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Research article

Non-Western Modernization? – Technological Development in a Multipolar World

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Abstract
This article summarizes the findings of an interdisciplinary workshop convened to explore the concept and possibilities of non-Western modernization in today's multipolar world. Bringing together scholars from China, Germany, Denmark, India, Poland, Russia, Sweden, Ukraine, and the United States, the workshop focused on political programs – exemplified by China, Russia, India, and certain Latin American countries – that pursue technological development while embodying diverse approaches to liberal political values. The discussion was framed by Sheila Jasanoff's keynote lecture, which challenged linear, Western-centric narratives of modernity by introducing the concept of "sociotechnical imaginaries" – collectively held visions of desirable futures that shape technological trajectories across different cultural and political contexts. Tracing the evolution of modernization theory from its Cold War origins, where Western institutions served as normative models, to contemporary programs of "technological modernization" that retain technology while stripping away modernity's emancipatory components, the workshop then focused on a central tension: whether technology can be separated from the values historically associated with its development. Participants examined how universal values become branded as "Western," interrogating the counterfactual stances underpinning Enlightenment principles such as tolerance, epistemic humility, and the bracketing of morality in favor of ethics. The discussion further questioned whether these cultivated Western stances can be replaced without abandoning modernity altogether – a question complicated by the recognition that modern science itself presupposes non-dogmatic tolerance. Additional themes included the institutional dimensions of universal values, the relationship between deglobalization and digital sovereignty, and the importance of methodological symmetry – treating legal systems, political institutions, and ideologies as technologies requiring equal analytical attention. The workshop concluded that non-Western modernization involves selective adaptation, ethical negotiation, and strategic reinterpretation rather than wholesale rejection or replication of Western models – pointing toward contested, reflexive pathways into uncertain futures shaped by deep political and cultural differences.

Keywords: Non-Western Modernization; Technological Development; Sociotechnical Imaginaries; Multipolar World Order; Globalization and Deglobalization; Multiple Pathways

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Научная статья

Незападная модернизация? – Технологическое развитие в многополярном мире

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Аннотация
В статье обобщаются результаты междисциплинарного семинара, организованного с целью изучения концепции и возможностей незападной модернизации в современном многополярном мире. Семинар, в котором приняли участие ученые из Китая, Германии, Дании, Индии, Польши, России, Швеции, Украины и США, был посвящен политическим программам (на примере Китая, России, Индии и некоторых стран Латинской Америки), направленным на технологическое развитие и воплощающим различные подходы к либеральным политическим ценностям. Дискуссия завершилась лекцией Шейлы Ясанофф, которая бросила вызов линейным, ориентированным на Запад представлениям о современности, представив концепцию “социотехнического воображения” – коллективного видения желаемого будущего, которое формирует технологические траектории в различных культурных и политических контекстах. Проследив эволюцию теории модернизации от ее истоков во времена холодной войны, когда западные институты служили нормативными моделями, до современных программ “технологической модернизации”, которые сохраняют технологии, но лишают их эмансипаторских компонентов, семинар сосредоточился на центральном противоречии: можно ли отделить технологию от ценностей, исторически связанных с ее развитием. Участники обсудили, какие универсальные ценности определяются как “западные”, подвергая сомнению противоречивые позиции, лежащие в основе принципов Просвещения, таких как терпимость, эпистемологическое смирение и вынесение морали за скобки в пользу этики. Вопрос, можно ли заменить эти культивируемые западные взгляды без полного отказа от модернизма осложняется признанием того, что современная наука сама по себе предполагает недогматическую терпимость. Были рассмотрены институциональные аспекты универсальных ценностей, взаимосвязь между деглобализацией и цифровым суверенитетом, а также важность методологической симметрии – рассмотрения правовых систем, политических институтов и идеологий как технологий, требующих равного аналитического внимания. В заключение семинара было отмечено, что незападная модернизация предполагает избирательную адаптацию, этические переговоры и стратегическую переинтерпретацию, а не полное отвержение или копирование западных моделей, указывая на спорные, рефлексивные пути в неопределенное будущее, сформированное глубокими политическими и культурными различиями.

