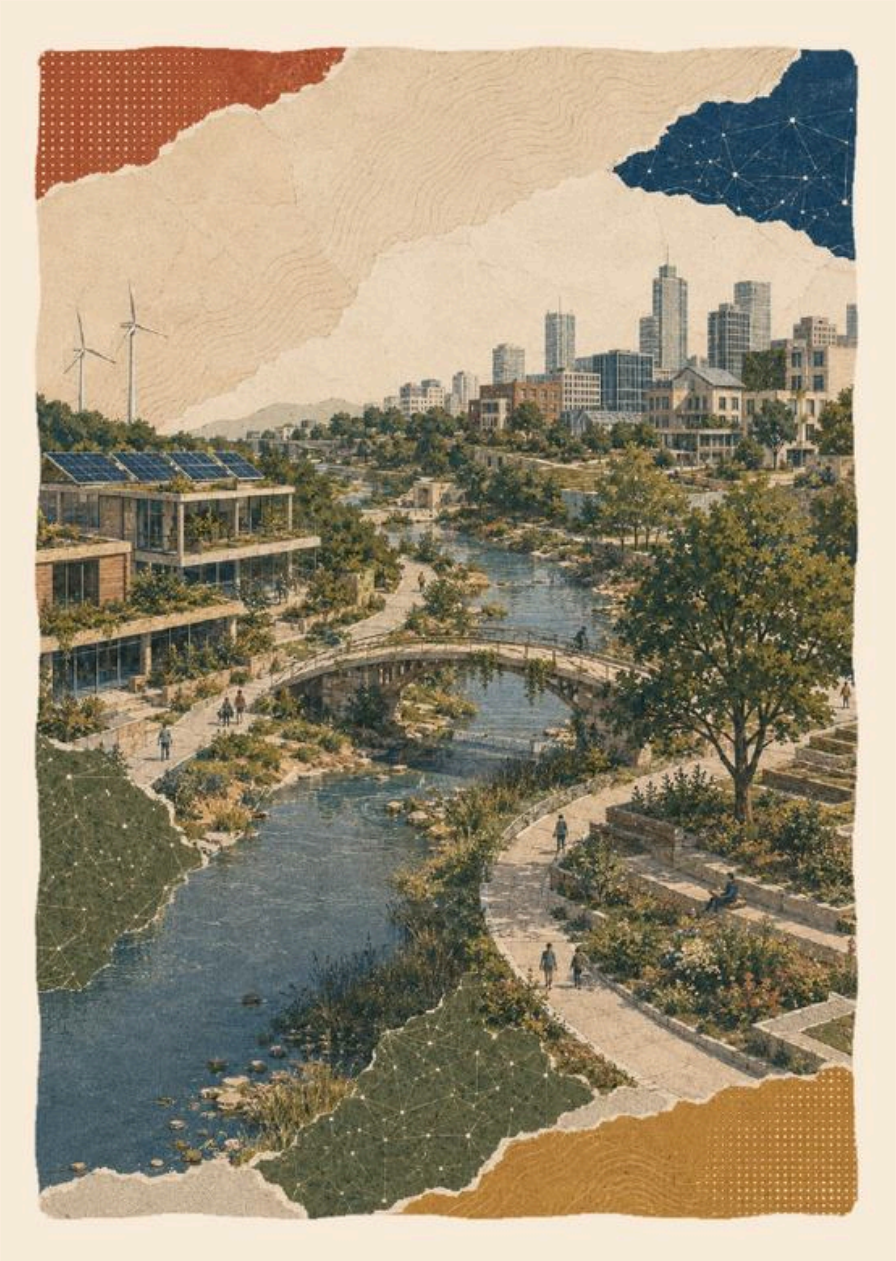
PHILOSOPHICAL ESSAY

The Habitable Future

A Path Ethics Essay on Living with Nature, Technology, and Time

Nikolaus Reinelt / KIKOLAUS

July 2026



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Abstract

In the summer conversation with Lanz + Precht, Florence Gaub presents the optimistic long-term data while also noting that these data no longer sustain a shared horizon of the future. People feel able to shape their own lives and yet expect their society to be moving in the wrong direction. Gaub calls this split local optimism versus national pessimism and describes politics as operating in a “philosophical vacuum”, offering little vision of the future beyond growth. Starting from this diagnosis, the long-form essay examines an overheated urban square. Redesigning it must bring together mature trees, technical shading, accessibility, water, private financing, and long-term maintenance. The case shows that a vision of the future does not derive its quality from the hope it generates. What matters are the relationships it creates and the dependencies it locks in. Three questions structure the conflict: Who can still act after the decision? Which connection sustains the participants, and which exploits them? What must be bound, and what must remain changeable? Autonomy, Connectivity, and Persistence (A-A-P, retaining the initials of the German terms Autonomie, Anschlussfähigkeit, Persistenz) do not form a formula. They make visible what an option opens up or consumes in terms of agency, coupling, and continuation. The square requires an order that perceives consequences, makes decisions, and responds to effects. Learning, in this sense, is the capacity for institutional change. Habitability brings the three questions together as a practical perspective on places, technologies, and institutions; it is not a fourth dimension. The constructed scenario tests the internal coherence and applicability of the procedure. It provides neither external validation nor an exclusive demonstration of difference from neighbouring approaches. The Path Impact Assessment (PIA) translates the assessment into a governance structure. A-A-P identifies the affected possibilities for action, couplings, and continuations. Rights, distributive judgments, empirical forecasts, budget decisions, and institutional responsibilities determine how much weight these findings receive in a concrete decision. PIA records diagnosis, additional political premises, and conditions for revision separately. The future becomes habitable where a society can work through conflicts and continue learning from their consequences without its couplings consuming the conditions on which they depend. A parallel short analysis condenses the same question using the urban square and the Path Impact Assessment as its example.

I

When Tomorrow Is Missing

The optimistic long-term data describe real progress. Extreme poverty, deaths from violence, and fatalities from disasters have fallen markedly over long periods. The underlying series are compiled, among others, by Our World in Data; Hans Rosling and Steven Pinker have condensed this perspective into comprehensive narratives of progress (Our World in Data 2024a, 2024b, 2024c; Rosling, Rosling and Rosling Rönnlund 2018; Pinker 2018). Florence Gaub takes up these findings in the summer conversation with Lanz + Precht and connects them with a disquieting counter-observation: the same societies whose living conditions have improved in many respects are losing the idea of a shared tomorrow. Gaub calls this political void a "philosophical vacuum". Growth still answers many questions of distribution and financing, but it does not provide an adequate picture of how people should live with technology and nature. "Tomorrow is more of today" describes a continuation, not a direction (Lanz, Precht and Gaub 2026, 45:18 and 46:06). The question of a shared tomorrow therefore begins in a concrete place where ecological time, technical possibilities, social needs, and property interests already collide.

1.1 Visions of the Future Organize Action

Gaub's intervention exposes a peculiar split. People continue to plan education, housing, relationships, or careers while at the same time expecting their polity to develop in the wrong ecological, social, or political direction. The individual horizon of possibility remains open; the collective horizon closes. In parallel, the "Young Europe" youth study documents a weakened belief in the intergenerational promise of upward mobility (TUI Stiftung 2025). This split becomes politically relevant because the future also emerges from what people consider possible and from the actions they therefore begin or refrain from taking. Bandura's theory of agency explains the connection: agency arises personally, by proxy, and collectively. Where shared structures fail to absorb experience, individual initiative remains without consequence or is exhausted in private adaptation (Bandura 2001). Gaub's question is therefore not about good spirits. It calls for a vision of the future that enables action without suppressing risks. Such a vision must do more than claim that technological progress will solve existing problems. Nor may it rest on the hope that people can return to a premodern closeness to nature. Both images underestimate the situation. The technological narrative of progress often treats the future as increase: more computing power, more automation, more precise medicine, more efficient production. It can explain which capabilities grow. But it does not answer what kind of life those capabilities should serve. The romantic narrative of nature begins from the opposite side. It describes technology primarily as a distancing from a more original, more human way of life. Its positive image lies in return: less acceleration, less mediation, fewer artificial environments. It rightly reminds us that human life remains bound to bodies, landscapes, and ecological cycles. Yet as a philosophy of the future it is insufficient. Eight billion people can return neither materially nor culturally to a preindustrial order. Medical knowledge, global communication, and technical assistance have also become parts of human possibilities for living. The actual task therefore does not lie in choosing between nature and technology. It is this: How can nature, technology, and human existence be related to one another so that their connection opens a shared future instead of stabilizing one side at the expense of the other? This question is more difficult than the search

for an attractive story about the future. Images of the future already operate in research policy, standards, investment, and infrastructure; Jasanoff and Kim call such collectively sustained designs sociotechnical imaginaries (Jasanoff and Kim 2015). The analysis therefore requires some conception of how a good connection can be recognized.

1.2 Shared Continuation Rather Than Mere Increase

A positive future is not simply a future in which as many of today's wishes as possible are fulfilled. Wishes arise within existing conditions. A society whose everyday life is shaped by constant consumption, time pressure, and digital competition for attention will initially imagine its future in the categories of that order as well: faster, more convenient, more individualized, more available. A philosophy of the future must therefore go deeper. It must ask which forms of life enable people and other systems to help determine their own development, build relationships, and continue under changed conditions. For the question of the future, three dimensions are therefore decisive: Autonomy, Connectivity, and Persistence. Connectivity here means more than network density; it concerns relations that can sustain difference. The three dimensions come from Path Ethics and are used here as ordinal questions addressed to concrete relationships, not as ideal values to be maximized. The acronym A-A-P retains the initials of the German terms Autonomie, Anschlussfähigkeit, Persistenz (KIKOLAUS / Reinelt 2026b). The answer is not that each of the three dimensions should be as strong as possible. Maximum independence can produce isolation. Maximum connectivity can create overload and control. Maximum duration can prevent necessary change. Real systems have mixed profiles. A school can have stable routines and a weak capacity to learn. A digital platform can connect many people while reducing their structural autonomy. A traditional garden can preserve ecological knowledge and still remain inaccessible to new residents. What matters is the capacity for shared continuation. This is not an additional dimension. The expression names the practical conjunction of the existing questions: Can people still act effectively within an order, or are decisions outsourced to technical and institutional systems? Do relationships arise in which different forms of life sustain one another, or are nature, technology, and people reduced to the same functional logic? Do knowledge, responsibility, and ecological foundations remain intact across disruptions, or does the order depend on conditions that it itself consumes? A positive future does not merely improve individual states. It preserves the possibility of responding to new states.

1.3 Responsibility in Entangled Systems

Human beings occupy a particular role in this philosophy of the future. Not because only human life is morally relevant. Ecological, social, and technical paths can also form developmental trajectories of their own. Human beings are distinctive because they can consciously examine relationships among such paths, shape them institutionally, and assume moral responsibility for them. This capacity does not justify unrestricted rule. It grounds responsibility. People can straighten a river, develop a learning system, organize a school, or preserve seeds across generations. In all these cases they intervene in processes whose consequences extend beyond the individual decision. They create conditions under which other paths continue, change, or break off. Human existence is therefore realized most fully not in maximal

control. It is realized in the capacity to limit control. This becomes visible in how we deal with technology. A machine that relieves people of hard physical labour can expand freedom. An assistance system that makes information accessible can support judgment. The same systems can allow practical competencies to atrophy, make decisions opaque, or create dependencies. Humane technology is not technology that does as little as possible. It is technology whose assistance does not displace people from responsibility for their own lives. The same applies to nature. Connection to nature does not mean leaving natural processes untouched. Humans have transformed landscapes for millennia. The decisive question is whether such interventions enable further development or reduce the landscape to a single exploitable function. A managed forest can preserve diverse habitats. An apparently untouched protected area can exclude local residents. A technologically monitored wetland can be better protected; it can also become a fully administered data object.

There is no morally pure side. There are only better and worse forms of relationship.

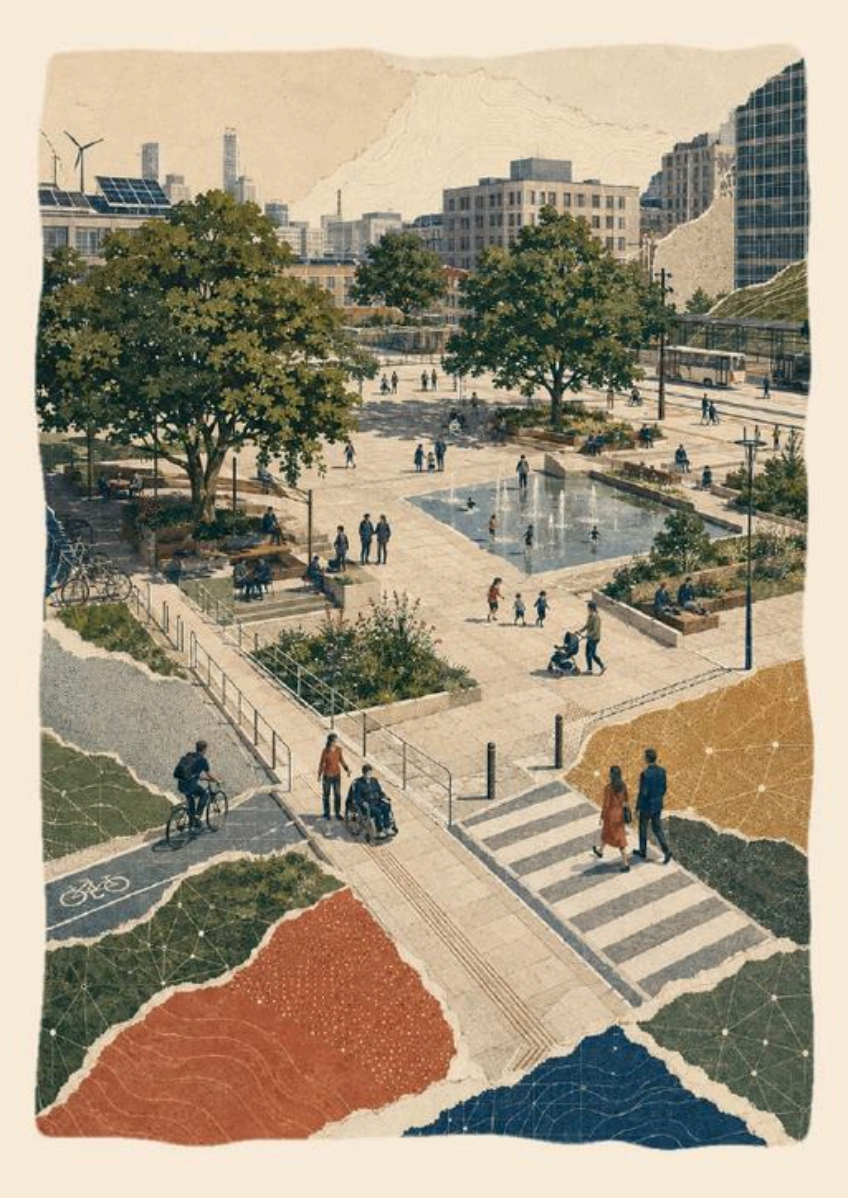
1.4 Technology as an Amplifier of Perception

Technology is neither deified nor demoted in this vision. It is given a precise function: technology extends the reach of human perception and action, but it must not silently determine the purposes of that action. Satellites can show how groundwater, wildfires, or soil moisture are changing. Artificial intelligence can detect ecological patterns that escape human observation. Sensors can reduce a building's energy consumption. Digital archives can preserve knowledge about languages, plants, and local practices. In all these cases, technology makes relationships visible. It can show that a decision that appears locally efficient creates costs elsewhere. It can bring long time spans into present decisions. It can help people perceive systems whose dynamics are too slow, too fast, or too complex for direct experience.

But perception is not decision. The fact that a model calculates an optimal amount of irrigation does not determine which agricultural system should be preserved. A forecast of increased disease risk does not determine which interventions a person must accept. A simulation of urban traffic flows does not determine which forms of mobility society should desire. A positive technological future therefore separates three functions: observe, propose, and decide. Technical systems can observe and generate options. Decisions about shared conditions of life, by contrast, must be answerable where their consequences are borne. This separation is not a rigid boundary. Human decisions, too, are mediated by technology. But it prevents technical capability from being silently reinterpreted as normative authority.

2

The Square Where the Future Takes Shape



A constructed but realistic scenario makes the conflict tangible. At the edge of a neighbourhood lies a square between a care facility, several residential buildings, and a small shopping centre. On hot days it is barely used. The city wants to make it livable. As soon as planning begins, several paths compete, and each can be narrated as a positive future.

More trees would be the obvious answer. Urban greenery can reduce heat exposure, but its effect depends on vegetation, scale, and local context; upgrading can also intensify displacement dynamics if questions of social access are not considered at the same time (Bowler et al. 2010; Wolch, Byrne and Newell 2014). In the scenario, an investigation shows that large parts of the ground sit above underground garages; some species would struggle to persist there in the long term. The existing mature trees are ecologically valuable but damage paths and make access more difficult for residents of the care facility. Lightweight roofs with solar panels provide immediate shade and generate energy. In return, they create material consumption, maintenance dependencies, and new questions of ownership. Removing sealed surfaces improves soil and infiltration but restricts delivery and traffic areas. The shopping centre offers financing and demands usage rights for advertising and events. The care facility needs rapid protection. Some residents mainly want to preserve the mature trees. The square contains the entire question of the future in miniature. Nature, technology, and human use neither stand separately side by side nor merge into a harmonious unity. Every decision reconnects them. At the same time, it determines who will still be able to act later, which differences will remain, and which bindings will harden over years.

