

# Enlightenment 2.0: Toward Responsible Science in the Anthropocene



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**Abstract** The following essay reassesses ethical aspects of the relationship between science and society. What we need in the situation of climate change are new models of transdisciplinary, dialogic, public, and transformative science. The centerpiece of this model is an integral assignment of knowledge and responsibility. They understand ethical questions and social transformation as integral components of scientific research and rationality. This means nothing less than a new phase of enlightenment in favor of the idea of embedded knowledge and a different understanding of progress, freedom, and welfare. The program of such an “Enlightenment 2.0” for a full and ecologically fragile world is not an expansion of power, but rather a taming of power in the interest of global and intergenerational fairness. The challenges of climate change and the environmental crisis require an intelligent self-limitation as well as a reorientation of innovation dynamic geared toward sustainability and resilience. The danger of manipulation of public opinion in the digital age demands science as an active effort to provide society with reliable information and to maintain standards of rationality. In the face of massive injustice and public contempt for reason, science cannot take an ethically neutral and uninvolved position. Responsible science is a crucial part of enlightenment in the Anthropocene.

**Keywords** The end of the modern age · Anonymization of power · Transformation of concepts for progress · Enlightenment for a full world · Transformative science · Concepts of rationality · Cultural revolution · Role of religions

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## 1 The End of Modern Times

The philosopher of religion, Romano Guardini (1885–1968), divides history into three basic epochs: In Antiquity, he argues, it was a matter of finding the image of the well-made man and the noble work as an expression of the universe's inherent harmony. The concept of classical humanism was developed. The Middle Ages experienced the relationship with the supernatural God in a special way, which served as a source for its power of an upswing, a way of life that was, for example, materialized in its Gothic cathedrals. It wanted to order its existence as granted by a superordinate authority. The Modern Age experienced hitherto-unknown proximity between the mind and physical reality through its technical access to the world. The determining force of this epoch was gaining power over nature and taking possession of things (cf. Guardini [8: 97f, 147, 30–46]). The Modern Age had essentially ended, still overlaid by further expansion of power, but striving for an expansion of power was no longer meaningful [8: 47–79]. The use of the nuclear bomb in Hiroshima is decisive for this new awareness of the ambivalence of power.

For the coming epoch, the last thing is no longer about increasing power, [...] but about taking it. The central point of the epoch will be the task of classifying power in such a way that man can exist in its use as man. [8: 98]<sup>1</sup>

Guardini's analysis of the end of the Modern Age, published in 1951, is confirmed by the environmental and climate crisis of the present in a way that was hardly foreseeable at the time. Some parts of the world society are already drifting toward their ecological and socio-cultural tipping points. We must prepare ourselves to cope with phenomena of collapse and disruptive processes of change [2, 17: 21–60]. Geology most dramatically summarizes the diagnosis of the situation together with the thesis that we have entered a new epoch of the Earth's history: the Anthropocene. According to this concept, the relatively stable state of the ecological system of the Holocene, in which *homo sapiens* has developed over the last 11,500 years, has come to its end [9, 12]. What the new dynamics of the Earth system will look like, we do not know. We only know that we are transitioning toward other patterns of energy and material flows on Earth that will severely change the human habitats on this planet. The diagnosis of the Anthropocene radicalizes Guardini's thesis of the end of the Modern Age: a radical reorientation of its guiding values is necessary so that it does not completely lead to destructive dynamics.

Therefore, the *leitmotif* of the expansion of power over nature that has been so successful in the past 500 years can no longer be a meaningful maxim. The expansive Modern Age has come to its end. It destroys its own foundations of life. The wounded Earth strikes back and hurts the human being. For he is dependent on the habitats he destroys. Through the socialization of environmental problems, ecological problems become social problems at the same time. There is not one environmental crisis alongside a social crisis, but only one eco-social crisis, as pope Francis notes in his Encyclical Letter *Laudato si* [20: FN 139].