Ключевые слова: Незападная модернизация; Технологическое развитие; Социотехнические фантазии; Многополярный мировой порядок; Глобализация и деглобализация; Множественность путей

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INTRODUCTION

To prepare a discussion and to canvas the questions about the very notion and specific possibilities of non-Western modernization an exploratory workshop brought together an interdisciplinary group of discussants from China, Denmark, Germany, India, Poland, Russia, Sweden, Ukraine, and the United States.[1] It set out to discuss the emergence of various political programs of non-Western modernization, launched by Russia, China, India, and certain Latin American countries which emphasize technological development while rejecting or neglecting liberal political values. This situation raises numerous questions, including the history of non-Western countries' acceptance of modernization as a Western project, the universality of liberal values, and the implications of a search for alternative modernities for RRI (Responsible Research and Innovation) or (global) Technology Assessment.

This summary and discussion of the workshop proceeds along the lines of its program, beginning with a keynote lecture, followed by four topical sessions that were dedicated to unstructured conversations.[2] Texts produced as inputs to the discussion are here incorporated with the subsequent exchange of ideas among workshop participants.

CAPITAL SUBJECTS: IMAGINARIES OF PROGRESS IN A GLOBAL WORLD

In her keynote lecture, Sheila Jasanoff challenged the long-standing assumption that modernity follows a singular, Western-led trajectory and argued instead that modernization is constituted through plural, historically situated sociotechnical imaginaries. The lecture began by problematizing "modernity" as a linear or coherent concept. Rather than a universal condition, modernity functions as a temporal and political imaginary through which societies organize expectations about progress, development, and the future (Jasanoff and Kim, 2019, pp. 1-29). These imaginaries are made along with representations, identities, discourses, and institutions, and they are stabilized through infrastructures which shape how time, speed, and desired directions of change are experienced unevenly across different populations and regions. As such, modernization should be understood not as convergence toward a single endpoint, but as a contested process embedded in power relations, culture, and political economy.

[1] The workshop took place in December 2025 at the ITAS (Institute of Technology Assessment and Systens Analysis at Karlsruhe Institute of Technology). It was organized by Armin Grunwald, Alfred Nordmann, and Svitlana Shcherbak, participants included Jascha Bareis, Stefan Böschen, Lisa Borchert, Lars Botin, Christian Büscher, Christopher Coenen, Paulina Dobroc, Lisa Borchert-Wright, Torsten Fleischer, Philipp Frey, Sheila Jasanoff, Aleksandra Kazakova, Arjita Mital, Linda Nierling, Somidh Saha, Hilton Simmet, Lukas Staab, YE Luyang, YAN Ping, and ZHANG Hui.

[2] The workshop was first recorded, and the audio materials then transcribed into preliminary textual form using automated transcription software Otter·AI. These transcripts were subsequently translated into Chinese with the assistance of AI tools (including DeepSeek and ChatGPT) to facilitate comprehension. Based on these materials, key arguments and themes were identified and selected. ChatGPT was further used to assist in organizing, summarizing, and refining the main points of each section, with the selected key arguments continuously fed back into the process. The structure and content of the summaries were iteratively adjusted, drawing also on feedback from workshop participants.

Central to this conception is the notion of sociotechnical imaginaries that are defined as collectively held visions of desirable futures which are enacted both socially and materially. These imaginaries guide technological projects, policy decisions, and governance structures while simultaneously reflecting normative commitments about growth, security, equality, and responsibility. Importantly, such imaginaries are not limited to nation-states but can also emerge within organizations, sectors, and transnational networks.

Through comparative examples, the lecture illustrated how similar technologies can be embedded in radically different imaginaries. Nuclear power, for instance, was embraced in South Korea as a symbol of national progress and global status, while in the United States it became associated with material risks to health and the environment, giving rise to a de facto moratorium in the late 1970s. These differences cannot be explained by technical factors alone but must be understood in relation to distinct historical experiences and future-oriented visions.

