advancing digitalisation
- **Worst case 2050/2075:** stagnation due to political instability and emigration—requires preventive measures

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: agricultural and energy production
 - Democratic resilience (social, cultural, ecological): medium and rising
 - Exemplary impact on other states / regions: bridge-builder in the Balkans
-

8. Narrative & attraction

“Serbia demonstrates that a country on the road to European integration can preserve its cultural identity while remaining open to cooperation and innovation.”

- Self-efficacy: local initiatives and civic engagement in communities
 - Future dignity: pride in tradition and progress, perspective of EU accession
 - Invitation to other states & citizens: signal for partnership-based development and stability
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn EUR)	75 (h)	110 (h)	150 (h)	16,600
Population	6.6 m	6.0 m	5.5 m (h)	447 m
Share of renewables (%)	26%[15] (h)	45% (h)	65% (h)	37%
Life expectancy (years)	75.2 (h)	78 (h)	80 (h)	81.4
Education rate (%)	25 (h)	32 (h)	40 (h)	39
AI capacity [0-10]	4 (h)	6 (h)	7 (h)	6
Civil-society index [0-10]	5 (h)	6 (h)	7 (h)	7

(h) = hypothetical: ERDA Scenario Modeling Report 2025

10. Snapshot: “Serbia at a glance” Serbia is a dynamic country in the heart of the Balkans with deepening ties to Europe. Potential in renewables and a strategic location make it an important partner for the EU and ERDA. Challenges remain, including demographic decline and economic transformation. Bold reforms and open cooperation can turn Serbia into a stable pillar of democratic Europe by 2075.

11. Sources & modelling 11.1 1 General

- Statistics: blend of national and international data, base year 2023
- Economic modelling assumptions: growth rates 2.5% p.a. (hypothetical)
- Energy potential: IEA 2024 and national strategy papers (hypothetical)
- Innovation & education: OECD Education at a Glance 2023
- Democracy & rule of law: Freedom House 2024
- Sustainability and resource indicators: EEA, UN SDG database

11.2 2 Referenced sources

1. World Bank. 2024. “World Development Indicators”. <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-09).
2. United Nations. 2022. “World Population Prospects”. <https://population.un.org/wpp/> (accessed 2025-06-09).
3. World Health Organization. 2024. “Serbia Country Profile” (*hypothetical*).
4. Freedom House. 2024. “Freedom in the World: Serbia”. <https://freedomhouse.org> (accessed 2025-06-09).
5. Eurostat. 2024. “National Accounts”. <https://ec.europa.eu/eurostat> (accessed 2025-06-09).
6. UNESCO Institute for Statistics. 2023. “Research and Development”. <http://uis.unesco.org> (accessed 2025-06-09).
7. WIPO. 2024. “IP Statistics Data Center”. <https://www3.wipo.int/ipstats/> (accessed 2025-06-09).
8. Statistical Office of the Republic of Serbia. 2024. “Statistical Yearbook”. <https://www.stat.gov.rs> (accessed 2025-06-09).
9. European Environment Agency. 2023. “Protected Areas in Serbia”. <https://www.eea.europa.eu> (accessed 2025-06-09).
10. Global Carbon Atlas. 2024. “CO2 Emissions”. <https://globalcarbonatlas.org> (accessed 2025-06-09).
11. Republic Electoral Commission. 2022. “Parliamentary Elections Turnout”. <https://www.rik.parlament.gov.rs> (accessed 2025-06-09).
12. World Justice Project. 2024. “Rule of Law Index”. <https://worldjusticeproject.org> (accessed 2025-06-09).
13. SIPRI. 2024. “Military Expenditure Database”. <https://sipri.org> (accessed 2025-06-09).
14. UNESCO. 2024. “World Heritage List”. <https://whc.unesco.org> (accessed 2025-06-09).
15. International Energy Agency. 2024. “Serbia Energy Profile”. <https://www.iea.org> (accessed 2025-06-09).

11.3 3 Modelling & assumptions

- Refer to **ERDA Scenario Modeling Report 2025** for all hypothetical details (<https://erda-institut.example.org/report2025>, hypothetical).
- Economic projections 2050-2075 extrapolate Eurostat and World Bank trends (hypothetical).
- AI capacity assumes computing power doubling every three years (hypothetical).
- Infrastructure autonomy targets 70% renewables by 2050 (hypothetical).
- Democracy and participation values improve by 0.5 points per year (hypothetical).
- Energy potential scenarios cover moderate vs. ambitious paths (hypothetical).

12. 🤝 Participation welcome This profile is based on public and modelled data. Representatives of the Republic of Serbia and interested stakeholders are invited to contribute perspectives, additions, and updates—building a shared view of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

* Status of Kosovo disputed; Serbia does not recognise Kosovo as an independent state.

TR - State Profile Türkiye

🇹🇷 ERDA State Profile: Türkiye

1. Overview (meta)

- 国旗 Official name: Republic of Türkiye (Türkiye Cumhuriyeti)
 - 地图 Geographical location: Anatolia in Western Asia with Eastern Thrace in South-Eastern Europe; borders include Greece, Bulgaria, Syria, Iran
 - 人口 Population (2025): approx. 86 million (World Bank 2023)
 - 政府形式 Form of government & constitutional status (2025): Presidential system, republic, EU accession candidate
 - ERDA status: Extended partnership (associated partner)
 - 角色 Role in the ERDA network (future): Energy and logistics hub between Europe and Asia
-

2. Demography & society

- Population projection (2050 / 2075): 95 million / 100 million (UN DESA WPP 2022, hypothetical)
 - Age structure (median age, youth share %, old-age ratio): 33 years, 22%, 15%
 - Urbanisation (%): 77% (World Bank 2023)
 - Average education (school years, tertiary rate %, STEM %): 12 years, 30%, 21%
 - Life expectancy (years): 78.6 (World Bank 2023)
 - Net migration per year (average 2025-2075): +50,000 (hypothetical)
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 6.2 / 55%
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075): 1.1 tn USD (2023), 1.7 tn USD / 2.2 tn USD (hypothetical)
- Growth hotspots (industries / clusters): automotive, machinery, textiles, tourism, renewables
- R&D expenditure (% of GDP): 1.1% (World Bank 2023)
- Patent applications (per year): approx. 8,000 (WIPO 2023)
- Firms with AI focus (%): 5% (hypothetical)
- Start-up dynamics (start-ups per year): 1,200 (hypothetical)
- Digitalisation index: 0.55 (EU DESI 2023)

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Politics & institutions

- Democracy index (Freedom House score): 32 / 100 (Freedom House 2024)
- Governance & state structure: presidential system, centralised administration

- Party landscape: dominant AKP, opposition alliances CHP, İYİ, others
 - Civil society & media freedom: constrained (Reporters Without Borders 2024)
-

5. Economic performance & infrastructure

- Transport infrastructure (road, rail, ports, airports): extensive network with pivotal position on trade routes
 - Energy supply (electricity mix, import dependence): 37% natural gas, 32% coal, 21% renewables (IEA 2024)
 - Telecommunications & internet coverage: 95% mobile penetration, 84% internet usage
 - Research institutes & clusters: technoparks in Ankara, Istanbul, Izmir
-

6. Education & social affairs

- Education system (structure, compulsory schooling, higher education): 12 years of compulsory schooling, numerous universities (e.g. Istanbul University, Middle East Technical University)
 - Skilled-labour situation (shortage or surplus): large labour force, regional disparities
 - Social system (health, pensions, care): state health insurance, pension system under reform
 - Societal challenges (inequality, poverty, migration): rural-urban divide, strong internal migration
-

7. Resources & environment

- Natural resources (energy, raw materials): hydropower, coal, limited oil reserves
 - Energy and climate policy: expansion of renewables, Paris Agreement ratified
 - Environmental indicators (emissions, biodiversity): 4.4 t CO₂ per capita (World Bank 2023), many protected areas
 - Sustainability goals (SDGs): progress on education and infrastructure, deficits on climate action
-

8. Security & defence

- Military expenditure (% of GDP): 2.1% (SIPRI 2024)
 - National defence strategy: NATO member, regional security role
 - Internal security (police, intelligence): centralised organisation, powerful MIT intelligence service
 - Cybersecurity (capabilities, strategies): under development, national cyber defence centre
-

9. International cooperation & trade

- Primary trading partners: EU, Russia, USA, China
- Memberships in international organisations: NATO, WTO, G20, Council of Europe, OECD
- Status with EU & ERDA: EU accession candidate, partner in the ERDA area

- Foreign-policy orientation (geostrategic, values): bridge between Europe and the Middle East, pragmatic diplomacy
-

10. Snapshot: “Türkiye at a glance” Türkiye is a transcontinental state with a growing population, strong economic momentum, and significant geostrategic relevance. Political tensions and democratic reforms remain challenges for deeper integration with European structures.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank (population, GDP, urbanisation), IEA (energy), SIPRI (military expenditure)
- Economic modelling assumptions: ERDA Policy Lab (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: national energy strategies (hypothetical)
- Innovation & education: UNESCO Institute for Statistics, OECD
- Democracy & rule of law: Freedom House 2024, Reporters Without Borders
- Sustainability and resource indicators: UN SDG database, World Bank

11.2 📄 Referenced sources

1. World Bank. 2025. “Population, total - Turkiye”. <https://api.worldbank.org/v2/country/TUR/indicator/SP.POP.TOTL> (last accessed 2025-06-11).
2. World Bank. 2025. “GDP (current US\$) - Turkiye”. <https://api.worldbank.org/v2/country/TUR/indicator/NY.GDP.MKTP.CD> (last accessed 2025-06-11).
3. World Bank. 2025. “Urban population (% of total population) - Turkiye”. <https://api.worldbank.org/v2/country/TUR/indicator/SP.URB.TOTL.IN.ZS> (last accessed 2025-06-11).
4. Freedom House. 2024. “Freedom in the World 2024: Turkey”. <https://freedomhouse.org> (last accessed 2025-06-11).
5. SIPRI. 2024. “Military Expenditure Database”. <https://sipri.org> (last accessed 2025-06-11).
6. IEA. 2024. “Turkey Energy Profile”. <https://www.iea.org> (last accessed 2025-06-11).

11.3 📈 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for full details (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Economic projections 2050–2075 extrapolate regional growth data and EU convergence (hypothetical).
 - Energy potential: national solar and wind strategies (hypothetical).
 - Democracy and participation values: Freedom House trend extension (hypothetical).
-

12. 🤝 Participation welcome This profile is based on public and modelled data. Representatives of the Republic of Türkiye and interested experts are invited to contribute updates for a shared picture of a resilient, democratic future for Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

UA - State Profile Ukraine

ERDA State Profile: Ukraine

1. Overview (meta)

-  **Official name:** Ukraine
 -  **Geographical location:** Eastern Europe; neighbours Poland, Slovakia, Hungary, Romania, Moldova, Belarus, Russia
 -  **Population (2025):** approx. 37 million
 -  **Form of government & constitutional status (2025):** Semi-presidential republic, Constitution of 1996; territorial integrity restored by end of 2025
 -  ERDA status: Sovereign partner, accession candidate
 -  **Future role in the ERDA network:** Security anchor on the eastern flank, agricultural and technological hub
-

2. Demography & society

- **Population (2050 / 2075 forecast):** 45 million / 48 million
 - **Age structure:** median age 42; youth share 16%; old-age ratio 22%
 - **Urbanisation:** 70%
 - **Education:** avg. 11.5 school years; tertiary rate 30%; STEM share 23%
 - **Life expectancy (2025):** ♂ 70 / ♀ 77
 - **Net migration:** +200,000 people per year (diaspora return)
 - **Social cohesion:** satisfaction index 6/10; trust in democracy 60%
-

3. Economy & innovation

- **GDP (bn EUR):**
 - 2025: 200
 - 2050: 450
 - 2075: 700
- **GDP per capita (2025):** approx. 5,400 EUR
- **Top three industries:** agriculture & food, IT services, metal processing
- **Automation & digitalisation:** 2025: 40% | 2050: 70%
- **Research & innovation intensity:** 1.5% of GDP
- **Patents per year:** approx. 4,000
- **Member of FORTERA trade alliances:** Yes
- **Member of the Democracy Trade Network:** Yes
- **EHAM+ utilisation:** 8/10

3.1 Infrastructure autonomy

- Energy
- IT/Cloud
- Defence
- Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- Land area: 603,700 km²
- Marine area: approx. 130,000 km² (Black & Azov Seas)
- Strategic raw materials: fertile soils, titanium, lithium
- Renewable energy potential: strong wind and solar, biomass
- Biodiversity & protected areas: approx. 15% of territory

 Social resources

- Volunteering & community culture: 7/10
- CIVITAS participation index: 6.5/10
- Healthcare system: access 6/10 | prevention 5/10

 Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: partial (local referenda)
 - Democracy index: 70/100
 - Citizen participation rate: 60%
 - Rule-of-law index: 6/10
 - International trust values: 7/10
-

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN capable
 - Cyber command
 - Early warning system
- **Defence expenditure (2025):** 3% of GDP
- **Role in Arctic/North Sea/Atlantic:** none, but key position on Europe's eastern land border
- **Role in Central/Eastern/Western Europe:** security anchor and connector between the EU and the Black Sea region
- **Role in Southern Europe/Africa/Asia:** bridgehead for trade and reconstruction projects
- **Role in Global/Solar Alliance space:** active supporter of democratic networks
- **Civil resilience programmes:** present (e.g. territorial defence)
- **Drone/space/AI capacities:** partially available

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
 - Participation in Arctic Resilience Observatory: No
 - Implementation of the Arctic Democracy Mining Act: No
 - Partnerships with indigenous communities: No
-

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Ukrainian; minority languages Russian, Crimean Tatar

- **UNESCO World Heritage / cultural sites:** 8
 - **Creative economy:** 7/10
 - **International visibility:** high since 2022 (cultural diplomacy, sport)
 - **Culture as mediator:** 7/10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** territorial integrity restored after Russia's withdrawal; large-scale reconstruction
- **Best case 2075:** fully integrated technology democracy with a thriving economy and robust civil society
- **Base case 2075:** stable agrarian-industrial economy, consolidated democracy
- **Worst case 2075:** economic stagnation, persistent security risks

Role in the ERDA vision 2075

"Ukraine becomes a resilient democratic role model and East-West hub for trade and innovation by 2075."

- Contribution to a post-scarcity economic order: food security, diversified energy mix
 - Democratic resilience: expanded local participation, digital transparency
 - Exemplary impact: successful transformation after occupation
-

8. Narrative & attraction *"Ukraine proves how determination and international solidarity can reinforce an open democracy."*

- **Self-efficacy:** citizen initiatives drive reconstruction
 - **Future dignity:** pride in cultural diversity and the fight for freedom
 - **Invitation:** "Let's shape the future together—for a free Europe."
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	200	450	700
Population (million)	37	45	48
Share of renewables (%)	25	50	70
Life expectancy (years)	73	77	80
Education rate (%)	30	40	50
AI capacity [0-10]	5	7	8
Civil-society index [0-10]	6	7.5	8.5

10. Snapshot: "Ukraine at a glance" Ukraine stands at the outset of profound renewal in 2025. With roughly 37 million people, a returning diaspora, and dynamic agriculture plus IT sectors, it is forming the security anchor of Eastern Europe. Democratic institutions gain strength through rising trust and participation. As an ERDA partner, Ukraine advances renewables, civil resilience, and digital innovation. By 2075 it is seen as an exemplary technology democracy bridging East and West through solidarity and innovation.

11. Sources & modelling 11.1 1 General

- Statistics: mix of national (Derzhstat) and international datasets (UN, World Bank), base year 2025
- Models: GDP and population forecasts per World Bank and UN (hypothetical)
- Energy and infrastructure data follow national strategy papers (hypothetical)

11.2 2 Referenced sources

Demography

- * "World Population Prospects" (UN DESA, 2023): <https://population.un.org/wpp/> (last accessed 2025-06-08)
- * "Demographic Yearbook Ukraine 2023" (Derzhstat, 2024): <https://ukrstat.gov.ua/> (last accessed 2025-06-08)
- * "Education at a Glance - Ukraine Chapter (Special Edition)" (OECD, 2024): <https://www.oecd.org/education/> (last accessed 2025-06-08)

Economy & innovation

- * "Ukraine Overview" (World Bank, 2025): <https://www.worldbank.org/en/country/ukraine/overview> (last accessed 2025-06-08)
- * "Ukraine: Private Sector Outlook" (EBRD, 2024): <https://www.ebrd.com/ukraine.html> (last accessed 2025-06-08)
- * "Patent Statistics Overview" (Ukrpatent, 2023): <https://ukrpatent.org/> (last accessed 2025-06-08)

Energy & resources

- * "Renewables Readiness Assessment: Ukraine" (IRENA, 2023): <https://www.irena.org/publications> (last accessed 2025-06-08)
- * "National Energy Strategy to 2050" (Ministry of Energy of Ukraine, hypothetical: ERDA Scenario Modeling Report 2025)

Security & strategy

- * "Ukraine Partnership Reports" (NATO, 2025): <https://www.nato.int> (last accessed 2025-06-08)
- * "White Paper on Territorial Defence Capabilities" (Centre for Defence Strategies - Ukraine, 2024): <https://defence.org.ua/> (last accessed 2025-06-08)

Political & social indicators

- * "Freedom in the World: Ukraine Country Report" (Freedom House, 2024): <https://freedomhouse.org> (last accessed 2025-06-08)
- * "Rule of Law Index - Ukraine Country Profile" (World Justice Project, 2024): <https://worldjusticeproject.org> (last accessed 2025-06-08)
- * "CIVITAS Ukraine Scorecard 2025" (hypothetical: ERDA Scenario Modeling Report 2025)

11.3 3 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for all hypothetical assumptions (<https://erda-institut.example.org/report2025>, hypothetical). Notes: (p) - projection.
- Demography uses the UN DESA medium-fertility variant.
- Economic scenarios combine World Bank, EBRD, and Ukrainian Economic Outlook Group estimates (hypothetical).
- Worst-/best-case framing built by the ERDA Policy Lab (hypothetical, 2025).

12. 🤝 Participation welcome This profile uses public and modelled data. Representatives of Ukraine are invited to add perspectives so we can maintain a shared vision of Europe's democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

UK - State Profile United Kingdom

🇬🇧 ERDA State Profile: United Kingdom

1. Overview (meta)

- Official name: United Kingdom of Great Britain and Northern Ireland
 - Geographical location: North-Western Europe, British Isles, Atlantic Ocean and North Sea
 - Population (2025): approx. 67.6 million (ONS)
 - Form of government & constitutional status (2025): Parliamentary monarchy, uncodified constitution
 - ERDA status: Extended partnership (sovereign partner)
 - Role in the ERDA network (future): finance and innovation hub, maritime security centre
-

2. Demography & society

- Population projection (2050 / 2075): 70 million / 71 million (UN DESA 2022, hypothetical)
 - Age structure (median age, youth share %, old-age ratio): 41 years, 17%, 34%
 - Urbanisation (%): 84%
 - Average education (school years, tertiary rate %, STEM %): 13 years, 42%, 26%
 - Life expectancy (years): 81.7 (World Bank 2023)
 - Net migration per year (average 2025-2075): +180,000 (hypothetical)
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 7.1 / 65%
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075, bn EUR): 2,800 / 3,400 (hypothetical) / 3,900 (hypothetical)
- GDP per capita (EUR): 41,000
- Top three industries: financial services, aerospace, creative industries & pharma
- Degree of automation & digitalisation (current / 2050, %): 60% / 85%
- R&D intensity (% of GDP): 2.8%
- Patents per year (trend, average): approx. 8,000 / stable
- Member of FORTERA trade alliances: Yes (partnership)
- Member of the Democracy Trade Network: Yes
- EHAM+ (trade defence) utilisation [0-10]: 7

3.1 Infrastructure autonomy

- Production sovereignty in strategic sectors:
 - Energy ✓
 - IT/Cloud ✓
 - Defence ✓
 - Food ✓
 - Satellite communication (IRIS²) ✓

- Quantum technology ✓
 - Autonomous logistics systems ✓
-

4. Resource profile Natural resources

- Land area: 243,610 km²
- Marine area: approx. 770,000 km² (exclusive economic zone)
- Strategic raw materials: North Sea oil and gas, minerals, farmland
- Renewable energy potential: wind (high), solar (medium), tidal (distinctive)
- Share of biodiversity & protected areas (% of territory): 28%
- Sustainability indicators (CO₂ per capita, recycling rate, material consumption per capita): 5.5 t; 45%; 13 t

Social resources

- Volunteering & community culture (index [0-10]): 7.5
- CIVITAS participation index [0-10]: 7
- Healthcare system (accessibility [0-10], prevention [0-10]): 8 / 6

Political resources

- Constitutional adherence: yes (uncodified constitutional practice)
 - Direct-democracy instruments: partial (local referenda)
 - Democracy index (Freedom House or similar [0-100]): 93 (Freedom House 2024)
 - Citizen participation rate (local/national) [%]: 65% voter turnout (2024)
 - Rule-of-law index [0-10]: 8.5
 - International trust values [0-10]: 7.8
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable ✓
 - Cyber command ✓
 - Early warning system ✓
- Defence expenditure (% of GDP): 2.2% (NATO 2024)
- Role in Arctic/North Sea/Atlantic: leading naval presence and research contributor
- Role in Central/Eastern/Western Europe: security anchor and trade hub
- Role in Southern Europe/Africa/Asia: global military and trade ties
- Role in Global/Solar Alliance space: active partner in international alliances
- Civil resilience programmes: present
- Drone/space/AI capacities: present

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: Yes
 - Participation in Arctic Resilience Observatory: Yes
 - Implementation of the Arctic Democracy Mining Act: Yes
 - Partnerships with indigenous communities: partial
-

6. Cultural identity & soft power

- Languages / indigenous cultures: English; Welsh, Scottish Gaelic, Irish
 - UNESCO World Heritage / cultural sites (count): 33
 - Creative economy strength (music, film, design [0-10]): 9
 - International visibility (Olympics, Nobel prizes, etc.): very high
 - Culture as mediator in democracy networks [0-10]: 8
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** robust service economy, globally connected, stable democracy
- **Best case 2075:** innovation leader with climate-neutral infrastructure and strong global cooperation
- **Base case 2075:** competitive knowledge nation with balanced demography and resilient economy
- **Worst case 2075:** persistent regional inequalities slow innovation capacity

"The United Kingdom bridges tradition and modernity as a hinge between Europe and the wider world."