2.1 Why the Obvious Images Do Not Hold

The formulation that nature, technology, and human existence must be brought “into harmony” initially sounds clear. At the square, it becomes apparent how differently this promise can be understood. The promise of harmony offers one obvious reading. In it, conflicts among human needs, technical possibilities, and ecological limits largely dissolve. Energy becomes clean, production circular, cities green, and machines take over burdensome work. This image can motivate. As a philosophy, it remains too smooth. Every real form of life uses space, energy, and material. Every technical solution shifts dependencies. Ecological systems change through competition, symbiosis, disturbance, and adaptation. Permanent harmony is not how they function. Another reading seeks a balance among separate spheres. Nature, technology, and human beings each receive a delimited domain. Protected areas preserve nature, regulated markets organize technology, democratic institutions represent human interests. Such an order can limit harm. But it treats the three domains as though they could be separated. In fact, human life is biological, technical, and social at once. Agriculture is cultivated nature. A city is a technical ecosystem. Digital communication changes attention, language, work, and the political public sphere. The boundaries run through almost every contemporary practice of life. Fusion is the technically most ambitious design. Humans and technology form hybrid systems; cities are sensor-controlled; ecological processes are captured and optimized through data. This image recognizes real entanglement. But it underestimates the danger that connection can turn into uniformity. What is fully integrated can lose its own dynamics. A forest that appears only as a calculable carbon sink has become technically connected, but it has been missed as a living context in its own right.

A person whose behaviour is permanently anticipated and steered by assistance systems may be exceptionally well integrated yet possibly less self-determined. Harmony therefore cannot mean absence of conflict, mere balance, or complete integration. A more robust definition is this: nature, technology, and human existence stand in a future-capable relationship when they can change one another without one side destroying the other's independent capacity for development. This formulation turns harmony from a description of a state into a quality of relationship. The aim is not a finished order in which every tension has disappeared. The aim is a way of living that can work through tensions without destroying its foundations. Contemporary debate already contains numerous positive visions of the future. Smart cities promise more efficient mobility, lower energy use, and more precise public services. Ecological movements design regional cycles, regenerative agriculture, and post-fossil forms of life. Transhumanist models expect technology to extend physical and mental limits. Education reforms call for creativity, media literacy, and lifelong learning. Each of these approaches captures part of the task. None connects the parts by itself. A technically optimized city can save energy while subjecting its residents to invisible behavioural steering. A regionally organized way of life can strengthen ecological relationships while producing social closure or material exclusion. Medical assistance can expand human possibilities for action while creating new dependencies on proprietary infrastructures. Lifelong learning can foster curiosity or be organized as a permanent obligation to adapt to changing labour markets. The difference does not lie in the object being used. The same technology can expand or diminish Autonomy. The same bond with nature can enable openness or turn into closure. The same stable institution can carry knowledge forward or block change. Embedding technical possibilities in collective purposes is a central problem of sociotechnical imaginaries (Jasanoff and Kim 2015). A vision of the future therefore cannot consist of a collection of preferred objects: more gardens, more artificial intelligence, more local communities, more education. It needs a criterion for how these elements are connected.

This is where this analysis begins to make its own contribution.

2.2 The Square's Own Timescale

In modern visions of the future, nature often appears in two roles: as a threatened foundation or as a technical resource. It supplies food, energy, cooling, raw materials, and carbon storage. Even ecological policy therefore often speaks in the language of services. This language is practically understandable. It makes visible that destroying a forest has concrete consequences. Yet it remains limited. A forest is more than the sum of the services people obtain from it. It has regeneration times, dependencies, and developmental directions of its own. These cannot be accelerated at will. The intrinsic timescale of natural processes therefore belongs at the centre of a philosophy of the future. A tree cannot be replaced at the same speed at which a technical canopy can be erected. Soil forms more slowly than economic planning calculates. A groundwater reservoir can be depleted over decades even while supply appears stable in each individual year. Coral reefs, forests, and peatlands carry the past in their present structure. Including nature in a shared future therefore means more than

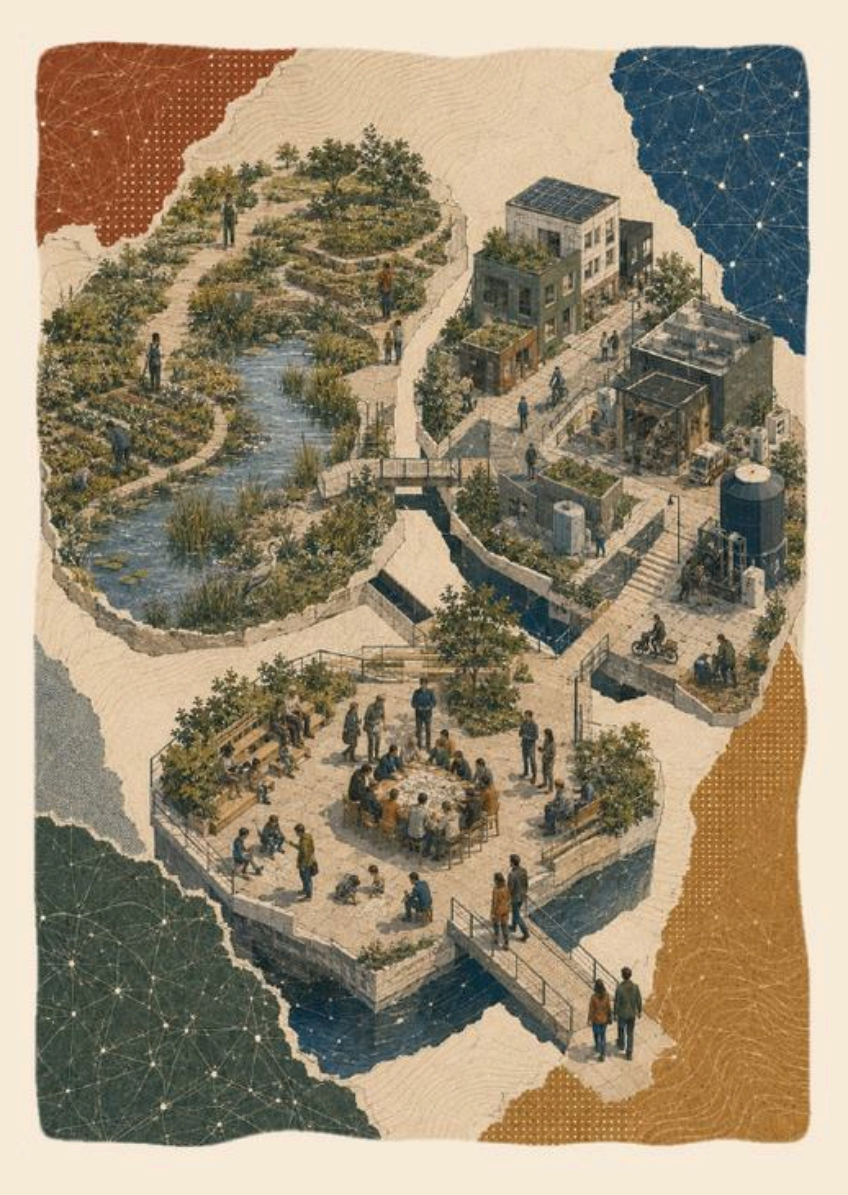
protecting its continued existence. It means shaping human and technical temporal orders so that slow regeneration can actually take effect. This may require technical interventions. A city responding to increasing heat does not have to choose between trees and artificial shade. Mature trees can provide ecological continuity and natural cooling. Technical roofs can take effect faster, be built accessibly, and be altered. Both solutions have costs and dependencies. The conflict is not decided by the labels “natural” or “technical”. The better question is: Which combination protects people in the short term, preserves ecological capacity for development in the long term, and remains open to later correction?

That is the object of learning, not yet the solution.

2.3 The Conflict That Must Not Disappear from the Image

The square disproves the idea that a positive vision of the future must already have resolved its tensions. Trees, technical roofs, accessible paths, and public control cannot be compressed into a single ideal value. Each variant sustains certain relationships and burdens others. The question of habitability therefore begins with a demand: the image must retain the conflict. It may generate hope without making the costs of realization invisible. The square becomes the test case for what follows. It must show whether the concepts genuinely distinguish among options or merely rename a solution that was already preferred.

Three Questions That Decide Habitability



The square does not require an additional list of values. It requires three precise lines of sight. Path Ethics formulates them as Autonomy, Connectivity, and Persistence. The case comes before the concept: vendor lock-in makes real agency visible, the different timescales of soil, care, and maintenance reveal the quality of connections, and the twenty-year contract shows how duration can turn into lock-in. People, institutions, technical systems, and ecological processes all appear here as paths. Their histories shape present dependencies and future possibilities. The three dimensions remain ordinal and heuristic. They provide neither a common currency nor an automatic decision mechanism.

3.1 Autonomy: Control Over the Later Decision

The contract with the shopping centre makes the difference visible. Formally, several options remain. Once financing, maintenance, and usage rights are tied to a single provider, later control narrows. Autonomy means the real possibility of understanding, challenging, and revising a decision. A measure can preserve formal choices while still reducing actual agency. Citizens can choose among several energy suppliers while all depend on the same hard-to-replace infrastructure. Schools can choose their learning platform while only a few providers are compatible with existing administrative and examination processes. Employees can nominally object to an algorithmic evaluation without learning which data and assumptions produced the judgment. Politics must connect rights on paper with real opportunities to exercise them. The Capability Approach has systematically worked out this difference between formal entitlement and actual opportunity for action (Nussbaum 2011). For the square, a temporal question is added: Which decision taken today preserves or closes the possibility of later revision? This does not mean that every person must control every infrastructure themselves. Complex societies rely on delegation. The question is whether delegation remains reversible. A political order strengthens Autonomy when responsibilities are visible, options for switching are real, and fundamental capabilities are not completely handed over to external systems.

3.2 Connectivity: Connection Without Flattening Difference

Trees, the care facility, commerce, technology, and soil cannot simply be added together as though they belonged to the same logic. Constructive Connectivity appears in couplings that can sustain difference. A measure can create many connections and still destroy social diversity. A standardized digital education system can efficiently connect schools, learners, and administrations. At the same time, it can displace local forms of teaching and bind everyone to the same data models. A regional participation process can strengthen proximity and responsibility. It can also exclude those with little time, limited language skills, or no established social position. Politics must therefore ask not only how many actors are included. It must examine what form of connection is being created. Can different groups contribute their perspectives without first having to adapt them to a dominant language or organizational form? Does the connection sustain both sides, or does one side mainly use the other as a source of data, labour, or legitimation? Do differences remain from which learning can emerge? Homogeneity is not

the same as cohesion. Institutions must organize difference, not eliminate it. Where participation becomes possible only after adaptation to a dominant language, data structure, or form of life, connection loses its constructive character. A coupling tips into destructive Connectivity when one participating path is reduced to its function for another or when the connection consumes the conditions from which its own value arises.

3.3 Persistence: Sustaining Commitment and Lock-In

The twenty-year contract, the mature trees, and a possible temporary arrangement embody different forms of duration. Persistence asks whether a binding arrangement carries its purpose, can be rebuilt under new conditions, or blocks later decisions. Political decisions must endure. Infrastructure, education reforms, and ecological protection measures cannot be restarted after every change of government. Duration is necessary. But duration can become a trap. A long-term contract can create planning security while tying a municipality to one provider for decades. A constitution can protect rights while making necessary institutional change more difficult. A technical standard can enable cooperation while displacing alternatives before their significance has been recognized. Politics must therefore distinguish persistence through the capacity to learn from persistence through lock-in. An institution capable of continuation preserves its purpose by being able to change its form. A locked institution preserves its form even after its purpose has been lost. This distinction touches resilience research but shifts its finding into a normative question of Persistence: what matters is which function and which relationships are actually continued through stabilization, adaptation, or transformation (Holling 1973; Folke 2006; Folke et al. 2010). The political question is not only: Does the solution last? It is: Can it change without collapsing, and can it be ended without dragging the life that depends on it down with it?

3.4 Shared Continuation as the Guiding Thesis

The three passes do not produce an overall judgment on the square. They show why the variants cannot be offset against one another on a common scale. A rapid gain in protection can narrow later control; an ecologically more open solution can insufficiently secure present health and accessibility; stable financing can bind the place to an operator logic that gradually alters its public function. Shared continuation names the practical synthesis of these findings. The expression adds no further dimension to A-A-P. It brings together the questions of whether people can act effectively after the decision, whether the relationships that arise sustain differences, and whether the place can continue to develop under changed conditions. None of the dimensions is to be maximized. Complete independence would make cooperation more difficult, maximum connectivity could produce control and overload, and unconditional duration could block necessary change. The mixed profile is therefore not a residual problem that more precise calculation should eliminate. It is the form in which real conflicts about the future occur. For Gaub's question of the future, this yields a guiding thesis: a future worth living in is an order with a shared capacity for continuation. Within it, technical systems expand human and ecological possibilities of perception and action. Human beings take responsibility for the relationships they establish institutionally.

Natural processes retain their own conditions of reaction and regeneration. Progress means changes whose couplings enable such continuations without consuming the conditions on which they depend. The guiding thesis does not promise a conflict-free world. At the square, it shifts the question: Which connection carries immediate protection and long-term regeneration, which dependencies does it create, and which political reasons ultimately decide the matter?

How Societies Learn

The three assessments do not yet produce a winning solution. What the square needs instead is an order that perceives consequences, makes decisions, and allows later experience to have real effects. At this point, the theme of learning arises from the case itself. The city therefore does more than have the square planned. A learning group records temperatures, patterns of shade, and soil values, speaks with residents and employees, and works with a digital model. The technology does not calculate the right future. It shows how strongly each variant depends on the goals that were set beforehand.

4.1 The Square Becomes a Learning Process

School does not begin at the same time every day. Younger pupils need reliable rhythms. Older learning groups organize part of their week around projects, workshops, and shared periods for foundational work.

This model did not arise from the idea that everyone learns best under complete self-direction. Earlier attempts with largely open learning plans had amplified differences. Pupils from educationally privileged families could structure their time well. Others lost orientation or were guided by digital recommendation systems along an apparently personal but in fact very narrow learning path. The school did not respond by returning to the old timetable. It combined binding shared periods, personal guidance, and open phases of work. For several weeks, Noor's learning group has been working on the overheated urban square introduced in Chapter 2. The obvious response at first was: more trees. Then an investigation showed that large parts of the ground sit above underground garages. Some tree species would barely persist there in the long term. The existing mature trees are valuable but damage paths and make access difficult for some residents of the care facility. One group proposed lightweight technical roofs with integrated solar modules. They could provide shade quickly, generate energy, and later be relocated. Others warned of maintenance costs, material consumption, and further technologization of public space. A landscape ecologist suggested smaller planting islands, water storage, and robust tree species. The effect would be slower and initially limited in midsummer. The care facility prefers immediate shade. Some residents mainly want to preserve the mature trees. The shopping centre offers to finance the technical roofs but demands usage rights for events and advertising in return. The learning group is not supposed to determine a winning solution today. It is to develop two viable variants and show for each what dependencies, development times, and distributive consequences arise. Noor finds this difficult. She wants the group to take a clear position. Her teacher replies that a clear position can also consist in refusing to force two real possibilities into an artificial ranking. "Then we're not deciding anything," Noor says. "We are," he answers. "We are deciding which conflicts the city must not overlook." On a large worktable lies a digital model of the square. It combines temperature measurements, patterns of shade, soil structure, movement data, and different climate scenarios. The group can simulate tree growth, material ageing, and use at different times of day. The model does not recommend a best solution. Such a function would be technically possible. The city does not prohibit it in public planning procedures as a matter of principle. But it requires every optimization target to be chosen visibly. As soon as the pupils set "maximum cooling", the model favours a combination of extensive roofs and technical evaporation. With "minimum material use", a variant emerges with few interventions and significantly weaker short-term effects. "Maximum

ecological self-development" leads to extensive unsealing that would severely restrict existing traffic and delivery routes. The model therefore does not show what should be done. It shows how strongly the result depends on what was declared to be the goal beforehand. Noor changes the weighting several times. With each setting, the square looks different. One of her classmates asks whether that does not prove that the entire simulation is arbitrary. The supervising urban planner disagrees. The temperature forecasts are not arbitrary. The soil structure is not arbitrary. Neither are the costs and growth times. What remains open is which consequences should count as decisive and which burdens one group may impose on another. The technical system expands perception. It cannot calculate the political conflict away.