The lecture further traced the evolution of technological imaginaries from mid-twentieth-century state-led megaprojects – such as nuclear and renewable energy, space exploration, and the Human Genome Project – to contemporary data-driven and platform-based technologies. Whereas earlier projects emphasized containment, control, and clearly defined endpoints, current technologies thrive on circulation, scalability, and continuous transformation. This shift challenges existing governance models and raises urgent questions about accountability, risk, and democratic oversight.

Jasanoff also critiqued the tendency to treat "the West" as a unified reference point. She demonstrated that Western modernity itself has always been internally diverse, with significant national differences in how technological development, regulation, and ethical responsibility are imagined and practiced. Recognizing this internal plurality is essential for avoiding simplistic binaries between Western and non-Western modernization.

The lecture concluded with a warning against Promethean confidence in technological solutions. In a world marked by capital concentration, weakened state authority, and powerful private actors, modernity no longer guarantees improvement but entails profound uncertainty and risk (Beck et al., 1994, pp. 2-3). The key challenge is not choosing between Western and non-Western models but developing new forms of collective imagination, governance, and responsibility that are capable of addressing collective global futures under conditions of deep political and cultural heterogeneity.

While these qualifications and political differentiations are necessary to avoid stereotyped interpretations, it remains difficult to abandon a general definition of modernization.[3] It would appear that all modernization programs promote ways of overcoming or at least transforming traditional ways of living and thinking. Even as we

[3] What makes it difficult to avoid defining „modernity" or „modernization" as a name of a particular imaginary of progress that is infinitely flexible and subject to locally specific understandings of what constitutes progress? All societies seem to yearn for improvement, and some call it modernization, but does one therefore need a singular definition? Maybe one should abandon „modernization" for other terms that philosophers have already sanctioned, like „flourishing." To the extent, however, that there is an explicit appeal to modernization – as in Xinhua News Agency (2024) – do these appeals not rely on a common referent?

appreciate the political dynamics through which traditions accommodate and absorb modernization processes, the process itself posits a contrast between modernity and traditionalism, and as discussed by Max Weber, it posits as well the progressive development of rationalization or intellectualization (Weber, 1946). In other words, whatever else it may be, there appears to be a pathos of modernization that is driven forward like progressive modern science or Enlightenment and the general advancement of humankind.

This led to queries about the linkage of socio-technical imaginaries of progress to current political and institutional transformations which undercut stories of progressive human Enlightenment. The growing role of large technology companies highlights a deeper reconfiguration of democratic governance, particularly the shifting balance between the public and private sectors and the weakening of institutional checks on executive power. These developments call into question the vantage point of expertise and the authority of the State.

Recent biomedical developments and gender-related technologies further indicate a backlash against universalist Enlightenment imaginaries. Rather than a simple conflict between opposing visions of progress, this backlash is directed against achievements of civil rights and signifies a reconfiguration or restoration of dominant imaginaries such which older logics of order and normalization are reactivated to govern new social claims. This underscores the contested nature of „progress."

Questions about the role of STS emphasized the importance of methodological symmetry. Social change should not be understood as driven solely by technological artifacts; legal systems, political institutions, and ideologies function as technologies as well and require equal analytical attention.

The session also examined future-oriented technological discourse. Claims of inevitability and bold promises were interpreted not as unique distortions, but as long-standing features of scientific and technological imaginaries that mobilize social hopes and anxieties. The analytical task lies in examining how certainty is constructed and what is excluded from particular visions. This involves that the notion of "trusting science" is critically questioned along with the constructions of certainty. If science is not a unified object of trust, but a product of social practices, it calls for critical engagement rather than unconditional trust or rejection.