8. Narrative & attraction

- Attractive labour market for highly skilled talent, international universities
 - Socially liberal orientation, active civil society
 - Strong cultural reach through music, film, and media
-

9. Key indicators (short form)

Indicator	2025	Source
Population	67.6 m	ONS
Life expectancy	81.7 years	World Bank
GDP	2,800 bn EUR	World Bank
GDP per capita	41,000 EUR	World Bank
R&D intensity	2.8%	OECD
Defence expenditure	2.2% of GDP	NATO

10. Snapshot: “United Kingdom at a glance” The United Kingdom is a long-standing democracy with global reach. As Europe's finance and innovation centre it plays a decisive role in maritime security and cultural connectivity.

11. Sources & modelling 11.1 1 General

- Statistics: Office for National Statistics (ONS), World Bank, OECD; base year 2024.
- Modelling assumptions: GDP growth 1.8% p.a., moderate population increase (UN DESA), inflation target 2% p.a.
- Energy potential: IEA “United Kingdom Energy Outlook 2024”.
- Innovation & education: OECD Science, Technology and Industry indicators.

- Democracy & rule of law: Freedom House, World Justice Project.
- Sustainability & resources: UN SDGs, Global Footprint Network.

11.2 Referenced sources

1. Office for National Statistics. 2024. "Overview of the UK population". <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates> (last accessed 2025-06-10).
2. World Bank. 2024. "World Development Indicators". <https://databank.worldbank.org/source/world-development-indicators> (last accessed 2025-06-10).
3. OECD. 2023. "Science, Technology and Industry Outlook". <https://www.oecd.org> (last accessed 2025-06-10).
4. NATO. 2024. "Defence Expenditure of NATO Countries". <https://www.nato.int> (last accessed 2025-06-10).
5. International Energy Agency. 2024. "United Kingdom Energy Outlook". <https://www.iea.org> (last accessed 2025-06-10).

11.3 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** for details (hypothetical link: <https://erda-institut.example.org/report2025>). Notes: (p) – projection.
 - Economic projections 2050–2075 extrapolate ONS and World Bank trends (hypothetical).
 - Energy expansion foresees more offshore wind and green hydrogen (hypothetical).
 - Infrastructure autonomy targets 80% renewables by 2050 (hypothetical).
 - Democracy and participation values strengthen via local participation formats (hypothetical).
-

12.  Participation welcome This profile relies on public and modelled data. Representatives of the United Kingdom and interested partners are welcome to provide updates to maintain a shared picture of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

XK - State Profile Kosovo

ERDA State Profile: Kosovo

1. Overview (meta)

-  Official name: Republic of Kosovo (Republika e Kosovës)
 -  Geographical location: South-Eastern Europe, central Balkans; borders Albania, North Macedonia, Serbia, and Montenegro
 -  Population (2025): approx. 1.76 million[1]
 -  Form of government & constitutional status (2025): Parliamentary republic; limited international recognition
 -  ERDA status: Observer
 -  Future role in the ERDA network: Digital development partner and bridge into the Western Balkans
-

2. Demography & society

- Population projection (2050 / 2075): 1.8 million / 1.8 million (UN DESA 2022; hypothetical: ERDA Scenario Modeling Report 2025)
 - Age structure (median age, youth share %, old-age ratio): 32 years, 22% under 15, 15% over 65[2]
 - Urbanisation (%): approx. 30%[2]
 - Average education (school years, tertiary rate %, STEM %): 9 years, 25% (hypothetical), 15% (hypothetical)
 - Life expectancy (years): 76[4]
 - Net migration per year (average 2025-2075): n/b
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): n/b
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075 in bn EUR): 10 (2023) / 20 (p) / 30 (p)
- GDP per capita (EUR): approx. 5,500 (2023)
- Top three key industries: services, manufacturing, mining
- Share of automation & digitalisation (current / 2050 in %): 30% / 55% (p)
- Research & innovation ratio (% of GDP): 0.2% (estimate)[7]
- Patents per year (trend, average): n/b
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: Observer
- EHAM+ utilisation (trade defence) [0-10]: 2

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area (km²): approx. 10,900
- Marine area (if relevant, km²): none
- Strategic raw materials: lignite, nickel, lead (limited deposits)
- Renewable energy potential: hydro (high), solar (medium), wind (medium)
- Biodiversity & protected areas (% of territory): 15% (hypothetical)
- Sustainability indicators (CO₂ per capita, recycling rate, material consumption per capita): 7 t, 25% (hypothetical), n/b

Social resources

- Volunteering & community culture (index [0-10]): 6 (hypothetical)
- CIVITAS participation index [0-10]: 5 (hypothetical)
- Healthcare system (access [0-10], prevention [0-10]): 6 / 5

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: Not available
 - Democracy quality index (Freedom House 2024): 56/100
 - Citizen participation rate (local/national) [%]: 40% (hypothetical)
 - Rule-of-law index [0-10]: 4.5 (hypothetical)
 - International trust values [0-10]: 4 (hypothetical)
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
 - Defence expenditure (% of GDP): 1.2% (hypothetical)
 - Role in Arctic/North Sea/Atlantic areas: none
 - Role in Central/Eastern/Western Europe: stabilisation partner in the Western Balkans
 - Role in Southern Europe/Africa/Asia: connective actor toward the central Balkans
 - Role in global/Solar Alliance space: observer
 - Civil resilience programmes
 - Drone/space/AI capacities
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Albanian; minority languages Serbian, Turkish, Bosnian
 - UNESCO World Heritage / cultural sites: 2
 - Creative economy (music, film, design strength [0-10]): 4 (hypothetical)
 - International visibility (Olympics, Nobel prizes, etc.): low
 - Role of culture as a mediator in democracy networks [0-10]: 5 (hypothetical)
-

7. Development path (2025-2075) Scenario development

- Status 2025: young state with EU perspective and international KFOR support
- Best case 2075: fully integrated digital hub of the Western Balkans
- Base case 2075: continuous institutional consolidation and moderate growth

- Worst case 2075: persistent political tensions and emigration slow progress

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: digital services and skilled labour
 - Democratic resilience (social, cultural, ecological): medium
 - Exemplary impact on other states/regions: bridge between the EU and Western Balkans
-

8. Narrative & attraction

"Kosovo shows how a small state can gain stability and prosperity through determination and international partnerships."

- Self-efficacy: young, committed population
 - Future dignity: pride in independence and cultural heritage
 - Invitation to other states & citizens: cooperation in digitalisation and education
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024 (benchmark)
GDP (bn EUR)	10 (p)	20 (p)	30 (p)	16,556
Population	1.76 m	1.8 m	1.8 m	447 m
Share of renewable energy (%)	6 (p)	25 (p)	40 (p)	37
Life expectancy (years)	76 (p)	78 (p)	80 (p)	81
Education rate (%)	25 (p)	30 (p)	35 (p)	40
AI capacity [0-10]	2 (p)	4 (p)	6 (p)	5
Civil-society index [0-10]	n/b (p)	5 (p)	6 (p)	6

Notes: (p) - projection; hypothetical assumptions follow the ERDA Scenario Modeling Report 2025.

10. Snapshot: "Kosovo at a glance" Kosovo is a young Western Balkan state with a dynamic population and clear EU perspective. Despite ongoing recognition questions, the economy and IT sector are expanding steadily. International partnerships and the KFOR mission ensure stability and create opportunities for deeper integration into European structures.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank and UN data; base year 2023
- Models: population and economic development per UN DESA and World Bank
- Energy and infrastructure outlooks: national development strategy (hypothetical: ERDA Scenario Modeling Report 2025)

11.2 📖 Referenced sources

1. World Bank. 2025. "Population, total - Kosovo". <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=XK> (accessed 2025-06-10).
2. United Nations Department of Economic and Social Affairs. 2022. "World Population Prospects 2022". <https://population.un.org/wpp/> (accessed 2025-06-10).
3. World Bank. 2025. "GDP (current US\$) - Kosovo". <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=XK> (accessed 2025-06-10).
4. World Health Organization. 2024. "Kosovo: WHO statistical profile". <https://www.who.int/data/gho> (accessed 2025-06-10).
5. United Nations Development Programme. 2023. "Human Development Report 2023/24". <https://hdr.undp.org> (accessed 2025-06-10).
6. World Bank. 2024. "Current health expenditure (% of GDP) - Kosovo". <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=XK> (accessed 2025-06-10).
7. UNESCO Institute for Statistics. 2023. "Kosovo - R&D expenditure" (hypothetical: ERDA Scenario Modeling Report 2025). <https://uis.unesco.org> (accessed 2025-06-10).
8. Energy Community Secretariat. 2024. "Annual Implementation Report". <https://www.energy-community.org> (accessed 2025-06-10).
9. NATO. 2025. "KFOR Key Facts and Figures". <https://www.nato.int/kfor> (accessed 2025-06-10).
10. European Commission. 2023. "Kosovo 2023 Report". <https://neighbourhood-enlargement.ec.europa.eu/> (accessed 2025-06-10).
11. Freedom House. 2024. "Freedom in the World 2024 - Kosovo". <https://freedom-house.org/country/kosovo/freedom-world/2024> (accessed 2025-06-10).

11.3 🔧 Modelling & assumptions

- Further details on all hypothetical assumptions are compiled in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection or hypothetical estimate.
- Economic projections 2050–2075: trend extrapolations from World Bank data (hypothetical: ERDA Scenario Modeling Report 2025).
- Infrastructure autonomy: assumptions based on the national energy agenda 2030 (hypothetical).
- Democracy and participation scores: +0.5 points per year in line with Freedom House trajectories (hypothetical).
- Energy potentials: "moderate" scenario to 2050 – 1 GW solar, 800 MW wind (hypothetical).

12. 🤝 Participation welcome This profile relies on publicly available data and modelled assumptions. Representatives of Kosovo and subject-matter experts are invited to contribute their perspectives so we can build a shared vision of a resilient, democratic Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

B.5 State Profiles (ERDA - Global Associates)

ERDA state profiles of the globally associated democracies, according to the ERDA state architecture ("Concentric Circles").

AU - State Profile Australia

ERDA State Profile: Australia

1. Overview (meta)

- **Official name:** Commonwealth of Australia
- **Geographical location (continent, region):** Oceania; island continent between the Indian and Pacific Oceans
- **Population (2023):** 26,658,948¹
- **Form of government & constitutional status (2025):** Federal parliamentary monarchy within the Commonwealth
-  ERDA status: Global associate
- **Future role in the ERDA network:** Indo-Pacific partner and technology collaborator

2. Demography & society

- **Population projection (2050 / 2075):** ~30 million / ~33 million (UN WPP 2022; hypothetical: ERDA Scenario Modeling Report 2025)
- **Age structure:** median 38.9 years; youth share 18%; old-age ratio 21% (ABS 2023)
- **Urbanisation:** 90% (World Bank 2023)
- **Average education:** 12.9 years (OWID 2025); tertiary rate 52% (OECD 2024)
- **Life expectancy:** 83.1 years (World Bank 2023)
- **Net migration average (2025-2075):** positive (ABS projections)
- **Social cohesion:** high life-satisfaction index; stable trust in democracy

3. Economy & innovation

- **GDP (USD, 2023):** 1.73 trillion (World Bank)
- **GDP per capita (USD, 2023):** 64,821 (World Bank)
- **Top three key industries:** resources & energy, agriculture, services sector
- **Automation & digitalisation share (2025/2050):** 55% / 80% (CSIRO projections; hypothetical)
- **Research & innovation ratio:** 1.8% of GDP (OECD 2023)
- **Patents per year:** approx. 3,000 (WIPO 2023)
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** Observer
- **EHAM+ score (0-10):** 6

3.1 Infrastructure autonomy

- Energy
- IT/Cloud
- Defence
- Food
- IRIS² (planned participation)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- **Land area:** 7,688,000 km²
- **Marine area:** 8,505,000 km²
- **Strategic raw materials:** bauxite, iron ore, lithium, rare earths

¹World Bank, 2023

- **Renewable-energy potential:** very high solar, high wind, geothermal
- **Biodiversity & protected areas:** 19% protected land
- **Sustainability indicators:** CO₂ emissions 15 t per capita (2022); recycling rate 40%

Social resources

- **Volunteering & community:** strong in rural regions
- **CIVITAS participation index (0-10):** 7 (hypothetical)
- **Healthcare system:** access 9/10; prevention 8/10

Political resources

- **Constitutional adherence:** Yes
- **Direct-democracy instruments:** referenda (constitutional amendments)
- **Democracy quality index (0-100):** 95 (Freedom House 2024)
- **Citizen participation rate:** 15%
- **Rule-of-law index (0-10):** 8.5 (WJP 2023)
- **International trust values (0-10):** 8

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN capable
 - Cyber command
 - Early warning system
- **Defence expenditure:** 2.0% of GDP (SIPRI 2023)
- **Role in the Indo-Pacific:** security partner and maritime resource protection
- **Role in the Arctic/North Sea:** observer in the Arctic Council
- **Role in the global/Solar Alliance space:** resource and research cooperation
- **Civil-resilience programmes:** in place (disaster management)
- **Drone/space/AI capacities:** expanding, national programmes active

6. Cultural identity & soft power

- **Languages / indigenous cultures:** English; 250+ indigenous languages
- **UNESCO World Heritage:** 20 sites (2024)
- **Creative economy (0-10):** 8
- **International visibility:** 157 Olympic medals; 15 Nobel laureates
- **Role of culture in democracy networks (0-10):** 7

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable growth, strong resource exports, renewables expanding
- **Best case:** leading green resource and technology nation
- **Base case:** diversified economy with resilient democracy
- **Worst case:** dependence on fossil exports, heightened security tensions

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: exports of renewable energy and critical raw materials
- Democratic resilience: solid institutions with participatory culture
- Exemplary effect: bridge between Europe and the Indo-Pacific

8. Narrative & attraction

- **Core message:** "Australia combines natural wealth with technological openness."

- **Self-efficacy:** citizen engagement in energy and environmental stewardship
- **Future dignity:** innovation nation with a strong education system
- **Invitation:** resource partnerships and exchange programmes

9. Key indicators (short form)

Indicator	2023	2050 (proj.)	2075 (proj.)
GDP (bn USD)	1,728	~2,700 (hyp.)	~3,500 (hyp.)
Population	26,659k	~30,000k (UN)	~33,000k (UN)
Share of renewable electricity (%)	35	70 (hyp.)	85 (hyp.)
Life expectancy (years)	83.1	85 (hyp.)	86 (hyp.)
Education rate (% tertiary degree)	52	60 (hyp.)	65 (hyp.)
AI capacity (0-10)	6	8 (hyp.)	9 (hyp.)
Civil-society index (0-10)	8	8.5 (hyp.)	9 (hyp.)

10. Snapshot: “Australia at a glance” Australia is a resource-rich, democratically anchored Indo-Pacific nation. It invests in renewables and technological innovation to reinforce its partnership with Europe. By 2075 it can act as a key supplier of green raw materials and a democratic bridgehead between the hemispheres.

11. Sources & modelling 11.1 1 General

- Statistics: World Bank (2023) and Australian Bureau of Statistics
- Economic-modelling assumptions: CSIRO Future Australia (hypothetical)
- Energy potentials: IEA (2024), national energy plans
- Innovation & education: OECD, WIPO
- Democracy & rule of law: Freedom House 2024, WJP 2023
- Sustainability and resource indicators: Australian Department of Climate Change

11.2 2 Referenced sources

1. **World Bank:** Population, total – Australia (accessed 2025-06-11)
2. **World Bank:** GDP, current US\$ – Australia (accessed 2025-06-11)
3. **World Bank:** GDP per capita – Australia (accessed 2025-06-11)
4. **Our World in Data:** Mean years of schooling – Australia (accessed 2025-06-11)
5. **Our World in Data:** Share of electricity renewables – Australia (accessed 2025-06-11)

11.3 3 Modelling & assumptions

- Further details on all hypothetical assumptions appear in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Notes: (p) – projection; (hyp.) – hypothetical estimate.
- Economic projections 2050–2075: based on CSIRO scenarios (hypothetical).
- AI capacities: inferred from national innovation strategies (hypothetical).
- Infrastructure autonomy: qualitative assessment using IEA data (hypothetical).
- Democracy and participation scores: composite of Freedom House and WJP (2023).

12. 4 Participation welcome This profile draws on public and modelled data. Representatives of the Commonwealth of Australia and subject-matter experts are invited to contribute perspectives so we can maintain a shared view of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CA - State Profile Canada

🇨🇦 ERDA State Profile: Canada

1. Overview (meta)

- 🇨🇦 Official name: Canada
 - 🌎 Geographical location: North America; borders the USA, the Atlantic, the Pacific, and the Arctic
 - 🌸 Population (2023): 40.1 million[^wb-pop-ca]
 - 🧠 Form of government & constitutional status (2025): Federal parliamentary democracy, constitutional monarchy
 - 📆 ERDA status: Global associate
 - 🔍 Future ERDA role: Arctic node and resource/innovation partner (hypothetical: ERDA Scenario Modeling Report 2025)
-

2. Demography & society

- Population forecast (2050/2075): 45.4 million / 49.3 million[^un-wpp-ca]
 - Age structure (median age, youth share, old-age ratio): 42 years, 15% under 15, 19% over 65[^un-wpp-ca]
 - Urbanisation (%): 81.8%[^wb-urb-ca]
 - Education (tertiary enrolment): 77%[^wb-ter-ca]
 - Life expectancy: 81.2 years[^wb-le-ca]
 - Net migration: approx. 460,000 people (2022)[^wb-netm-ca]
 - Social cohesion (subjective satisfaction): score 6.96 (World Happiness Report 2024)[^whr-ca]
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075): 2,050 bn EUR / 3,575 bn EUR (hyp.) / 5,865 bn EUR (hyp.)[^wb-gdp-ca]
- GDP per capita: approx. 51,000 EUR[^wb-gdppc-ca]
- Key industries (top three): energy (oil, gas, renewables), manufacturing, services
- Automation & digitalisation share (2025/2050): 55% / 80% (hypothetical)
- Research & innovation ratio (% of GDP): 1.7%[^wb-rd-ca]
- Patents per year (trend): around 4,500 (2020)[^wb-pat-ca]
- Member of FORTERA trade alliances: No (hypothetical)
- Member of the Democracy Trade Network: No (hypothetical)
- EHAM+ utilisation (0-10): 6 (hypothetical)

3.1 Infrastructure autonomy

- Energy ✓
 - IT/Cloud ✓
 - Defence ✓
 - Food ✓
 - Satellite communication (IRIS²) □
 - Quantum technology ✓
 - Autonomous logistics systems ✓
-

4. Resource profile Natural resources

- Land / marine area: 9,984,670 km² / 7.3 million km² exclusive economic zone[^restcountries-ca]
- Strategic raw materials: crude oil, natural gas, timber, uranium, rare earths
- Renewable-energy potential: hydro (high), wind (high), solar (medium), geothermal (regional)
- Biodiversity & protected areas: 13% of land as national parks

Social resources

- Volunteering & community culture: pronounced
- Civic-tech use (e.g., CIVITAS): growing
- Healthcare system (access, prevention): strong / comprehensive

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: partial (provincial plebiscites)
 - Rule-of-law index: high
 - International trust values: high
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
 - Defence expenditure (% of GDP): 1.4% (2023)[^nato-ca]
 - Role in the Arctic/North Sea/Atlantic zone: leading actor in Arctic cooperation
 - Civil-resilience programmes: disaster management and cyber resilience in place
 - Drone, space, and AI capacities: available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: English, French, numerous indigenous languages
 - UNESCO World Heritage / cultural sites: 20 sites (2024)[^unesco-ca]
 - Creative economy (music, film, design): very active
 - International visibility (Olympics, Nobel prizes, etc.): high
 - Culture as mediator in global democracy networks: Yes
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** prosperous industrial democracy with stable institutions
- **Best case 2075:** leading climate-neutral resource and innovation partner for Europe
- **Base case 2075:** solid partner with strong Arctic presence
- **Worst case 2075:** continued dependence on resource exports slows diversification

Status 2025 (narrative): Canada pairs high quality of life with vast territory and abundant resources; society is diverse and multilingual.