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<sup>1</sup> All citations translated by the author.

Our present, however, is still largely shaped by the normative guiding ideas of expansive modernity. It is determined by the idea of universal plannability. Material and energy in nature, but also man himself, become the object of planning. They are estimated and managed with statistical methods. Serious reasons advise on this kind of planning: a political necessity as well as an increase of economic goods and requirements of correct distribution [8: 143]. “If nature is progressively dominated by man and his work, then man himself is also dominated by the other man, who classifies him” [8: 133]. Like human capital, people seem to be arbitrarily replaceable and ready for the grasp of power in economy and administration, whereby cultural differences are leveled out—not least by standardized forms of rationalization and functionality. Science as a rational grasp of the real, and technology as domination made possible by science are in the foreground and give the present epoch its character (cf. Guardini [8: 131]).

According to Guardini’s diagnosis of time, the expansion of power is about to tip over into its opposite: instead of man dominating power, the inherent dynamics of his technological products, and the anonymous force of the complex system logics of the social sub-areas increasingly determine him. The externalization of power has gained a momentum of its own, through which man ceases to be a subject in history in a comprehensive sense, but is more often a mere transit point for processes that lie beyond his reach (cf. Guardini [8: 167]).

## 2 Regaining Power Over Power

While modern times were determined by the attitude toward life of a never-measurable being and inexhaustible reserves, the feeling that our world is limited and endangered is gaining the upper hand in the present [2, 12, 16, 29, 32]. It seems obvious that climate and environmental crisis in the Anthropocene can only be solved with a profound change in the ideas of progress and prosperity. A comprehensive and rapid change in values and culture has become a prerequisite for the necessary transformation. The program of the future is not expansion, but rather a taming of power in the interest of global and intergenerational fairness. It is about a changed mindset of responsibility and mindfulness. Characteristic of this new epoch is a consciousness of wholeness that does not look at things and processes as isolated entities but considers their interactions as decisive (cf. Guardini [8: 156f, see also the concept of holistic ecology in the Encyclical Letter *Laudato si* No. 137–162; [2]). One can paraphrase this concept of taming power as “Enlightenment 2.0” [32: 181]. The goal is a raised awareness of the ecological and cultural embedding, context, and conditions of progress and rationality.

Guardini’s analysis of the end of the modern era is linked to the hope of a new type of human being in the making. One who does not fall prey to the powers that have been set free, but is able to order them, reclaims power over his own power and puts it into service for the human being [8: 168]. The meaning of the coming culture is not an increase in welfare, but domination in a radical and original sense. Not power

with a guilty conscience hidden behind the goals of security, utility, welfare, and consumption, anonymized and shifted to these goals, but real rule in the sense of the cultural self-determination of man from human values. A prerequisite for this is to develop a sense of asceticism. No greatness is based on overcoming and renunciation. It is necessary to rediscover the liberating power of overcoming oneself [8: 172]. A genuine metanoia is required: man cannot withdraw into any laws, neither of nature nor history, but must himself stand up, and therein lies the chance of the future. It is about an attitude of commitment to justice and the will to see the way things are and to do what is right from there [8: 163]. One can also describe this attitude as concern and willingness to take responsibility.

At the heart of the search for a sustainable ethical compass—in the face of current upheavals—lies the relationship with nature. It requires a critical reflection of a spreading naturalism that makes the values of nature absolute and idealizes the equilibrium supposedly found in nature; for example, as the basis of a shortened understanding of sustainability [28: 216–372]. Evolution is an order that constantly develops through conflict and states of non-equilibrium. Justice cannot derive from it. This also applies to the category of sustainability that explicitly understands itself as global and intergenerational justice. However, it is often exaggerated as a secularized promise of salvation. The longing for harmony between ecological, economic, and social goals rhetorically softens the conflictual nature of an earnest sustainability policy.