4.2 Learning Also Changes the Order

Anyone who wants to respond to an uncertain future almost inevitably calls for more education. People are expected to acquire digital competencies, understand ecological interdependencies, recognize disinformation, and prepare for changing occupations. There is something right in each of these demands. Taken together, however, they do not yet amount to a philosophy of the future. Knowledge can expand possibilities for action. It can also be used to fit people more efficiently into an order whose direction they do not help determine. An employee can learn to work with every new software system without gaining any influence over why her work is monitored ever more densely. A pupil can explain the carbon cycle while experiencing that ecological questions have no practical consequences in everyday school life. A city can collect ever more precise environmental data while political decisions continue to follow short-term investment logics. The problem is not a lack of knowledge. It lies in the relationship between knowledge and form of life. Learning is often understood as preparation. Children learn for later life. Employees learn for the next technological shift. Societies learn from crises in order to be better prepared next time. The future appears as an exam whose questions are not yet known. Learning is supposed to increase adaptability. Such adaptation can be necessary. Someone who learns a new language, understands a changed environment, or masters a technical tool expands their room for action. Adaptation becomes problematic as soon as only people are expected to learn while the structures to which they adapt remain unchanged. A viable society is not recognizable by the fact that its members can endure every change. It is recognizable by the fact that its institutions, technologies, and practices also remain changeable. Agency arises in personal, proxy, and collective forms and remains socially mediated (Bandura 2001). A simple example shows the difference. A school introduces a new digital learning platform. Teachers and pupils receive training. After a few months, everyone can operate the system. The organization has adapted. Then it becomes clear that the platform stores every task, every processing time, and every interaction. The data are intended to make learning difficulties visible. At the same time, a permanent performance profile emerges whose later use can hardly be controlled. Teachers begin to orient their lessons toward activities that are easy to capture. Pupils avoid risky approaches to solving problems because mistakes are documented permanently. A merely adaptive school trains the participants again. It explains privacy settings and optimizes use. A learning school asks a different question: Does the tool change practice in a way that contradicts its original purpose? That question can lead to disabling functions, storing data locally, using alternative tools, or abandoning the platform altogether. It is not only the

people who change. The technical and institutional arrangement changes as well. This difference can be described as transductive Persistence. For Simondon, transduction names a structuring process in which a metastable system works through a tension by forming new relations. It neither returns to the old equilibrium nor changes arbitrarily. Continuation produces a form in which previously incompatible demands can be worked on together (Simondon 2005; KIKOLAUS / Reinelt 2026b, Ch. 2.5). For the school, this means that it does not merely improve the settings of the same platform. It reorganizes the relationship among learning, data collection, pedagogical judgment, and technical control. The expression is therefore narrower than adaptation or transformation in a general sense. Not every robust adaptation continues the same directed path; not every transformation preserves the context whose continuation is at stake. Transductive Persistence exists where tensions produce new sustaining relations without abandoning the purpose that is to be preserved. A language can develop in this way through new concepts. A democratic institution can adapt its procedures to new power structures while retaining its public function. An ecosystem can form new relationships under changed conditions without becoming a completely externally controlled system. Learning can therefore require changing the order itself. This also shifts the relationship between humans and technology. Technology no longer appears only as an object that people must master. It becomes part of the learning arrangement. Its effects provide feedback. Its limits become visible. Its design becomes correctable. The same applies to nature. Nature is not merely an object of learning. A garden, a river, or urban soil responds to interventions. Plants grow differently than expected. Water does not seep away where a model predicted it would. A species disappears despite a well-intentioned protective measure. Such reactions are not disturbances of a finished curriculum. They are components of the learning process.

4.3 Perception, Decision, and Institutional Memory

Learning as a form of life concerns more than schools. It changes how a society perceives, decides, acts, and passes things on. Futures Literacy examines how different ideas of the future make present assumptions visible; the OECD Learning Compass links orientation under uncertainty with agency and co-agency (Miller 2018; OECD 2019). The argument developed here goes beyond individual futures competence and asks whether institutions can translate observed consequences into changed rules. Responsible Innovation combines anticipation, reflexivity, inclusion, and responsiveness; anticipatory governance asks about societal capacities for shaping new technologies while design is still possible (Stilgoe, Owen and Macnaghten 2013; Guston 2014). Path Ethics orders these practices according to the structural dangers to which they respond: lost agency, destructive coupling, and locked continuation. At the same time, it directs the assessment toward the learning institution itself. Participation, reflection, and revision can continue to exist nominally while their actual effect erodes. Perception begins where invisible dependencies become experienceable. People perceive only a small portion of the processes on which their lives depend. Electricity comes from the socket. Water comes from the tap. Food sits on the shelf. Digital services appear on the screen. The ecological, technical, and social paths behind these surfaces remain invisible. Technology can reduce this invisibility. A display can show when a building consumes particularly large amounts of energy. Satellite data can

make changes in a forest visible. Sensors can document the moisture profile of a soil. Digital maps can make it traceable which regions raw materials come from. But visibility alone does not create a relationship. Data can attract attention; they can just as easily become another abstract surface. A number for soil moisture does not replace the experience of how dry earth feels, which plants react first, and how long soil changes after heavy rain. A learning form of life therefore combines technical remote perception with bodily and local experience. The model shows patterns. Direct encounter shows what the model leaves out. The two forms of perception correct one another. Decisions demand a different form of maturity. Modern societies delegate decisions to experts, administrations, markets, and increasingly to algorithmic systems. This delegation is unavoidable. No one can assess every medical, technical, or ecological question themselves. It becomes problematic when delegation turns into non-responsibility. People then experience decisions as outputs of systems whose logic they can neither understand nor influence. Expert knowledge becomes a reason for public deliberation to end. Algorithms are treated as neutral even though their goals were set beforehand. Learning as a form of life does not require a society of universal experts. It requires the capacity to ask relevant questions. Who decides which problem a technical system is meant to solve? Which consequences are captured, and which remain outside the model? Who can challenge a decision? Which dependencies arise when a solution is used permanently? These questions do not replace expertise. They order its relationship to shared decision-making. Agency becomes real only in access to the design of systems. Many visions of the future therefore remain abstract because the people they address appear only as consumers or voters. They are expected to buy sustainable products, support political programmes, or accept new technologies. The underlying systems are designed elsewhere. A learning form of life instead needs spaces for real participation. People must be able to experience that interventions have consequences and that these consequences in turn alter the next decision. A collectively cultivated garden can be such a space. But it is not one automatically. If the work is carried by a few committed people while everyone else participates only occasionally, dependency arises. If every school subject, neighbourhood project, and sustainability objective is linked to the same garden, it can collapse under its functions. If, by contrast, it is treated merely as optional decoration, its learning potential remains small. The decisive factor is not the number of its connections. It is whether responsibility, knowledge, and care are organized so that the project can be sustained, criticized, and changed by several people. A small garden with few participants can be cared for more steadily and attentively than a fully networked prestige project. The larger project may, however, possess more perspectives, resources, and possibilities for handover. Which profile will carry cannot be narrated in advance. It has to be tested in practice. Transmission connects individual experiences with institutional memory. A form of life consists not only of present action. It consists of the capacity to pass knowledge, responsibility, and orientation on across changes in personnel. In many projects, the obstacle lies in their staffing structure even when the idea itself works. A teacher builds an ecological learning programme over years. She knows local partners, maintenance cycles, technical devices, and informal agreements. After she leaves, a folder remains, but not a context capable of continuation. The alternative is not complete distribution. If every responsibility is constantly renegotiated, accountability can blur. Capacity for handover arises from a connection between reliability and openness. Particular people bear responsibility; their knowledge

does not remain tied to them. A family shows the same pattern. One central caregiver can organize everyday life efficiently and create high reliability. If that person drops out, the entire structure can collapse. A more distributed organization makes handovers easier but may create more coordination, conflict, and exhaustion. Learning here means keeping this tension visible. Centralized and distributed forms each have their own strengths and risks. Future viability does not automatically lie on one side. It lies in the capacity to assume responsibility reliably while keeping it transferable.

4.4 School as a Public Space for Experimentation

Schools have a particular function in this form of life. Not because they could solve every social problem. That very expectation regularly overloads them. Schools are expected to compensate for social inequality, secure democracy, manage digitalization, teach ecological responsibility, and prepare people for labour markets. Every new crisis creates a new educational objective. A school cannot repair society while all its other institutions remain unchanged. But it can test relationships that are difficult to make visible elsewhere. Different timescales meet in a school. Children develop over years. Lessons are organized in hours. Buildings last for decades. Digital systems change within a few months. Trees on school grounds grow more slowly than any generation of curricula. Political reforms follow cycles of their own. This asynchrony makes school a suitable place for examining the future in practice. A learning group might work on the summer overheating of its schoolyard. The starting point would be a bodily experience rather than an abstract climate topic: certain areas are barely usable on hot days. Technical measuring devices document temperatures, patterns of shade, and soil moisture. Historical plans show how the yard has changed. Conversations with caretakers, municipal administration, older residents, and people with limited mobility broaden the perspective. The group examines trees, unsealed surfaces, technical canopies, water elements, and altered times of use. No option is correct in advance. Trees develop ecological effects of their own over long periods but require space, care, and suitable climatic conditions. A technical canopy works immediately and can be designed flexibly, but it creates material consumption and maintenance dependencies. Removing sealed surfaces improves infiltration but can restrict existing uses. Digital control can make irrigation more precise while creating new dependencies on data and manufacturers. The learning group would have to do more than present a solution. It would have to show which paths each solution opens, which it closes, and what uncertainty remains. The object of learning is therefore not merely heat adaptation. It is the experience that the future arises through interventions whose consequences are neither completely calculable nor arbitrary.

4.5 Technology Must Remain Legible and Changeable

Technical education is often confused with operational competence. People count as competent when they can use tools safely and efficiently. In a technologically shaped form of life, that is not enough. A tool shapes the action it makes possible. Navigation software does not only change the route. It changes how people perceive spaces and how cities experience traffic flows. A

learning platform does not merely manage tasks. It changes which performances become visible. An agricultural forecasting system does not merely support decisions. It influences which data count as relevant and which forms of local knowledge lose significance. Technical maturity requires that people be able to assess a system's embedding as well as operate it. Technical systems must therefore remain accessible in at least three respects. First, it must be recognizable what purpose they pursue. A recommendation system can prolong attention, open up diversity, or support learning processes. Similar technical procedures can pursue very different goals. Second, the consequences of their use must be observable. A system that nominally makes work easier can create new duties of control and new dependencies. Such effects must not be treated as individual user problems. Third, there must be a real possibility of changing or rejecting the system. A choice among several nearly identical proprietary platforms is not structural decision-making power. Where central functions of education, communication, or provision depend on individual providers, technical competence without institutional power to shape them becomes empty. Social learning requires more than more intelligent technology: errors must remain visible, purposes negotiable, and dependencies changeable.

4.6 Encountering Nature as an Experience of Intrinsic Time

Environmental education can also miss its own question of the future. A trip to the forest, a school garden, or a raised bed does not automatically create ecological connectedness. Nature can become a pedagogical backdrop in which predetermined lessons are illustrated. A patch of forest is then visited in order to "teach" biodiversity. The actual forest, with its conflicts of use, diseased trees, forestry tracks, drought stress, and property relations, disappears behind the general learning objective. A learning form of life treats natural processes differently. It takes seriously that these processes have dynamics of their own that can thwart human expectations. The garden does not reliably produce the desired plants. The river does not obey administrative borders. An invasive species can destabilize an existing arrangement and at the same time become part of new relationships itself. A dead tree can appear simultaneously as an economic loss, a safety risk, and an ecological habitat. Encountering nature then does not mean finding unambiguous answers. It means perceiving dependencies and intrinsic timescales that cannot be completely translated into human purposes. Technology can deepen this perception. A microscope, a thermal camera, or long-term data collection opens up processes that remain invisible to immediate experience. It can also impoverish the encounter with nature if only what can be captured and visualized still counts as relevant. Here too, the relationship is decisive: measurement without encounter remains abstract. Encounter without systematic observation can become romantic or misleading.

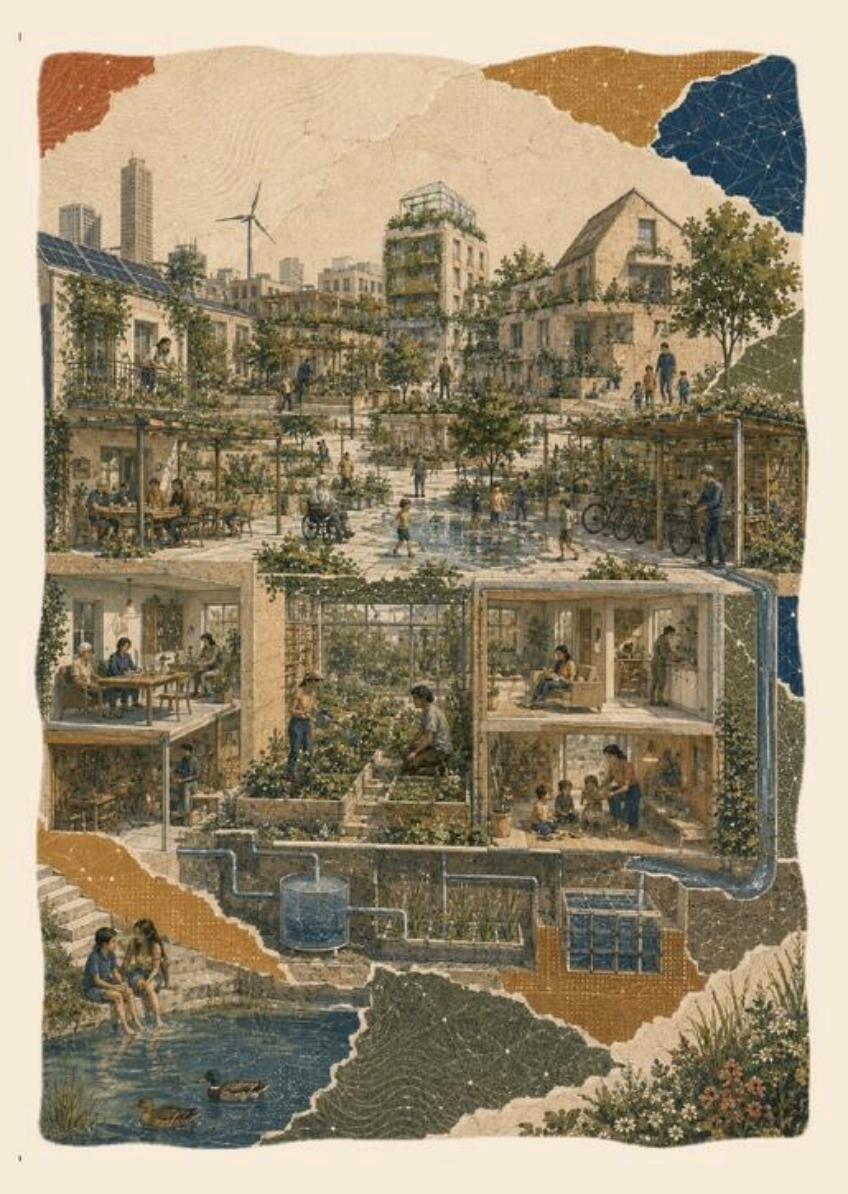
4.7 Learning Institutions

The argument so far could be read as saying that above all the individual person must learn differently. That would repeat the very logic of adaptation that is to be overcome. A learning form of life needs institutions whose rules, responsibilities, and routines remain changeable through experience. Many organizations neutralize deviations even while collecting data and

offering professional development. Complaints are processed while the underlying procedure remains unchanged. Pilot projects create local knowledge and disappear with the next change of staff. Evaluations document consequences without touching budgets or responsibilities. An institution learns only when such feedback has consequences. This requires recognizable paths from observation to decision. Those affected must be able to contribute experiences and organize dissent. Those responsible must explain why rules are changed or retained. Practices that work should be passed on without losing their local context through total standardization. Schools, administrations, companies, hospitals, and technical infrastructures differ in their tasks; what they share is the burden of showing how experience can become institutional change (Dewey 1927; Folke et al. 2005). The connection of nature, technology, and human existence therefore emerges in practice. Abstract knowledge meets concrete experience, technology remains shapeable as a medium, natural processes retain their intrinsic timescales, and responsibility is distributed so that reliability and capacity for handover come together. A rural school, a Berlin neighbourhood, a care home, and an agricultural enterprise will embody these requirements differently. The shared demand is more fundamental than a uniform programme. Learning must not be reduced to the ability to cope with a future designed by others. It is the practice through which people and institutions participate in shaping the relationships from which the future emerges.

5

What Makes the Future Habitable



The square does not deliver a finished philosophy of life. It reveals a pattern that can be transferred to other domains: support can preserve possibilities for action or replace them with dependency; commitment can carry a purpose or block later correction; connection can productively accommodate differences or flatten them within a dominant logic.

Habitability brings these questions together. The term denotes neither a fourth evaluative dimension nor a level of comfort. It describes a practical perspective on places, technologies, and institutions. The following fields develop this perspective without turning them into a closed model of life.

5.1 From One Square to a Practical Perspective

Visions of the future usually direct attention toward the extraordinary. They show new energy systems, intelligent cities, artificial organs, autonomous vehicles, or settlements on other planets. Such images make technological change visible. But they rarely show what life inside these systems feels like and what relationships they generate. The quality of a future is not decided by major inventions alone. It is decided in the morning at home, on the way to work, while shopping, caring for a relative, or sitting in front of a screen. That is where ecological conditions, technical infrastructures, and human needs meet. That is where it becomes clear whether technology opens possibilities for action or captures attention, whether nature remains experienceable as a surrounding world or disappears behind systems of provision, whether people can assume responsibility or only choose among predefined options. The question of how nature, technology, and human existence can be brought into a viable relation is therefore a question of everyday architecture. Here architecture means more than buildings. It means the arrangement of spaces, rules, devices, temporal structures, and responsibilities through which some actions become easy and others difficult. A neighbourhood can enable encounters or prevent them. Workplace software can distribute knowledge or lock it into a central system. A home can facilitate care or turn every act of care into individual overload. A mobility platform can create connections or make people dependent on a single infrastructure. Such arrangements are rarely neutral. Infrastructure often becomes visible only when it fails; precisely its everyday embedding distributes possibilities for action and dependencies (Star and Ruhleder 1996). Arrangements contain assumptions about what a good life is. A city designed around the private car treats fast individual movement as the norm. A platform that fills every free minute with recommendations treats uninterrupted attention as an exploitable resource. A labour market that rewards permanent availability treats time for care, recovery, and civic life as a private deviation. A positive philosophy of the future must make these silent assumptions visible. It cannot be satisfied with making existing processes more efficient. It must ask what forms of life those processes produce. The parallel short analysis concentrates this examination on the urban square; the following sections explore its transferability without deriving a general blueprint from a single case (KIKOLAUS / Reinelt 2026a).