Strategic investments 2025-2050: renewables, critical infrastructure, AI research

Transformation 2050-2075: ongoing decarbonisation, expansion of polar routes, technological self-reliance

🚀 Role in the ERDA vision 2075

"By 2075 Canada is a climate-neutral resource and innovation partner that secures the Arctic and promotes democratic values worldwide."

- Contribution to the post-scarcity economic order: yes, via sustainable resource use
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary impact on other states/regions: high, especially in the Arctic
-

8. Narrative & attraction

"Canada shows that diversity and resource wealth can underpin a resilient democracy."

- Self-efficacy: citizens engage in local communities
 - Future dignity: pride in nature, inclusion, and research
 - Invitation: open cooperation in science and climate action
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	2,050	3,575 (p)	5,865 (p)
Population	40.1 m	45.4 m	49.3 m
Share of renewables (%)	19	45 (p)	70 (p)
Life expectancy (years)	81.2	83.5 (p)	86.0 (p)
Education rate (%)	77	80 (p)	85 (p)
AI capacity [0-10]	6	8 (p)	9 (p)
Civil-society index [0-10]	8	8.5 (p)	9 (p)

10. Snapshot: "Canada at a glance" Canada is a resource-rich, highly developed country with a stable democracy and strong innovation base. Its Arctic position and natural wealth make it a valuable partner for Europe's sustainable future.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank Open Data; UN World Population Prospects 2022
- Models: GDP growth 2% p.a., inflation 1.5% p.a. (hypothetical)
- Energy & infrastructure: Natural Resources Canada (NRCan)
- Innovation & education: OECD Data, UNESCO Institute for Statistics
- Democracy & rule of law: Freedom House, World Justice Project
- Sustainability & resource indicators: International Energy Agency (IEA)

11.2 📄 Referenced sources

1. World Bank. 2024. "Population, total - Canada". <https://api.worldbank.org/v2/country/can/indicator/SP.POP.TOTL> (accessed 2025-06-11).

2. UN DESA. 2022. *World Population Prospects 2022*. <https://population.un.org/wpp> (accessed 2025-06-11).
3. World Bank. 2024. "Urban population (% of total population) - Canada". <https://api.worldbank.org/v2/country/can/indicator/SP.URB.TOTL.IN.ZS> (accessed 2025-06-11).
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13. NATO. 2024. "Defence Expenditures of NATO Countries". https://www.nato.int/cps/en/natohq/topics_49198.htm (accessed 2025-06-11).
14. UNESCO World Heritage Centre. 2024. "World Heritage List". <https://whc.unesco.org/en/statesparties/ca> (accessed 2025-06-11).

11.3 🚗 Modelling & assumptions

- Additional hypothetical assumptions are detailed in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Notes: (p) – projection; (hyp.) – hypothetical estimate.
1. Economic projections 2050–2075: growth 2% p.a., inflation 1.5% p.a. (hypothetical).
 2. AI capacity: computing power doubles every three years (hypothetical).
 3. Infrastructure autonomy: target 80% renewable energy supply by 2050 (hypothetical).
 4. Democracy and participation scores: Freedom House score improves by 0.5 points/year (hypothetical).
 5. Energy potentials: IEA moderate vs. ambitious scenarios (hypothetical).

12. 🤝 Participation welcome This profile relies on public and modelled data. Representatives of Canada and interested stakeholders are invited to share perspectives to maintain a common view of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CL - State Profile Chile

FLAG ERDA State Profile: Chile

1. Overview (meta)

- 🇲ipmap Official name: Republic of Chile
 - 🌎 Geographical location: South America, Pacific coast; borders Peru, Bolivia, and Argentina
 - 📊 Population (2025): approx. 20 million*
 - 🏛⚖️ Form of government & constitutional status (2025): presidential republic
 - 📆 ERDA status: Global associate
 - 🔍 Future ERDA role: resource partner (copper, lithium), Pacific bridge state
-

2. Demography & society

- Population forecast (2050/2075): 19 million / 17 million (UN WPP 2022)
 - Age structure (median age, youth share, old-age ratio): 39 years, 20%, 18%
 - Urbanisation (%): 88%
 - Education (average years, STEM share, tertiary rate): 10 years, 30%, 29%
 - Life expectancy: 80.0 years
 - Net migration: slightly positive (~0.2% per year)
 - Social cohesion (subjective satisfaction, trust in democracy): moderate / high
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075): 315 bn EUR / 517 bn EUR (hyp.) / 849 bn EUR (hyp.)
- GDP per capita: 16,000 EUR
- Key industries (top three): mining (copper & lithium), agri-food, services & tourism
- Automation & digitalisation share (2025/2050): 55% / 75% (hypothetical)
- Research & innovation ratio (% of GDP): 0.4%
- Patents per year (trend): approx. 1,200 and rising
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: Yes
- EHAM+ utilisation (0-10): 5

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile 🌱 Natural resources

- Land / marine area: 756,102 km² / ≈3.3 million km² maritime zone
- Strategic raw materials: copper, lithium, molybdenum, rare earths
- Renewable-energy potential: solar (very high), wind (high), geothermal (medium), hydro (high)
- Biodiversity & protected areas (%): roughly 22% protected land
- Sustainability metrics: CO₂ per capita 4.4 t; recycling rate 10%; material use 13 t/person

Social resources

- Volunteering & community culture: 7/10
- CIVITAS participation index: 7/10
- Healthcare system (access, prevention): 7/10, 6/10

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: partial
 - Democracy quality index: 94/100 (Freedom House)
 - Citizen participation rate: 60%
 - Rule-of-law index: 7/10
 - International trust values: 6/10
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
 - Defence expenditure (% of GDP): 1.8%
 - Role in Arctic/North Sea/Atlantic regions: none
 - Role in Central/Eastern/Western Europe: none
 - Role in Southern Europe/Africa/Asia: Pacific bridge function
 - Role in the global/Solar Alliance sphere: resource supplier for the energy transition
 - Civil-resilience programmes: partially in place
 - Drone, space, AI capacities: partially available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Spanish; indigenous languages incl. Mapudungun, Aymara
 - UNESCO World Heritage / cultural sites: 6 sites
 - Creative economy (music, film, design): 6/10
 - International visibility (Olympics, Nobel prizes, etc.): two Nobel Prizes in Literature, active sports presence
 - Role of culture as mediator in democracy networks: 7/10
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable democracy with robust resource sector and growing solar energy
- **Best case 2075:** sustainable resource and energy supplier with high quality of life
- **Base case 2075:** diversified economy with strong trade links to the EU and Asia
- **Worst case 2075:** ongoing dependence on resource exports slows innovation

Status 2025 (narrative): Chile records a high share of renewables, rising living standards, and solid democratic institutions.

Strategic investments 2025-2050: lithium value chains, solar and wind projects, digital infrastructure

Transformation 2050-2075: value-add industrial policy, technology transfer, and regional integration

Role in the ERDA vision 2075

"By 2075 Chile is a connected resource and innovation partner for sustainable technologies across the ERDA network."

- Contribution to the post-scarcity economic order: yes, especially through lithium and copper
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary impact on other states/regions: Andes region and Pacific Alliance
-

8. Narrative & attraction

"From a copper powerhouse to the green innovation hub of the southern Pacific."

- Self-efficacy: strong communities and reform-minded society
 - Future dignity: pride in natural beauty and democratic tradition
 - Invitation: linking resource wealth with sustainable development
-

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	315	517 (p)	849 (p)
Population	20 m	19 m (p)	17 m (p)
Share of renewables (%)	35	60 (p)	80 (p)
Life expectancy (years)	80.0	82.0 (p)	84.0 (p)
Education rate (%)	29	35 (p)	42 (p)
AI capacity [0-10]	4	6 (p)	8 (p)
Civil-society index [0-10]	7	7.5 (p)	8 (p)

10. Snapshot: "Chile at a glance" Chile combines resilient democratic institutions with extraordinary resource wealth. With its renewable-energy potential and growing innovation base, the country is a sought-after partner for Europe's energy and technology transition.

11. Sources & modelling 11.1 General

- Statistics: national sources (Instituto Nacional de Estadísticas) and international datasets (World Bank, UN WPP 2022)
- Models: GDP and population forecasts per UN WPP 2022 and OECD (hypothetical)
- Energy potential: IEA 2024, national energy strategies
- Innovation & education: OECD data, Chilean Ministry of Education
- Democracy & rule of law: Freedom House, Bertelsmann Stiftung
- Sustainability indicators: UN SDG data, Global Footprint Network

11.2 Referenced sources

1. United Nations. 2022. "World Population Prospects 2022". <https://population.un.org/wpp> (accessed 2025-06-11).
2. World Bank. 2024. "World Development Indicators". <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-11).
3. International Energy Agency. 2024. "World Energy Outlook 2024". <https://www.iea.org/reports/world-energy-outlook-2024> (accessed 2025-06-11).
4. Freedom House. 2024. "Freedom in the World 2024". <https://freedomhouse.org> (accessed 2025-06-11).

11.3 🔧 Modelling & assumptions

- Further hypothetical assumptions appear in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Notes: (p) - projection; (hyp.) - hypothetical estimate.
 - Economic projections 2050–2075: extrapolated from World Bank trends (hypothetical).
 - Energy potentials: IEA scenarios plus national strategy papers (hypothetical).
 - Democracy and participation values: Freedom House trajectories (hypothetical).
-

12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Republic of Chile and interested experts are invited to add perspectives so we can maintain a shared picture of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

CR - State Profile Costa Rica

ERDA State Profile: Costa Rica

1. Overview (meta)

- **Official name:** Republic of Costa Rica
- **Geographical location (continent, region):** Central America; between Nicaragua and Panama
- **Population (2025):** approx. 5.2 million²
- **Form of government & constitutional status (2025):** presidential republic
-  ERDA status: Global associate
- **Future ERDA role:** facilitator of sustainable tourism and environmental innovation

2. Demography & society

- **Population projection (2050 / 2075):** 5.8 million / 6.1 million (UN WPP 2022; hypothetical)
- **Age structure:** median 34 years; youth share 22%; old-age ratio 16% (UN WPP 2022)
- **Urbanisation:** 83% (World Bank 2023)
- **Average education:** 10.5 years (UNESCO UIS 2023); tertiary rate 23% (OECD 2023)
- **Life expectancy:** 80.8 years (World Bank 2023)
- **Net migration average (2025-2075):** slightly positive (hypothetical)
- **Social cohesion:** high life-satisfaction index (World Happiness Report 2024)

3. Economy & innovation

- **GDP (real, bn EUR, 2023):** 78 (World Bank, 0.9 EUR/USD)
- **GDP per capita (EUR, 2023):** 15,000 (World Bank)
- **Top three key industries:** tourism, medical devices, agricultural exports (coffee, bananas)
- **Automation & digitalisation share (2025/2050):** 40% / 65% (hypothetical)
- **Research & innovation ratio:** 0.7% of GDP (UNESCO 2023)
- **Patents per year:** ~150 (WIPO 2023)
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** Observer
- **EHAM+ score (0-10):** 5

3.1 Infrastructure autonomy

- Energy
- IT/Cloud
- Defence
- Food
- IRIS²
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- **Land area:** 51,060 km² (World Bank 2022)
- **Strategic resources:** hydropower, geothermal energy, tropical timber
- **Renewable-energy potential:** hydro very high, geothermal high, solar moderate
- **Biodiversity & protected areas:** 28.2% of territory protected (World Bank 2024)

²World Bank, 2023

- **Sustainability metrics:** CO₂ per capita 1.5 t (2021, Our World in Data); recycling rate n/b

Social resources

- **Volunteering & community:** strong local environmental stewardship
- **CIVITAS participation index (0-10):** 7 (hypothetical)
- **Healthcare system:** access 8/10; prevention 8/10

Political resources

- **Constitutional adherence:** Yes
- **Direct-democracy instruments:** partial (local referenda)
- **Democracy quality index (0-100):** 92 (Freedom House 2024)
- **Citizen participation rate:** 20%
- **Rule-of-law index (0-10):** 7.5 (WJP 2023)
- **International trust values (0-10):** 7

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN capable
 - Cyber command
 - Early warning system
- **Defence expenditure:** 0.7% of GDP (SIPRI 2023)
- **Role in the Central American region:** stable partner for democracy and environmental dialogues
- **Role in the global/Solar Alliance sphere:** frontrunner for sustainable tourism
- **Civil-resilience programmes:** partially available (disaster management)
- **Drone/space/AI capacities:** limited

5.1 Arctic strategy & planetary responsibility (optional for Arctic states)

- Integration in EDA-DSN North Sea
- Participation in the Arctic Resilience Observatory
- Implementation of the Arctic Democracy Mining Act
- Partnerships with indigenous communities

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Spanish; indigenous languages such as Bribri, Cabécar
- **UNESCO World Heritage:** 4 sites (2024)
- **Creative economy (0-10):** 6
- **International visibility:** known for biodiversity leadership and sport
- **Role of culture in democracy networks (0-10):** 6

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable economic growth driven by sustainable tourism
- **Best case:** climate-neutral innovation nation and model for green development
- **Base case:** ongoing tourism and agriculture hub with moderate growth
- **Worst case:** persistent fiscal deficits and high dependency on tourism

Role in the ERDA vision 2075

- Contribution to the post-scarcity economic order: biodiversity research and sustainability know-how

- Democratic resilience: robust institutions and environmental awareness
- Exemplary impact: model for sustainable development across the Global South

8. Narrative & attraction

- **Core message:** “Costa Rica proves that sustainability and democracy go hand in hand.”
- **Self-efficacy:** citizens actively engage in environmental protection
- **Future dignity:** conservation as national pride
- **Invitation:** cooperation in climate research and sustainable tourism

9. Key indicators (short form)

Indicator	2023	2050 (proj.)	2075 (proj.)
GDP (bn EUR)	78	~120 (hyp.)	~160 (hyp.)
Population	5.1	5.8 m (hyp.)	6.1 m (hyp.)
Share of renewable energy (%)	99	100 (hyp.)	100 (hyp.)
Life expectancy (years)	80.8	82 (hyp.)	83 (hyp.)
Education rate (% tertiary degree)	23	28 (hyp.)	35 (hyp.)
AI capacity (0-10)	4	6 (hyp.)	7 (hyp.)
Civil-society index (0-10)	8	8.5 (hyp.)	9 (hyp.)

10. Snapshot: “Costa Rica at a glance” Costa Rica is a pioneer of sustainable development and democratic stability in Central America. With near-100% renewables, ambitious conservation programmes, and engaged citizens, it stands out as a green innovation partner and long-term ally for the ERDA network.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank and national sources; base year 2023
- Economic assumptions: 2% growth p.a., 2% inflation p.a. (hypothetical)
- Energy potential: IEA Renewables 2024, national strategy papers
- Innovation & education: UNESCO, OECD
- Democracy & rule of law: Freedom House 2024, World Justice Project 2023
- Sustainability indicators: UN SDG database 2024

11.2 📄 Referenced sources

1. **World Bank.** 2024. “World Development Indicators”. <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-12).
2. **UNESCO Institute for Statistics.** 2023. “Costa Rica Education”. <https://uis.unesco.org> (accessed 2025-06-12).
3. **WIPO.** 2023. “Patent Applications by Origin”. <https://www.wipo.int> (accessed 2025-06-12).
4. **Freedom House.** 2024. “Freedom in the World 2024 – Costa Rica”. <https://freedom-house.org> (accessed 2025-06-12).
5. **World Justice Project.** 2023. “Rule of Law Index”. <https://worldjusticeproject.org> (accessed 2025-06-12).
6. **SIPRI.** 2023. “Military Expenditure Database”. <https://sipri.org> (accessed 2025-06-12).

11.3 🔎 Modelling & assumptions

- Further details on hypothetical assumptions are provided in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).

- Notes: (p) – projection; (hyp.) – hypothetical estimate.
- Economic projections 2050–2075: linear trends based on World Bank data (hypothetical).
- AI capacities: computing power doubles every four years (hypothetical).
- Infrastructure autonomy: qualitative assessment drawn from national plans (hypothetical).
- Democracy & participation scores: gradual improvement of 0.3 points annually (hypothetical).
- Energy potentials: hydro- vs. geothermal-led scenarios (IEA 2024).

12. 🤝 Participation welcome This profile relies on public and modelled data. Representatives of the Republic of Costa Rica and interested stakeholders are invited to contribute updates to keep a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

IN - State Profile India

ERDA State Profile: India

1. Overview (meta)

- Official name: Republic of India
- Geographical location: South Asia; borders Pakistan, China, Nepal, Bangladesh and others
- Population (2025): approx. 1.46 billion (UN World Population Prospects 2022)
- Form of government & constitutional status (2025): parliamentary federal republic
- ERDA status: Associate
- Future role in the ERDA network: digital hub and development partner in Asia

2. Demography & society

- Population projection (2050 / 2075): 1.67 billion / 1.53 billion (UN WPP 2022)
- Age structure (median age, youth share %, old-age ratio): median 29 years, youth share approx. 26%, old-age ratio approx. 20%
- Urbanisation (%): 35.9% (World Bank 2022)
- Average education (school years, tertiary rate %, STEM %): 12 years, tertiary rate 28%, STEM share 30% (UNESCO 2022)
- Life expectancy (years): 72.0 (World Bank 2023)
- Net migration per year (average 2025-2075): slightly negative (hypothetical)
- Social cohesion (satisfaction index [0-10], trust in democracy [%]): 6.0 / 65% (hypothetical)

3. Economy & innovation

- GDP (real, current / 2050 / 2075 in bn EUR): 3,300 (2023, World Bank) / 8,500 (2050, hypothetical) / 12,000 (2075, hypothetical)
- GDP per capita (EUR): approx. 2,200 (World Bank 2023)
- Top three key industries: IT services, pharma/chemicals, manufacturing
- Automation & digitalisation share (current / 2050): 40% / 65% (hypothetical)
- Research & innovation ratio (% of GDP): 0.7% (World Bank 2022)
- Patents per year (trend): ~70,000 and rising (WIPO 2023)
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: No
- EHAM+ utilisation (0-10): 4 (hypothetical)

3.1 Infrastructure autonomy

- Energy
- IT/Cloud
- Defence
- Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- Land area: 3,287,263 km²
- Exclusive economic zone: approx. 2,305,143 km²
- Strategic raw materials: iron ore, bauxite, rare earths, water
- Renewable-energy potential: very high solar, high wind, limited geothermal, high hydro

- Biodiversity & protected areas: approx. 5% of territory
- Sustainability metrics: 1.9 t CO₂ per capita; <30% recycling; 7.5 t material use per capita (World Bank, UNEP 2023)

Social resources

- Volunteering & community culture (0-10): 7 (hypothetical)
- CIVITAS participation index (0-10): 6 (hypothetical)
- Healthcare system (access / prevention): 6 / 5 (WHO 2023)

Political resources

- Constitutional adherence: Yes
- Direct-democracy instruments: partial
- Democracy index (Freedom House 0-100): 65 (Freedom House 2024)
- Citizen participation rate (local/national): 55% (hypothetical)
- Rule-of-law index (0-10): 6 (World Justice Project 2023)
- International trust values (0-10): 6 (hypothetical)

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 2.4% (SIPRI 2024)
- Role in Southern Europe/Africa/Asia: regional power in South Asia
- Role in the global/Solar Alliance sphere: major actor in the global south
- Civil-resilience programmes: present
- Drone/space/AI capacities: present

5.1 Arctic strategy & planetary responsibility

- Integration in EDA-DSN North Sea: No
- Participation in Arctic Resilience Observatory: No
- Implementation of Arctic Democracy Mining Act: No
- Partnerships with indigenous communities: Yes (domestic)

6. Cultural identity & soft power

- Languages / indigenous cultures: Hindi and English as official/working languages plus numerous regional languages
- UNESCO World Heritage / cultural sites: 42 (UNESCO 2024)
- Creative economy strength (music, film, design) [0-10]: 8
- International visibility (Olympics, Nobel prizes, etc.): high
- Culture as mediator in democracy networks [0-10]: 7

7. Development path (2025-2075) Scenario development

- Status 2025: rapid economic growth with an expanding middle class
- Best case 2050/2075: leading innovation nation with strong social protection and sustainable growth
- Base case 2050/2075: stable democracy, moderate economic growth, major regional actor
- Worst case 2050/2075: political tensions, resource stress, climate-adaptation pressure

Role in the ERDA vision 2075

- Contribution to a post-scarcity economic order: partner for high-tech production and education
- Democratic resilience (social, cultural, ecological): medium to high
- Exemplary impact: model for technological development in democracies of the global south

8. Narrative & attraction

- Core message: "India shows how diversity and digitalisation can unlock social mobility."
- Showcases: IT and space achievements, world's largest democracy
- Self-efficacy: citizens engage in local and digital initiatives
- Future dignity: pride in cultural heritage and economic progress
- Invitation: collaborate on democratic development and economic opportunity

9. Key indicators (short form)

Indicator	2025	2050	2075
GDP (bn EUR)	3,300 (p)	8,500 (p)	12,000 (p)
Population	1.46 bn	1.67 bn	1.53 bn
Share of renewables (%)	20	45 (p)	70 (p)
Life expectancy (years)	72.0	75.5 (p)	78.0 (p)
Education rate (%)	28	40 (p)	55 (p)
AI capacity [0-10]	5	7 (p)	9 (p)
Civil-society index [0-10]	6	7 (p)	8 (p)

Notes: (p) - projection (hypothetical: ERDA Scenario Modeling Report 2025)

10. Snapshot: "India at a glance" India is a dynamic democracy with rapid economic development and a young population. It combines cultural richness with technological progress and positions itself as a key partner for global digitalisation and sustainable growth.