Recovery of power over power requires quite substantially a sober analysis of the material and power conflicts on the path to achieving more sustainability. It needs transformation research as a search for differentiated knowledge of how change happens in complex systems and how it can be controlled, influenced, and accelerated. The time window for the necessary change *by design*, instead of change *by disaster*, will close very soon [2, 17, 25]. Against this background, Enlightenment 2.0 also includes the encouragement to resist the blind momentum of social subsystems and massive power interests that are blocking the necessary change. It understands the freedom of science as an obligation to respond and to a power of judgment independent of the respective power interests.

### 3 Enlightenment for a Full World

The sciences undoubtedly play a key role in the necessary intellectual and cultural reorientation. They are the driving force behind the essential transformation in a knowledge society. At the same time, a considerable part of the current scientists research and teach precisely along with the paradigms that drive societies further into the aimless “higher, faster, further” of expansive modernity. They themselves must practice the change in thought and action they wish others to make. The phenomenon of the “raging standstill” can often be observed in the universities themselves: With a lot of stress under the maxim of constant productive *output* in examinations and

publications, there is little time to think thoroughly about leisure and to look beyond the axioms and paradigms of one's own subject. That is exactly what it would take.

The discourse on sustainability leads to a philosophical and scientific theoretical reflection on the epistemic and ethical–political foundations of the project of modernity, which have become fragile and need further development. It will be important not to abandon human rights universalism, but at the same time, to become more sensitive to cultural contexts and ecological preconditions that are often decisive for its specific perception. Equally important is a critical revision of the notions of rationality, space and time, freedom, and political control that underlie the project of modernity.

Ernst Ulrich von Weizsäcker and Anders Wijkman postulate an “Enlightenment 2.0” [32: 181], which they characterize as Enlightenment “for a full world.” At its core lies a methodically controlled reflection on the epistemic and normative premises of every science, including the supposedly value-free ones. Fundamental for the success of such a transformation is a new quality of scientific dialogue between natural sciences and humanities that has grown into “two cultures” over many decades [24]. Elucidation of the preconditions and limits of the different models of rationality in the sciences is the decisive impulse for interdisciplinary discourse (cf. as an “alternative to the history of disenchantment” in discussion with Max Weber and Ernst Troeltsch: [13], as well as an attempt to reinterpret Max Weber along with the guiding concept of “enlightening rationalization”: [10]). The awareness of their institutional embedding—that always presupposes certain perspectives—strengthens a self-critical distance. The allocation of empirical, normative, and transformative components of knowledge must be reflected upon in a new way if science is to promote not only factual knowledge but also competence in judgment and action [7, 14, 15, 23].

However, a profound dilemma arises in the classification of basic, orientation, and action knowledge: we live in a knowledge society that depends on innovative research to solve the problems it generates; the associated risks and side effects can—*ex-ante*—only be calculated to a limited extent [21]. The processes of knowledge generation are open and require a fundamental trust in problem solutions that are yet to be developed. Discourses of risk and responsibility often tend to be defensive and alarmist in order to be heard. At the same time, there is a wealth of systemic and creeping risks that are often perceived belatedly (such as the loss of biodiversity). We must learn to fear the right thing and proactively take responsibility as a compass for open design processes rather than as discourses of moral chapels. We require ethics as part of science education and research, not only in the context of commissions that review specific problematic applications of technology or new medical knowledge.

One way of implementing such an “Education 2.0” at universities would be a philosophical and epistemological examination of the fundamental models of the respective subject at the beginning of all study courses. Every course should begin with concept training, learning to think, and an explanation of the normative premises of the subject-specific guiding models. Such an approach promotes responsibility *in* the sciences and humanities instead of referring ethics to a role as a subordinate “spoilsport authority” that only raises its index finger in critical applications. The

concept can also be described as education for sustainable development. It conveys the basic principles of dealing with complex systems, comprehensively introduces the philosophy of recycling management, bio-economy, and sustainable management, and enables active participation in shaping democracy.