TECHNOLOGICAL MODERNIZATION IN A MULTIPOLAR WORLD[4]

Modernization theory was formulated in the 1950s. At that time, it defined the "West," especially the USA, as a normative model for non-Western countries. It aimed to find a "recipe" for the former colonies on how to "become modern," which meant emulating Western economic and political institutions. The "present" of the "West," an imaginary utopian and geopolitical construction, was supposed to be the future of the "Rest."

Technology played a central role in modernization as a driver of economic

[4] The following discussion was prepared by Svitlana Shcherbak.

development (industrialization), which was supposed to create prerequisites for democratic transition. Modernization theory was based on the hypothesis of modernization as formulated by Seymour Martin Lipset (1959). It claimed that economic growth would enable the development of human capital and the emergence of a new social structure too complex for authoritarian regimes to manage. As a result, at a certain point, dictatorship gets replaced by democracy. Put differently, the hypothesis of modernization postulated a profound causal connection between technological development and human emancipation.

The 1990s revived the discourse of modernization from the 1950s, with its expectation that the world would steadily and triumphantly proceed on the path of progress toward a free-market economy and liberal democracy (modeled after the USA), as the final stage of modernization (Fukuyama, 1992). "The waves of democratization" were widely discussed, being considered immanent to the historical development of the world. Modernization envisioned a universal normative model for all societies, in which traditional values were expected to be replaced by modern values such as secularism or gender and racial equality. Industrialization was supposed to bring about the most profound structural and value transformations, thereby paving the way for liberal democracy.

Since then, the concept of modernization is still widely present in political discourse, but its meaning has changed. For instance, the Russian program of "conservative modernization," launched in 2009, apparently reshaped the concept of modernization through liberal values by substituting it with a different vision of a "good order." Putin's conservative turn aimed at dismantling the world order formed in the 1990s in favor of a new multipolar world order, focused on national traditions and interests, regional alliances, and coalitions. Other countries, including India, China, Brazil, and South Africa, have followed suit, launching their own programs with a strong focus on economic and technological development.[5] In doing so, they have seemingly replaced liberal values and political ideals with their own visions of "good life."

Such development programs can be roughly referred to as "technological modernization," since they reject the emancipative component of Western modernity. The term "technological modernization" is widely used in industry to describe the process of introducing new technologies across economic sectors to increase productivity and competitiveness. But in non-Western modernization programs, technological development is the only remaining component of the social-developmental program of modernity, stripped of its normative ideals of liberal democracy, personal autonomy, and emancipation. Russia was at the vanguard in linking technology to conservative political ideals, but interestingly the United States did not remain immune.

Donald Trump's return to power in 2025 dramatically intensified "anti-liberal forces

[5] To be sure, „modernization" became programmatic in China with Zhou Enlai's 1977 call for „four modernizations" (of agriculture, industry, defense, and science and technology). The modernization-theme thus accompanied the economic „opening" of China and adhered to the popular narrative of „catching up" with the West. Only in the current age of the „new confidences" arose the concept of „Chinese modernization" (China Media Project, 2023, and Xinhua News Agency, 2024).

seeking to overthrow universalist liberal ideals and replace them with a white, Christian, ethno-religious national identity" (Kagan, 2024). At the same time, Trump launched a program he considers a reindustrialization initiative for the USA, a kind of "nostalgic modernization" aimed at "making America great again." Paradoxically, perhaps, it is steel manufacturing and fossil-fuel based industrial production, not AI, Amazon, or electric vehicles, that in this narrative make America great.

Technological Modernization without Liberal Emancipation

The linear and teleological understanding of modernization relied heavily on a binary distinction between "modern" and "traditional" which enabled narratives of progress but also justified hierarchies between societies. The discussants broadly agreed that this classical model has lost much of its explanatory and normative power. In today's multipolar world, modernization no longer functions as a singular global script. Instead, different countries and regions articulate distinct trajectories that selectively combine technological development with diverse political, cultural, and moral frameworks. Accordingly, the categories „modern" and „traditional" are not descriptive but performative: They do political work by legitimizing certain futures while delegitimizing others.