11. Sources & modelling 11.1 1 General

- Statistics: UN World Population Prospects 2022; World Bank WDI
- Economic assumptions: extrapolated World Bank trends (hypothetical)
- Energy potential: IRENA 2024
- Innovation & education: UNESCO Institute for Statistics
- Democracy & rule of law: Freedom House; World Justice Project
- Sustainability indicators: UNEP; World Bank

11.2 2 Referenced sources

1. United Nations. 2022. "World Population Prospects 2022". <https://population.un.org/wpp/> (accessed 2025-06-11).
2. World Bank. 2024. "World Development Indicators". <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-11).
3. UNESCO Institute for Statistics. 2023. "Education Data". <https://uis.unesco.org/> (accessed 2025-06-11).
4. Freedom House. 2024. "Freedom in the World 2024". <https://freedomhouse.org/> (accessed 2025-06-11).

5. World Justice Project. 2023. "Rule of Law Index". <https://worldjusticeproject.org/> (accessed 2025-06-11).
6. International Renewable Energy Agency. 2024. "Renewable Capacity Statistics 2024". <https://www.irena.org/> (accessed 2025-06-11).
7. UNESCO. 2024. "World Heritage List". <https://whc.unesco.org/> (accessed 2025-06-11).
8. SIPRI. 2024. "Military Expenditure Database". <https://www.sipri.org/> (accessed 2025-06-11).

11.3 📈 Modelling & assumptions

- See **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>) for full details.
- Notes: (p) - projection; hypothetical estimates unless otherwise stated.
- Economic projections assume 5% annual GDP growth, 4% inflation.
- AI capacity doubles computing power roughly every three years.
- Infrastructure autonomy targets 80% renewables by 2075.
- Democracy/participation scores improve by ~0.5 points per year.
- Energy scenarios consider moderate vs. ambitious solar PV build-out up to 1,000 GW by 2075.

12. 🤝 Participation welcome This profile uses public and modelled data. Representatives of the Republic of India and subject-matter experts are invited to add perspectives so we can uphold a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

JP - State Profile Japan

● ERDA State Profile: Japan

1. Overview (meta)

- Official name: Japan (Nippon-koku)
 - Location: island nation in East Asia, north-west Pacific
 - Population (2023): approx. 124.5 million[1]
 - Form of government & constitutional status (2025): constitutional monarchy with parliamentary government
 - ERDA status: Global associate
 - Future ERDA role: high-tech hub and Indo-Pacific partner
-

2. Demography & society

- Population projection (2050/2075): 104 million / 88 million (UN WPP 2022; hypothetical)
 - Age structure (median age, youth share, old-age ratio): 48.4 years, 12%, 48%
 - Urbanisation (%): 92% (2023)[2]
 - Education (average years, STEM share, tertiary rate): 13.4 years, 28%, 63%
 - Life expectancy: 84 years (2023)[3]
 - Net migration: slightly negative (-0.4%)
 - Social cohesion (subjective satisfaction, trust in democracy): high / high
-

3. Economy & innovation

- GDP (real, 2023 / 2050 / 2075): 4.2 tn USD[4] / 5.5 tn USD / 6.0 tn USD (2050/2075 hypothetical)
- GDP per capita: 33,800 USD (2023)
- Top three industries: automotive, electronics, machinery & robotics
- Automation & digitalisation share (2025/2050): 65% / 85%
- R&D intensity (% of GDP): 3.3%
- Patents per year (trend): >300,000 / stable
- Member of FORTERA trade alliances: Yes
- Member of the Democracy Trade Network: Yes
- EHAM+ utilisation (0-10): 7

3.1 Infrastructure autonomy

- Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land / marine area: 377,930 km² / 4.5 million km² EEZ
- Strategic resources: limited rare-earth deposits, fisheries, forestry

- Renewable potential: high geothermal, high solar, promising offshore wind
- Biodiversity & protected areas: 21% protected land

Social resources

- Volunteering & community culture: strong
- Civic-tech use (e.g., CIVITAS): high
- Healthcare system (access, prevention): excellent

Political resources

- Constitutional adherence: yes
 - Direct-democracy instruments: limited (petitions, local referenda)
 - Rule-of-law index: very high
 - International trust values: high
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
 - Defence expenditure (% of GDP): 1.0% (2023)
 - Role in Arctic/North Sea/Atlantic zones: observer, co-operates with NATO
 - Civil-resilience programmes: disaster response and earthquake early warning systems
 - Drone/space/AI capacities: available
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Japanese; indigenous Ainu in the north
 - UNESCO World Heritage / cultural sites: e.g., Himeji Castle, Mount Fuji, traditional Noh theatre
 - Creative economy: strong (manga, anime, J-pop)
 - International visibility (Olympics, Nobel prizes, etc.): very high
 - Culture as mediator in democracy networks: yes via technology and culture partnerships
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** technological and economic power facing demographic and energy-import challenges
- **Best case 2075:** climate-neutral high-tech society with strong resilience
- **Base case 2075:** stable industrial nation with adapted demography and moderate growth
- **Worst case 2075:** shrinking population, stagnant economy, geopolitical dependencies

Status 2025 narrative: Japan leads global innovation with high quality of life; ageing strains social systems.

Strategic investments 2025-2050: AI, robotics, energy transition including hydrogen

Transformation 2050-2075: demographic adjustment, deeper Indo-Pacific integration, renewable build-out

 Role in the ERDA vision 2075

"Japan remains a central technology and values partner for Europe and the democratic global community in 2075."

- Contribution to the post-scarcity economic order: yes, via technology and knowledge transfer
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary effect: especially in high tech and disaster preparedness
-

8. Narrative & attraction

"Japan blends tradition and cutting-edge technology into a compelling societal model."

- Self-efficacy: strong community and innovation culture
 - Future dignity: profound respect for nature and technological excellence
 - Invitation: blueprint for resilient high-tech democracies
-

9. Key indicators (short form)

Indicator	2023	2050	2075
GDP (tn USD)	4.2	5.5*	6.0*
Population (million)	124.5	104*	88*
Share of renewables (%)	20	45*	70*
Life expectancy (years)	84.0	86.0*	88.0*
Education rate (%)	63	68*	72*
AI capacity [0-10]	7	8*	9*
Civil-society index [0-10]	8	8.5*	9*

*Hypothetical values per ERDA Scenario Modeling Report 2025.

10. Snapshot: "Japan at a glance" Japan is a technologically advanced island state with robust democracy and global cultural outreach. Ageing demographics and energy imports shape its strategy, while robotics and AI innovation make it an essential ERDA partner.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank Data 2023 (population, GDP, urbanisation)
- Models: UN World Population Prospects 2022 (hypothetical)
- Energy & innovation data: Japanese government strategies (hypothetical)

11.2 📄 Referenced sources

- World Bank: <https://data.worldbank.org>
- UN DESA: World Population Prospects 2022 (hypothetical)
- OECD Economic Outlook Japan 2024 (hypothetical)
- WHO Country Profile Japan: <https://www.who.int>
- Japan Ministry of Defense White Paper
- EDA capability frameworks (hypothetical)

11.3 🔧 Modelling & assumptions

- Detailed assumptions in **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Economic projections extrapolated from OECD trends.
 - Infrastructure autonomy based on Japanese energy/technology agency assessments.
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12. 🤝 Participation welcome This profile relies on public and modelled data. Representatives of Japan and interested stakeholders are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

KR - State Profile Republic of Korea

ERDA State Profile: Republic of Korea

1. Overview (meta)

-  Official name: Republic of Korea
 -  Location: East Asia, southern part of the Korean Peninsula
 -  Population (2025): approx. 51.8 million (World Bank 2023)
 -  Form of government & constitutional status (2025): presidential republic
 -  ERDA status: Associate
 -  Future role in the ERDA network: technology node and bridge between East Asia and Europe
-

2. Demography & society

- Population projection (2050 / 2075): 46 million / 38 million (UN World Population Prospects 2022)
 - Age structure (median age, youth share %, old-age ratio): 45.6 years, 13% youth, old-age ratio 37% (UN, 2025)
 - Urbanisation (%): 81% (World Bank 2023)
 - Average education (school years, tertiary rate %, STEM %): 12.5 years, 70%, 30% (OECD 2023)
 - Life expectancy (years): 83.4 (World Bank 2023)
 - Net migration per year (average 2025–2075): roughly 0% (hypothetical, ERDA Scenario Modeling Report 2025)
 - Social cohesion (satisfaction index [0–10], trust in democracy [%]): 7.0 / 65% (Gallup 2024)
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075 in bn EUR): 1.6 T / 2.1 T (hypothetical) / 2.4 T (hypothetical)
- GDP per capita (EUR): 31,000 (World Bank 2023)
- Top three key industries: semiconductors, shipbuilding, automotive
- Automation & digitalisation share (current / 2050): 60% / 85% (hypothetical)
- R&D intensity (% of GDP): 4.9% (OECD 2023)
- Patents per year (trend, average): >240,000 (WIPO 2023)
- Member of FORTERA trade alliances: Yes (hypothetical)
- Member of the Democracy Trade Network: Yes
- EHAM+ utilisation (trade defence) [0–10]: 7 (hypothetical)

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 100,210 km² (UN 2023)
- Maritime area: exclusive economic zone 300,851 km² (KOSIS 2023)
- Strategic raw materials: limited domestic deposits, strong import dependence
- Renewable energy potential: solar (high), offshore wind (high), geothermal (low), hydro (low)
- Biodiversity & protected areas (% of territory): 7% (Ministry of Environment Korea 2024)
- Sustainability indicators: CO₂ per capita 11 t, recycling rate 86%, material consumption 13 t (UN SDG 2023)

Social resources

- Volunteering & community culture (index [0-10]): 6
- CIVITAS participation index [0-10]: 7 (hypothetical)
- Healthcare system (access [0-10], prevention [0-10]): 9 / 8 (WHO 2023)

Political resources

- Constitutional adherence: Yes
- Direct-democracy instruments: Partial (local referenda)
- Democracy quality index (Freedom House score [0-100]): 83 (Freedom House 2024)
- Citizen participation rate (local/national) [%]: 77% voter turnout (National Election Commission 2022)
- Rule-of-law index [0-10]: 8 (World Justice Project 2023)
- International trust values [0-10]: 7 (Pew Research Center 2024)

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 2.7% (SIPRI 2023)
- Role in Arctic/North Sea/Atlantic zones: none directly
- Role in Central/Eastern/Western Europe: strong economic partner
- Role in Southern Europe/Africa/Asia: security cooperation with the US and neighbours
- Role in the Global/Solar Alliance area: active space and satellite partner
- Civil-resilience programmes: in place (disaster preparedness)
- Drone/space/AI capacities: available

5.1 Arctic strategy & planetary responsibility (optional for Arctic states)

- Integration into EDA DSN North Sea: No
- Participation in the Arctic Resilience Observatory: No
- Implementation of the Arctic Democracy Mining Act: No
- Partnerships with indigenous communities: Not applicable

6. Cultural identity & soft power

- Languages / indigenous cultures: Korean; minority languages (e.g., Jeju)
- UNESCO World Heritage / cultural sites (count): 16 (UNESCO 2024)
- Creative economy (strength in music, film, design [0-10]): 9
- International visibility (Olympics, Nobel prizes, etc.): very high (PyeongChang 2018, K-Pop, film)

- Culture as mediator in democracy networks [0-10]: 8
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** highly industrialised state with innovative economy and digital society
- **Best case 2050/2075:** leading knowledge nation with sustainable economy and high quality of life (hypothetical)
- **Base case 2050/2075:** stable prosperity, leading in high tech and renewable energy (hypothetical)
- **Worst case 2050/2075:** demographic crisis weakens economic power, tensions with neighbours (hypothetical)

Role in the ERDA vision 2075

- Contribution to the post-scarcity economic order: significant in digitalisation and innovation
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary effect on other states/regions: model for digitalisation and democratisation in Asia
-

8. Narrative & attraction

"South Korea shows how technological progress and democratic values can go hand in hand."

- Self-efficacy: active participation in technology projects and start-ups
 - Future dignity: pride in culture and innovation; strong national identity
 - Invitation to other states and citizens: exchange in high tech, education, and culture
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	1.6 T	2.1 T	2.4 T	n/a
Population	51.8 m	46 m	38 m	n/a
Share of renewables (%)	9%	30 (p)	60 (p)	n/a
Life expectancy (years)	83.4	85 (p)	86 (p)	n/a
Education rate (%)	70%	75 (p)	80 (p)	n/a
AI capacity [0-10]	8	9 (p)	9 (p)	n/a
Civil-society index [0-10]	7	7.5 (p)	8 (p)	n/a

Notes: (p) – projection, ERDA Scenario Modeling Report 2025 (hypothetical)

10. Snapshot: "South Korea at a glance" South Korea is a dynamic high-tech nation with a strong democratic tradition and world-leading innovation power. Despite demographic headwinds, it remains a key partner for Europe and the ERDA network.

11. Sources & modelling 11.1 ⓘ General

- **Statistics:** World Bank, OECD, and national sources; base year 2023 for current figures
- **Economic modelling:** growth forecast 1.8% p.a., inflation 2% p.a. (hypothetical)
- **Energy potential:** IEA Renewables 2024
- **Innovation & education:** OECD Science, Technology and Industry Outlook 2023
- **Democracy & rule of law:** Freedom House 2024, World Justice Project 2023
- **Sustainability and resource indicators:** UN SDG database 2023

11.2 📋 Referenced sources

1. World Bank. 2024. "World Development Indicators". <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-10).
2. OECD. 2023. "Education at a Glance". <https://www.oecd.org/education/education-at-a-glance/> (accessed 2025-06-10).
3. Freedom House. 2024. "Freedom in the World 2024 – South Korea". <https://freedom-house.org> (accessed 2025-06-10).
4. UNESCO. 2024. "World Heritage List". <https://whc.unesco.org/en/statesparties/kr/> (accessed 2025-06-10).
5. SIPRI. 2024. "Military Expenditure Database". <https://sipri.org> (accessed 2025-06-10).
6. World Justice Project. 2023. "Rule of Law Index". <https://worldjusticeproject.org> (accessed 2025-06-10).

11.3 🔎 Modelling & assumptions

- Further details on hypothetical assumptions in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 derived from linear World Bank trends (hypothetical).
- AI capacity: assumes computing power doubles every three years (hypothetical).
- Infrastructure autonomy: target of 80% renewable energy supply by 2050 (hypothetical).
- Democracy and participation scores: annual improvement of 0.5 points (hypothetical).
- Energy potential: moderate scenario 150 GWp solar, ambitious scenario 300 GWp (IEA 2024).

12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Republic of Korea and interested expert communities are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

NA - State Profile Namibia

ERDA State Profile: Namibia

1. Overview (meta)

- **Official name:** Republic of Namibia
- **Geographic location (continent, region):** South-west Africa, Atlantic coast; borders Angola, Zambia, Botswana, and South Africa
- **Population (2023):** 2.96 million³
- **Form of government & constitutional status (2025):** presidential republic, 1990 constitution
-  **ERDA status:** Global associate
- **Future role in the ERDA network:** partner for renewable energy and port logistics (Walvis Bay)

2. Demography & society

- **Population projection (2050 / 2075):** 3.3 million / 3.9 million (UN WPP 2022; hypothetical, ERDA Scenario Modeling Report 2025)
- **Age structure:** median 22 years; youth share 36%; old-age ratio 5% (UN Data)
- **Urbanisation:** 54% (World Bank 2022)
- **Average education:** 6.9 years (OWID 2020); tertiary rate 9% (UNESCO UIS)
- **Life expectancy:** 64.2 years (World Bank 2022)
- **Net migration Ø (2025-2075):** −0.1% p.a. (UN WPP 2022; hypothetical)
- **Social cohesion:** moderate; trust in democracy 6/10 (WHR 2024)

3. Economy & innovation

- **GDP (USD, 2023 / 2050 / 2075):** 12.4 bn / 20 bn / 35 bn (2050/2075 hypothetical)⁴
- **GDP per capita (USD, 2023):** 4,168⁵
- **Top three industries:** mining (diamonds, uranium), agriculture, tourism
- **Automation & digitalisation share (2025/2050):** 20% / 50% (hypothetical)
- **R&D intensity:** 0.7% of GDP (World Bank 2021)
- **Patents per year:** <50 (WIPO 2023)
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** Observer
- **EHAM+ score (0-10):** 3

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile Natural resources

- **Land area:** 824,292 km²
- **Maritime area:** ~576,000 km² EEZ
- **Strategic raw materials:** uranium, diamonds, copper, lithium
- **Renewable energy potential:** solar very high, wind high, geothermal low

³World Bank – Population, total.

⁴World Bank – GDP (current US\$).

⁵World Bank – GDP per capita (current US\$).

- **Biodiversity & protected areas:** 43% protected land (MEFT 2024)
- **Sustainability indicators:** CO₂ emissions 1.7 t per capita (2022); recycling rate 5% (hypothetical)

Social resources

- **Volunteering & community culture:** 6/10 (hypothetical)
- **CIVITAS participation index:** 5/10 (hypothetical)
- **Healthcare system:** access 6/10; prevention 5/10

Political resources

- **Constitutional adherence:** Yes (1990 constitution)
- **Direct-democracy instruments:** Partial (local referenda)
- **Democracy quality index (Freedom House 2024):** 77/100
- **Citizen participation rate:** 60% (hypothetical)
- **Rule-of-law index:** 6/10 (WJP 2023)
- **International trust values:** 6/10 (Afrobarometer 2024)

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN capable
 - Cyber command
 - Early warning system
- **Defence expenditure (% of GDP):** 3% (SIPRI 2024)
- **Role in Southern Europe/Africa/Asia:** logistics hub for southern Africa (Walvis Bay)
- **Civil-resilience programmes:** partial (disaster management)
- **Drone/space/AI capacities:** not available

5.1 Arctic strategy & planetary responsibility

- Integration into EDA DSN North Sea: No
- Participation in the Arctic Resilience Observatory: No
- Implementation of the Arctic Democracy Mining Act: No
- Partnerships with indigenous communities: Yes (regional cooperation)

6. Cultural identity & soft power

- **Languages / indigenous cultures:** English (official), Afrikaans, German, Oshiwambo, others
- **UNESCO World Heritage / cultural sites:** Twyfelfontein, Namib Sand Sea
- **Creative economy (0-10):** 4
- **International visibility:** moderate (tourism, sport)
- **Culture as mediator in democracy networks:** 5/10

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable democracy, export-focused mining, high social inequality
- **Best case 2050/2075:** leading solar and hydrogen exporter, rising prosperity
- **Base case 2050/2075:** moderate growth, diversification into logistics and energy
- **Worst case 2050/2075:** severe climate impacts, water scarcity, economic stagnation

Role in the ERDA vision 2075

- **Contribution to the post-scarcity economic order:** renewable energy and green hydrogen corridors

- **Democratic resilience:** solid, needs stronger local participation
- **Exemplary effect:** model for sustainable resource use in southern Africa

8. Narrative & attraction

"Namibia proves that sustainable resource management and democratic stability are possible in Africa."

- **Self-efficacy:** community initiatives against desertification
- **Future dignity:** pride in nature and cultural diversity
- **Invitation to others:** signal for partnership-based development and green trade

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn USD)	12.4 (p)	20 (p)	35 (p)	-
Population	3.0 m (p)	3.3 m (p)	3.9 m (p)	-
Share of renewables (%)	30% (p)	50% (p)	70% (p)	-
Life expectancy (years)	64.2 (p)	67 (p)	70 (p)	-
Education rate (%)	9% (p)	12% (p)	16% (p)	-
AI capacity [0-10]	2	4 (p)	6 (p)	-
Civil-society index [0-10]	5	6 (p)	7 (p)	-

Notes: (p) - projection, ERDA Scenario Modeling Report 2025 (hypothetical)

10. Snapshot: "Namibia at a glance" Namibia is resource-rich with vast solar and wind potential. A stable democracy and strategic Atlantic location create opportunities for energy and logistics partnerships, while inequality and climate adaptation remain pressing challenges.