## 4 Transformative Science

The relationship between science and society is currently being reassessed. There is a demand to rethink knowledge and responsibility as well as freedom and autonomy. Various header label the respective debate (see Grunwald [7]; Vogt [30: 13–17]), e.g. “transdisciplinarity,” “public science,” “citizen science,” a “dialogical” and “integral university system,” “third mission,” “transformative science,” “research with social responsibility,” “sustainability in science,” or “oppositional and emancipatory science.” Among them, the programmatically most controversial and therefore particularly suitable term for a conceptual debate is “transformative science.”

The normative claim of transformative science is an attack on the positivist philosophy of science. Morally, this theory is connected with a profound dilemma: By reducing the understanding of reason to its acknowledging function, it necessarily surrenders itself to the morality of subjective decisions and purposes that are open to arbitrariness. It becomes a means to goals, which ultimately does not define itself. In positivism, morality is understood as a question of subjective preferences that cannot be further substantiated and is thus excluded from the concept of science (on the highly complex positivism dispute in philosophical ethics cf. [1, 11, 14, 15]).

The positivist understanding of science dominating the last century differed strictly between the supposedly objective and value-free determination of facts on the one hand and the evaluation of this knowledge on the other. It must be critically developed further and partially revised concerning the prerequisites and embedding contexts of supposedly value-free research [10, 15, 32]. For Horkheimer and Adorno, the separation of value and research in conventional social science thinking, according to which the practical use of the conceptual systems and thus one’s own role in practice is to be regarded as external to the research process, produces a blind spot of lacking self-reflexivity. It hides the structural preconditions and consequences as well as the perspective of scientific positions behind the appearance of neutrality instead of making them transparent (cf. Horkheimer [11: 182]). At the same time, this would undermine the necessary distance from the regulatory system of society, which has solidified in science (cf. Adorno [1: 299]).

The science-policy search for a changing role of universities in society wants to make use of them as not only observers but also more strongly as “change agents.” It is the core problem of the concept of sustainability in the theory of science: This concept has established itself above all in the political sphere and is initially a socio-political and not a scientific concept. Sustainability is a discourse of responsibility whose strong normative charge in its depth structure fits by no means with common notions of freedom, autonomy, and scientific excellence at universities. Its integrative claim

is at odds with the process of increasing differentiation. It is feared that scientific freedom is claimed for ethical and political goals and thereby sacrificed [26]. The old question of whether science can content itself with thinking the world, or whether it should also directly strive to change the world, is posed with new urgency in the context of the existential self-endangerment of society in the context of climate change.

In this situation, the retreat to an ethic of supposed neutrality and abstention amounts to participation in the system that produces injustice and destroys the future.

A science that, in imagined independence, regards the shaping of the practice to which it serves and belongs merely as its afterlife, and that separates thought and action, has already renounced humanity. [11: 216]

In the face of massive injustice, science cannot take an ethically neutral and uninvolved position: “Because we live in an unjust world that is worthy of criticism, there is no neutrality” [15: 19]. The denunciation of engagement as heteronomous amounts to a structurally conservative conformism of thought [15: 42f]. Here, the error in thinking is the sequential conception of science as a self-contained space on the one side, and of politics or the public as a downstream field of application and intervention on the other side. However, especially science dealing with the production of symbolic goods is confronted with ethical–political questions from the very beginning:

The assertion that intellectual engagement amounts to the confrontation with an ethical question and that the form of our theoretical work must be determined on the basis of the world and the action it generates in it means that one cannot accept and adopt the established forms and institutions of scientific and cultural practice, only to ask oneself in a second step how one can contribute to changing the world. Rather, one must start out from the necessity of an emancipatory production of knowledge and then ask oneself what understanding of one’s own life as an author, of practice and theory follows from this. In order to determine the form of our actions, we must start with an ethical concern. The political question arises *ex ante*, not *ex post*. [15: 16f]