Also, modernity is not the only axis through which societies organize meaning. Other distinctions are equally consequential such as nature versus culture, natural versus artificial, secular versus religious, individual versus collective. Here as well, Western models of individual autonomy and self-realization should not be assumed as universal aspirations. Examples from India, Japan, and other societies illustrate how technological sophistication can coexist with strong collectivist, familial, or tradition-oriented forms of subjectivity. Indeed, the contemporary backlash against liberal modernity – particularly in Western contexts – may reflect anxiety about a perceived weakness of the democratic process. A yearning for stronger leadership and collective meaning is vaguely associated with visions of progress where less individualism implies greater belonging or care.

At the same time, one needs to question the generalization that non-Western countries such as India, Brazil, South Africa, or China are "omitting democracy" altogether. Drawing on empirical examples – such as India's multi-tier democratic system, the role of digital technologies in reducing corruption, or alternative development models like Kerala's (Parayil, 1996) – participants argued that democracy, political participation, and emancipation take culturally specific forms that cannot be assessed solely against Western liberal benchmarks. In some cases, the organization of elections or fora for public accountability are tokens of a democratic culture that is perhaps „democracy" by name only. This emphasizes the need to distinguish between anti-liberalism and anti-democracy, and to avoid overly homogenizing accounts of "non-Western" modernization.

Technology, Politics, and Social Transformation

Another critical point is the difficulty – if not impossibility – of separating technological modernization from broader social transformations. There are notable historical precedents, including fascist and socialist modernization projects, in which rapid technological advancement was explicitly embraced while liberal or democratic

values were rejected. Yet even in such cases, technological change inevitably reshaped social relations, labor structures, subjectivities, and forms of governance. Technology is neither neutral nor deterministic, transporting values, redistributing power, and reconfiguring social life, regardless of political intent. Rather, it both carries values and can be mobilized to reshape values through new pathways of subject formation.

Inversely, the focus on technology tends to elide from the value commitments of modernization narratives, such as poverty alleviation, education, healthcare, and social security. Arguably, any meaningful understanding of "modernity" must include the capacity of organized societies to safeguard fundamental human needs, rather than focusing narrowly on productivity, innovation, or competitiveness.

By foregrounding key tensions between technology and democracy, universality and plurality, progress and backlash, the discussion underscored that technological modernization in a multipolar world cannot be understood as a linear or uniform process. Modernization appears instead as a contested field of competing political imaginaries, institutional arrangements, and socio-technical alignments. This calls for comparative, historically informed, and symmetrical analysis – one that takes non-Western experiences seriously, avoids normative shortcuts, and remains attentive to how technology, power, and visions of the good life are co-produced (Jasanoff, 2004).

ON THE WESTERNIZATION OF UNIVERSAL VALUES[6]

The project of modernity is rooted in modern science, modern capitalism, and an innerworldly orientation to the here and now. This is the story from Kant to Habermas via Joseph Needham and Max Weber: truth and wealth and happiness are acquired in a methodical (formal, mathematical manner) that compensates the lack of knowledge, certainty, and self-assurance by positing hypotheses, accumulating evidence, and critically reflecting it (Nordmann, in press). The splintered cosmos becomes shot through with general principles as one progressively constructs a universe of laws, systems, rules for human action (markets, laws of nature, principles of justice). In the words of Weber, the modern world is premised on the hypothesis that, in principle, everything can be mastered through calculation – where by „calculation" he means a focus on prediction and technical control (Weber, 1946, p.139). We do not know whether this hypothesis is true but it gives a marching order to reveal its truth. The production of evidence for this hypothesis doubles as our notion of "progress."

The peculiar European flavor of this construction is obvious, perhaps especially its "Faustian" doubt-belief dynamic that is restlessly driven by the absence of certainty as permanent anxiety: do we know enough, have we proven ourselves? And yet, the modern world is emphatically non-parochial but strives to formal universality: markets, laws of nature, as well as human rights, international law, public reason. If Enlightenment principles are shown to have limited scope, exhibit local bias, serve one-sided interests, this would be considered a defect that requires critique. The Enlightenment is

[6] The following discussion was prepared by Alfred Nordmann.

emphatically non-parochial also in this: The good life is living in a world that accommodates competing ideas of the "good life."