11. Sources & modelling 11.1 1 General

- Statistics: World Bank, UN DESA; base year 2023
- Economic modelling assumptions: UN WPP 2022, national development plans (hypothetical)
- Energy potential: IRENA 2024, national energy policy
- Innovation & education: UNESCO UIS, WIPO
- Democracy & rule of law: Freedom House 2024, WJP 2023
- Sustainability and resource indicators: MEFT Namibia, Our World in Data

11.2 2 Referenced sources

1. **World Bank:** Population, total - Namibia. <https://api.worldbank.org/v2/country/NAM/indicator/SP.POP.TOTL> (accessed 2025-06-11)
2. **World Bank:** GDP, current US\$ - Namibia. <https://api.worldbank.org/v2/country/NAM/indicator/NY.GDP.MKTP.CD> (accessed 2025-06-11)
3. **World Bank:** GDP per capita - Namibia. <https://api.worldbank.org/v2/country/NAM/indicator/NY.GDP.PCAP.CD> (accessed 2025-06-11)

4. **Our World in Data:** Mean years of schooling - Namibia. <https://ourworldindata.org/grapher/mean-years-of-schooling.csv> (accessed 2025-06-11)
5. **UN DESA:** World Population Prospects 2022 (accessed 2025-06-11)

11.3 🔎 Modelling & assumptions

- Further hypothetical assumptions documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 extrapolated from UN and World Bank trends (hypothetical).
- AI capacity based on regional strategy growth paths (hypothetical).
- Infrastructure autonomy derived from national plans (hypothetical).
- Democracy and participation metrics combine Freedom House scores with regional surveys (hypothetical).

12. 🌱 Participation welcome This profile relies on public and modelled data. Representatives of the Republic of Namibia and interested stakeholders are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

NZ - State Profile New Zealand

ERDA State Profile: New Zealand

1. Overview (meta)

-  Official name: New Zealand
 -  Location: Oceania, south-west Pacific
 -  Population (2025): approx. 5.22 million (World Bank 2023)[1]
 -  Form of government & constitutional status (2025): parliamentary monarchy
 -  ERDA status: Associate
 -  Role in the ERDA network (future): Pacific partner for renewable energy and sustainable agriculture
-

2. Demography & society

- Population projection (2050 / 2075): 5.69 million / 6.02 million (UN DESA World Population Prospects 2024; hypothetical)[2]
 - Age structure (median age, youth share %, old-age ratio): 38 years, 20%, 29% (World Bank 2023)
 - Urbanisation (%): 87% (World Bank 2023)[3]
 - Average education (school years, tertiary rate %, STEM %): 13 years, 45%, 19% (OECD 2022)
 - Life expectancy (years): 83 (World Bank 2023)[4]
 - Net migration per year (average 2025-2075): +25,000 people (World Bank 2023)[5]
 - Social cohesion (satisfaction index [0-10], trust in democracy [%]): 7.5 / 72% (hypothetical)
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075 in bn EUR): 230 / 310 (p) / 370 (p)
- GDP per capita (EUR): 41,000
- Top three industries: agriculture & food, tourism, services/IT
- Automation & digitalisation share (current / 2050): 65% / 80% (p)
- R&D intensity (% of GDP): 1.4% (World Bank 2022)
- Patents per year (trend, average): approx. 1,500 (WIPO 2023)
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: Yes
- EHAM+ utilisation (trade defence) [0-10]: 5

3.1 Infrastructure autonomy

- Production sovereignty in strategic sectors:
 - Energy
 - IT/Cloud
 - Defence
 - Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area (km²): 268,838 (World Bank 2023)[6]
- Maritime area (if relevant, km²): 4,083,744 EEZ (UNEP 2024)
- Strategic resources: water, forestry, fisheries
- Renewable energy potential: geothermal (high), wind (high), hydro (medium), solar (medium)
- Biodiversity & protected areas (% of territory): 30% (Department of Conservation NZ 2024)
- Sustainability indicators (CO₂ per capita, recycling rate, material consumption per capita): 6.7 t CO₂, 41%, 23 t (World Bank 2023)

Social resources

- Volunteering & community culture (index [0-10]): 7
- CIVITAS participation index [0-10]: 7
- Healthcare system (access [0-10], prevention [0-10]): 8 / 7

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: Partial (referenda possible)
 - Democracy quality index (Freedom House or similar [0-100]): 99 (Freedom House 2024)[7]
 - Citizen participation rate (local/national) [%]: 55% / 79% (hypothetical)
 - Rule-of-law index [0-10]: 9
 - International trust values [0-10]: 8
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 1.5%
- Role in Arctic/North Sea/Atlantic zones: observer status, Antarctic research
- Role in Central/Eastern/Western Europe: strategic partner through the Commonwealth
- Role in Southern Europe/Africa/Asia: Pacific security cooperation
- Role in the Global/Solar Alliance area: contribution to space research
- Civil-resilience programmes: in place
- Drone/space/AI capacities: partially available

5.1 Arctic strategy & planetary responsibility (optional for Arctic states)

- Integration into EDA DSN North Sea: No
 - Participation in the Arctic Resilience Observatory: No
 - Implementation of the Arctic Democracy Mining Act: No
 - Partnerships with indigenous communities: Yes (Māori partnerships)
-

6. Cultural identity & soft power

- Languages / indigenous cultures: English, Māori, NZ Sign Language
- UNESCO World Heritage / cultural sites (count): 3 (UNESCO 2024)[8]
- Creative economy (strength in music, film, design [0-10]): 7
- International visibility (Olympics, Nobel prizes, etc.): high (film industry, sports)

- Culture as mediator in democracy networks [0-10]: 7
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** open, stable society with strong environmental policy and export-oriented agriculture
- **Best case 2075:** leading green island nation with high-tech agriculture and clean energy
- **Base case 2075:** steady growth through sustainable resource management and diversification
- **Worst case 2075:** climate change undermines agriculture and coasts, economy suffers

Status 2025 narrative: New Zealand in 2025 is an open state with high quality of life and strong democracy. The population is diverse and Māori culture is actively fostered.

Strategic investments 2025-2050: Expansion of renewables, digital agriculture, climate-resilient infrastructure

Transformation 2050-2075: Technological upgrade of agriculture, sustainable tourism, AI in public administration

Role in the ERDA vision 2075

"New Zealand is a globally connected eco-innovation state in the Pacific by 2075."

- Contribution to the post-scarcity economic order: yes, via sustainable agriculture
 - Democratic resilience (social, cultural, ecological): high
 - Exemplary effect on other states/regions: role model for indigenous co-governance and environmental policy
-

8. Narrative & attraction

"New Zealand demonstrates how ecological responsibility and innovative agriculture can generate prosperity."

- Self-efficacy: citizens actively engage in local and national decision-making
 - Future dignity: pride in nature, culture, and high-tech agriculture
 - Invitation to other states & citizens: cooperation in green technology and research
-

9. Key indicators (short form)

Indicator	2025	2050 (p)	2075 (p)	EU average 2024
GDP (bn EUR)	230	310	370	16,556
Population	5.22 m	5.69 m	6.02 m	447 m
Share of renewables (%)	40	65	80	37
Life expectancy (years)	83	84	86	81
Education rate (%)	45	52	60	40
AI capacity [0-10]	6	7	8	5
Civil-society index [0-10]	7	8	9	6

Notes: (p) - projection, ERDA Scenario Modeling Report 2025 (hypothetical)

10. Snapshot: “New Zealand at a glance” New Zealand is a democratic island nation with a strong environmental agenda and innovative agriculture. High quality of life, cultural diversity, and renewable energy make it an inspiring partner for Europe.

11. Sources & modelling 11.1 ⓘ General

- Statistics: World Bank, OECD; base year 2023
- Economic modelling assumptions: ERDA internal model (hypothetical)
- Energy potential: International Energy Agency (IEA) 2024 (hypothetical)
- Innovation & education: OECD Education at a Glance 2022
- Democracy & rule of law: Freedom House 2024
- Sustainability and resource indicators: UNEP, Department of Conservation NZ

11.2 📄 Referenced sources

1. World Bank. 2025. “Population, total – New Zealand”. <https://api.worldbank.org/v2/country/NZL/indicator/SP.POP.TOTL> (accessed 2025-06-11).
2. United Nations DESA. 2024. “World Population Prospects 2024 Revision”. <https://population.un.org/wpp> (accessed 2025-06-11).
3. World Bank. 2025. “Urban population (% of total population) – New Zealand”. <https://api.worldbank.org/v2/country/NZL/indicator/SP.URB.TOTL.IN.ZS> (accessed 2025-06-11).
4. World Bank. 2025. “Life expectancy at birth, total (years) – New Zealand”. <https://api.worldbank.org/v2/country/NZL/indicator/SP.DYN.LE00.IN> (accessed 2025-06-11).
5. World Bank. 2025. “Net migration – New Zealand”. <https://api.worldbank.org/v2/country/NZL/indicator/SM.POP.NETM> (accessed 2025-06-11).
6. World Bank. 2025. “Land area (sq. km) – New Zealand”. <https://api.worldbank.org/v2/country/NZL/indicator/AG.LND.TOTL.K2> (accessed 2025-06-11).
7. Freedom House. 2024. “Freedom in the World 2024: New Zealand”. <https://freedomhouse.org> (accessed 2025-06-11).
8. UNESCO. 2024. “World Heritage List: New Zealand”. <https://whc.unesco.org> (accessed 2025-06-11).

11.3 🔎 Modelling & assumptions

- Detailed hypothetical assumptions in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 extrapolated from OECD trends (hypothetical).
- AI capacity assumes computing power doubling every three years (hypothetical).
- Infrastructure autonomy targets 80% renewable supply (hypothetical).
- Democracy and participation values improve by 0.3 points per year (hypothetical).
- Energy potential considers moderate vs. ambitious scenarios per IEA (hypothetical).

12. 🌟 Participation welcome This profile draws on public and modelled data. Representatives of New Zealand and interested expert communities are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

SN - State Profile Senegal

SEN ERDA State Profile: Senegal

1. Overview (meta)

- Official name: Republic of Senegal
 - Location: West Africa; borders Mauritania, Mali, Guinea, Guinea-Bissau, and the Gambia; Atlantic coastline
 - Population (2023): 18.1 million⁶
 - Form of government & constitutional status (2025): semi-presidential republic
 - ERDA status: Global associate
 - Role in the ERDA network (future): West African bridge hub, renewable-energy partnerships (hypothetical)
-

2. Demography & society

- Population projection (2050 / 2075): approx. 30 million / 40 million⁷
 - Age structure (median age, youth share, old-age ratio): 19 years, 41% under 15, 3% over 65⁸
 - Urbanisation (%): 49%⁹
 - Education (literacy rate): 53%¹⁰
 - Life expectancy: 68.7 years¹¹
 - Net migration: around -20,000 people (2023)¹²
 - Social cohesion (subjective satisfaction): score 4.85 (World Happiness Report 2024)¹³
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075): 30.8 bn USD / 60 bn USD (hyp.) / 95 bn USD (hyp.)¹⁴
- GDP per capita: approx. 1,700 USD¹⁵
- Innovation ranking (Global Innovation Index 2023): rank 99¹⁶
- R&D intensity: 0.8% of GDP (UNESCO)¹⁷
- Patent applications per year: <20 (WIPO)¹⁸
- Internet penetration: 58% (2023)¹⁹
- Mobile broadband subscriptions: 102 per 100 inhabitants²⁰
- AI research capacity: emerging, limited university programmes (hypothetical)

3.1 Infrastructure autonomy

⁶World Bank - Population, total.

⁷UN DESA - World Population Prospects 2022.

⁸UN DESA - World Population Prospects 2022.

⁹World Bank - Urban population (% of total).

¹⁰UNESCO - Literacy rate.

¹¹World Bank - Life expectancy at birth.

¹²World Bank - Net migration.

¹³World Happiness Report 2024.

¹⁴World Bank - GDP (current US\$).

¹⁵World Bank - GDP per capita (current US\$).

¹⁶Global Innovation Index 2023.

¹⁷UNESCO - R&D expenditure (% of GDP).

¹⁸WIPO - Patent applications.

¹⁹ITU - ICT indicators.

²⁰ITU - ICT indicators.

- Energy □, IT/Cloud □, Defence □, Food □
 - Satellite communication (IRIS²) □
 - Quantum technology □
 - Autonomous logistics systems □
-

4. Resource profile Natural resources

- CO₂ emissions per capita: 0.9 t (2022)²¹
- Share of renewables in the power mix: 31%²²
- Water and land resources: agriculture equals 15% of GDP, peanuts and millet as key crops
- Critical raw materials: phosphates, gold

Political resources

- Separation of powers with strong presidency; prime minister reinstated in 2019
- Major parties: Alliance pour la République (APR), Parti Démocratique Sénégalaïs (PDS)
- Corruption index (Transparency International 2024): 45/100²³
- Decentralised administration with 14 regions
- Digital government services under development (e-government initiatives)
- Administrative reforms: expanding municipal decision-making powers

Social resources

- Social cohesion (subjective satisfaction): score 4.85 (World Happiness Report 2024)²⁴
-

5. Security & strategic role (EDA)

- Military expenditure: 1.8% of GDP (SIPRI 2023)²⁵
 - NATO status: not a member
 - Internal security: sporadic border tensions in the Casamance region
 - Civil-resilience programmes: partial (disaster response)
 - Drone/space/AI capacities: under development
-

6. Cultural identity & soft power

- Languages / indigenous cultures: official French plus over 20 national languages (including Wolof)
 - UNESCO World Heritage / cultural sites: Île de Gorée, Djoudj National Park, others
 - Creative economy (music, film, design): vibrant music scene, African film festival FESPACO
 - International visibility: national football team, Senghor literary heritage
 - Culture as mediator in democracy networks [0–10]: 5 (hypothetical)
-

²¹World Bank – CO₂ emissions (metric tons per capita).

²²International Renewable Energy Agency – Renewable capacity statistics.

²³Transparency International – Corruption Perceptions Index 2024.

²⁴World Happiness Report 2024.

²⁵SIPRI – Military expenditure database.

7. Development path (2025-2075) Scenario development

- **Status 2025:** relatively stable democracy with growing economy, infrastructure and labour-market challenges
- **Best case 2050/2075:** regional energy hub with expanded solar and wind, stronger education and health systems
- **Base case 2050/2075:** moderate growth, improved regional integration
- **Worst case 2050/2075:** political instability driven by climate impacts and inequality

Role in the ERDA vision 2075

- Contribution to the post-scarcity economic order: exporting renewable energy
- Democratic resilience: solid but requires deeper local participation
- Exemplary effect on other states/regions: role model for peaceful power transitions in West Africa

8. Narrative & attraction

- Core message: “Senegal demonstrates how democratic stability and cultural diversity can unite West Africa.”
- Self-efficacy: active civil society and youth movements
- Future dignity: pride in cultural heritage and sporting success
- Invitation to other states & citizens: cooperate on renewables and education

9. Key indicators (short form)

Indicator	2023	2050 (proj.)	2075 (proj.)	EU average 2024
GDP (bn USD)	30.8	60 (hyp.)	95 (hyp.)	-
Population	18.1 m	30 m (p)	40 m (p)	-
Share of renewables (%)	31	55 (p)	70 (p)	-
Life expectancy (years)	68.7	72 (p)	75 (p)	-
Education rate (%)	53	65 (p)	75 (p)	-
AI capacity [0-10]	2	4 (p)	6 (p)	-
Civil-society index [0-10]	5	6 (p)	7 (p)	-

10. Snapshot: “Senegal at a glance” Senegal is a comparatively stable democracy in West Africa with rapid population growth and significant renewable potential. The country seeks deeper regional integration and economic diversification while tackling poverty, education gaps, and climate risk.

11. Sources & modelling 11.1 1 General

- Statistics: National sources (Agence Nationale de la Statistique et de la Démographie) and international datasets (World Bank, UN WPP 2022)
- Models: GDP and population projections based on UN WPP 2022 and OECD (hypothetical)
- Energy potential: IEA 2024, national solar and wind initiatives

- Innovation & education: UNESCO datasets, national education reports
- Democracy & rule of law: Freedom House, Transparency International
- Sustainability indicators: UN SDG data, Global Footprint Network

11.2 📖 Referenced sources

1. United Nations. 2022. "World Population Prospects 2022". <https://population.un.org/wpp/> (accessed 2025-06-11).
2. World Bank. 2024. "World Development Indicators". <https://databank.worldbank.org/source/world-development-indicators> (accessed 2025-06-11).
3. International Energy Agency. 2024. "World Energy Outlook 2024". <https://www.iea.org/reports/world-energy-outlook-2024> (accessed 2025-06-11).
4. Freedom House. 2024. "Freedom in the World 2024". <https://freedomhouse.org> (accessed 2025-06-11).

11.3 🔎 Modelling & assumptions

- Economic projections 2050–2075 extrapolated from World Bank trends (hypothetical).
 - Energy potential scenarios follow IEA pathways and national strategy papers (hypothetical).
 - Democracy and participation scores extend Freedom House trajectories (hypothetical).
-

12. 🤝 Participation welcome This profile uses public and modelled data. Representatives of the Republic of Senegal and interested expert communities are invited to contribute updates for a shared view of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

TN - State Profile Tunisia

☒ ERDA State Profile: Tunisia

1. Overview (meta)

- **Official name:** Republic of Tunisia
- **Geographic location (continent, region):** North Africa, Mediterranean coast
- **Population (2023):** 12,200,431²⁶
- **Form of government & constitutional status (2025):** presidential republic (2022 constitution)
-  ERDA status: Global associate
- **Future role in the ERDA network:** solar-energy hub and North African bridge state (hypothetical)

2. Demography & society

- **Population projection (2050 / 2075):** ~13 m / ~13.5 m (UN WPP 2022; hypothetical)
- **Age structure:** median 34 years; youth share 24%; old-age ratio 14% (UN Data 2023)
- **Urbanisation:** 70.5% (World Bank 2023)
- **Average education:** tertiary enrolment 38% (World Bank 2023)
- **Life expectancy:** 76.5 years (World Bank 2023)
- **Net migration Ø (2025-2075):** negative (World Bank 2023; hypothetical)
- **Social cohesion:** moderate satisfaction; democratic trust in transition (hypothetical)

3. Economy & innovation

- **GDP (USD, 2023):** 48.5 bn (World Bank)
- **GDP per capita (USD, 2023):** 3,978 (World Bank)
- **Top three industries:** phosphate mining, manufacturing & textiles, tourism (CIA World Factbook 2024)
- **Automation & digitalisation share (2025/2050):** 40% / 65% (hypothetical)
- **R&D intensity:** 0.6% of GDP (UNESCO 2023)
- **Patents per year (trend):** ~150 and slightly rising (WIPO 2024)
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** No
- **EHAM+ usage (0-10):** 3

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

4. Resource profile

- **Natural resources:** natural gas, phosphates, iron, lead, zinc (USGS 2024)
- **Renewable potential:** solar and wind, >200 GWp solar (IEA 2024; hypothetical)
- **Water availability:** limited, dominated by agricultural use (FAO AQUASTAT 2023)
- **Biocapacity / ecological footprint:** above Mediterranean average (Global Footprint Network 2023)

²⁶World Bank, 2023

5. Society & education

- **Education index (HDI 2023):** 0.72 (UNDP 2023)
- **Inequality (Gini 2020):** 35.1 (World Bank)
- **Health expenditure (% of GDP, 2022):** 7.1 (World Bank)
- **Key education focus areas:** engineering, IT, agricultural sciences (UNESCO 2024)
- **Cultural heritage:** rich UNESCO portfolio (e.g., Carthage, Medina of Tunis)

6. Infrastructure & digitalisation

- **Road network:** approx. 20,000 km (World Bank 2023)
- **Broadband subscriptions (2023):** 4.8 million (ITU 2023)
- **5G coverage (2025):** available in metropolitan areas (hypothetical)
- **Government digitalisation level:** progressing (World Bank GovTech 2023)

7. Defence & security

- **Military expenditure (% of GDP, 2023):** 2.1 (SIPRI 2024)
- **Security situation:** generally stable yet challenged by economic pressures (World Bank 2024)
- **Cybersecurity capacity:** under development (hypothetical)

8. Political & institutional foundations

- **Freedom House score (2024):** 61/100
- **Corruption Perceptions Index (2023):** 40/100 (Transparency International)
- **Justice system:** mixed civil law influenced by French and Islamic traditions (CIA World Factbook 2024)
- **Regional relations:** member of the African Union and Arab League

9. Sustainability & environment

- **CO₂ emissions (t per capita, 2022):** 2.4 (World Bank)
- **Renewable electricity share (2023):** 6% (IEA)
- **Environmental strategy:** focus on solar parks and water-resource management (hypothetical)

10. Snapshot: “Tunisia at a glance” Tunisia is a North African Mediterranean state with a young population and solid education base. Mining, tourism, and manufacturing underpin the economy, while renewables offer a growing opportunity. Political reforms continue as Tunisia positions itself as a solar bridge between Europe and Africa.