The suspicion that the rhetoric of usefulness might subject science to utilitarian thinking is quite justified. However, there is a misunderstanding if this usefulness is considered a downstream application, after having previously placed the autonomy of science in a kind of “mysticism of pure knowledge” [15: 26] outside the sphere of society. Lagasnerie compares the understanding of science as “*l’art pour l’art*” with the idea of profit for the sake of profit. It is “a kind of ethics of withdrawal, of depoliticization, which gives a potentially subversive activity a social and political harmlessness and thus enables the reproduction of the existing order and its basic values” [15: 33]. The insistence that science is a fixed profession, a self-contained realm within the social whole, reveals the very essence of thinking (cf. Horkheimer [11: 216]). It bases on a naïve understanding of the complex nexus of theory and practice and fails to recognize that science is always a form of practice. If one locates usefulness in this original link between theory and practice, it is not an out-of-scale utilitarian evaluation of consequences but represents an inherent moment in the practice of knowledge.

The science of sustainability implies profound divergences to the cornerstones of the current social model, in particular to growth, feasibility/controllability, and individual freedom. There is a need for clarification here that equally concerns the foundations and concepts of rationality, and the normative guiding concepts of society. This situation requires new forms of dialogue between science and society [7]. Ultimately, it is by no means just a matter of pragmatic challenges in the context of climate change but rather of the fundamentals of the understanding of science.

## 5 The Erosion of the Ideal of Freedom from Within

Late modernity is characterized by the fact that power is often made anonymous and seems to hide behind unfathomable chains of action. A peculiarly empty space is created in the action [8: 106]; for illustration the author refers to Kafka's novels "The Trial" and "The Castle". The awareness spreads that ultimately there is no one acting, but a sequence of events determined by an indeterminacy that cannot be grasped anywhere, that does not pose itself to anyone, and does not answer to any question [8: 106]. This anonymization of power has become a characteristic feature of the current economy, especially through the global chains of action in the world financial markets.

Quite a few fear that the ideal of freedom of liberalism will perish in the intrinsic logic of economic and political systems because freedom is confused with market freedom, while responsibility becomes lost in system imperatives that are supposed without alternative. The consequences are far-reaching. The American political scientist Patrick Deneen concisely summed this up in his internationally discussed book "Why liberalism failed" [5: esp. 15–27]. According to his diagnosis, the transnational universalism of ethics has come to its end because the elites in politics and business are exploiting their greater opportunities for freedom unilaterally for their private advantage. The normative basis of an open democratic society, namely the interplay of responsibility and freedom has been abused and systemically undermined. Renationalization is the inevitable answer to this.

Thus, the social embedding and legitimation of modern science as part of the transnational elite system seems fragile. Universities and colleges in some countries already feel the effects on a massive scale. A deep mistrust of academic elites is reflected in populism worldwide, and becomes a political force within it. It is obvious, however, that neither the nationalist narrow-mindedness of responsibility nor the authoritarian anti-liberalism offer ethically viable paths. World society is losing sight of the moral and cultural foundations of social cohesion. There is no consensus regarding the interplay of freedom and responsibility under the conditions of disruptive transformation processes in an increasingly polycentric world.

Climate change presents the idea of freedom with enormous challenges. In a society that has banned the idea of collectives, it is challenging to think about the collective structure of climate responsibility. An individualistic narrow concept of freedom and responsibility that loses sight of its cultural and institutional contexts



fails because of the complex structure of the chains of action and causation found in climate change.