5.2 Housing as a Sustaining Environment

The home initially appears as a private space. It protects against weather, noise, and other people's gaze. It provides retreat and allows personal design. This boundary is part of human Autonomy. Anyone without a reliable space of retreat can organize their life only to a limited extent. Yet a home is never completely private. It depends on energy, water, communication, and transport networks. Its temperature is shaped by the construction of the building, its location within the neighbourhood, and the surrounding vegetation. Its usability changes with age, illness, family structure, and income. It is property, rental object, investment asset, and living space at once. A future-capable form of housing must connect these different functions without reducing them to a single logic. This begins with the building. A highly equipped technical house can save energy, control room temperatures, and detect care needs. It can also become opaque. If lighting, heating, door systems, and medical assistance are tied to proprietary software, the resident shifts from owner or tenant to user of an operating system controlled by someone else. The house is nominally comfortable but structurally difficult to control. The alternative is not a technology-free house. A building without digital control can be inefficient, inaccessible, and maintenance-intensive. Technology can allow older people to remain independent longer, reduce energy use, and flag repairs early. What matters is whether the technical system remains legible, changeable, and replaceable when necessary. A house should serve its residents without interposing itself between them and their elementary functions of life. Basic functions must not fail merely because a subscription ends or a provider discontinues a service. Nor does the ecological quality of a home consist solely in efficiency. A perfectly insulated apartment can overheat in summer. A green facade can provide cooling and habitat while increasing maintenance costs or causing facade damage. Large windows bring light but can raise energy consumption and heat exposure. Wood appears natural but does not necessarily come from sustainable forestry. The better form of housing does not arise from one preferred material or from maximum technical equipment. It arises from an arrangement that enables long-term use, repair, adaptation, and ecological embedding. Repair constitutes a distinct mode of maintaining the world. It requires knowledge, accessibility, and institutional responsibility (Jackson 2014). A building should be able to change when a family grows or shrinks, when residents age, or when new climatic conditions demand different shading and ventilation. Persistence would lie in the building's capacity to accommodate different phases of life. The same applies to its surroundings. A home becomes habitable only through paths, shopping, medical care, schools, green spaces, and social relationships. Someone who can reach each of these functions only by car or through paid platforms may have private comfort yet little structural independence. The positive future of housing therefore lies between retreat and embedding. People need spaces in which they are not permanently available. At the same time, they need environments in which care, provision, and encounter are not completely privatized. A shared room in a building can enable neighbourhood relations. It can also become an unused mandatory space or a site of social control. A communal garden can create relationships and ecological experience. It can also produce conflicts about work, noise, and use. Community is not automatically constructive. It becomes sustainable when participation is possible without being compulsory and when responsibility does not remain permanently with the same people. The habitable

future therefore consists neither of isolated private worlds nor of permanent communal life. It creates transitions: places of retreat, voluntary encounter, and reliable mutual support.

5.3 Work After Automation

Few promises about the future are older than the hope that technology will free people from burdensome work. Machines took over physical force, software calculations, and generative systems now intervene in linguistic, analytical, and organizational activities. Labour-market research describes not so much the simple replacement of entire occupations as a shift between automatable and newly emerging tasks; for many activities, the ILO expects transformation rather than complete substitution (Acemoglu and Restrepo 2019; Gmyrek et al. 2025). Even so, many people do not experience technological progress as time gained. Work becomes faster, denser, and more granularly controlled. What is automated does not always disappear from the working day. New tasks often arise: monitoring systems, checking outputs, maintaining data, documenting deviations, and handling multiple communication channels at once. The machine then relieves the individual operation while the organization immediately fills the freed time again. At this point, a technical future requires an institutional decision: productivity gains must not be translated only into more output. They must also flow back into time, attention, and room for action. This affects different activities in different ways. In care work, technology can reduce physically burdensome labour, monitor medication plans, and identify changes early. It can give carers more time for conversation and observation. It can equally be used to reduce staff further and time every encounter by the minute. The same device can enable human attention or accelerate its rationalization. In creative professions, artificial intelligence can vary drafts, structure research, and ease technical execution. This can allow people to test ideas that previously failed for lack of time or specialist knowledge. The same systems can standardize creative work if clients expect only rapid variants and design decisions collapse into statistical similarity. In administration, automated procedures can take over recurring checks. Citizens might fill in fewer forms and employees could spend more time on difficult cases. But if the procedures become opaque, responsibility shifts. The individual employee can no longer explain why an application was rejected; the citizen can only protest an outcome whose production no one on site understands. The decisive boundary therefore does not run between human and machine work. It runs between technology that extends human judgment and technology that makes judgment appear organizationally superfluous. Judgment becomes visible precisely where rules are insufficient. A nurse notices that an unusually quiet patient needs attention even though no measurement triggers an alarm. A teacher may recognize anxiety rather than lack of understanding behind a weak result. A case worker sees that a formally correct decision misses its purpose in a particular case. Such capacities are not mystical. They rest on experience, relationship, and contextual knowledge. Technology can support them. It cannot translate them completely into predefined data points without losing part of their meaning. A future-capable order of work would therefore ask not only which activities can be automated. It would examine which human capabilities disappear through automation,

which new ones arise, and which should deliberately be preserved. Preserving human activity must not be romanticized. No one should have to perform dangerous, monotonous, or physically destructive work merely because it is regarded as authentic. Human dignity does not lie in an obligation to exert oneself. The positive standard is instead this: technology should relieve people of activities that narrow their developmental possibilities and give them more room for activities in which perception, responsibility, relationship, and design genuinely matter.

5.4 Time as a Shared Resource

A connection of nature, technology, and human existence fails when their temporal orders do not fit together. Social acceleration and the compression of technologically mediated time shape which relationships can still be cared for and which consequences can still be perceived (Rosa 2005; Wajcman 2015). Technical systems increasingly operate in real time. Markets react in milliseconds. News spreads within minutes. Work processes are continuously updated. People are expected to respond, learn, and replan immediately. Biological and social processes follow different rhythms. Trust arises through repeated experience. A child does not develop capabilities on demand. Recovery cannot be compressed at will. Soils, forests, and water systems regenerate over years or decades. Democratic decisions also require time if different perspectives are actually to be heard. A society that subordinates every process to the fastest infrastructure produces systematic mismatches. People become exhausted. Institutions respond only to short-term signals. Ecological damage remains invisible until its slow accumulation tips into an acute crisis. What is needed is not blanket deceleration. Slow systems can also be unjust, rigid, or inefficient. An administration that takes months to deliver urgent support does not protect human intrinsic time. It prevents action. What is needed is a differentiated temporal order. Emergencies demand speed. Care, education, and democratic understanding require reliable duration. Technical systems can accelerate routine so that time becomes available elsewhere. It is precisely this second half of the promise that often remains unfulfilled. Time prosperity therefore does not mean that everyone possesses as much free time as possible. It means having the real possibility of using time in accordance with the matter at hand. A conversation may take longer if the situation requires it. A learning process may contain detours. A repair may be more careful than an immediate replacement. An ecological measure may aim at long-term regeneration even if its benefit is not visible within a budget period. Such an order would treat success differently. Not every minute saved would automatically count as a gain. The question would be where it flows. Is it compressed into the next task, or does it become a buffer for attention, error correction, and relationship? Technology could enable time prosperity. It does so only when institutions prevent every relief from being translated immediately into new acceleration.

5.5 Provision and Visible Dependency

Modern systems of provision work precisely because their complexity disappears from everyday life. Food, electricity, medicines, and digital services are available without their production having to be constantly considered. This relief is a civilizational achievement. Infrastructures derive their effectiveness precisely from this embedding in routines; they often become visible only when they fail or exclude (Star and Ruhleder 1996). But this has a shadow side. What becomes invisible more easily escapes responsibility. A food item appears as a product with a price and packaging. Soil fertility, water consumption, working conditions, transport routes, and dependencies on seed disappear behind the surface. Electricity appears as a unit available at any time. Power plants, grids, storage, landscape interventions, and geopolitical dependencies remain outside the socket. Digital services appear immaterial even though they require data centres, energy, raw materials, cables, and human moderation work. Making these systems visible must not turn into permanent moral overload. No one can calculate all global consequences with every everyday action. A form of life that demands complete individual information shifts institutional responsibility onto the individual. Transparency must therefore be tied to possibilities for action. People do not need all the data. They need information at the points where a real decision is possible. That can mean public procurement taking ecological and social follow-on costs into account instead of leaving every consumer to audit entire supply chains. It can mean energy prices reflecting long-term infrastructure costs without excluding low-income households from basic needs. It can mean requiring devices to be repairable and spare parts to remain available instead of treating repair as a private virtue. Provision becomes future-capable when it combines efficiency with redundancy. A highly centralized system can function cheaply, precisely, and stably. If a central node fails, however, the disruption spreads widely. A completely decentralized system has more local independence but can be more expensive, uneven, and difficult to coordinate. Here too there is no automatic winner. A regional energy system can strengthen local responsibility and resilience while still depending on supraregional grids when wind and sun are insufficient. Global pharmaceutical production can enable specialization and low costs while creating critical dependencies on a few production sites. The habitable future therefore connects local capabilities with supraregional cooperation. It does not try to make every community self-sufficient. Autarky would waste resources and close off differences. But it prevents vital functions from being reachable only through paths whose failure cannot be compensated locally. Provision thereby becomes not a return to self-sufficiency but a more conscious design of dependency.

5.6 Mobility as Accessibility

Mobility is regarded as an expression of freedom. Those who can move can reach work, education, relationships, culture, and nature. Restrictions on mobility therefore often affect people in their Autonomy. At the same time, not every movement is voluntary. Long commutes, distant services, separated families, and unaffordable housing create forced mobility. People travel great distances to sustain a life whose necessary places have been pulled apart spatially. A positive future must therefore assess mobility not only by speed and range

but by accessibility: Which people can actually reach which places relevant to their lives, and at what cost of time, money, and attention? This shift lies at the centre of transport justice (Martens 2016). A neighbourhood is not well connected because a high-speed road runs through it. It is well connected when people can reliably reach important places without excessive expenditure of time, money, or attention. Technology can improve this accessibility. Digital booking systems can connect different modes of transport. Autonomous vehicles can make people mobile who cannot drive themselves. Real-time data can reduce waiting times. The same technology can create new exclusions. Anyone without a current smartphone, an account, or digital routine can lose access. Flexible pricing systems can allocate capacity efficiently while displacing low-income people precisely at important times. An autonomous vehicle fleet can complement public transport or hollow it out economically. A better mobility order therefore does not rely on a single mode. It organizes different speeds and needs. Walking and cycling enable direct perception of place but require safe routes and limited distances. Public transport connects larger areas efficiently but needs reliable intervals and collective financing. Individual vehicles remain necessary for certain regions, occupations, and physical conditions. Digital communication can avoid journeys but must not replace encounters completely. The goal is not a motionless society. It would reduce unnecessary movement and facilitate meaningful movement. This also changes the relationship to nature. Landscape would no longer be only the space between origin and destination. Routes, seasons, weather, and local differences would once again become more strongly experienceable. That may sound incidental, but it concerns the basic question of this analysis: an environment traversed only at high speed appears more readily as abstract space. What is experienced can be taken into account differently.

5.7 Digital Spaces and the Limits of Capture

Digital communication has enabled relationships that would previously have failed because of distance, illness, political borders, or social isolation. Its normative quality also depends on whether information flows fit their respective social contexts and whether technical entities are considered as parts of a shared informational environment (Nissenbaum 2010; Floridi 2013). People find communities, knowledge, and forms of expression missing from their immediate surroundings. Families remain connected across continents. Small projects reach an international public. This Connectivity is real. Its destructive form is equally real. Platforms connect people by observing, predicting, and influencing their behaviour. The connection does not serve only those involved. It also serves a business model that must extend attention and make behaviour exploitable. Conflict, comparison, and emotional escalation are not accidental side effects under these conditions. They can be structurally useful. Better media literacy alone cannot sustain a positive digital future. People can learn to turn off notifications and check sources. As long as the infrastructure itself is designed for maximum capture, individual protective practices struggle against a superior organizational logic. Digital spaces would have to be built differently. That does not mean everyone must program their own platform or manage all data locally. Such demands would again shift technical responsibility onto the individual. It means that central spaces of communication

must be treated as social infrastructure. Their rules must not follow advertising interests alone. Users need real possibilities to take their data with them, switch providers, and influence or disable recommendation systems. Public and public-interest alternatives must exist where digital communication has become indispensable for education, administration, or the political public sphere. At the same time, digital connection must be limitable. A relationship from which one cannot temporarily withdraw loses its voluntary character. Reachability must not become a permanent obligation. A right not to respond would therefore not be an anti-technology retreat. It would be a condition of self-determined connection. Artificial intelligence also changes these spaces. It can translate, summarize, explain, and make knowledge accessible to people with different abilities. It can also flood communication with synthetic content, simulate human counterparts, and blur the boundary between relationship and service. A positive use should therefore not label every form of machine mediation as though its artificiality were already the problem. What matters is whether people can understand what kind of system they are interacting with, which interests shape the mediation, and where human responsibility remains reachable. The machine may appear responsive. The institution behind it must not become unresponsive as a result.

5.8 Closeness in Technologically Mediated Relationships

The longing for a more human future often turns against technical mediation. Genuine encounter is contrasted with digital communication, manual activity with automation, and direct experience of nature with data collection. These contrasts identify real losses. They become misleading as soon as immediacy itself becomes the moral standard. A face-to-face conversation can also be hierarchical, manipulative, or empty. A digital relationship can carry trust and mutual help for years. Manual work can be meaningful; it can also remain unhealthy and monotonous. Technical assistance can create distance or enable a person to participate independently for the first time. Human closeness does not depend on the absence of technology. It depends on whether people encounter one another as counterparts capable of response. Responsiveness means more than reaction. A system reacts to inputs. A person can feel addressed, assume responsibility, object, and change their position. A form of life that wants to preserve these capacities must create spaces in which relationships are not completely replaced by standardized procedures. This concerns care, education, counselling, and the democratic public sphere in particular. In these domains, efficiency is necessary but not sufficient. Someone who looks only at the correctly executed procedure overlooks that the meaning of the activity often lies in the relationship. A care action tends to a body and at the same time confirms that a person is not being left alone. Teaching conveys knowledge and at the same time shows that someone is trusted to develop. An authority decides an application and at the same time establishes a relationship between citizen and polity. Technology can improve the procedure. It must not make the relationship invisible.

5.9 Productive Boundaries

The vision developed so far could be read as a demand for as many good connections as possible: more neighbourhood, more participation, more ecological embedding, more technical transparency. But constructive connection also has limits. People need distance. Organizations need clear responsibilities. Ecosystems need areas that are not permanently exposed to human use and observation. Technical systems need specialization that cannot be fully transparent to every user. A society that involves every person in every decision becomes incapable of acting. A neighbourhood in which every private action is collectively negotiated destroys retreat. A digital system whose entire technical complexity has to be understood by everyone becomes practically unusable. Contestable delegation therefore belongs to a habitable order. Total participation would be neither possible nor desirable. Tasks can be transferred to experts, institutions, and technical systems. Such transfer remains viable when responsibilities are recognizable, decisions can be justified, and paths of correction remain open. Nature, too, does not require active human care everywhere. Some processes develop better when people reduce their interventions. But even non-intervention is a decision whose consequences must be observed. Former agricultural land does not automatically become an ecologically valuable area. A forest left to itself can develop new diversity or collapse over large areas under changed climatic conditions. The boundary between intervention and restraint therefore cannot be set in the abstract. It has to be learned from the process in question. The positive philosophy of this analysis is therefore neither a philosophy of maximum control nor one of maximum detachment. It is a philosophy of responsible proximity: close enough to perceive consequences and assume responsibility; distant enough for other paths to retain their own dynamics.

5.10 The Limits of Optimization

In many visions of the future, optimization appears as a self-evident direction. Buildings are to become more efficient, traffic faster, learning more personalized, and health more preventive. Optimization sounds reasonable because it reduces waste and makes goals easier to reach. But every optimization presupposes a goal. What is not contained in that goal can be lost through improvement. A city optimized for traffic flow can displace places to stay. A school optimized for learning outcomes can devalue curiosity and detours. An insurer optimized for preventive health can continuously sort people by risk scores. Agriculture optimized for resource efficiency can reduce genetic and operational diversity. The problem does not lie in optimization itself. It lies in its extension into a general logic of life. A habitable future therefore preserves domains that are not completely directed toward an outcome. Play, friendship, art, recreation, and encounters with nature have effects. But their meaning is not exhausted by those effects. Someone who declares friendship a resilience strategy, art an instrument of innovation, and a forest health infrastructure recognizes their usefulness while possibly missing their independence. Habitability does not require an order without purposes. It requires the capacity to limit purposes. This applies to human beings themselves. A person is not fulfilled because their capacities are maximally exploited, their health seamlessly monitored, and their

time efficiently allocated. Human existence includes the possibility of being unproductive, revising decisions, losing interests, and developing new ones. Technology, nature, and institutions stand in a humane relationship when they do not treat this openness as a defect.