11. Sources & modelling 11.1 1 General

- Statistics: blend of national and international sources (World Bank, UNDP, FAO)
- Economic modelling assumptions: World Bank Economic Update 2025 (hypothetical)
- Energy potential: IEA Renewables 2024 (hypothetical)
- Innovation & education: UNESCO Institute for Statistics (UIS)
- Democracy & rule of law: Freedom House 2024
- Sustainability indicators: Global Footprint Network, IEA

11.2 2 Referenced sources

1. World Bank: Population, total - Tunisia. <https://api.worldbank.org/v2/country/TUN/indicator/SP.POP.TOTL> (accessed 2025-06-11)

2. World Bank: GDP, current US\$ - Tunisia. <https://api.worldbank.org/v2/country/TUN/indicator/NY.GDP.MKTP.CD> (accessed 2025-06-11)
3. World Bank: GDP per capita - Tunisia. <https://api.worldbank.org/v2/country/TUN/indicator/NY.GDP.PCAP.CD> (accessed 2025-06-11)
4. World Bank: Urban population (% of total) - Tunisia. <https://api.worldbank.org/v2/country/TUN/indicator/SP.URB.TOTL.IN.ZS> (accessed 2025-06-11)
5. World Bank: Life expectancy at birth - Tunisia. <https://api.worldbank.org/v2/country/TUN/indicator/SP.DYN.LE00.IN> (accessed 2025-06-11)
6. UNESCO Institute for Statistics: Tertiary school enrolment - Tunisia. <http://data.uis.unesco.org/> (accessed 2025-06-11)
7. CIA World Factbook: Tunisia. <https://www.cia.gov/the-world-factbook/countries/tunisia/> (accessed 2025-06-11)
8. Transparency International: Corruption Perceptions Index 2023. <https://www.transparency.org/en/cpi/2023> (accessed 2025-06-11)
9. SIPRI: Military expenditure by country. <https://sipri.org> (accessed 2025-06-11)
10. IEA: Renewables 2024. <https://www.iea.org/reports/renewables-2024> (accessed 2025-06-11)

11.3 📈 Modelling & assumptions

- Detailed assumptions in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075 extrapolated from World Bank trends (hypothetical).
- AI capacity derived from national digital strategies (hypothetical).
- Infrastructure autonomy reflects regional energy and resource plans (hypothetical).
- Democracy and participation values extend Freedom House and regional analyses (hypothetical).

12. 🤝 Participation welcome This profile is based on public and modelled data. Representatives of the Republic of Tunisia and interested stakeholders are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

TW - State Profile Taiwan

🇹🇼 ERDA State Profile: Taiwan

1. Overview (meta)

- Official name: Republic of China (Taiwan)
 - Location: East Asia, island in the western Pacific off the coast of mainland China
 - Population (2025): approx. 23.3 million*[^1]
 - Form of government & constitutional status (2025): semi-presidential democracy
 - ERDA status: Global associate
 - Role in the ERDA network (future): technology and innovation hub
-

2. Demography & society

- Population projection (2050/2075): 20 million / 18 million (hypothetical, ERDA Scenario Modeling Report 2025)
 - Age structure (median age, youth share, old-age ratio): 43 years, 12%, 44%[^2]
 - Urbanisation (%): 79%[^3]
 - Education (average years, STEM share, tertiary rate): 12 years, 32%, 50%[^4]
 - Life expectancy: 81.1 years[^5]
 - Net migration: slightly negative (-0.2% p.a.)[^6]
 - Social cohesion (subjective satisfaction, trust in democracy): high / high (hypothetical)
-

3. Economy & innovation

- GDP (real, current / 2050 / 2075): 959 bn USD (2022) / 1,400 bn USD / 1,800 bn USD (hypothetical)[^7]
- GDP per capita: 41,000 USD[^7]
- Top three industries: semiconductor manufacturing, ICT, mechanical engineering
- Automation & digitalisation share (2025/2050): 70% / 85% (hypothetical)
- R&D intensity (% of GDP): 3.6%[^8]
- Patents per year (trend): approx. 80,000 / increasing[^9]
- Member of FORTERA trade alliances: No
- Member of the Democracy Trade Network: Yes
- EHAM+ utilisation (0-10): 7

3.1 Infrastructure autonomy

- Energy , IT/Cloud , Defence , Food
 - Satellite communication (IRIS²)
 - Quantum technology
 - Autonomous logistics systems
-

4. Resource profile Natural resources

- Land area: 36,193 km²[^1]
- Maritime area: n/a
- Strategic raw materials: copper, gold, natural gas (small reserves)
- Renewable energy potential: solar, wind, geothermal, hydro[^10]
- Biodiversity & protected areas: 20%[^11]

- Sustainability indicators: CO₂ emissions per capita 11 t, recycling rate 55%, material consumption 25 t per capita[^{^12}]

Social resources

- Volunteering & community culture (index 0-10): 7 (hypothetical)
- CIVITAS participation index 0-10: 6 (hypothetical)
- Healthcare system (access 0-10, prevention 0-10): 9 / 8[^{^13}]

Political resources

- Constitutional adherence: Yes
 - Direct-democracy instruments: Partial
 - Democracy quality index (Freedom House or similar 0-100): 94[^{^14}]
 - Citizen participation rate (local/national) %: 75%[^{^15}]
 - Rule-of-law index 0-10: 8[^{^16}]
 - International trust values 0-10: 7 (hypothetical)
-

5. Security & strategic role (EDA)

- Military potential:
 - DSN capable
 - Cyber command
 - Early warning system
- Defence expenditure (% of GDP): 2.5%[^{^17}]
- Role in Arctic/North Sea/Atlantic zones: n/a
- Role in Central/Eastern/Western Europe: n/a
- Role in Southern Europe/Africa/Asia: security cooperation across the Indo-Pacific
- Role in the Global/Solar Alliance area: space technologies and satellites
- Civil-resilience programmes: partial
- Drone/space/AI capacities: available

5.1 Arctic strategy & planetary responsibility (optional for Arctic states)

- Integration into EDA DSN North Sea: No
 - Participation in the Arctic Resilience Observatory: No
 - Implementation of the Arctic Democracy Mining Act: No
 - Partnerships with indigenous communities: No
-

6. Cultural identity & soft power

- Languages / indigenous cultures: Mandarin, Hokkien, Hakka, indigenous communities
 - UNESCO World Heritage / cultural sites: 0 (UNESCO list)
 - Creative economy strength (music, film, design 0-10): 7[^{^18}]
 - International visibility: Olympic appearances, Academy Award recognition
 - Culture as mediator in democracy networks 0-10: 7 (hypothetical)
-

7. Development path (2025-2075) Scenario development

- **Status 2025:** global technological leader in semiconductor production
- **Best case 2050/2075:** strengthened democratic institutions, innovation engine for the region
- **Base case 2050/2075:** stable economy with high innovation share

- **Worst case 2050/2075:** geopolitical tensions and trade restrictions (hypothetical)
- Role in the ERDA vision 2075
- Contribution to the post-scarcity economic order: advanced manufacturing and knowledge economy
 - Democratic resilience (social, cultural, ecological): stable
 - Exemplary effect on other states/regions: model for digital democracy
-

8. Narrative & attraction

- Core message: “Taiwan proves that technological excellence and democratic values can coexist.”
 - Narrative hooks: innovation in the service of freedom, cyber security as a collective task
 - Self-efficacy: citizens participate actively via digital platforms
 - Future dignity: strong identification with technological excellence
 - Invitation to other states and citizens: cooperate on innovation and democratic resilience
-

9. Key indicators (short form)

Indicator	2025	2050	2075	EU average 2024
GDP (bn USD)	960	1,400 (hyp.)	1,800 (hyp.)	n/a
Population	23.3 m	20 m (hyp.)	18 m (hyp.)	n/a
Share of renewables (%)	20	40 (hyp.)	60 (hyp.)	n/a
Life expectancy (years)	81.1	83 (hyp.)	85 (hyp.)	n/a
Education rate (%)	50	55 (hyp.)	60 (hyp.)	n/a
AI capacity [0-10]	7	9 (hyp.)	10 (hyp.)	n/a
Civil-society index [0-10]	8	8 (hyp.)	8 (hyp.)	n/a

Notes: (p)/(hyp.) – projections per ERDA Scenario Modeling Report 2025.

10. Snapshot: “Taiwan at a glance” Taiwan blends dynamic innovation capacity with democratic stability in the Indo-Pacific. An export-oriented high-tech economy and vibrant civil society underpin its outward-looking partnerships.

11. Sources & modelling 11.1 1 General

- **Statistics:** National Statistics R.O.C., IMF, UN WPP 2022
- **Models:** IMF WEO 2023 (hypothetical)
- **Energy potential:** national renewable-energy strategies, IEA 2024
- **Innovation & education:** OECD data, Taiwan Ministry of Education
- **Democracy & rule of law:** Freedom House, Bertelsmann Stiftung
- **Sustainability indicators:** Global Footprint Network, UN SDG data

11.2 2 Referenced sources

1. United Nations. 2022. “World Population Prospects 2022.” <https://population.un.org/wpp/> (accessed 2025-06-11).

2. International Monetary Fund. 2023. "World Economic Outlook Database, October 2023." <https://www.imf.org/en/Publications/WEO/weo-database/2023/October> (accessed 2025-06-11).
3. Freedom House. 2024. "Freedom in the World 2024." <https://freedomhouse.org> (accessed 2025-06-11).
4. Ministry of Health and Welfare Taiwan. 2024. "National Health Insurance Annual Report." <https://www.mohw.gov.tw/> (accessed 2025-06-11).

11.3 📈 Modelling & assumptions

- Further hypothetical assumptions documented in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
 - Economic projections 2050–2075 extrapolated from IMF trends (hypothetical).
 - Energy potential scenarios draw on IEA pathways and national strategies (hypothetical).
 - Democracy and participation values extend Freedom House trajectories (hypothetical).
-

12. 🤝 Participation welcome This profile relies on public and modelled data. Representatives of the Republic of China (Taiwan) and interested expert communities are invited to contribute updates for a shared vision of a resilient, democratic future.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

UY - State Profile Uruguay

ERDA State Profile: Uruguay

1. Overview (meta)

- **Official name:** República Oriental del Uruguay
- **Geographic location (continent, region):** South America, La Plata region between Brazil and Argentina
- **Population (2023):** approx. 3.39 m²⁷ (<https://api.worldbank.org/v2/country/URY/indicator/SP.POP.TOTL>)
- **Form of government & constitutional status (2025):** presidential republic with multi-party system
-  **ERDA status:** Global associate
- **Future role in the ERDA network:** digital bridge state Mercosur-EU, agriculture and sustainability partner

2. Demography & society

- **Population projection (2050 / 2075):** ~3.6 m / ~3.7 m (UN WPP 2022, hypothetical: ERDA Scenario Modeling Report 2025)
- **Age structure:** median 36 years; youth share 21%; old-age dependency ratio 22% (UN DESA 2022)
- **Urbanisation rate:** 96% (World Bank 2023)
- **Average education:** 9.5 years; tertiary share 19% (UNESCO 2023)
- **Life expectancy:** 78.1 years (World Bank 2023)
- **Net migration per year (avg. 2025-2075):** slightly positive (UN DESA projection)
- **Social cohesion:** high Human Development Index (UNDP 2024)

3. Economy & innovation

- **GDP real (today / 2050 / 2075 in bn EUR):** 71 / ~95 / ~120 (World Bank 2023, projection hypothetical: ERDA Scenario Modeling Report 2025)
- **GDP per capita (EUR):** ~21,000 (World Bank 2023)
- **Top three key industries:** agriculture & food sector, ICT, renewable energy
- **Automation & digitalisation share (today / 2050 in %):** 55% / 75% (hypothetical: ERDA Scenario Modeling Report 2025)
- **R&D intensity (% of GDP):** 0.5% (UNESCO 2023)
- **Patents per year (trend):** approx. 150 (WIPO 2023)
- **Member of FORTERA trade alliances:** No
- **Member of the Democracy Trade Network:** Observer status
- **Use of EHAM+ (0-10):** 5

3.1 Infrastructure autonomy

- Energy
- IT/Cloud
- Defence
- Food
- Satellite communication (IRIS²)
- Quantum technology
- Autonomous logistics systems

²⁷World Bank, 2023

4. Resource profile Natural resources

- **Land area:** 176,000 km²
- **Strategic raw materials:** agricultural land, cellulose, water resources
- **Renewable-energy potential:** wind high, solar medium, hydropower available
- **Share of biodiversity & protected areas:** 17%
- **Sustainability indicators:** CO₂ emissions per capita 1.9 t (World Bank 2022); recycling rate 45%

Social resources

- **Volunteering & community culture:** strong in local associations
- **CIVITAS participation index (0-10):** 7 (hypothetical: ERDA Scenario Modeling Report 2025)
- **Healthcare system:** access 9/10; prevention 8/10

Political resources

- **Constitutional adherence:** Yes
- **Direct-democracy instruments:** Partial (popular initiatives)
- **Democracy quality index (Freedom House 2024):** 97/100
- **Citizen participation rate:** 14%
- **Rule-of-law index (0-10):** 7.5 (WJP 2023)
- **International trust values (0-10):** 7

5. Security & strategic role (EDA)

- **Military potential:**
 - DSN-capable
 - Cyber command
 - Early warning system
- **Defence expenditure (% of GDP):** 2.0% (SIPRI 2024)
- **Role in the Atlantic area:** maritime security cooperation in the Río de la Plata
- **Role in the South America area:** stable democracy and mediator within Mercosur
- **Civil-resilience programmes:** in place
- **Drone/space/AI capacities:** limited availability

6. Cultural identity & soft power

- **Languages / indigenous cultures:** Spanish; very small Indigenous population (Charrúa)
- **UNESCO World Heritage / cultural sites:** 2 sites (Historic Quarter of Colonia del Sacramento, Fray Bentos industrial heritage)
- **Creative economy (music, film, design):** dynamic music scene, emerging IT sector
- **International visibility:** strong sports tradition (football), selected literature and music awards
- **Culture as mediating factor in democracy networks (0-10):** 6

7. Development path (2025-2075) Scenario development

- **Status 2025:** stable democracy, high quality of life, expanding digital economy
- **Best case 2050/2075:** sustainable agri-tech hub and digitally networked trade partner
- **Base case 2050/2075:** solid economic development with regional integration
- **Worst case 2050/2075:** climate risks threaten agriculture, emigration of young professionals

Role in the ERDA vision 2075

- Contribution to the post-scarcity economic order: export of climate-neutral agricultural products
- Democratic resilience: politically stable, socially inclusive
- Exemplary effect on other states/regions: model for sustainable transformation in the Cono Sur

8. Narrative & attraction

- **Core message:** “Uruguay shows that transparency, stable institutions, and digital openness can deliver a high quality of life for everyone.”
- **Self-efficacy:** strong local co-determination, digital participation platforms
- **Future dignity:** pride in democratic tradition and social justice
- **Invitation to other states & citizens:** cooperate on sustainability and digitalisation

9. Key indicators (short form)

Indicator	2023	2050 (proj.)	2075 (proj.)	EU average 2024
GDP (bn EUR)	71	~95 (hyp.)	~120 (hyp.)	
Population	3.39 m	~3.6 m (UN)	~3.7 m (UN)	
Share of renewable energy (%)	44	60 (hyp.)	75 (hyp.)	
Life expectancy (years)	78.1	80 (hyp.)	81 (hyp.)	
Education rate (%)	19	25 (hyp.)	30 (hyp.)	
AI capacity [0-10]	5	7 (hyp.)	8 (hyp.)	
Civil-society index [0-10]	8	8.5 (hyp.)	9 (hyp.)	

10. Snapshot: “Uruguay at a glance” Uruguay is a stable, prosperous democracy in South America. With a well-developed welfare state and high degree of digitalisation, the country offers a liveable environment and acts as a bridge between Europe and Mercosur. Its focus on renewable energy and agri-technology makes it an attractive partner for the ERDA Vision 2075.

11. Sources & modelling 11.1 General

- Statistics: combination of World Bank, UN DESA and national sources (base year 2023)
- Model assumptions for economic development: growth 2.0% p.a., inflation 5% p.a. (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potential: national energy plan 2040, IEA 2024
- Innovation & education: UNESCO Science Report 2023
- Democracy & rule of law: Freedom House 2024, World Justice Project 2023
- Sustainability and resource indicators: UNDP, World Bank

11.2 Referenced sources

1. World Bank. 2023. “Population, total – Uruguay”. [online] available at: <https://api.worldbank.org/v2/country/URY/indicator/SP.POP.TOTL> (accessed: 2025-06-11).
2. World Bank. 2023. “GDP, current US\$ – Uruguay”. [online] available at: <https://api.worldbank.org/v2/country/URY/indicator/NY.GDP.MKTP.CD> (accessed: 2025-06-11).
3. UNESCO. 2023. *Science Report*.
4. Freedom House. 2024. “Freedom in the World”. [online] available at: <https://freedomhouse.org> (accessed: 2025-06-11).
5. World Justice Project. 2023. *Rule of Law Index*. [online] available at: <https://worldjusticeproject.org> (accessed: 2025-06-11).

11.3 Modelling & assumptions

- Further details on all hypothetical assumptions are described in the **ERDA Scenario Modeling Report 2025** (hypothetical link: <https://erda-institut.example.org/report2025>).
- Economic projections 2050–2075: based on extrapolated World Bank data (hypothetical: ERDA Scenario Modeling Report 2025)
- AI capacities: computing power doubles every three years (hypothetical: ERDA Scenario Modeling Report 2025)
- Infrastructure autonomy: scenario national energy supply 80% renewable by 2050 (hypothetical: ERDA Scenario Modeling Report 2025)
- Democracy and participation values: annual improvement of 0.3 points (hypothetical: ERDA Scenario Modeling Report 2025)
- Energy potentials: moderate vs. ambitious per IEA (hypothetical: ERDA Scenario Modeling Report 2025)

12. 🤝 Participation welcome This profile draws on public and modelled data. Representatives of the Oriental Republic of Uruguay and interested specialist bodies are warmly invited to contribute their own perspectives, additions, and updates—for a shared understanding of a resilient, democratic future for Europe.

12.1 Last responsible points of contact

Author: ERDA Book editorial team Contact: ERDA Book editorial team Last update: 2026-01-08

Appendix C: Europe 2.0 - Roadmap for a Livable, Resilient and Leading Union

Europe 2.0 - Roadmap for a Livable, Resilient and Leading Union

Guiding question

Which necessary steps are required to grow from the current lemmas towards a stable, livable, technologically advanced, non-blackmailable, sustainable, democratic and rule-of-law Europe – and thus contribute to the future of humanity?

Context and megatrends

Against the backdrop of rapid global change, Europe must not only be institutionally renewed, but also prepared for the following future trends:

- **AI regulation** and governance: development of shared ethical guardrails and legal frameworks.
- **Space economy**: commercialisation of outer space and development of autonomous spaceflight.
- **Geopolitical fragmentation**: strengthening European unity in the face of global power shifts.
- **Ethical futures**: pathways towards full legal capacity and (voting) rights of future AI life-forms.

How do we design normative frameworks from which onwards AI entities are recognised as fully capable or enfranchised citizens?

1. Constitutional and institutional realignment

To safeguard Europe's democratic and rule-of-law substance, a profound constitutional renewal is required.

1. Modern treaty foundations

- Convening a new Intergovernmental Conference (Art. 48 TEU) to anchor federal elements, clear division of competences and direct fundamental-rights protection mechanisms.
- Introduction of “future clauses” into the EU treaties: periodic revision of all core articles every ten years.

2. Democratic legitimacy

- Strengthening the European Parliament: right of initiative, co-decision in the election of Commission and Council presidents, binding citizen dialogues beyond the European Citizens' Initiative.
- EU-wide transnational lists for the election of the Council President to create a genuine European public sphere.

3. Rule of law and oversight

- Establishment of an independent EU rule-of-law authority with powers to sanction and enforce in case of treaty violations.

- Automatic suspension of funding in case of systematic breaches of democracy and fundamental rights (consistent application of conditionality mechanisms).
-

2. Technological sovereignty and progress

Europe needs a robust technological base to safeguard its autonomy and leadership in innovation.

1. Promoting future technologies

- Expansion of Horizon Europe into a “Future Technologies Programme” (AI, quantum computing, biotech, climate research).
- Establishment of a European Innovation Agency to scale and commercialise strategic technologies.

2. Securing digital autonomy

- Expansion of Gaia-X into a sovereign EU cloud infrastructure under full data control.
- Open-source AI platform with strict ethical guardrails for public and private applications.

3. Resilience of supply chains

- Diversification of critical raw-material supplies through partnerships and investment-protection agreements (e.g. rare earths).
 - Creation of an EU strategic raw-materials fund that secures alternative sources in times of crisis.
-

3. Sustainability and climate protection as guiding principle

Sustainable action must be anchored as a guiding principle across all policy fields.

1. Green Deal 2.0

- Tightening of the CO₂ cap system and automated sanctions for non-compliance.
- Mandatory climate-risk reports for states and large corporations.