Today, freedom and reason as guiding values of modern Western societies must prove themselves by empowering to manage the complex problems of responsibility in the Anthropocene. This particularly applies to science, which can only develop its potential under the condition of fundamental trust in the reason of freedom. Science must defend societal trust in reason and freedom as the basis of democracy by proactively taking responsibility for coping with the central challenges of society. It must not hide behind the non-binding nature of a systemic, ultimately questionable concept of freedom and stand idly by watching its structural incapacitation in many countries. It must become more political. Strengthening the voice of science in the context of political decision-making processes improves the chances of responsibility. However, it is by no means—as the criticism of the model of transformative science discussed above formulated it—an “atrophy of the political.” On the contrary, it is a necessary contribution to saving the political under the conditions of modern knowledge societies.

The Enlightenment came to power with the idea of freedom. At present, this ideal seems to have become strangely pale and weak. For fear of terrorism and uncontrollable social development, or for the sake of pragmatic advantages in the digital society, many liberties are carelessly abandoned or undermined. Enlightenment 2.0 means a strong plea for freedom by combining it with responsibility [27]. Abandoning freedom for the sake of supposedly authoritative security would be a regression behind the achievements of the Enlightenment.

## 6 Uncertain Confidence in Reason in the Digital Age

Mrs. Conway, US President Trump’s consultant, speaks of “alternative facts.” This is an attempt to suggest that in the end, it is not about what is happening, but only about the clash of different opinions, some of which prevail and some of which do not. This is precisely a crucial strategy in the fight against the uncomfortable environmental-ethical claims in the context of climate change: one tries to get rid of them by questioning the reality content of the underlying perceptions of reality. Such doubts are by no means only found among Trump and other climate skeptics paid for by the oil industry [22]. With the worldwide “March for Science,” scientists have protested against the fact that scientific findings are not being taken seriously enough in many areas of societal future planning.

Julian Nida-Rümelin diagnoses a connection between the refusal to take note of scientific facts relevant for action and the “ideology of anti-realism:”

Politically powerful people have at all times tried to keep facts secret, to influence, manipulate and falsify them with unverifiable assertions. What is new is that they use the ideology of anti-realism in its postmodern and poststructuralist variants. [18: 33]

These politicians try to give the impression that there is no reality, only opinions conveyed by the media. The new digital media are cleverly used to reinforce this impression. In fact, a great many people seem to form their opinions in digital “bubbles” that immunize against criticism because they only select and reinforce what fits their own preconceptions. This dynamic is politically highly dangerous and explains the deep insecurity behind the superficial political excitement about the rhetorical phenomena of the post-factual. The uncertainty of communication in the age of digital manipulation of opinion demands of the sciences an active effort to provide society with reliable information and to maintain standards of rationality.

Within journalism, there is a structural parallel to the scientific-theoretical debate on the question of whether journalism should maintain its professionalism in the role of a distanced observer or whether it should show stronger commitment as “transformative journalism” [19]. Due to the logic of attention-maximizing, journalism tends to report the news rather than fundamental problems, despite all reports on climate change. The power of those in power to define the possibilities and limits of discourse means that the deeper causes of climate change, which call into question current thought patterns, guiding values, and social systems, tend to be repressed. With all the efforts to create a new “framing” and attractive narratives of environmental journalism, there lies a danger to end up confirming thinking patterns that are more wrapped up in green. Despite all criticism, however, it should not be overlooked that there are high-quality standards in journalism, at least in most European countries, which also include transformative elements. There are many reasons why short-term “hyped” topics tend to dominate in the public sphere, especially in times of election campaigns, and why climate change is, therefore, rarely given the attention it deserves in ethical terms.

Concerning ethics, it is also a question of whether the normative reason is merely a convention and a question of subjective preferences, or whether it is suited to a scientifically accessible truth content. Nida-Rümelin illustrates this with the question of whether the Holocaust was objectively morally wrong or whether its rejection should only be considered a culturally variable convention [18: 82]. If one assumes that ethics has a content of truth that is also scientifically sound, then it will be sometimes uncomfortable and must not become too dependent on public opinion.