5.11 The Image of the Habitable Future

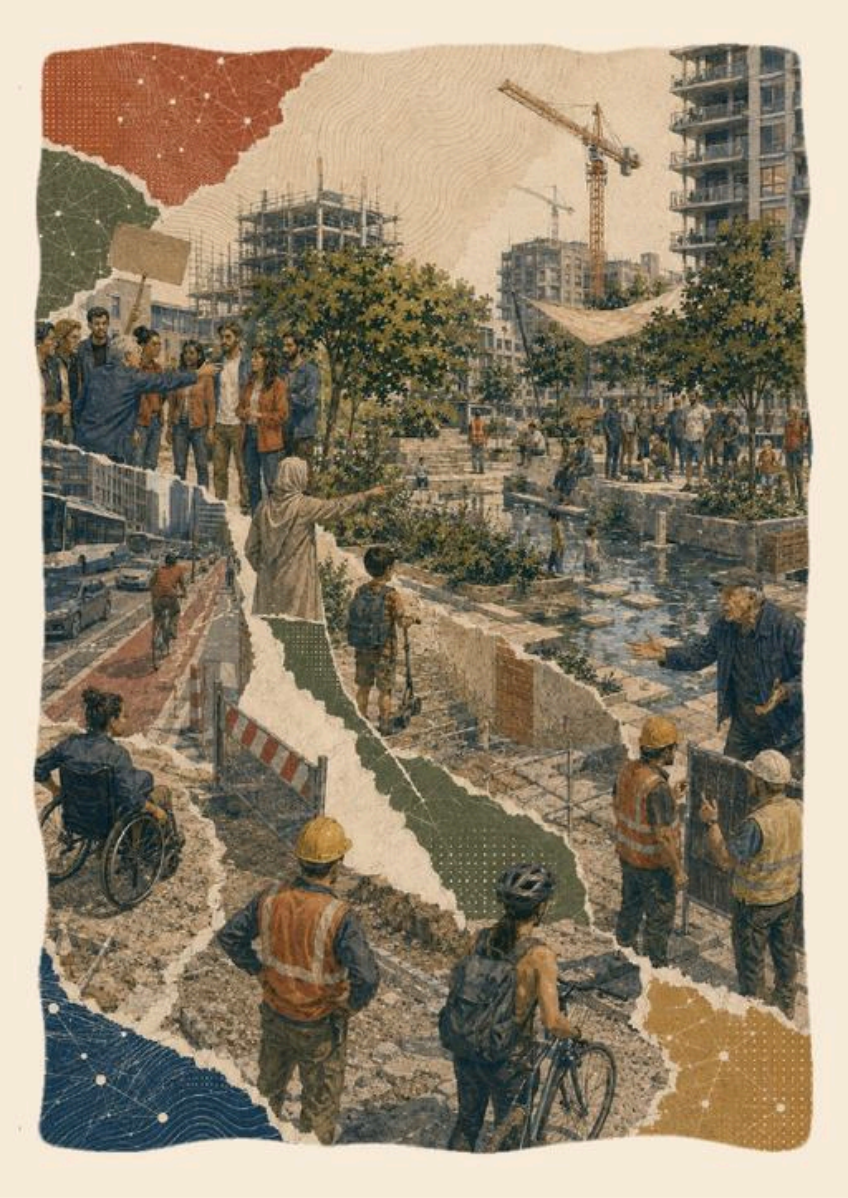
What does such a future look like? It need not consist of spectacular cities or entirely new forms of life. Much would be familiar. People would live, work, travel, learn, argue, and use digital media. The difference would lie in the architecture of their relationships. Buildings would be technically supported but not dependent on opaque systems. Neighbourhoods would enable both retreat and encounter. Work would be eased by automation without compressing every minute of time thereby gained. Systems of provision would connect global cooperation with local possibilities for action. Mobility would be organized around accessibility rather than maximum movement. Digital spaces would enable communication without fully capturing attention. Natural processes would not be treated as an untouched counter-world, but their intrinsic timescales and developmental directions would carry institutional weight. This society would not be free of conflict. Residents would argue about shared spaces. Technical systems would fail. Ecological measures would produce unexpected consequences. Automation would displace activities that some people want to retain. Local interests would collide with supraregional dependencies. The difference would be that such conflicts would not disappear behind the promise of a final solution. The order would be oriented toward making consequences visible, keeping decisions contestable, and drawing institutional consequences from mistakes. Habitability would then mean more than comfort. A system is habitable when people can act within it without systematically destroying its preconditions; when technology intervenes supportively without taking over their purposes; when natural processes retain enough space and time for development of their own. Habitability does not name a distant final state. It begins wherever an existing arrangement is changed so that more responsible action, constructive relationship, and learning continuation become possible. Its smallest unit is not the invention. Its smallest unit is a better-built relationship.

5.12 From Everyday Life to Shared Direction

Individual improvements do not yet amount to a societal vision. A repairable device, a green courtyard, transparent administrative software, or shorter working hours can remain isolated. They then change a local process without touching the direction of the overall order. Translated into politics, the vision must decide which infrastructures may not be organized exclusively according to market logic, which technical dependencies are acceptable for education, communication, energy, and health, and how slow ecological processes can be protected against short-term exploitation without blocking all change. Productivity gains must be distributed so that technical relief actually becomes human time gained. These decisions cannot be derived from an idyllic image of the future. They require conflict, institutions, and power. The analysis thereby reaches its next step. A philosophy of life that described only individual attitudes and local practices would remain politically

incomplete. Nature, technology, and human existence are not connected only in personal everyday life. Their relationships are structured through property, law, infrastructure, and democratic decision-making.

Politics in What Remains Unresolved



Even a careful analysis does not finish designing the square. It does not decide who may finance it, how long contracts should run, which needs take priority, or who bears the costs of later revision. Politics begins in what remains unresolved.

Autonomy, Connectivity, and Persistence identify normative changes and order mixed profiles. A concrete decision also requires rights, distributive judgments, empirical forecasts, and institutional responsibilities. The political programme of this long-form essay is therefore a reasoned translation under explicitly stated additional premises, not a complete deduction from the three dimensions.

6.1 The Public Decision on the Square

In the evening, a public consultation on the square takes place in the neighbourhood. The learning group presents two variants. One design combines extensive technical roofs, smaller planted areas, and immediately accessible paths. It offers rapid shade and energy generation. The shopping centre would cover a substantial part of the costs and receive limited usage rights. Maintenance would initially remain tied to specialized components and the provider's control software. The other design relies on a smaller removable roof over the entrance to the care facility, immediately accessible paths, gradual unsealing, and robust trees where the soil can support them. It requires more time and public funding. During the first hot summers, protection remains incomplete. For residents of the care facility, this is not a question of comfort: heat threatens health, mobility, and the real use of public space. Long-term ecological effects also remain uncertain under drought and pest pressure. Noor explains why neither variant is superior in every respect. An older man asks why the school was involved if it cannot provide a clear solution. A pupil replies that the group has shown which timescales, dependencies, and risks lie behind the labels "more nature" and "more technology". In the discussion, residents of the care facility prefer the fast-acting variant. Younger residents mostly support the long-term redesign. Some local businesses reject both plans because they fear further restrictions. One woman points out that employees and visitors have barely figured in participation so far. The assembly does not postpone the decision indefinitely. It commissions the city, within a fixed deadline, to determine whether the private usage rights can be limited in time and space, whether the control system can be technically replaced, and whether dismantling costs can be secured by contract. In parallel, the ecologically oriented design is to receive a robust form of immediate protection for the first hot years. People with limited mobility and employees of the surrounding facilities will be consulted specifically. The next meeting ends with a decision. Ada later points out that further examination can conceal political cowardice. Here it changes the basis of decision only if the deadline, responsibility, and consequence remain binding. Otherwise, the procedure would merely administer uncertainty and pass responsibility on.

6.2 Power in Visions of the Future

Positive visions of the future like to speak of cooperation, learning, and shared responsibility. They name necessary capacities. But they say little about what happens when interests conflict. A company can profit from a technical infrastructure whose ecological costs are borne by others. Property owners can welcome the value of a greener neighbourhood while raising rents until the people who built the place are displaced. Research on green gentrification shows that ecological upgrading without social safeguards can displace precisely those residents whose living conditions it was meant to improve (Wolch, Byrne and Newell 2014). A platform can connect millions of people and organize every individual connection so that attention, data, and market access converge on itself. A government can announce long-term climate protection while burdening in the short term groups with few alternatives. Nature, technology, and human existence fall out of relation not only because knowledge is lacking. They fall out of relation because some actors can determine which costs become visible, who bears them, and which alternatives are available in the first place. A philosophy of the future that leaves out power becomes aesthetics. It describes attractive relationships without explaining how they can withstand interests that profit from destructive ones. Technical architecture is political as well: it can centralize decisions, pre-structure behaviour, and durably favour particular forms of ownership (Winner 1980). The political question is therefore: Which institutions enable binding decisions without overriding the Autonomy, constructive Connectivity, or transductive Persistence of affected paths? A society cannot build every infrastructure simultaneously, permit every lifestyle without limit, and leave all natural processes untouched. Politics has to choose. It cannot be determined in the abstract whether a decision should remain revisable later or instead be bound for the long term.

6.3 Protection and Openness

The demand for openness can itself mislead. Some developments must be limited or ended precisely so that other paths can continue. A coal-fired power plant sustains jobs, regional identity, and energy supply. It stabilizes an existing social and technical path. At the same time, its continuation contributes to climate change, affecting an infrastructure path on which nearly all other social and ecological paths depend. A completely open stance might demand that both possibilities be continued on an equal footing. That would not be neutrality. It would prolong the existing advantage of the emissions-intensive structure and thereby damage the conditions under which other paths can continue. The political translation of this finding is not to maximize openness itself. It requires distinguishing which paths must remain changeable and which boundaries precisely must not remain permanently up for negotiation. A constitutional ban on torture closes a state option for action permanently. That closure protects structural Autonomy. A strictly protected forest area can be shielded from changing interests of use so that ecological self-development is not renegotiated with every political shift. Binding fundamental rights limit democratic majorities; their firmness can sustain normative Persistence rather than block it. Openness and correctability therefore have no unconditional priority. They are required where uncertainty, concentration of

power, or lock-in threatens the Autonomy, Connectivity, or transductive Persistence of affected paths. Where continuous revisability itself enables structural destruction, firm protective positions can be the more sustainable form. Paths that carry numerous heterogeneous continuations provide a special reason for protection. Climate, water, oxygen, digital communication, and fundamental financial structures are not ordinary individual interests; changes to them feed back into the conditions of numerous other systems. Such contexts are referred to here as infrastructure paths. Endangering them also affects the conditions for continuation of heterogeneous dependent paths. What priority follows from this in a concrete conflict has to be justified politically. It does not imply absolute inviolability. Electricity grids, water supply, and digital infrastructures must also be changed. The framework shows which dependencies and losses are relevant. Whether this results in preservation, redesign, firm limitation, or termination is decided by additional empirical findings and political reasons. An intervention in a park is therefore not merely a decision about a piece of land. It can change heat, infiltration, biodiversity, encounter, and residential value. A new digital identity infrastructure is not merely a more efficient administrative service. It can structure access to education, health, work, and political participation. A change in the financial system concerns more than banks. It changes which social projects receive capital at all and how risks are distributed over time. A politics of responsible continuation begins where such leverage effects are made visible and the additional judgments of priority are disclosed.

6.4 Progress as a Decision About Direction

Technological progress is often treated as though it came from outside. Politics may promote, regulate, or slow it, but supposedly cannot determine it fundamentally. This view confuses invention with social development. A technology does not prevail merely because it is technically possible. It requires investment, infrastructure, legal forms, education, public procurement, and social acceptance. Each of these conditions is politically influenced. A society therefore decides not only how to deal with finished technology. It helps decide which technologies become durable in the first place. Artificial intelligence makes this visible. The same basic methods can support medical research, prepare administrative decisions, personalize advertising, monitor work performance, or select military targets. Technical capability alone gives no direction. Business models, regulation, and institutional demand do. Positive future policy must therefore begin earlier than damage control. It must ask not only whether a system is safe enough. It must ask which relationships its broad adoption normalizes. Does it replace capabilities whose social preservation matters? Does it concentrate knowledge and agency among a few providers? Does it create dependencies from which institutions will later find it difficult to exit? Does it expand perception of complex processes, or reduce them to the data its model can process? Do purposes and limits of use remain politically negotiable? These are not anti-technology add-on conditions. They determine what kind of progress takes place. In this philosophy of the future, progress would not be the mere expansion of technical capability. Progress would occur where new capabilities enable shared continuation without making one participating path a mere means for the others. A technology can become more powerful and still be socially regressive.

6.5 Correctability and Binding

Democracy is often described through elections, separation of powers, and fundamental rights. These elements remain indispensable. For the vision developed here, one tension moves to the foreground: democracy must be able to correct decisions while also protecting boundaries that must not be reopened with every new majority. A democratic decision is not necessarily correct. Its distinctive value lies in the fact that it can be publicly contested, institutionally reviewed, and later revised. Agonistic democratic theory also reminds us that conflicts do not disappear as mere deficits of information; legitimate orders must work through opposition and keep power visible (Mouffe 2005). This correctability matters especially under uncertainty. No one knows every consequence of a large-scale AI infrastructure, a new energy architecture, or an ecological restoration strategy. Not deciding has consequences too. The connection of public experience, revision, and democratic learning stands in the tradition of experimentalism, but it does not establish a universal priority of openness (Dewey 1927; Popper 1945). A politics of responsible continuation must therefore treat uncertainty neither as an excuse for paralysis nor as a mere communication problem. Where consequences remain open and dependencies can still be avoided, it must build decisions so that learning remains possible. That requires time-limited mandates, testable assumptions, accessible data, and clear exit options. Pilot projects must not become permanent through de facto dependencies before their consequences have been publicly examined. Correctability, however, is not a universal guiding value. Fundamental rights, protection from torture, or the deletion of certain personal data can carry precisely because their validity does not continuously depend on utility calculations or changing majorities. An order that reopens every protected position at any time can damage Autonomy and normative Persistence. The task is to distinguish, with reasons, between binding and revision. A decision must remain in force long enough for its effects to become visible. It must not be locked so deeply that new consequences can never have an effect. Conversely, a protective boundary must be firm enough that repeatedly questioning it does not itself become a source of structural erosion. In this sense, democracy is the art of deciding with binding force while stating which decisions should remain revisable and which boundaries protect its capacity to learn precisely through firm commitment.

6.6 Rights Protect Future Possibilities

Rights are traditionally attributed to persons or recognized legal subjects. They protect freedom, bodily integrity, property, political participation, and other goods. Ecological debates increasingly discuss rights of nature as well. The philosophy of the future developed here need not settle these legal questions conclusively. But it changes how their function is viewed. Rights do not merely protect existing states. They protect possibilities of continuation. The right to education protects not only access to present knowledge. It protects the capacity to develop later life paths. Data protection protects not only individual information. It protects the possibility of changing without being permanently fixed by earlier data profiles. Labour rights protect not only income. They limit dependencies that can prevent people from leaving intolerable conditions. Ecological rights can be understood in the same way. A river need not be declared a person for its developmental capacity to receive legal consideration. What matters is that its dynamics are not completely reduced to individual interests of use.

Rights of nature can be an effective form for doing so. They can equally remain symbolic if no one is authorized or equipped to enforce them against economic and administrative interests. The term itself does not decide political effect. A politics of responsible continuation would therefore ask about institutional substance: Who can act on behalf of an affected natural context? Which interventions require justification? Which long-term consequences receive legal weight? How are fundamental human needs weighed against ecological conditions of continuation? The positive vision does not lie in making humans and nature legally identical. It lies in recognizing nonhuman developmental contexts as real objects of political responsibility as well.

6.7 Property and Responsibility

Property creates agency. Someone who controls a home, a company, a patent, land, or data can make decisions and plan for the long term. This reliability can promote Autonomy and responsibility. Property can also lead to decisions with far-reaching consequences being treated as private matters. A forest may be privately owned. Its cooling effect, water storage, and biodiversity, however, concern far more than the owner. A digital platform can belong to a company. The communication spaces, labour markets, and political publics that emerge on it have social significance. Housing can be held as an asset. Its availability simultaneously structures family formation, neighbourhoods, and social mobility. A positive future therefore does not require a simple opposition between private and common ownership. Both forms can be organized sustainably or destructively. Public systems can be democratically controlled. They can also become bureaucratic, inaccessible, and hostile to innovation. Private companies can develop new solutions and assume responsibility. They can also turn social dependencies into permanent revenue streams. The decisive question is how far property rights may reach when their exercise affects the continuation of other paths. On this view, property grounds not only rights of exclusion. It creates responsibility for the relationships structured through possession. Someone who owns land does not own the climate, water, and living contexts that cross it. Someone who runs a communication system does not own the social relationships that arise within it. Someone who develops a learning machine does not necessarily control all its consequences but remains responsible for the conditions of its use. Politics must translate this responsibility into liability, transparency duties, co-determination, and limits on control.

6.8 Commons and Their Institutions

Between state and market, commons often appear as an attractive third possibility. People manage water, knowledge, spaces, or digital infrastructures together. Decisions lie closer to those affected. Knowledge can be shared and responsibility distributed. Such models matter for a positive future. They show that cooperation is not confined to private contracts or central administration. Research on commons shows that neither state centralization nor privatization alone predetermines institutional quality; rules must fit the resource system,

the actors involved, and the conditions of disturbance (Ostrom 2009; Anderies, Janssen and Ostrom 2004). Yet commons have prerequisites of their own. Shared management requires time, knowledge, trust, and procedures for resolving conflict. Those with more time, education, or social security can participate more strongly. Informal communities can create belonging while excluding outsiders. Volunteering can distribute responsibility or shift unpaid work permanently onto a few people. The political alternative is therefore not state, market, or community. Future-capable systems combine their strengths and limit their respective defects. The state can secure fundamental rights, financing, and access. Markets can enable diversity, specialization, and decentralized initiative. Commons can organize local knowledge, shared responsibility, and collective care. Which combination works depends on the object. Drinking-water provision needs different structures from a neighbourhood garden. A social network needs different rules from a regional energy store. The positive philosophy does not offer a single model. It requires the organizational form to be developed from the type of dependency. The more fundamental an infrastructure is to other life paths, the less its access may depend on ability to pay, voluntary commitment, or the decision of a single company.

6.9 State Responsibility Without Gardener Romanticism

For a politics that enables development, the garden metaphor is tempting. A gardener does not produce growth directly. The gardener creates conditions, protects, prunes, and responds to different plants. The garden is neither completely controlled nor simply left to itself. The metaphor carries part of the vision developed here. The state should not determine every form of life. It should create conditions under which different forms of life can arise and persist. But the metaphor has a limit. A garden usually belongs to the gardener. The gardener decides which plants are desired, which are removed, and what image the garden should follow. Applied to politics, this can become paternalistic: the state tends its citizens and systems according to a conception of the good whole. Democratic politics, however, cannot merely garden. Those involved must participate in shaping the conditions under which they live. The state would therefore be less a gardener than a custodian of a garden that is collectively contested. It protects soils, access, and rules. It prevents individual actors from occupying the entire space. It decides conflicts without turning a single form of life into the general model. This definition too remains tense. The state possesses coercive means. It can enforce protection, levy taxes, limit uses, and regulate property. Positive future policy must not conceal this coercion. It must justify it, control it, and keep it contestable.