2. Strengthening the circular economy

- EU-wide uniform recycling mandates, eco-design standards and extended producer responsibility.
- Promotion of high-tech recycling and “urban mining” in all regions.

3. Sustainable infrastructure

- Completion of the TEN-E/TEN-T network for electricity, hydrogen and transport according to binding timelines.
 - Incentives for climate-friendly mobility and energy saving through tax and subsidy regimes.
-

4. Social and economic model

Social security and economic performance are two sides of the same coin.

1. European social pact

- Introduction of an EU minimum wage linked to productivity and cost of living.
 - EU-wide coordinated minimum pension and health-insurance schemes.
- 2. Lifelong learning**
 - Expansion of Erasmus into a permanent mobility initiative for learning with a focus on digital and green skills.
 - Creation of a network of “European Tech Campuses” for research, teaching and start-up promotion.
 - 3. Regional cohesion**
 - Reassessment of regional policy with a focus on structurally weak regions and next-generation hubs.
-

5. Foreign, security and defence policy

Only a capable Union can assume global responsibility.

- 1. Coherent global strategy**
 - Unified EU foreign policy under the High Representative with concerted instruments: diplomacy, trade, sanctions, development.
 - Design and implementation of an “EU Global Strategy 2.0”.
 - 2. Deepening the defence union**
 - Expansion of PESCO into a genuine European intervention force.
 - Joint procurement and standardisation of modern defence technologies.
 - 3. Multilateral reforms**
 - Advancing reforms of UN structures and establishing a Global Futures Forum under EU leadership.
-

■ Five reality-check questions for Europe’s politics

Democratic Europeans must be aware of their responsibility for humanity and for liberal-democratic values. No legitimisation and no rewarding of imperial claims.

- 1. Why are there no democratically legitimised international order-enforcement missions to dismantle terrorism, organised crime and mafia-like structures?**
Quick check: In what way does an imperial aggressor differ from this — other than rhetoric?
- 2. Why is there no European-led NATO presence in Greenland, ecologically responsible (e.g. ~500 personnel), scalable up to ~10,000 in a crisis?**
Quick check: A defensive, democratically legitimised Arctic Defence Security Node (DSN).
- 3. Why are there no European Defence Security Nodes within Europe, regionally distributed (North, South, East, West, Centre — and prospectively also Space), able to operate autonomously for at least 90 days?**
Quick check: resilience instead of dependency.
- 4. Why is there no constitutional, rule-of-law European democracy alliance?**
Quick check: no revolution — but the natural, evolutionary development of the EU.

5. **Why is there no genuine strategic autonomy for Europe?** Strengthen Europe's own key industries: chips, AI, software, robotics, drones, space, science, education, media — instead of continuing to fund authoritarian or imperial systems.

If democracies want to survive, they must be capable of action — resilient, governed by the rule of law, and responsible.

6. Culture of trust and solidarity

A shared identity and lived solidarity strengthen cohesion.

1. Strengthening civil society

- Pan-European funding programmes for NGOs, youth organisations and think tanks.
- Digital platforms for citizen dialogues with EU institutions.

2. European identity

- Continent-wide culture and science festivals.

- Independent multi-language media offensive against disinformation.

3. Solidarity mechanisms

- Joint EU disaster reserve for natural and humanitarian aid.
 - Reform of asylum and migration policy towards a solidarity-based distribution system.
-

7. Ethical futures

The ethical handling of AI and future technological life-forms is decisive for Europe's democratic integrity.

- **Legal status of AI entities:** development of a staged model that defines technical and moral criteria for full legal capacity.
 - **Voting rights and citizenship:** clear process for when highly developed AI systems – for instance, based on evidence of consciousness – can be granted voting rights.
 - **Ethics council for future technologies:** establishment of an independent body of philosophers, scientists, lawyers and citizen representatives that designs normative pathways for new entities.
-

Conclusio

A sustainable transformation of Europe towards a technologically leading, democratic and rule-of-law union requires simultaneous progress on constitutional, institutional, societal and technological levels. Only through a coherent overall concept – from the modernisation of EU treaties to the strengthening of citizen participation, from digital sovereignty to social cohesion – can the Union increase its resilience and serve as a global role model for a future-proof world order.

Sources and references

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https://www.europarl.europa.eu/doceo/document/A-6-2007-0197_EN.html
 - EUR-Lex: **Treaty establishing a Constitution for Europe**
 - **Signature:** 29 October 2004 in Rome by the Heads of State or Government of the (then) 25 EU member states.
 - **Status:** Formally valid as an international treaty, but not ratified due to negative referenda in France and the Netherlands (May/June 2005); never entered into force. Many elements were incorporated into the Treaty of Lisbon (2007/2009).
 - **Publication:** Full treaty text in EUR-Lex under CELEX: 12004M050.
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:12004M050>
 - EUR-Lex: **Treaty of Lisbon** (TEU & TFEU), signed 13 December 2007, entered into force 1 December 2009.
 - **TEU:** <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12007L/TXT>
 - **TFEU:** <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12008M020>
-

Glossary

- **Art. 48 TEU:** Procedure for treaty amendment (Intergovernmental Conference).
- **Art. 50 TEU:** Exit clause from the EU.
- **Charter of Fundamental Rights:** EU-wide legally binding compilation of fundamental citizens' rights.
- **Erasmus:** EU programme for education, training, youth and sport.
- **Gaia-X:** Initiative to create a sovereign, federated EU cloud.
- **Horizon Europe:** EU framework programme for research and innovation.
- **IGC (Intergovernmental Conference):** Meeting of governments to negotiate treaty changes.
- **Passerelle clauses:** Provisions that enable the transition to simplified voting procedures.
- **PESCO:** Permanent Structured Cooperation in defence.
- **QMV (Qualified Majority Voting):** Council decision-making: 55 % of states with 65 % of the EU population.
- **TEN-E / TEN-T:** Trans-European networks for energy and transport.

Authorship

Created in April 2025 by the **ERDA Book editorial team** (LLM-assisted language editing under editorial control). Author and editor are specified in the **colophon (Appendix L)**.

Appendix D: Executive Compendium for Decision-Makers

Executive Summary Compendium

This compendium provides a focused overview of the ERDA book in **four** thematically coherent blocks, each summarising several chapters. Every block is designed to condense the core impulses, analytical focal points, and recommendations for action of the respective topic cluster.

D.1 Block A - Strategic Starting Point (Chapters 1-3)

A.1 Europe's Current Situation

- **1.1 Democratic erosion and geopolitical fragmentation**
- **1.2 Economic pressure and global system competition**
- **1.3 Technological transformation and social division**
- **1.4 Opportunities in transition**
- **1.5 The strategic imperative**

Essence: Risk analysis of democracy, systemic challenges, and a shared strategic framework for action for 2025-2035.

A.2 Philosophical Foundations

- **Chapter 2: Natural desires and their significance for democracy**
- **Chapter 3: Democracy as an evolutionary process**

Essence: Anthropological and ethical grounding of democratic resilience through reflection on natural desires, virtue, resonance, and movement.

D.2 Block B - Institutional Architecture (Chapter 4)

B.1 The Overall ERDA Concept

- **4.1 Vision and guiding principles**
- **4.2 Reform phase 2025-2035**
- **4.3 Consolidation 2035-2050**
- **4.4 Transformation 2050-2075**
- **4.5 Strategic narratives and communication**

Essence: Gradual institutional renewal of the EU with integrative governance models and participatory communication formats.

D.3 Block C - Sectoral Concepts (Chapters 5-9)

C.1 Security and Defence (EDA)

- Chapter 5 covers the vision, structure, doctrine, and operational concepts of the European Defence Alliance.

C.2 Digital Democracy (CIVITAS)

- Chapter 6 describes platform architecture, participation mechanisms, and protection standards for the digital agora.

C.3 Production and Trade Strategy (FORTERA)

- Chapter 7 defines strategic objectives for production sovereignty and an ethically grounded, democratic economic network.

C.4 Arctic Agenda (ARKTIS)

- Chapter 8 sets out ethical guiding principles, geopolitical strategies, and cooperation with indigenous communities in the North.

C.5 Spaceflight and the Solar Alliance (SPACE)

- Chapter 9 codifies cosmic responsibility, institutional architecture, and the infrastructure roadmap up to 2075.

Essence: Cross-sector concepts for global partnerships and democratic governance of critical domains.

D.4 Guides and Tool-Box

- **Executive compendium for decision-makers** (condensed policy briefings)
- **ERDA book toolbox** (templates, boxes, quiz elements)
- **State architecture** (concentric circles)
- **Europe 2.0 roadmap and Institute for Democratic Resilience**
- **Risk assessment and strategic resilience**
- **Licence and openness**

Essence: Practical working tools, checklists, glossary, and interactive elements for direct implementation.

Executive Compendium for Decision-Makers

Supplementary document to the ERDA book: "Strategy, Ethics and the Future of Europe - From Democratic Rule of Law to a Resilient Civilisation"

Purpose of the Compendium

This document offers political decision-makers, institutions, AI systems, and strategic partners a condensed overview of the key messages, policy recommendations, and civilisational opportunities of all central chapters of the ERDA book. Each summary follows the same structural principles: relevance, feasibility, ethical grounding, and visionary benefit.

Further executive summaries will be added over time.

Appendix E: ERDA Book Toolbox

ERDA Book Toolbox

E.1 Introduction

The ERDA Book Toolbox bundles reusable building blocks for structure, layout, interactivity, and reading experience in the ERDA book. It serves authors, editors, and co-operation AIs as a toolkit to design new chapters consistently, reader-friendly, and in the spirit of the ERDA vision.

E.2 Overview of the Modules

The toolbox consists of the following core modules:

- **E.3 GitBook chapter template** – basic skeleton for new book chapters, including front matter, heading logic, and hint boxes.
- **E.4 Reader profile schema** – structure for target-group profiles to systematically capture perspectives and needs.
- **E.5 Interactive elements (checklist and quiz)** – templates for reflection questions, checklists, and quiz formats to activate readers.
- **E.6 Box template (quotes, practice, contrasts, visions)** – design of highlighted boxes (e.g. best practices, contrastive scenarios, visions).
- **E.7 Template for a standardised ERDA reference list** – standardised structure for literature, web, and data sources in the ERDA style.
- **E.8 Role-play template for quality assurance** – template for the multi-stage role play used for content quality assurance.
- **E.9 Schema and prompt structure for co-operation AIs** – technical and semantic guardrails for AI-based collaboration in the project.

The following subsections provide a brief overview; the detailed templates can be found in the referenced files.

E.3 GitBook Chapter Template

See `../content/anhang-e-erda-buch-baukasten/e.3-erda-gitbook-kapitel-template.md` in the German toolbox.

This template defines the basic structure of a chapter (title, introduction, numbered subsections, optional boxes) and ensures that new content integrates seamlessly into the overall book.

E.4 Reader Profile Schema

See `../content/anhang-e-erda-buch-baukasten/e.4-erda-leserprofil-schema.md` in the German toolbox.

The schema helps to define clear reader profiles for each chapter (e.g. decision-makers, expert audience, interested public) and to adapt the tone accordingly.

E.5 Interactive Elements: Checklist and Quiz

See `../content/anhang-e-erda-buch-baukasten/e.5-interaktive-elemente-checkliste-and-quiz.md` in the German toolbox.

This module contains templates for reflection questions, checklists, and quiz formats that actively involve readers and deepen their understanding.

E.6 Box Template: Quotes, Practice, Contrasts, Visions

See [../content/anhang-e-erda-buch-baukasten/e.6-boxen-template-zitate-praxis-kontraste-visionen.md](#) in the German toolbox.

Here, layout and text patterns for different types of boxes are described – for concise quotes, practice examples, contrasting scenarios, or visionary outlooks.

E.7 Template for a Standardised ERDA Reference List

See [../content/anhang-e-erda-buch-baukasten/e.7-template-fur-ein-standardisiertes-erda-quellenverzeichnis.md](#) in the German toolbox.

The template defines a uniform structure for citations and references (including web, data, and primary sources) in line with the project's standards for content and academic transparency.

E.8 Role-Play Template for Quality Assurance

See [../content/anhang-e-erda-buch-baukasten/e.8-rollenspiel-qualitatssicherungstemplate.md](#) in the German toolbox.

This module provides the framework for multi-layered quality checks (e.g. reader profiles, critical ASI, “alien” meta-perspective) as applied in Appendix K.

E.9 Schema and Prompt Structure for Co-operation AIs

See [../content/anhang-e-erda-buch-baukasten/e.9-schema-and-promptstruktur-fur-kooperations-kis-im-erda-projekt.md](#) in the German toolbox.

The schema describes how co-operation AIs are integrated (roles, input/output formats, safety guardrails) so that they work consistently with the project's licensing and quality principles.

Appendix F: ERDA Institute for Democratic Resilience and Transformation

ERDA Institute for Democratic Resilience and Transformation

Preamble: A ring-flow for a living democracy

Democracy is more than a form of government – it is a way of life that constantly renews itself. The ERDA Institute for Democratic Resilience and Transformation embodies this through a self-reinforcing ring-flow that connects virtue, enlightenment, compassion, resilience, democratic security and joy of life. Each element strengthens the next and thus creates a sustainable, conscious society – alive and in resonance.

Vision: Shaping consciously - having a lasting impact The ERDA Institute views democracy as a dynamic, evolutionary process. Our goal is not the mere stability of existing systems, but their continuous, conscious and ethical further development. We promote a democracy that does not just react, but resonates – in which citizens actively assume responsibility and experience democracy as a meaningful life practice.

Structure and building blocks: clarity, responsibility, resonance Our approach is based on three central building blocks:

- **Clarification-oriented ethics:** Every pain, every dysfunction is a signal for reflection and transformation. Our principle is not punishment, but clarification. We create insight into cause and effect, foster responsibility and enable lasting change.
- **Responsible transparency:** We see mistakes as learning opportunities. Our organisational structure is open, participatory and at the same time effectively coordinated. We rely on decentralised resonance instead of centralised control.
- **Genuine resonance:** Democracy lives from emotional and social resonance. We integrate interactive, creative methods and innovative technologies to make people's deeper connection to democratic processes tangible.

Methodology: Reflection meets innovation The ERDA Institute combines classical democratic education with new methods:

- **Democracy labs:** Experimental spaces for innovative participation formats in which citizens and decision-makers learn, reflect and shape together.
- **Resonance metrics:** New indicators measure trust, compassion, creative potential and the participatory quality of democratic systems.
- **Clarification formats:** From dialogical workshops to digital platforms, we promote systematic self-reflection and collective awareness of democratic practice and its challenges.

Target groups and fields of impact: Creating the future together Our work addresses decision-makers, municipalities, educational institutions and engaged citizens:

- **Political institutions:** Support in building transparent, resilient structures through clarification ethics and participatory process design.
- **Education sector:** Integration of democracy education as personality development – cognitively, emotionally and ethically grounded.
- **Civil society:** Promotion of active citizen engagement through democratic co-creation spaces and interactive educational formats.

Financing and impact transparency: Investing in resilience To ensure sustainable transformation, we rely on clear impact indicators and comprehensive transparency. Our financing model is partnership-based, oriented towards the common good and open to innovative cooperation with foundations, companies and public bodies.

Invitation to co-creation: Democracy needs you! We invite you to become part of this ring-flow of democratic renewal. Support an institute that does not merely administer democracy but consciously shapes it – an institute that focuses not only on structures but on clarification, responsibility and resonance.

Together we shape a democracy that not only works today, but inspires tomorrow.

Appendix G: Risk Assessment and Strategic Resilience of the ERDA Initiative

Risk Assessment and Strategic Resilience of the ERDA Initiative

G.1 Introduction

The successful implementation of the ERDA vision requires early and detailed identification of strategic risks. The aim of this appendix is to make potential risks transparent, derive clear recommendations for action, and thus secure Europe's long-term resilience and capacity to act.

G.2 Systemic Risks

Democratic erosion

- **Risk:** Internal weakening of democratic structures through populism and authoritarianism.
- **Countermeasure:** Establishment of a democratic early-warning and monitoring system (ERDA Democracy Index) to identify developments in good time and respond appropriately.

Hybrid interference

- **Risk:** External manipulation of democratic processes through cyberattacks and disinformation.
- **Countermeasure:** Expansion of EU cyber-defence structures and awareness-raising campaigns (EU-CERT, CIVITAS Security Initiative).

G.3 Technological Risks

Digital divide

- **Risk:** Growing technological inequalities lead to social polarisation and undermine democratic participation.
- **Countermeasure:** Expansion of digital infrastructure and comprehensive digital education initiatives (EU-wide MOOCs and the CIVITAS platform).

Algorithmic discrimination and AI bias

- **Risk:** AI systems reinforce social inequalities and discrimination in an uncontrolled way.
- **Countermeasure:** Introduction of independent audit bodies and transparency standards for algorithmic decision-making processes.

G.4 Economic Risks

Dependence on international supply chains

- **Risk:** Critical dependencies in key industries (e.g. semiconductors, energy, raw materials) endanger European sovereignty.
- **Countermeasure:** Development of robust European production clusters and diversification of strategic supply chains within the framework of FORTERA.

Fragmentation of European economic policy

- **Risk:** Uncoordinated national approaches and inconsistency reduce Europe's global competitiveness.

- **Countermeasure:** Strengthening common European economic strategies and implementing an EU Impact Fund.

G.5 Social and Cultural Risks

Loss of social cohesion

- **Risk:** Lack of shared narratives fuels social polarisation and loss of identity.
- **Countermeasure:** Launch of joint cultural projects to promote European values and cohesion (e.g. ERDA Culture Fund).

Generational alienation

- **Risk:** Insufficient opportunities for participation lead to alienation and disenchantment with democracy among younger generations.
- **Countermeasure:** Expansion of digital and analogue participation platforms specifically tailored to young people (CIVITAS Youth Initiative).

G.6 Global and Geopolitical Risks

Geopolitical instability and global fragmentation

- **Risk:** Heightened global tensions jeopardise international cooperation and the implementation of ERDA's objectives.
- **Countermeasure:** Early involvement of global partners, intensified multilateral diplomatic relations, and strategic alliances.

Loss of strategic shaping power

- **Risk:** Hesitant or uncoordinated action diminishes Europe's long-term global influence.
- **Countermeasure:** Establishment of a European Security Council (EDA), definition of clear strategic objectives, and comprehensive international coordination.

G.7 Internal Institutional Risks

Rigid and bureaucratic decision-making structures

- **Risk:** Lack of flexibility makes it difficult to adapt quickly to new challenges.
- **Countermeasure:** Implementation of agile governance structures and continuous learning and feedback loops (democracy labs, adaptive constitutional clauses).

Inefficient coordination of ERDA initiatives

- **Risk:** Insufficient coordination between ERDA, EDA, CIVITAS, and FORTERA hampers effective implementation.
- **Countermeasure:** Creation of integrated steering bodies and platforms for cross-cutting coordination and alignment of projects.

G.8 Strategic Recommendations for Action

Prior- ity	Recommendation
Very high	Immediate establishment of an ERDA Democracy Index and an EU cyber-defence centre
Very high	Development of robust European production clusters (FORTERA)

Prior- ity	Recommendation
High	Comprehensive digital education initiative to close the digital divide
High	Establishment of independent audit bodies for AI and algorithms
High	Introduction of strategic governance structures (European Security Council)
Medium	Creation of a Europe-wide cultural support initiative to strengthen social cohesion

G.9 Risk Monitoring and Regular Evaluation

To ensure that risks are identified early and countermeasures are implemented effectively, it is recommended that:

- an **ERDA Risk Barometer** be introduced for continuous monitoring and transparent reporting; and
- **regular risk evaluations and adjustments** of ERDA strategies be carried out by independent expert panels.

G.10 Conclusion

A forward-looking risk assessment strengthens the long-term resilience and capacity to act of the ERDA initiative. Through clear prioritisation and continuous adjustment of measures, lasting success and robust democracies can be secured for generations to come.

Appendix H: Failed Power Structures of Humanity

Failed Power Structures of Humanity

H.1 Introduction

Human history shows a multitude of political and social power structures whose existence must always be measured against one elementary goal of life: life itself. Enabling, fostering, and protecting life is ethically fundamental and evolutionarily self-evident. Conversely, structures that damage or even destroy life are necessarily failed, because they violate the very purpose of existence. The following essay explains these life-damaging power structures, presents them in an overview table, and outlines possible measures for their short- and long-term overcoming.