The contempt for expert knowledge in the post-factual age is a challenge that scientists cannot silently accept, if only for reasons of self-respect. The contempt for reason undermines the foundations of our culture. Equally destructive of culture are self-generated systemic constraints that prevent politics, business, and society from reasonable choices. With good reason, one should expect more resistance from academics against the post-factual populist mockery of reason, and the relapse into a nationalistically fragmented narrowing of horizons. Such a state of knowledge is the necessary answer of enlightened and enlightening science to the relapse of parts of public communication into a “post-factual” immaturity. The new phase of enlightenment is characterized by the courage to accept uncomfortable truths and resistance to populist ignorance.

The structural transformation of the public sphere through digital media also changes the way science is conducted and communicated. This raises fundamental

questions of a practical nature concerning data protection, transparency, and the power of suggestion of digital algorithms, as well as philosophical questions about human self-understanding given the increasingly superior functional performance of artificial intelligence. A fair, inclusive, and humane management of the complex radical processes of change associated with digitization requires new spaces for discourse in the dialogue between scientific, social, entrepreneurial, and political practice. Only in this way can the complex expert knowledge be included without necessarily leading to an “expertocracy” that Stohschneider rightly rejects [26: 190]. Digitization offers numerous opportunities for innovation, without which accelerated adaptation to the challenges of Climate Change will hardly be possible. So far, however, the reflections and institutions that seek to ensure the responsible handling of digital opportunities are underdeveloped.

## 7 Paradigm Shift in the Understanding of Progress

The science system reflects information highly selectively in specific codes that reduce complexity and thus guarantee efficiency, effectiveness, and verifiability. This enables specialization and dynamization but at the price of a correspondingly limited perception [23: 88]. Secondary sequences alien to the subsystem are produced but usually not recognized as such, and therefore not adequately processed. In the sense of reflexive modernity [3], however, it will be important to think systemically about the social side effects of technical and socio-economic innovations from the outset. Therefore, the rapidly changing knowledge societies depend on a prospective responsibility of their scientific institutions. Ultimately, what is at stake is a “cultural revolution” [6: FN 3]:

We are experiencing not only a time of change, but a real change of times [...] Ultimately, it is a matter of ‘steering the model of global development in a [different] direction’ and ‘redefining progress.’ ‘The problem is that we do not yet have the culture we need to counter this crisis. It is necessary to form leadership that shows the way.’ This considerable and urgent task requires, at the cultural level of academic education and scientific research, a generous and concerted effort to bring about a radical paradigm shift, and even more so—if I may say so—a ‘courageous cultural revolution’.

This is a strong claim: the universities should contribute to a paradigm shift in the understanding of progress. The task outlined here reads like the Advisory Council on Global Change as a “big transformation” for a new social contract [31]. This is not only the postulate of some scientists but already a political decision: With the SDGs and the Paris Climate Treaty, the international community made a factual commitment to such a revolution. By addressing both the old and newly industrialized countries as well as the countries of the Global South, and by accepting the planetary boundaries as framework-giving guidelines, these documents pass the development concept that largely shaped the UN until now. However, this parting is still ongoing so that contradictions arise in the tension between ecological and socio-economic goals [9, 17]. How this affects the everyday life of politics, business, and society

must be explained thoroughly as the associated potential for conflict is considerably underestimated and leveled out to harmonize the discourse.

The implementation of SDGs necessarily includes a change in the cultural patterns and guiding values of society. This change cannot be induced by a top-down decision. It usually occurs gradually from a complex interplay of changing values, the institutional design of framework conditions, and pioneers of transformative practice. Indispensable at all levels is the leadership addressed by Francis. Its core task is to point out the ways for a new understanding of progress.