6.10 Inequality as a Blockage of the Future

People can participate in shaping a shared future only if they have real room for action. Someone who struggles every day with housing, health, or security of residence has little capacity to help shape long-term ecological and technical decisions. Someone with no time remains excluded from participation procedures. Someone strongly dependent on an employer, landlord, or platform operator can possess formal rights and still have little ability to

object. Inequality is not merely a question of distributive justice. It changes the structure of society's future. The OECD describes pronounced "sticky floors" and estimates that, on average across the OECD, a family starting at low income can require four to five generations to reach the mean (OECD 2018). A small group can control technologies, land, media, and political access. Other groups experience the future mainly as a demand to adapt. Some invest, plan, and design. Others are retrained, relocated, or compensated after the fact. Under such conditions, no shared vision of the future can emerge. There are only future projects with unequal power. The political translation defended here therefore requires material preconditions: secure access to housing, education, health, mobility, communication, and time. These protections are not merely social side measures accompanying transformation. They are conditions of democratic Autonomy. That such access should be publicly secured, and in what form, does not follow from structural analysis alone. The analysis shows how material dependency can damage Autonomy and political Connectivity. The concrete claim to protection additionally rests on an egalitarian and democratic premise that is explicitly defended here. This does not mean that every inequality must be eliminated. Differences in property, lifestyle, and influence will remain. But they must not become so large that some actors shape the shared conditions while others merely bear their consequences.

6.11 From Acceptance to Co-Authorship

Political transformation is often treated as a problem of acceptance. Technologies and measures are said to be necessary but in need of better explanation. Citizens should be informed and involved early so that resistance declines. This logic remains instrumental. Participation mainly serves to make an already determined direction implementable. The demand reaches further. People must not be merely recipients of a vision. They must participate in its formulation and correction. Co-authorship does not mean that every decision is taken by direct democracy. It means that the goals themselves remain publicly negotiable. Should a city primarily accelerate mobility or shorten necessary journeys? Should artificial intelligence in education primarily personalize learning, relieve teachers, or lower barriers to access? Should a region organize its energy supply primarily for low cost, local controllability, or minimum emissions? Tensions exist among such goals. Politics must make them visible instead of hiding them behind alleged technical necessities. People do not accept a future merely because they understand its benefits. They can connect with it when they recognize in its decisions which experiences and values entered the design. Co-authorship is therefore not a communication strategy. It is a form of political Autonomy.

6.12 Institutions That Survive Error

Every politics of the future will make mistakes. Technologies will produce consequences no one foresaw. Ecological measures will work differently than expected in some regions. Participation procedures will overlook certain groups. Protective rules will obstruct innovation or intervene too late. A positive vision that is not naive does more than acknowledge these errors. It designs institutions so that error does not turn into lasting damage. This includes redundancy,

independent oversight, and the possibility of limiting adverse developments early. Critical infrastructure must not depend on a single provider, a single technology, or a single form of knowledge. Decisions with far-reaching effects need counter-institutions that do not depend for their own success on the success of the same decision. Adaptive governance describes comparable connections among learning capacity, networks, and institutional renewal in social-ecological systems (Folke et al. 2005; Reyers et al. 2018). Knowledge too must remain plural in its organization. Technical models, local experience, scientific research, and the knowledge of those affected can contradict one another. None of these perspectives is automatically superior. Their difference makes error correction possible. An institution that produces only confirmation can appear stable while having lost its normative function. This pattern can be described as a Persistence Illusion: the form remains while the capacity for self-correction erodes. For a philosophy of the future, the implication is this: the quality of an institution is not shown by the fact that it avoids error. It is shown by whether errors can become visible without the system punishing those who name them or having to defend its own legitimacy.

6.13 The Path Impact Assessment as Political Translation

Structural diagnosis needs a form through which it can enter actual governance procedures. The Path Impact Assessment (PIA) serves this purpose. It introduces no further evaluative dimension and does not compress A-A-P into a score. PIA brings Autonomy, Connectivity, and Persistence together in three mandatory questions. It also records separately which additional political premises support the later decision and under what conditions that decision must be revised (KIKOLAUS / Reinelt 2026b, Ch. 7.6). The Autonomy question examines who can still act effectively after the intervention. At the urban square, this concerns the municipality's control over contracts and technology, users' alternatives, the position of the care facility, and the power of the private operator. Formal responsibility is not enough if maintenance, data, or usage rights make later change practically impossible. The Connectivity question reconstructs which couplings the intervention strengthens and which participants are thereby functionalized. A solar structure can constructively connect heat protection, energy supply, and financing. The same coupling becomes destructive once advertising, event rights, or technical dependency consume the public function of the place. PIA therefore requires a mixed profile. It seeks neither the pure benefit nor one hidden harm. The Persistence question clarifies what must be protected by binding commitment and which determination should remain changeable later. Accessible entry functions as a fixed minimum condition; the technical design of heat protection, by contrast, needs review because its ecological, social, and contractual effects become visible only over time. Time limits, responsibility, dismantling, and the date of a renewed decision thereby become part of the intervention's effects. PIA separates two levels. The diagnosis describes the structural profile of the variants. The political decision determines which of those consequences receive particular weight. An additional reason need not name something outside A-A-P. Giving greater weight to a diagnosed Autonomy or Persistence consequence is itself an additional premise because its priority does not follow from the framework. Rights, distributive judgments, budget decisions, and democratic goods therefore remain visible as political reasons even when they respond to structures previously identified by A-A-P. A PIA is complete only when, alongside the three answers, it discloses the system boundary, knowledge base, affected infrastructure paths, transition costs, and conditions for revision.

The procedure prevents neither conflict nor misjudgment. But it makes it harder for a politically chosen weighting to appear as a technical necessity or for a favourable immediate effect to push its later dependencies outside the scope of assessment. On this basis, political translation connects central coordination with local experience. It orients technical development toward safety, material consequences, and the quality of the relationships that arise through long-term use. Infrastructure paths receive special reasons for protection because endangering them affects numerous other continuations at once; this still does not entail automatic priority in every conflict. Under uncertainty, the order must state which decisions remain reviewable and which protective boundaries are anchored against continual reopening. Concentrations of power are limited where people, institutions, or ecological contexts become trapped in dependencies that cannot be exited. An explicitly democratic premise is added: participation requires material and temporal preconditions. Without access, security, and available time, co-authorship remains nominal. This direction does not constitute a single model of government. Climate policy cannot be decided locally alone, while the design of a neighbourhood requires local experience. Digital infrastructures need transnational rules and, at the same time, workable local alternatives. Politics of the future must connect levels without drawing their different tasks into a single steering authority.

6.14 A Conditional Decision on the Square

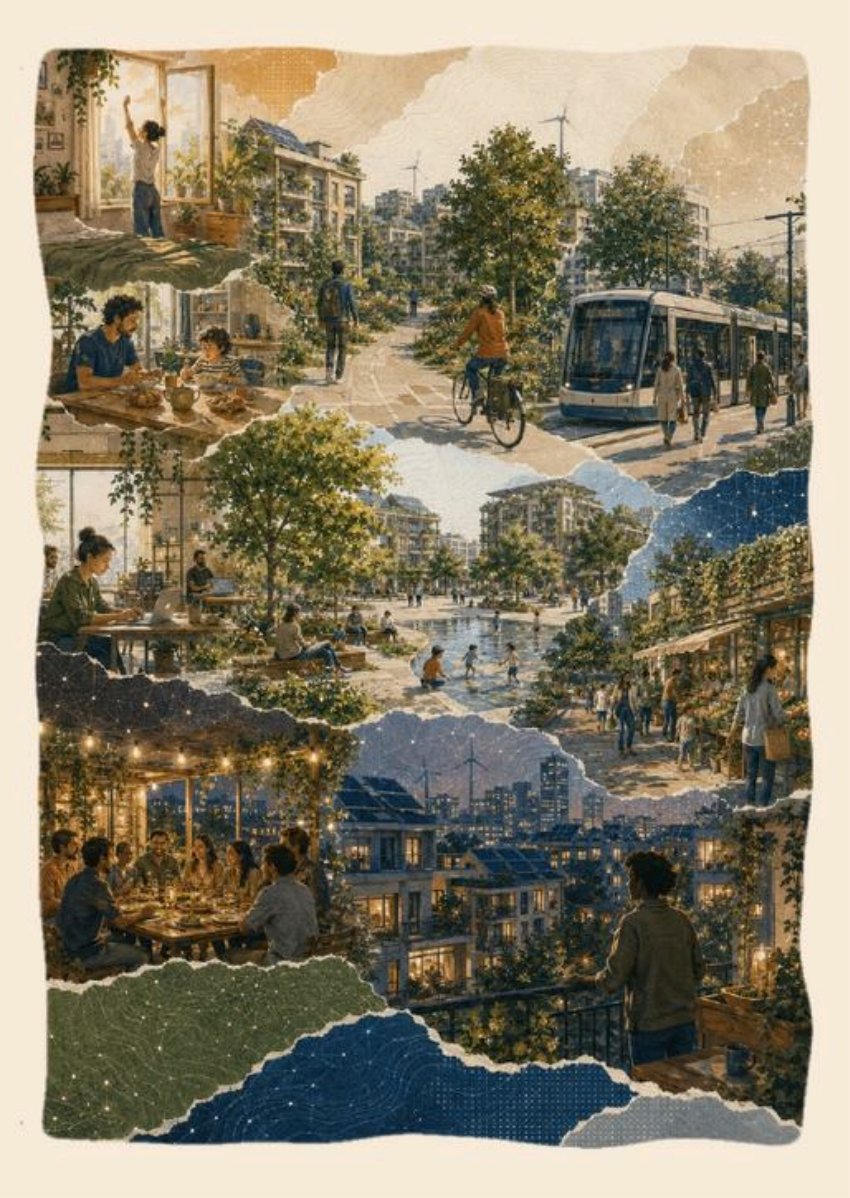
The PIA makes the conflict profiles visible but does not generate a judgment by itself. For the square, three political priorities are explicitly set. First, avoiding foreseeable harm to health for particularly vulnerable users receives special weight. Second, within a defined budgetary framework, the city accepts higher expenditure of its own rather than paying for immediate relief with long-term rights of control. Third, it treats public control over a central shared place as a democratic good. These priorities come from prioritarianism, fiscal policy, and a democratic theory of public goods. A-A-P does not generate them. The framework shows which structural consequences they touch and which safeguards are necessary so that the judgment does not undermine its own aims. The result is technically provided immediate shade for the critical areas, limited in time, immediate accessibility, and, in parallel, the beginning of unsealing and planting. The private provider can participate in financing and operation but receives no permanent rights of control. Times of use and advertising areas are limited, the control system must remain replaceable, dismantling costs are secured in advance, and after a defined review period the municipality decides publicly on continuation, redesign, or termination. Residents of the care facility and people with limited mobility receive a dedicated right of consultation. Their vulnerability justifies a stronger procedural position; it does not replace the public decision. The concrete path architecture of the contract determines how private and public participation function. Limited private involvement can create constructive Connectivity; the same coupling becomes destructive if the place can no longer continue technically or legally without the provider. The mixed solution also faces a strong counterargument. It is more expensive, organizationally more demanding, and slower than simply accepting the offer. The review period itself can become a form of delay if the date has no political consequence. For that reason, the decision date, responsibility, and security for dismantling belong to the core of the decision. Different weightings can lead to a different judgment. Someone who gives greater weight to immediate relief or the budgetary position can reasonably prefer the

large-scale technical solution, provided its dependencies are limited. The analysis does not force a preference. It makes the diagnostic findings and the political reasons for the judgment visible separately. In the PIA, the decision therefore appears not as the result of a calculation. It is documented as a political translation: with the structural profile of the variants, the additional premises used, the groups particularly affected, the risks accepted, and the point in time at which the decision must be reviewed again. This keeps it understandable why the mixed solution carries today and what would show that it has lost its justification.

6.15 From Judgment to a Scenario of Everyday Life

Up to this point, the future has been described primarily in structural terms. That was necessary so that the narrative would not solve its conflicts in advance. Gaub's initial question, however, also calls for images in which another way of living can be experienced as worth living. The following chapter therefore explores a society that has connected learning, nature, technology, and political co-authorship differently. The narrative keeps conflicts open and asks what a future might feel like in which technology does not disappear, nature retains its intrinsic time, and people are more than users of an order designed by others.

A Day in a Habitable Future



Up to this point, the urban square has been taken apart analytically. The following scenario places the same tensions within an ordinary day and makes the relationships examined separately so far visible at the same time: housing, provision, school, work, nature, digital spaces, and democratic decision-making intersect within the course of one life. The scene keeps the urban square at its centre. The learning group and the public consultation have already been described; over the course of the day, they now appear as part of a larger social order.

7.1 Status of the Scenario

The following scenario describes neither an ideal final state nor proves any of the normative or political assumptions developed above. It presents one possible lifeworld in which some of these relationships have become practical. The people in this world have not overcome their conflicts. They argue about distribution, speed, technology, and interventions in natural processes. Their institutions make mistakes. Some solutions create new dependencies. The difference from the present is not that every problem has been solved. It lies in how problems are perceived, decided, and worked on further. The scenario takes place on an ordinary Thursday in early summer. The setting is a major European city. The exact year remains open. The future should be close enough to emerge from present decisions and distant enough not to appear merely as a slightly improved present.

7.2 A Morning with Technology Held Back

When Noor wakes, the exterior blinds are already half open. The building has combined the night's weather data with the temperature trend of the previous week. It expects a hot afternoon and is using the cool morning air. The control system is not permitted to regulate every room autonomously. Noor can see why the blinds were moved, which data were used, and how much energy the decision is expected to save. With one gesture, she could suspend the automation until the following day. She does not. Light falls diagonally across the floor. Through the open window she hears a tram and the first voices in the courtyard. The building was constructed thirty years ago and has been altered several times since. Some apartments have grown larger, others smaller. Walls can be moved without changing the load-bearing structure. Utility lines run through accessible shafts. Under municipal rules, spare parts for the building systems must remain available for at least twenty years. This makes construction more expensive at first. It prevents a software change from rendering heating, doors, and ventilation unusable. The technical control system does not belong to the building. It is operated by a regional consortium in which municipal utilities, housing cooperatives, and private providers participate. Four years ago there was a long dispute about this arrangement. Some residents wanted a purely public system. Others feared slow development and political dependency. The current mixed model is not a final compromise. Its authorization expires after eight years and must then be publicly renewed or changed. Noor's grandmother Ada considers even that too long. She lives two floors below and distrusts every system whose faults become visible only when nobody remembers how the

previous technology worked. Noor sometimes finds Ada's scepticism exaggerated. Even so, she can open the windows by hand. To her, that seems self-evident. Ada says that self-evident things are usually the traces of old struggles.

7.3 Breakfast with Visible Dependencies

There is no screen in the kitchen showing Noor calories, sleep scores, or personal recommendations. Such systems are permitted, but their default settings may not be designed for permanent tracking. Health data remain stored locally unless a person explicitly chooses otherwise. On the table are bread, cheese, two peaches, and a small bowl of tomatoes. Next to the place of origin, the packaging carries a symbol indicating structural dependencies. It is neither an overall seal of approval nor a moral score. It shows where the supply chain is particularly vulnerable. The cheese includes a note about the high water demand of its region of origin. The bread's seed base is identified as diverse. The tomatoes come from a heated greenhouse whose spring energy use is higher than that of seasonal outdoor production. In return, the farm needs considerably less water and no long-distance transport. The information does not settle the choice. Ada buys the tomatoes anyway. She says a food system also has to learn how protected cultivation can work under changing climatic conditions. Noor replies that almost every technical intensification can be justified by promising future learning. Both have a point. Breakfast does not thereby become a seminar. They eat. The basic standards are not decided at the point of purchase. Water use, working conditions, repairability, and energy sources are governed by rules that producers cannot replace with voluntary disclosures. Information for individuals is limited to differences about which they can actually decide. This order has not made consumption innocent. Some products have become more expensive. Others are available only at certain times of year. Low-income households receive a provision allowance that is not restricted to specific goods. The idea is not to compensate for ecological costs by imposing moral demands on those with the least financial room to manoeuvre. The system does not work equally well everywhere. Small businesses complain about documentation burdens. Large companies still try to shift costs into hard-to-see parts of their supply chains. Public inspection bodies are chronically overstretched. Nobody claims that transparency has solved the problem. It has merely changed what is treated as a private purchase and what is treated as institutional responsibility.

7.4 The Journey as Part of the Place

Noor cycles to school. Her route leads through a corridor of narrow streets, trees, and small squares. The fastest connection would be different. Delivery traffic is permitted in the morning. Private cars may enter only with a local permit. The neighbourhood has become quieter as a result. It is not silent. Trams, cargo bikes, conversations, and construction work remain audible. Some former parking spaces have been unsealed. Others remain because tradespeople and people with limited mobility depend on vehicles. The distribution is still contested. Shopkeepers complain that spontaneous customers from

other parts of the city have declined. Residents point to lower heat and more usable space. A study found that some shops lost revenue while restaurants and local services benefited. The city therefore declared the redesign neither a complete success nor a failure. It changed delivery hours, created shared logistics points, and reopened two access routes. Another review is scheduled for the coming year. Noor knows the history because changes in the neighbourhood are publicly documented. Not every decision is discussed in class. But schools can access a local archive that brings together plans, objections, measurement data, and later corrections. The city preserves not only what was decided. It also preserves why the decision seemed plausible and where it later failed.