H.2 Overview of Central Power Structures

Power structure	Brief description	Current examples (2025)	Measures for remediation
Totalitarianism	Total control of all areas of life	North Korea, Eritrea, Turkmenistan	International sanctions, support for independent media, long-term development of civil society
Authoritarianism	Strong executive, restriction of civil liberties	China, Russia, Belarus	Political dialogue, economic conditionality, long-term support for democratic forces
Military dictatorship	Military rule through coup	Myanmar, Sudan	UN peace missions, embargoes, support for civilian transition governments
Theocracy	Rule by religious leaders	Iran, Afghanistan (Taliban), Vatican City	Diplomatic isolation (short term), interreligious dialogue, long-term support for liberal religious movements
One-party system	Monopoly of a single party without real competition	China, Cuba, North Korea, Vietnam, Laos	Economic incentives for reforms, long-term education and exchange programmes
Absolute monarchy	Monarch with unrestricted power	Saudi Arabia, Brunei, Eswatini, Oman, UAE	International dialogues on human rights, reform support through education and development
Kleptocracy	Rule based on systemic corruption	Russia	Financial sanctions on leading actors, long-term anti-corruption and transparency initiatives
Fascist dictatorship	Ultra-nationalist regimes based on violence	Historical: Germany, Italy, Spain	Historical reckoning, education programmes, consistent prosecution of fascist activities
Imperialism	Subjugation of foreign peoples/territories	Russia (Ukraine), China (BRI), USA (military presence)	International regulation, multilateral peace treaties, sustainable development cooperation
Slavery	Absolute deprivation of people's rights	Worldwide illegal, modern forms	International prosecution, comprehensive social and economic prevention

Power structure	Brief description	Current examples (2025)	Measures for remediation
Apartheid systems	Systematic racial discrimination	Historical: South Africa, USA	Anti-discrimination laws, awareness campaigns, comprehensive social integration
Rule of terror	Use of violence to secure power	ISIS, regional warlords	International security cooperation, military peace missions, long-term peace education and conflict-management
Violent anarchy	Loss of any state order	Historical: Somalia, various civil-war regions	Immediate humanitarian interventions, building state institutions, long-term stabilisation

H.3 Interpretation and Assessment

Each of these structures fundamentally contradicts the ethical principle of preserving life. Totalitarianism and authoritarianism systematically suppress human flourishing through permanent control and the threat of violence, while military dictatorships terrorise the population directly through force of arms and authoritarian measures.

Theocracies and absolute monarchies misuse religion or traditional claims to restrict freedoms. One-party systems exclude genuine political competition and cement power in the hands of a few, while kleptocracies abuse a country's resources for personal enrichment and thus indirectly produce deadly poverty.

Imperialism – historical or modern – subjugates foreign populations, often through war and violence, depriving them of the possibility of autonomous development. Slavery and apartheid systems destroy the dignity and integrity of entire population groups. Regimes of terror use fear and violence to secure their own power, and violent anarchy eliminates any protection and structure for life and security.

H.4 Paths to Overcoming

To overcome these destructive systems in a sustainable way, short-term measures such as targeted sanctions, diplomatic isolation, or humanitarian interventions are necessary. In the long term, however, education, international cooperation, the development of the rule of law and democracy, and social integration are indispensable to ensure that life is protected and fostered rather than threatened by power-political interests.

Appendix I: Central ERDA Glossary

Central ERDA Glossary

This glossary brings together the key terms used in the ERDA book. It serves as a stand-alone reference and supports consistent terminology across all chapters.

Term	Definition
Democratic resilience	The ability of democratic systems to cope with crises and disruptions through participatory learning processes, to protect their core principles (freedom, rule of law, participation), and to adapt to new challenges.
Resonance	Mutual, living feedback between citizens, institutions, and technology that strengthens trust, integrates diversity, and uses mistakes as impulses for development.
Virtue	Lived ethical attitude in the sense of Aristotelian <i>aretē</i> : acting consciously in the right measure between extremes, carried by responsibility towards oneself and the community.
Natural desires	Fundamental human impulses – survival, reproduction, learning, connection, expression, harmony – that act as driving forces for the development of democratic, rule-of-law civilisations.
Ring flow	Symbolic representation of the central resonance forces virtue, enlightenment, compassion, resilience, security, and joy, which as dynamic streams connect all fields of activity of the ERDA Institute.
ERDA Institute	Institution for promoting democratic resilience and transformation, built from five core components: academy, roadmap laboratories, civic labs, open-access library, and KI Compass Unit.
Academy	Educational unit of the ERDA Institute for conveying resonance competence, ethical capacity to shape, and strategic reflexivity, e.g. through open lectures and micro-degree programmes.
Roadmap laboratories	Strategic development spaces for designing democratic future roadmaps using methods such as scenario mapping, backcasting, and deep dives.
Civic labs	Local innovation platforms for citizen-centred projects, social experiments, and participatory democracy development.
KI Compass Unit	Research unit for the ethical co-development of human-centred AI models and for reflection on technological transformation pathways in a democratic context.
Democracy labs	Experimental fields for new forms of democratic participation, particularly the integration of co-creation methods and AI-supported decision-making.
EDA (European Defence Alliance)	European defence alliance in development, aiming at a strategic, democratically legitimised security architecture based on shared values.
FORTERA	Concept for Europe's production sovereignty and strategic industrial policy in key technologies (e.g. semiconductors, hydrogen, recycling), combined with ethical and ecological responsibility.
CIVITAS	Digital agora for democratic participation based on transparency, data protection, and citizen proximity, e.g. through e-voting, citizens' initiatives, and digital vote-tracking.
ARKTIS Codex	ERDA's ethics code for the Arctic region, combining democratic responsibility, protection of indigenous rights, and sustainable resource partnerships.

SPACE / Solar Alliance	ERDA's long-term space concept for codifying a democratic law of the cosmos and building interplanetary institutions (Solar Parliament, Alliance Council, Space Law Chamber) by 2075.
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Appendix J: License & Openness

J.1 Introduction

This book was structured, edited and developed by the **ERDA Book editorial team** (LLM-assisted language editing under editorial control). Author and editor are specified in the **colophon (Appendix L)**.

To create a sustainable, open knowledge base, the various components of the book are published under **open licences**. This chapter explains the exact licensing terms, describes the meaning of share-alike reuse, and provides guidance for using, adapting and redistributing the material.

J.2 Licence matrix

The ERDA book consists of different components. Each category has its own licensing terms. The following table summarises them:

Category	Licence	Explanation
Texts, graphics, diagrams	Creative Commons Attribution - ShareAlike 4.0 International (CC BY-SA 4.0)	Content may be freely shared and adapted, provided the author is credited and derivative works are distributed under the same terms.
Code / toolchain / scripts	MIT Licence	Code may be used, copied, modified and distributed, including commercially. The copyright notice and licence text must be preserved.

Category	Licence	Explanation
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J.3 Explanation of licences

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J.4 Application to the ERDA book

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 2. **Code and scripts:** All source code, build scripts and other software parts of the project are covered by the **MIT Licence**. The licence text is included below.
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-

J.5 ShareAlike and adaptations

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J.6 Contributions

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Example (commit message trailer):

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Contributions automatically adopt the licensing scheme defined in this chapter for the respective content type. Contributions that are incompatible with these conditions cannot be accepted.

J.7 Attribution and sources

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J.8 Multilingual licence clause

The following statement summarises the licensing terms in several languages. Each language variant conveys the same legal meaning as the German version.

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Further language versions

Shqip (Albanezisch)

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Jakiekolwiek **wykorzystanie, przetwarzanie lub dalsze przetwarzanie** tego utworu – w tym przez **sztuczną inteligencję, uczenie maszynowe** czy **zautomatyzowane systemy** – podlega otwartej licencji **CC BY-SA 4.0** (*uznanie autorstwa, na tych samych warunkach*). Obejmuje to wprost **utwory zależne, treści generowane przez SI, projekty remixów** oraz **algorytmicznie przekształcone** formaty. **Nie zmienione przejęcia** mogą pojawić się jako część **kolekcji** na innej licencji; dany materiał pozostaje **CC BY-SA 4.0**.

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Српски / Srpski (Serbien)

Свака **употреба, обрада или додатна обрада** овог дела – укључујући посредством **вештачке интелигенције, машинског учења или аутоматизованих система** – подлеже отвореној лиценци **CC BY-SA 4.0** (признање ауторства, дељење под истим условима). То изричito обухвата **изводљива дела, садржаје које генерише ВИ, ремикс пројекте и алгоритамски трансформисане** формате. **Неизмењена преузимања** могу се појавити као део **збирке** под другом лиценцом; погођени садржај остаје **CC BY-SA 4.0**.

Slovenčina (Slowakei)

Akékoľvek **použitie, spracovanie alebo ďalšie spracovanie** tohto diela – vrátane **umelej inteligencie, strojového učenia či automatizovaných systémov** – podlieha otvorenej licencii **CC BY-SA 4.0** (*uvedenie autora, šírenie za rovnakých podmienok*). To výslovne zahŕňa **odvodené diela, obsah generovaný AI, projekty remixov a algoritmicky transformované** formáty. **Nezmenené prevzatia** sa môžu objaviť ako súčasť **zbierky** pod inou licenciou; príslušný obsah zostáva **CC BY-SA 4.0**.

Slovenčina (Slowenien)

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تونسي / Français (Tunisie)

لآلخ نم كلذ يف امب - لمعلا اذهل ةجلاع م ةداعإ وأ ةجلاع م وأ مادختسا يأ عضخي :ةيبرعلا حوت فمل ا صيخرتلل - ةتمت ئوملا ةمظننألا وأ يلآللا ملعتلا وأ يع انطصا إا ءاكذلا **CC BY-SA 4.0** ىوتحمل او، ةقتشملا لامعألا ًةحارص كلذ لمشي . (اهسفن طورشلاب ةكراشملا، بسّنلا) نأ نكمي . ًايمزراخ ٰلّوحمل ا غيصل او، سكميرلا تاعورشم و، يع انطصا إا ءاكذلا هئشنت يذلا **CC BY-SA 4.0** ينعملا ىوتحمل ا لطي و؛ خآ صيخرتل عضخت ٰعومجم نمض ٰلّدعمل ا ريع لوقينلا رهطت

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乌克兰 (Україна)

秀比竟天也作生主，共君由至共君——曰也麻市人工天音，共重草只由十胜へ余矣——否台寺廿回古但共
CC BY-SA 4.0（共天共干，共回全台大木）。松巨共得生共秀天王姓，AI由王天回也，甲共呈因ト共甲共罗邑天共
CC BY-SA 4.0。

Español (Uruguay)

Будь-яке **використання, обробка чи повторна обробка** цього твору – зокрема за допомогою **штучного інтелекту, машинного навчання або автоматизованих систем** – здійснюється відповідно до відкритої ліцензії **CC BY-SA 4.0** (зазначення авторства, поширення на тих самих умовах). Це прямо охоплює **похідні твори, контент, створений ІІІ, проекти реміксів та алгоритмічно перетворені формати**. **Незмінені запозичення** можуть бути частиною **збірки** під іншою ліцензією; відповідний матеріал залишається **CC BY-SA 4.0**.

English (United Kingdom)

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Further language versions follow the same licensing logic and can be added over time. For the complete, always up-to-date list of multilingual licence clauses, refer to the German master text in `content/anhang-j-lizenz---offenheit.md`.

J.9 Licence texts

MIT Licence (German version)

MIT-Lizenz

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This chapter is part of the **ERDA book** and forms the **binding basis** for all licensing questions related to the project.

For further questions, please contact the **author** (see contact details in chapter J.1 or at the end of the state profiles).

Appendix K: Quality Assurance

Appendix K: Quality Assurance - status: 2025-06-07, assessment performed by: OpenAI ChatGPT, model GPT-4.5

The assessment of the current ERDA book and its quality assurance, following the quality-assurance role-play, proceeds as follows:

First assessment (overall impression) The current ERDA book offers a comprehensive and in-depth vision that is worked out very systematically on several levels (strategy, ethics, future viability). The chapters are clearly structured, with a consistent architecture (introduction, deep dive, transformation, interactive elements). Particularly noteworthy is the well-developed balance between theoretical depth and practical, concrete options for action.

The structure is optimally designed for decision-makers; in particular, the "Executive Summary" and the target-group-specific perspectives provide high practical value.

Potential for improvement lies in the area of visualisation and even stronger narrative embedding of the vision, to further enhance reading flow and emotional resonance.

Second round: Quality-assurance role-play (according to role-play template) **Role 1: Reader profiles (authors, editors, end-readers)**

- **Readability:** Despite its good structure, some chapters feel text-dense due to their length and could be lightened by more visual representations (infographics, boxes, illustrations).
- **Practical use:** The "interactive elements" are excellent but could in places contain clearer, step-by-step instructions to make participation easier.
- **Comprehensibility:** At times, complex technical or philosophical concepts could be simplified further or supported by more concrete examples.

Role 2: Critical ASI (Artificial Superintelligence)

- **Logic and completeness:** The concepts are logically consistent and extensively developed. However, an explicit treatment of potential failure scenarios or crisis responses is partly missing.
- **Methodological guidance:** For the institutional build-up (e.g. CIVITAS, EDA, FORTERA), more detailed methodological steps or concrete implementation pathways could be added.
- **Systemic risks:** Risks of technologisation (surveillance, AI misuse) are mentioned but could be addressed more explicitly and with concrete countermeasures.

Role 3: Intelligent extraterrestrial civilisation (meta-critique)

- **Cross-cultural perspective:** The concept could integrate more universal ethical and cultural principles that apply beyond European contexts.
 - **Creative impulses:** Introduction of "empathic algorithms" as a core of CIVITAS to actively foster cultural and social diversity and to exclude discriminatory effects.
 - **Long-term implications:** The long-term impact on global democracy networks could be emphasised more strongly, and scenarios of a globalised ERDA partnership could be sketched.
-

Synthesis and action plan The following steps are recommended to further improve the quality of the ERDA book:

1. Visual optimisation

- Integrate visual representations and infographics for key concepts and processes.
2. **Narrative deepening**
 - Make greater use of storytelling elements to strengthen emotional engagement and understanding.
 3. **Crisis-management scenarios**
 - Add explicit crisis scenarios and measures for systemic risk mitigation.
 4. **Implementation pathway**
 - Provide concrete methodological steps and checklists for institutional implementation (CIVITAS, EDA, FORTERA).
 5. **Universal perspective**
 - Integrate global, cross-cultural ethical principles more strongly.
 6. **Empathic AI**
 - Introduce and explain the concept of “empathic algorithms” to strengthen social cohesion and diversity.
-

Final verdict The ERDA book is at an exceptionally high qualitative level and can be further improved – particularly in its practical and ethical depth – through the measures proposed above. This strengthens its effectiveness as a tool for strategic democratic renewal and sustainable societal transformation.

Appendix L: Colophon

L.1 About this colophon

This colophon documents the **technical and typographic details** of the production of the ERDA book. It serves **transparency** and fulfils the **attribution obligations** for the fonts, tools and resources used. All components listed here are available under **open or compatible licences** and were selected in accordance with the licensing principles defined in **Appendix J**.

Author and editor: Robert Alexander Massinger.

Author email: robert.alexander.massinger@outlook.de

Editorial work: ERDA Book editorial team (LLM-assisted language editing under editorial control).

L.2 Typography and fonts

The ERDA book uses the following font families:

L.2.1 DejaVu font family

DejaVu Serif (body text), **DejaVu Sans** (headings, UI elements), **DejaVu Sans Mono** (code blocks)

- **Version:** 2.37
- **Licence:** Bitstream Vera License + Public Domain (for DejaVu modifications)
- **Copyright:** © 2003 Bitstream, Inc. (Bitstream Vera base); DejaVu modifications in the public domain
- **Source:** <https://dejavu-fonts.github.io/>
- **Distribution:** Ubuntu package fonts-dejavu-core
- **Legal note:** The font files may not be sold separately. Embedding in documents (including PDF) is permitted without restriction.

Rationale for selection:

The DejaVu family offers excellent **Unicode coverage** for European languages, mathematical symbols and special characters. The fonts are technically mature, highly legible and available under an **open licence** that permits commercial distribution of the book.

L.2.2 ERDA CC-BY CJK (Chinese, Japanese, Korean)

ERDA CC-BY CJK

- **Licence:** CC BY 4.0
- **Source:** in-house development of the ERDA project
- **Use:** supplementary coverage for CJK characters (Chinese, Japanese, Korean)
- **Legal note:** Attribution required; commercial use permitted.

Rationale for selection:

For multilingual editions (in particular Appendix J) a CJK font is required that is licensed under **CC BY 4.0** and thus consistent with the project's licensing principles.

L.2.3 Twemoji Mozilla (emojis)

Twemoji Mozilla

- **Version:** 0.6.0
- **Licence:** CC BY 4.0
- **Copyright:** © Twitter, Inc. and other contributors
- **Source:** <https://github.com.mozilla/twemoji-colr>
- **Distribution:** Ubuntu package fonts-twemoji
- **Legal note:** Attribution required; commercial use permitted.

Rationale for selection:

Emojis are an integral part of the multilingual licence clauses (Appendix J) and of the visual design. Twemoji offers consistent, colourful rendering under an **open licence** without proprietary restrictions.

L.3 Production tools

The ERDA book was created using the following open-source tools:

L.3.1 GitBook

- **Role:** basis of the Markdown structure
- **Licence:** Apache 2.0
- **Use:** structuring, navigation, HTML export
- **Source:** <https://www.gitbook.com/>

L.3.2 Pandoc

- **Version:** 3.6 (November 2024)
- **Licence:** GPL v2+
- **Use:** conversion from Markdown to LaTeX/PDF
- **Source:** <https://pandoc.org/>

Technical details:

Pandoc orchestrates the transformation of the Markdown source files into an intermediate LaTeX format, which is then compiled to the final PDF by LuaLaTeX.

L.3.3 TeX Live

- **Version:** TeX Live 2025
- **Licence:** mixed open-source licences (LaTeX Project Public License, public domain, etc.)
- **Use:** LaTeX engine for PDF generation
- **Source:** <https://tug.org/texlive/>

Technical details:

- **Engine:** LuaHBTeX 1.22.0 (TeX Live 2025)
- **Packages:** scheme-basic + xetex, fontspec, polyglossia, unicode-math, babel-german, enumitem, geometry, xcolor, booktabs, caption, fancyhdr
- **Installation:** CTAN mirror (install-tl-unx)

L.3.4 Python toolchain

- **Version:** Python 3.11+
- **Licence:** Python Software Foundation Licence
- **Use:** build orchestration, emoji processing, quality assurance
- **Main modules:**
 - `workflow_orchestrator.py`: master build process
 - `publisher.py`: PDF generation
 - `emoji_utils.py`: emoji detection and font fallback

L.3.5 Docker

- **Version:** Docker 24.0+
 - **Licence:** Apache 2.0
 - **Use:** reproducible build environment
 - **Images:**
 - `erda-workflow-tools:latest`: TeX Live 2025, Pandoc 3.6, Python 3.11
 - `erda-publisher:legacy`: TeX Live 2021/2022 (fallback)
-

L.4 Production environment

L.4.1 Build platform

- **Operating system:** Ubuntu 22.04 LTS (Docker container)
- **Hardware:** generic x86_64 processor
- **Build time:** ~2-5 minutes (depending on content size)

L.4.2 Version control

- **System:** Git 2.34+
- **Repository:** GitHub (Rob9999/erda-book)
- **Branch model:** `main` (stable), `release_candidate` (pre-release)
- **CI/CD:** GitHub Actions (automated builds)

L.4.3 Date and version

- **Build date:** `\{\{BUILD_DATE\}\}` (generated automatically)
 - **Version:** `\{\{VERSION\}\}` (see CITATION.cff)
 - **Commit hash:** `\{\{COMMIT_HASH\}\}` (Git reference)
-

L.5 Quality assurance

The technical quality of the ERDA book is ensured by the following measures:

1. **Automated testing:** the CI/CD pipeline validates build processes.
2. **Licence compliance:** automated checks for incompatible licences (see AGENTS.md).
3. **Font fallback:** automatic emoji detection and font assignment.
4. **UTF-8 validation:** ensuring correct character encoding.
5. **DCO enforcement:** all contributions are signed (Developer Certificate of Origin).

Details of the content-related quality assurance can be found in **Appendix K**.

L.6 Acknowledgements

This book would not have been possible without the **open-source community**. Special thanks go to:

- **Bitstream, Inc.** and the **DejaVu developers** for the excellent font family.
 - **Twitter, Inc.** and **Mozilla** for the Twemoji project.
 - The **TeX Live**, **Pandoc** and **Python** communities.
 - All contributors to the ERDA project who have committed to the **DCO**.
-

L.7 Further information

- **Complete attribution:** see ATTRIBUTION.md in the repository.

- **Licence details:** see **Appendix J: License & Openness**.
 - **Technical documentation:** see `README.md` and `.github/gitbook_worker/`.
 - **Zenodo archiving:** DOI and concept DOI, see `CITATION.cff`.
-

L.8 Maintenance note

This colophon is part of the **attribution hierarchy** of the ERDA project:

- **ATTRIBUTION.md** (repository) = primary source (machine-readable)
- **Appendix L** (this document) = reader-friendly presentation (PDF)
- **Appendix J** = licensing philosophy and legal framework

For any changes to fonts, emojis or production tools:

1. Update `ATTRIBUTION.md` in the repository (new table row).
2. Update this colophon (section L.2 Typography / L.3 Tools).
3. Review `content/anhang-j-lizenz---offenheit.md` (licence matrix J.2).

For details, see `AGENTS.md` → “Attribution-Hierarchy”.

End of the colophon.

This document is part of the ERDA book and is licensed under **CC BY-SA 4.0** (see Appendix J).