The concept of resilience established itself as an interdisciplinary focal point for this debate [4]. In the future, progress will be measured by its support through nature [28]. Given the complexity and technical power of modern society, an unlimited or limitless expansion of action potential does not lead to optimized freedom. It rather has a corroding effect through arbitrariness and high-level control effort to maintain social and ecological security. Especially regarding modern technology, freedom needs an “intelligent self-limitation” to protect its preconditions and cultural embedding contexts. It holds unlimited possibilities but the danger of manipulation at the same time. Given the rapid development and multi-layered ambivalence of digitization, this Janus-faced nature of possibilities currently gains novel attention. Without cadence between the moral integrity of actors, legal control as well as cultural competences for interpreting and handling the associated processes of change, technical progress can become “backward-looking.” Positively phrased, this process requires strong moral, cultural, and legal competence to have a beneficial effect. The decisive program of this progress for the future is not a further expansion of power over nature, but rather the recovery of power over power through ethical–political control of the use of natural resources under strict observance of human rights and the principles of sustainable development.

## 8 Hope Beyond Optimism

Christians are rightly expected to deliver a message of hope: “the gospel, good news.” This almost contradicts a sober view of the present situation of the world in which eco-social catastrophes become increasingly likely. In the public debate, this tension is mainly resolved by playing down the perception of the situation. In the USA, for example, some branches of the Christian churches side with those who prevent transformation instead of siding with those driving it. Besides, the theological underpinning of discourses of fear combined with rhetoric of eco-apocalypse is bad theology. It depends on differentiation: Christian hope is not optimism but “thwarted hope,” a hope that knows about human failure and the calamity of suffering and guilt. It does not draw its confidence from a cheap optimism but from the certainty that God accompanies people also in the abysses of existence. It knows that processes of transformation are often painful and full of uncertainty but that they usually also hold unexpected opportunities.

A theology that encourages decampment and confidence in the Great Transformation needs to revise the concept of progress: toward one that does not rely on a promise of “faster, higher, further” but on resilience and successful life through solidarity of people and fellow creatures. Humility, the ability to resonate, solidarity, and creativity are guiding virtues of a civilization that is breaking up the growth model that has become a metaphysical substitute. A turning away from the “drug” of growth, neither resigned nor frozen in static models, is the social and economic-ethical core of a Christian alternative to the current project of expansive modernity.

The religious distinction between immanence and transcendence can enable sober confidence that critically sees through ideological promises of meaning and knows about the finiteness of all human efforts. It rejects both naive utopias and linear ideas of progress as well as resigned dystopias and fears. She is critical of some contemporary natural-religious movements in which the need for recognition of a higher power has shifted entirely toward nature. These are then often no longer communicable with the possibilities of action and forms of the rationality of modern technology.

At the core of Enlightenment 2.0 lies the concept of freedom and responsibility. It constantly seeks a new balance between conservative preservation and proactive shaping of an open future. Such a new phase of the Enlightenment complements the expansive turn of reason outward, which shaped the Modern Age, with an inward turn of reason. For the power over nature is only a value in freedom, if combined with the power of man over himself.

## 9 Conclusions

Currently, our expansive modernity steers toward an ecological suicide that can only be halted by a new phase of enlightenment. At its core lies an integral allocation of knowledge and responsibility. It overcomes the dominating positivist division between knowledge and values. It understands both ethical questions and social transformation as integral components of scientific research.

This chapter assumes that the challenges of climate change and the environmental crisis in the Anthropocene radically question the normative foundations of the current social model. Key concepts of modernity such as progress and prosperity, reason and humanity, freedom and justice must all be spelled out anew to retain or regain their beacon function. The title “Enlightenment 2.0” summarizes all these claims, and aims to record the normative and socio-theoretical achievements of the first Enlightenment by developing them critically with respect to their ecological and cultural preconditions. The transition from expansive modernity—whose maxim was the expansion of power over nature—to a regaining of responsible control and taming of power is of decisive importance. For society, this requires an intelligent self-limitation as well as a reorientation of innovation dynamic geared towards sustainability and resilience. It is a program for ecological modernization, with a special focus on the role of science,

the understanding of rationality, and the transformation of our human relationship with nature.

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