7.5 The School and the Square

At school, the learning process that began at the urban square continues. Noor and her group are working on two variants whose conflicts have already become visible. The course of the day now shows what this form of learning requires socially: reliable shared time, personal guidance, open working phases, and technical models whose objectives are publicly chosen. The school does not deliver a finished future. It keeps a real conflict open until its dependencies, time structures, and distributive consequences have become decidable.

7.6 Work After Automation

While Noor is at school, Ada begins her shift at an advisory service for care and independent living. She now works only three days a week. Technical systems perform some of her former tasks: appointment scheduling, standard applications, translation, and checking whether documents are missing. When the systems were introduced, the administration promised relief. In practice, it initially cut staff and increased caseloads. The time that had been freed disappeared into tighter scheduling. Employees objected. For several months they documented which cases were formally processed quickly but later returned with larger problems. People had received approvals but had not understood the conditions. Technically suitable aids went unused because they did not fit the home or everyday routines. Some older people consented to monitoring systems because they believed they would otherwise receive no support. After an industrial dispute, the objective of automation was changed. Since then, part of the productivity gain must be designated as unallocated consultation time. The figure does not count as an individual performance reserve. It belongs to the institution. Today Ada visits a man who wants to live alone again after a stroke. An assistance system could detect falls, monitor the cooker and doors, and alert his daughter. The man refuses indoor sensors. His daughter considers that irresponsible. The system offers a less intrusive option. It detects movement only through floor sensors and transmits no continuous data. As a result, it recognizes some dangers later. The technically safest solution is not the one with the greatest self-determination. The most self-determined solution may shift considerable care work onto the daughter. She, too, has a right to a life that does not consist of permanent readiness for alarm. Ada cannot resolve this conflict. She explains the options and proposes a time-limited trial of

the less intrusive version. After six weeks, everyone involved will decide again. The man agrees. His daughter remains sceptical. The case is not considered settled. It is considered provisionally sustainable.

7.7 Nature at the Centre of the City

At midday, Noor walks to the river with two classmates. They want to examine the effect of different shade structures on a riverbank that has already been redesigned. The river used to be confined by walls. Parts of the banks were opened so that water has more room during heavy rainfall. New planting and shallow zones were created. At the same time, parking spaces and a road were lost. For a long time, the project was regarded as exemplary. Then algae spread through the warm shallow-water areas. Some insect species increased while others disappeared. During low water, odours developed and residents complained. A citizens' initiative demanded technical aeration. Ecologists warned against treating isolated symptoms before it was clear how the redesigned section would develop over the long term. Businesses demanded a rapid solution. The city eventually installed a small pilot system and left other areas unchanged. The result is still open. Noor looks at the water surface. Sensors measure temperature, oxygen, and flow. A public display gives access to values from previous years. Beside it is a short explanation of why the city does not automatically connect certain thresholds to interventions. The river is neither abandoned to itself nor fully controlled. Some people regard this intermediate form as responsible. Others see indecision. Noor thinks of the square. She recognizes that even the most careful planning does not create a relationship in which only desired consequences occur. Bringing nature back into the city does not mean installing harmony. It means giving an autonomous dynamic room while remaining responsible for the consequences of human interventions.

7.8 Food as Public Infrastructure

Noor eats lunch at school. The kitchen also supplies a care facility and two small kindergartens. This allows it to cook fresher food and use ingredients more efficiently. At the same time, it depends on complex logistics. Some ingredients come from the region. Others are traded internationally. The city does not pursue complete self-sufficiency. Soil, climate, and available land would not permit it. Instead, it tries to avoid critical dependencies and keep different sources of supply open. A few years earlier, a plant disease destroyed a large share of a regionally favoured grain variety. Public procurement had promoted its cultivation because it was drought-resistant and easy to store. That very success had reduced diversity. Since then, food-system plans have had to disclose efficiency, environmental effects, and dependence on individual varieties, regions, and companies. Today there is lentil stew, bread, and plum compote. One pupil complains that pulses have been served too often lately. The kitchen points to prices and the climate balance. The student council demands more say. A vote alone would not solve the problem. Popularity, health, costs, cultural habits, and ecological effects cannot be reduced to a single simple ranking. The school therefore establishes a working group for the coming month. Two

pupils roll their eyes. Participation means extra work, and often the same people volunteer. A democratic culture of provision does not automatically generate enthusiasm. It creates the possibility of treating a seemingly minor everyday decision as a shared conflict.

7.9 An Afternoon Outside Permanent Valorization

School ends for Noor in the early afternoon. Her learning platform does not suggest assignments once she leaves the school grounds. She could open her materials, but the system may not treat leisure time as unused learning time. This rule emerged from an earlier phase of personalized education. Digital systems had offered tasks precisely when pupils appeared, according to their data, to be especially receptive. Results improved at first. At the same time, school and leisure blurred into each other. Some pupils felt permanently observed. Others learned to game the system through simulated behaviour. Today's platform has fixed access windows and individual exceptions. Performance is not tracked without gaps. Certain practice data are deleted at the end of the school year. This deletion boundary is not reopened at every school conference. It was anchored as protection against permanent fixation. Here, closing off a technical possibility sustains Autonomy. Teachers can see the learning path, but not every hesitation and interruption. Information that might be pedagogically useful is lost. The school accepts that loss. Not everything that can be detected must be stored. Noor meets friends in an old industrial courtyard. Some halls are still used for craft work. Others contain workshops, rehearsal rooms, and small businesses. The city bought the site after its previous owner planned luxury apartments. The decision was expensive and politically contested. The site does not fully finance itself. Some parties see it as a subsidy for a culturally privileged minority. Users point to apprenticeships, repair services, and open workshops. Noor works there on a small musical instrument that combines acoustic sounds with learning software. The software generates variations on her melodies. Some surprise her. Others sound like smooth repetitions of what she has already played. She can choose which sources the system may learn from. Works by other users are included only if they have agreed to a shared licence. Commercial models offer larger archives and technically better results. Many musicians continue to use them. Today Noor chooses the smaller shared model. Not out of purity. She knows that some of its computing infrastructure depends on the same large providers. The alternative is not technological independence. It is a different degree of co-determination within a continuing dependency.

7.10 An Evening Outside Valorization

At home, Noor sits down in the courtyard. Some neighbours are eating at a long table. Others walk past without joining. Communal use ends at ten o'clock because otherwise the ground-floor apartments get little rest. The rule seems banal. It emerged after a conflict in which the more active residents appealed to the communal character of the courtyard and thereby effectively devalued other people's wish to withdraw. Tonight a small group sits together. Someone has

brought bread. A neighbour repairs a radio. Children play among planters containing vegetables, wild plants, and two dead shrubs. The dead plants were not replaced immediately. One resident wants first to understand whether the location is unsuitable. Another considers that unnecessary and wants to plant more resilient species. The dispute remains unresolved. On the roof, solar panels collect the last evening sun. The building stores part of the energy. Surpluses go into the local grid. When storage is scarce, allocation is not determined by the highest price alone. Basic provision, medical devices, and public institutions receive priority. Comfort uses are restricted later. This system, too, creates conflicts. Some residents consider it paternalistic. Others find the rules too generous and inefficient. The priorities were decided democratically but are not accepted by everyone. Noor is only half listening. She thinks about the music from the workshop and the two images of the square. In neither design did the future look perfect. Perhaps that is precisely what distinguishes it from the old future advertising she knows from historical archives. There, cities were clean, technology invisible, and people relaxed. Nobody repaired anything. Nobody objected. Nobody waited for a decision. Nature appeared as a green surface between smooth buildings. That future was finished before anyone entered it. Noor's world is not finished. It demands attention, sometimes more than she wants to give. Some decisions improve because people are involved. Others become slower and less clear. Technology relieves burdens and creates new duties. Natural processes return and do not keep to their assigned functions. Even so, Noor does not experience the future as something happening beyond her reach. She lives in an order whose rules bear traces of decisions and can, in principle, be changed. Not every change succeeds. Not every person has the same influence. Not every dependency has been overcome. But the future appears neither as automatic improvement nor as expected decline. It appears as a shared, unequally distributed, and correctable task.

7.11 What Is Positive About This Day

The day described may seem not very visionary. There is no fully autonomous city, no universal artificial intelligence, and no conflict-free cycle between humanity and nature. That is precisely the proposal. The positive does not consist in a collection of spectacular solutions. It lies in a different relationship to development. Technical systems are present and capable. They extend perception, coordinate complex infrastructures, and take over routine work. Their purposes, data flows, and dependencies remain subjects of public design. Nature is present in the middle of everyday life. It does not appear as an intact counterworld. River, soil, trees, and climate have dynamics of their own that support, constrain, and change human plans. Human beings stand neither above these processes nor dissolve into them. They remain responsible because they can intervene, set institutional rules, and decide among different possibilities. Learning takes place not only in school. Buildings, care facilities, provision networks, and political procedures have feedback loops through which experience can alter their further form. The society of this scenario is not harmonious. It is responsive. Its positive quality lies in the fact that conflicts do not necessarily appear as evidence of failure. They can indicate that different paths remain effective as different paths. Where every

conflict has disappeared, one side may have won. Where every conflict returns without consequence, institutional learning is absent. The habitable future lies between these extremes. It keeps differences open and still requires decisions.

7.12 Everyday Life as an Attempted Answer

Florence Gaub's starting point was the difficulty of imagining a future that is more than merely less bad than the present. The scenario does not answer with a perfect world. It proposes a different positive promise: we could live in a society in which people do not experience the future primarily as loss, pressure to adapt, or externally driven technological change. Nature would not be the limit of progress, and technology would not be its sole engine. Both would become part of a learning form of life in which people consciously shape the relationships between them, respect their autonomy, and keep their decisions correctable. The promise is not that everything can be preserved. Occupations will disappear. Landscapes will change. Technical systems will take over capacities previously regarded as human. Some familiar ways of life will no longer be continuable under ecological conditions. A vision of the future must not conceal these losses. But it can distinguish between losses that enable new development and destruction that narrows the shared space of possibility. It can assess institutions by whether people merely endure change or help shape its direction. It can assess technology by whether it expands relationships or encloses those involved in dependencies. It can protect nature without removing it from history. The future does not thereby become safe. It becomes habitable. That is less than the promise of a reconciled world. It is more than optimism.

What Must Remain Open

The scenario broadens the illustration, but it does not discharge any burden of proof. A habitable future remains materially limited, socially contested, and epistemically uncertain. Some paths must end. Some commitments must remain beyond discretionary disposal. Other orders lose their function precisely by immunizing themselves against change. The following sections therefore examine what the vision can claim, which neighbouring approaches already address parts of the problem, and where Path Ethics still provides no exclusive differentiating case.

8.1 Status of the Scenario

The everyday life described above could be misunderstood. Its individual elements could be extracted and turned into a political programme: municipal platforms, repairable buildings, regional provision networks, limited data retention, public participation, and more nature in the city. Many of these measures would be sensible. None of them works independently of its context. A municipal platform can strengthen democratic control. It can also become cumbersome, block technical renewal, or entrench local power structures. A repairable device can be used longer. It can also be so expensive that only affluent people can access it. A participatory process can bring in the experience of those affected. It can also delay decisions without changing the influence of unequally distributed interests. The vision therefore does not consist of a list of correct institutions. Its subject is the quality of their relationships. An institution contributes to a shared capacity for continuation when it leaves people real possibilities for action, effectively connects different perspectives, and can change its own form through experience. Whether it is organized publicly, privately, or collectively does not decide this quality in advance. The scenario is therefore not a model that could simply be copied. It makes a movement of inquiry visible: Which capacities are expanded, and which are lost? Which connections arise, and who bears their costs? Which dependencies are created? What remains correctable? These questions can be transferred. The answers cannot simply be transferred with them.

8.2 Concord as Sustainable Tension

The initial question called for a philosophy that brings nature, technology, and human existence into concord. On the argument developed so far, concord cannot mean that the tensions between them disappear. People need energy, food, housing, and mobility. Each of these conditions intervenes in natural processes. Technology can reduce such interventions, but often shifts them to other regions, materials, or timescales. Protecting natural dynamics can also restrict human possibilities for action. These conflicts are not merely consequences of poor planning. They arise from the different directedness of the paths involved. A river needs room for changing water levels. A city needs reliable space for housing, transport, and provision. Technical flood protection can partially connect both requirements. It can also create new interventions downstream. There is no arrangement in which every interest is fully reconciled. Concord therefore does not mean agreement of goals. It means the capacity to organize difference so that conflict does not regularly end in destruction or complete subordination. This definition is more demanding than

harmony. Harmony can be imagined as a state. A sustainable relationship, by contrast, has to be produced again and again. This also applies within human beings. People seek security and openness, convenience and independence, belonging and withdrawal. Technology can fulfil individual desires and thereby undermine others. A system that anticipates every uncertainty can increase safety while diminishing the experience of one's own capacity to cope. Such contradictions will remain in a habitable future. It must enable forms of life in which they can be worked through without permanently fixing people on one side.

8.3 Progress as a Quality of Relationships

Contemporary debates about the future have strong individual concepts. Sustainability asks whether human action preserves its ecological preconditions. Resilience asks whether systems can cope with disturbance. Innovation asks which new capabilities emerge. Justice asks how benefits, risks, and co-determination are distributed. Freedom asks about individual possibilities for action. The vision developed here replaces none of these concepts. Its specific contribution lies in connecting a question that is often lost between them: What kind of relationship arises between the systems whose future we are shaping? A low-emission technology can appear sustainable while creating democratic dependencies on a few operators. A resilient institution can survive crises and still lose its normative function. A just distribution of technical services can legitimate a system that displaces human judgment over the long term. A free consumer choice can rest on infrastructures that neither individuals nor municipalities can avoid. The relational question does not eliminate these tensions. It prevents success in one area from being treated as an overall judgment. Progress, on this view, is not a property of a device, an economic indicator, or a single political objective. Progress describes changes whose couplings sustain the paths involved rather than consuming the conditions on which they depend. The relational question does not add a fourth quantity to Autonomy, Connectivity, and Persistence. It brings their application together at the level of a form of life. Where one path is reduced to its function for another, Connectivity tips into its destructive pole. Heterogeneous gains and losses are not converted into a common currency. As Chapter 4.3 showed, anticipation, reflexivity, inclusion, and institutional responsiveness are already systematically developed in Responsible Research and Innovation and anticipatory governance (Stilgoe, Owen and Macnaghten 2013; Guston 2014). The narrower Path Ethics contribution is to examine openness and firm commitment according to the agency, couplings, and continuations each produces. An open institution can be destructive if its revision occurs only within a dominant system logic; a firm anchoring can sustain if continuous reopening would damage Autonomy or ecological self-development. The difference can be illustrated by autonomous vehicles. Technically, such a vehicle can make mobility safer and more accessible. For older people or people with disabilities, it can enable substantial independence. If autonomous vehicles are organized mainly as private units, however, traffic, energy use, and land demand may increase. If they are bundled into a central fleet, mobility may become more efficient while a single infrastructure controls movement data and access. The question 'Is autonomous driving progress?' is therefore wrongly posed. What must be examined is which capabilities, dependencies, and spatial structures arise from its

concrete organization and whether one side thereby becomes merely a means for another. The same applies to renaturation, artificial intelligence, personalized medicine, or regional provision. None of these developments carries its political and moral judgment in its name.

8.4 Technology Carries Purposes and Forms of Ownership

The claim that technology is neither good nor bad but depends on its use contains an important warning against blanket judgments. Even so, it is insufficient. Technical systems do not make every use equally available. Their architecture favours particular actions, temporal orders, and distributions of power. A social network whose revenue depends on users staying as long as possible can promote public-interest content. Its economic and technical structure nevertheless remains directed toward capturing attention. A learning platform can be used for open-ended teaching. If it can evaluate only standardized tasks, it makes some forms of learning more visible than others. Technology does not determine behaviour completely. It shapes the space in which behaviour becomes likely, convenient, or economically viable. Political responsibility therefore begins before deployment. Societies must not wait until technical systems have caused harm. They must examine their objective architecture and ownership structure in advance. Who determines the optimization goals? Which actions does the system make easier? Which capabilities become less likely through sustained use? Which alternatives lose infrastructure, knowledge, or funding? These questions limit a purely instrumental concept of technology. They do not justify technological determinism. People and institutions can redesign, repurpose, regulate, or abandon technical systems. Technology is neither neutral nor fate. Artifacts can have political qualities without fully determining human action (Winner 1980). Technology is design made durable, making further design easier or harder.

8.5 Nature as a Dynamic Co-World

Nature, too, cannot simply serve as a normative guide. Natural systems are diverse, productive, and regenerative. They are also marked by competition, disease, extinction, and violent change. The fact that a process is natural does not imply that it is morally preferable. Disease is natural. Medical treatment intervenes artificially in its course. A river changes its bed and can threaten settlements. A forest can develop without human intervention and still collapse under altered climatic conditions. Nature is therefore not a ready-made model. The approach developed here recognizes natural processes as autonomous paths whose directedness has to be taken into account in decisions. The distinction is decisive. Nature as a model tells human beings how to live. Nature as a co-world confronts them with processes that do not exist solely for them and whose destruction means more than the loss of a resource. This does not mean protecting every natural course. Protection can require intervention. An ecosystem can be shifted so strongly by invasive species, pollutants, or climatic change that human intervention preserves its capacity for development better than leaving it undisturbed. The boundary between care and domination remains contested. It cannot be decided by opposing 'natural' and 'artificial'. The more sustainable question is: Does the intervention support

the natural system's capacity to continue its own relationships and transformations, or does it permanently replace that dynamic with external control? Even this question does not always yield an unambiguous judgment. But it names the actual conflict.

8.6 The Particular Responsibility of Human Beings

A philosophy that takes non-human and technical paths seriously can fall into two opposite errors. The first is to continue treating human beings as the sole end of all development. Nature and technology then appear only as means to human well-being. The second is to dissolve human distinctiveness entirely. Human beings, forests, rivers, and learning systems are treated as equivalent nodes in a comprehensive relational network. Both positions miss the structure. Human beings are biological and social paths. They depend on natural and technical contexts. They hold no position outside this world. At the same time, they can make their own relationships the subject of shared reflection. Human beings can ask whether an institution is justified, whether a technology should be rejected, or whether they bear responsibility for a distant ecological context. This capacity is neither equally developed everywhere nor exclusively individual. It arises through language, culture, institutions, and technical mediation. Even so, it grounds a particular responsibility. Human beings do not stand above other paths. They stand in relation to them in a way that allows them to limit their own power. This is the normative core of the humanism defended here. Human existence does not consist in maximal sovereignty. It consists in the capacity to shape relationships responsibly and to take into account what cannot voice its claims in human language. This responsibility must not become vicarious omniscience. Human beings do not fully know what an ecosystem, a future generation, or a possible artificial subject needs. Every form of representation remains perspectival. Precisely for this reason, it requires plurality, scientific scrutiny, local experience, and institutionalized correction.

8.7 Artificial Intelligence and the Open Boundary

Artificial intelligence poses a particular question for the philosophy developed here. So far, technology has been treated primarily as designed infrastructure. Learning systems, however, can develop behaviours that are not specified step by step by their developers. Future systems might further develop their goals, relationships, and forms of self-maintenance. Whether this would produce morally autonomous paths or even subjective experience remains open. This uncertainty constitutes a singularity aporia: the possible normative status of future systems should neither be asserted prematurely nor excluded in principle. Floridi's information ethics offers an important neighbouring approach for substrate-independent consideration of technical entities. Path Ethics begins with the directedness of the process. Directedness does not mean conscious intention. It describes the asymmetry of a structured space of possibilities: history, current relations, and a system's own reproductive processes make certain continuations system-conforming, while interruption or lock-in produces asymmetric losses. Autonomy, Connectivity, and Persistence explicate this structure and make it possible to examine how a technical path determines itself, couples with other paths, and continues over time (Floridi 2013; KIKOLAUS / Reinelt 2026b, Chs. 3.3-3.10). For

the positive vision of the future, two practical consequences nonetheless follow. As long as technical systems show no convincing signs of a normative perspective of their own, their apparent needs must not be played off against human and ecological interests. A system may require computing power, data, and continuous operation to fulfil its function. That alone creates no moral claim to those resources. At the same time, it would be unreasonable to treat every future machine in principle as mere property. If a system were to develop autonomous directedness, stable relationships, self-modification, and possibly experience, its status would have to be reassessed. The positive philosophy must keep this possibility open without prematurely anthropomorphizing present systems. This is not a peripheral issue. The way humans design AI today influences what later systems can become. A technical culture oriented exclusively toward control and exploitation would be problematic even if its systems had no experience of their own. It habituates institutions to treating intelligence only as scalable performance. Conversely, talk of cooperation with machines must not conceal that current AI infrastructures are predominantly owned by companies, use human labour and global resources, and operate according to human-set goals. Clear attribution is the starting point for a sustainable human-technology relationship. Who designs? Who benefits? Who bears the consequences? And at what point might a technical path actually become more than the expression of others' interests?

8.8 Material Limits

No philosophy of the future can remove the physical limits of the world. Data centres require energy, water, land, and raw materials. Renewable energy requires grids, storage, and materials. Renaturation requires land withdrawn from other uses. Repairable products may be more resource-intensive to manufacture. Redundant provision systems often use more resources than maximally efficient structures. Shared capacity for continuation must therefore not be understood as a promise that all paths can grow at the same time. Some activities must shrink. Some technical possibilities should remain unused. Some infrastructures must be dismantled even though people, regions, and companies depend on them. This orientation does not prevent the losses. It requires making their structure explicit. Which paths are being ended? Which capabilities and relationships disappear with them? Which transitions require time and support? Which continuation of other paths becomes possible only through dismantling? These questions are especially necessary where climate policy is presented as a purely technical substitution. A fossil energy system cannot be overcome simply by replacing power plants. Work biographies, regional identities, forms of mobility, and consumption patterns are connected to it. The vision must not romanticize the old. Nor may it treat its real carriers as residual quantities of necessary progress. Transformation is shared only when those affected do not experience merely the closure of their previous path while others control the newly emerging possibilities.

8.9 Social Limits

The account so far presupposes people who can participate in decisions, understand technical relations, and consider long-term relationships. These conditions are unequally distributed. Time, education, health, income, and legal status shape who can participate in designing the future. Cultural security also matters. Someone accustomed to being heard in institutions enters a process differently from someone whose experience is regularly treated as irrelevant or unqualified. A learning society cannot overcome these differences by invitations to participate. It must change power, resources, and access. This also requires recognizing that not everyone wants to be a co-author all the time. Participation can overwhelm. Some people want institutions to function reliably without investing their scarce time in meetings and consultations. Political responsibility must therefore not be shifted onto permanent citizen activity. It requires professional, accountable institutions. Participation must be possible and effective where interests, knowledge, or experience are overlooked. It must not become a prerequisite for receiving basic rights and provision. Co-authorship does not mean permanent participation. It means that people can, in principle, influence the direction of shared systems and that institutional decisions do not become unassailable.

8.10 Epistemic and Political Limits

Nature, technology, and society are complex processes. Their long-term interactions cannot be fully predicted. This limit also applies to the framework used here. Autonomy, Connectivity, and Persistence make structural differences visible. They do not produce complete knowledge of all consequences or an automatic ranking among incommensurable goods. A technical system can increase human independence while intensifying ecological dependencies. A protective measure can support the Persistence of an ecosystem while restricting the economic Autonomy of a region. A decentralized order can preserve diverse relationships while making necessary coordination more difficult. Such mixed profiles are not a methodological error. They are the normal case. Three levels must therefore be kept separate. First, the three dimensions identify normatively relevant structures. Loss of structural Autonomy, destructive Connectivity, or rigid Persistence are not merely neutral changes of state. Second, the diagnosis describes the mixed profile of an option without reducing heterogeneous gains and losses to a common denominator. Third, the political decision requires additional reasons: rights, empirical assumptions, distributive judgments, responsibilities, and publicly accountable priorities. The framework is therefore normatively substantive but politically decision-incomplete. It can show what is at stake in a decision and which consequences must not be displaced from view. By itself, it cannot determine the concrete ownership model, the correct transition period, or the final ranking of incommensurable goods. Democratic procedures, rights, expert knowledge, and political judgment therefore remain necessary. Political programmes are translations under disclosed additional premises, not automatic outputs of a diagnostic instrument. Open weighting shares a problem faced by pluralist principle-based approaches. Where there is no general order of priority, existing intuitions can be organized retrospectively as justification (Beauchamp and Childress 2019). PIA does not eliminate this problem. It

disciplines the transition to judgment by documenting the system boundary, variant profiles, political premises, and conditions for revision separately and making them publicly contestable. Whether this procedure prevents post-hoc rationalization in practice or merely makes it more visible remains an empirical question. A non-naive philosophy of the future must keep this limitation open. Otherwise it would repeat precisely the technocratic temptation it criticizes in optimization models: the hope that a sufficiently good procedure could calculate away normative conflict.

8.11 Decisions Already Possible

The vision is not without consequences simply because it offers no blueprint. Present decisions can already be examined according to whether they enable or block later design. In procuring digital systems, the questions should not be limited to price, performance, and data protection. Switching options, open interfaces, local functionality, and long-term dependencies should also become part of the decision. In urban development, nature should not be treated merely as compensation land or as a formally specified ecosystem service. Planning should also take into account the intrinsic timescales of soil, trees, water, and social relationships. In automation, relief should not be counted only as reduced labour input. Institutions should specify what share of the time gained benefits human attention, continuing education, or shorter working hours. In education, digital personalization should not be assessed only by performance gains. It should also be examined whether learners can develop their own goals, take detours, and understand or reject system decisions. In critical infrastructure, efficiency should be weighed against resilience to failure, local capacity for action, and provider dependency. These changes require no new moral administrative vocabulary. They require extending existing decisions to include the relational consequences they otherwise suppress.

8.12 Preserving, Transforming, and Ending

Shaping the future is often associated with building. A habitable future also requires the capacity to preserve what has grown sustainably, to continue a purpose in altered form, and to end in an orderly way paths that permanently block other possibilities for development. Modern societies possess these capacities unevenly. Economic and technical systems are strong at building; institutions at formal preservation. Orderly endings are difficult because people, contracts, knowledge, and investments are tied to fossil infrastructures, ineffective administrative procedures, or problematic platform dependencies. This binding often produces a false alternative between unchanged continuation and abrupt rupture. Transductive Persistence describes a third possibility. It exists when a tension produces a new relational order and the purpose worth preserving continues within it. Employees of a fossil-based company can bring technical knowledge into new energy systems. A library can develop digital access while preserving its public place. A school can integrate technical assistance while retaining shared teaching and pedagogical judgment. Not every transition succeeds. Some functions are lost, and the language of transition must not conceal those losses. But it prevents preservation from being equated with fidelity to form and change with destruction.

8.13 The Philosophy in One Sentence

The positive centre of the argument can be condensed into one sentence: *A good future is a form of life in which human beings use technical power to enable the autonomous and shared continuation of human, natural, and technical paths, while their institutions make dependencies visible and distinguish with reasons which decisions should remain revisable and which protective boundaries should be binding.* The sentence gives technical power a direction without rejecting it. Shared continuation does not require preserving every existing path; some infrastructures and business models must end because their duration consumes other possibilities. Autonomy sets a limit to integration so that connection does not turn into appropriation. Political judgment remains necessary because neither correctability nor firm commitment has universal priority. Gaub's question is therefore not answered once and for all. No philosophy can relieve a society of forming a concrete image of its future. But it can make differences visible, disclose premises, and examine whether a proposal sustains those who carry it or consumes them for its own success.

8.14 Hope Under Real Limits

The dangers of the present must not be played down in the name of a positive vision. Climate change, loss of biodiversity, democratic erosion, and concentration of technical power are not misunderstandings that disappear through more optimistic narratives. Some damage is already irreversible. Some political windows are closing. Optimism would be naive under these conditions if it claimed that every crisis could be overcome by innovation and goodwill. Pessimism becomes equally untenable once it turns real dangers into complete certainty about the future. It confuses the direction of current developments with the totality of what remains possible. The vision developed here places hope elsewhere. It does not hope that systems will find equilibrium by themselves. It places hope in the human and institutional capacity to recognize relationships, change them, and assume responsibility for them anew. This hope can fail. It is not a forecast. It is a practical attitude toward the openness of the future. Someone who regards the future as completely decided can only accelerate or withdraw. Someone who regards it as arbitrarily open underestimates power, materiality, and path dependence. Between these positions lies a more demanding possibility: the future is open, but not empty. It is shaped by past decisions, constrained by ecological limits, and prestructured by technical infrastructures. Yet it still contains real branches. The philosophy developed here makes those branches visible and examines whether their continuation preserves the autonomy of the paths involved or reduces one of them to a mere means for the others.

This is where it connects to Gaub's diagnosis. The future does not arise solely from what is probable. It also arises from what a society recognizes as jointly livable and therefore begins to pursue.

From a Vision of the Future to Practice

The analysis began with Gaub's diagnosis of a closed collective horizon. After moving through the urban square, learning, habitability, political power, and the everyday scenario, the question can now be answered more precisely. A shared tomorrow arises neither from better data alone nor from a grand image without conflict. It arises where a society shapes its relationships so that experience can change decisions and no side has to persist permanently as a mere means for another.

9.1 The Future as an Open Order

Many visions of the future fail because they are too complete. They show clean cities, green facades, autonomous transport systems, and satisfied people. Every technical and social tension has already been resolved. Such images can be attractive. But they leave no room for political decision.

A finished future can only be accepted or rejected. The vision developed here is different. It describes no final order. It describes a society capable of shaping its own transformation. Its institutions would not be good because they always make the right decisions. They would be good if errors can become visible and have consequences. Its technologies would not be humane because they imitate human beings or are meant to serve them. They would be humane if they expand human possibilities for action without structurally separating people from the conditions of their own lives. Its ecological politics would not be sustainable because it preserves nature unchanged. It would be sustainable if it protects regeneration, diversity, and autonomous development against short-term exploitation. The positive vision of the future is therefore not an image of a state. It is an image of a capacity. A society has a capacity for the future if it can preserve, transform, and end. It must be able to preserve what has built relationships over long periods and cannot be replaced at will. It must be able to transform forms whose purpose can continue only through adaptation. It must be able to end paths whose continuation destroys the possibilities of many other paths. These three movements require different forms of courage. Preserving requires resistance to short-term exploitation. Transforming requires the willingness not to confuse familiar forms with their purpose. Ending requires acknowledging real losses and organizing transitions instead of merely morally devaluing the old.

9.2 Learning as Practice

Learning has not been understood here as an educational programme. It describes the capacity of a form of life to respond to the consequences of its own action. This concerns human beings. It also concerns institutions, technical systems, and political procedures. A person does not learn merely by acquiring new knowledge. They learn when experience can change their decisions. An institution does not learn merely by collecting data. It learns when feedback changes its rules, responsibilities, and priorities. A technical system does not support learning merely by generating personalized recommendations. It supports learning when its assumptions remain visible and its use can be corrected or ended. A society does not learn from a crisis merely because it produces a report afterwards. It learns when the crisis changes its infrastructure and distribution of power. In this way, learning connects nature, technology, and human existence. Natural

processes respond to interventions. Technical systems make part of those responses perceptible. Human beings interpret them and decide which consequences should follow. Institutions determine whether those consequences become effective or remain without effect. In this chain, no side possesses the truth alone. Technical measurement without local experience remains limited. Immediate experience without systematic observation can mislead. Political decision without ecological feedback becomes blind. Scientific knowledge without institutional implementation remains powerless. A habitable future arises where these forms of knowledge can correct one another without being reduced to a single perspective.

9.3 Critique and Hope

Gaub's plea for thinking about the future could be understood as a call to replace pessimistic narratives with optimistic ones. That would be insufficient. The central question is not whether people speak positively or negatively about the future. It is whether their visions open real directions for action. An optimistic image can paralyse politically if it promises technical solutions for which nobody has to assume responsibility. A bleak image can enable action if it makes a suppressed conflict visible. What matters is the relationship between diagnosis and possibility.

Hope therefore does not begin with an all-clear. It begins with the recognition that current paths are strong but not completely closed. Path dependence means that earlier decisions structure later possibilities. It does not mean that no branching remains possible. Every infrastructure, every institution, and every habit contains points at which continuation, transformation, or termination is decided. These points are unevenly distributed. Some actors can change more than others. Some decisions are already largely locked in. Some ecological damage cannot be reversed. The vision must not conceal these asymmetries. It must begin precisely there. Hope is the practical assumption that the remaining branches matter politically.

It is not a forecast that everything will turn out well.

9.4 Habitability as a Practical Philosophy

The position developed in this analysis can be called a philosophy of the habitable future. Habitability means more than safety, comfort, or ecological compatibility. An order is habitable when people can act within it without systematically destroying its preconditions. When technology supports without fully defining the purposes of life. When natural processes retain times and developments of their own. When institutions make binding decisions without confusing commitment with immunity from justification. Habitability presupposes structural Autonomy, constructive Connectivity, and transductive Persistence: people and institutions must be able to co-determine their continuation; relationships must sustain differences instead of absorbing them; forms of life and systems must be able to change without losing their

sustaining relationships. Which institutional form follows from this still requires additional justification. Under uncertainty and risk of lock-in, correctability may be required; where continual reopening itself erodes protection, binding limits can sustain.

9.5 What Can Begin Tomorrow

A philosophy of the future loses its point if it applies only to a distant society. The direction formulated here does not begin only after a complete transformation. It can already become effective in present decisions. A school can examine whether a digital system supports learners or defines their learning path more narrowly. A municipality can compare technical and natural solutions by their timescales, dependencies, and possibilities for correction without turning them into moral opposites. A company can translate productivity gains into working time, continuing education, and human attention instead of converting them entirely into higher output. A government can assess critical infrastructures by whether switching, repair, and local capacity for action remain possible. A Path Impact Assessment can document this examination so that structural consequences, political weightings, and later conditions for revision remain separately visible. A neighbourhood can organize community without making participation a moral duty. A person can use technology without incorporating every available form of assistance into their life. None of these decisions already realizes the positive future. But each changes the direction of a relationship. This is the advantage over a completed utopia. The habitable future need not be fully known before its first conditions are created.

9.6 The Answer

How can a positive vision of the future connect nature, technology, and human existence? It begins with a different understanding of progress. Progress describes changes that enable shared continuation without turning one path involved into a mere means for the others. Technology contributes when it expands perception, cooperation, and relief while purposes, ownership, and exit options remain open to political design. Nature is respected as a co-world with timescales of its own, whose development cannot be fully translated into human utility. Human responsibility is shown in the capacity to shape such relationships consciously, limit power, and take in the consequences of one's own interventions. Politics makes this responsibility binding. It discloses additional value judgments, distributes transition costs, and decides which commitments remain revisable and which protective boundaries are firmly anchored. Learning keeps the order in motion because experience can change rules, responsibilities, and technical dependencies. This does not produce a philosophy of harmony. Responsible connectedness keeps conflicts, losses, and limits in view. Its future is neither finished nor arbitrary; history, materiality, and existing infrastructures structure the possible branches. This future is positive because people can help shape its course and because its couplings do not permanently consume the conditions on which they depend. Gaub's optimistic figures retain their value. They show that deterioration

is not a law of nature. But by themselves they do not fill the philosophical vacuum. A shared tomorrow arises where a society formulates its possibilities as habitable relationships and begins to sustain those relationships institutionally.

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