What then, is going on when universal values are criticized as Western? What is narratively replaced by what when these critics seek to replace, as stated above, "liberal values and political ideals with their own vision of 'good life'"? Perhaps it is too charitable to assume that rebranding universal values as Western values is more than blaming these values for their place of origin, and more than blindly equating claims to universality with hegemonial claims to power. But what more is there when certain human rights or international laws are taken to be parochially Western?

According to the "separability assumption" of modern science the modernizing spirit of purification separates the questions of truth or validity from the conditions under which they were formulated (Feyerabend, 1989). Evolutionary theory, for example, is discussed for its universal claims even though it is evidently an offspring of British industrial capitalism (Young, 1971). Inversely, however, regarding "Western Enlightenment values" this separation no longer works when even the general principles that are enshrined in the Universal Declaration of Human Rights are interpreted as expressions of the particular culture in which they originated.

Trying to spell out what more there is to the branding of universal values as „Western," one might turn to the specific construction of the vantage point or position from which human rights, international law, "scientific truths" are posited. This vantage point is attained, after all, through peculiar counterfactual moves similar to the founding myth or conceit of science that "everything can be mastered through calculation." Indeed, the very aspiration towards universality projects a kind of anti-realism in that the universal principle or conceit deliberately disregards its violations. Three aspects of this counterfactual construction might be identified. While each of them yields universality, there is nothing universal to their construction and adoption.

For example, the principle of tolerance states that the good life requires non-interference from and into other conceptions of the good life. Rather than a hard-won posture of passionate restraint, this principle can also be understood as a form of mere indifference that is alien to any culture which does not valorize a carefully cultivated distancing from one's own values and traditions. A version of this argument can be found in Tolstoy's critique of modern science: Science claims to be interested in everything and so it proves to be interested in nothing but itself, thus lacking commitment (Tolstoy, 1904).

For another example, witness ethics (*Sittlichkeit*) bracketing morality. What is meant here can be seen in Kant's Enlightenment argument for the foundation of a United Nations. He imagines a system of international law by which even in a world of devils the nations of that world could live together peacefully (Kant, 1996, p. 335). The envisioned system of law is made for good and bad people alike, disregarding or discounting the specific achievements of countries that are founded upon belief in the goodness of a people grounded in traditional culture and religious belief.

The third example reflects an Enlightenment stance of epistemic humility: We know that the facts of the social world result from the actions of people, individually and collectively. But we do not know whether as individuals and collectives we can deliberately shape or design the future – and yet we must act as if we can create a future

according to plan and we must take responsibility for our world as if we created it. Fatalism and cynicism are worked into the fabric of modernity, but the modern spirit clings desperately to the illusion of human autonomy and sovereignty, to decisionism and voluntarism.

Each of these examples refer to a stance that has been cultivated in the West. If each marks a presupposition that does not travel well, can it be replaced? This question gives rise immediately to a somewhat hypothetical follow-up: The principle of tolerance, for example, may be seen as a sign of moral weakness, lack of commitment, and breeding ground for decadence. So, if we were to rid ourselves of tolerance and endorse instead a substantial value commitment to law and order, are we still talking about modernity and modernization – even when „law and order“ are equipped with advanced surveillance technologies? To be sure, one can tell a story along the lines of Foucault about the progressive modernization of policing, and this would be a story about the sciences of society that allow for more effective forms of profiling and social control. Paradoxically, perhaps, this story takes us full circle back to modern science as the cradle of modernity and modernization, and with modern science we are back to the cultivated epistemic stance of non-dogmatic tolerance which alone gives rise to the very idea that there can be progress in policing. In other words, or so it seems, as one evokes the notion of modernity and human progress, one cannot simply jettison the principle of tolerance.

Calculation, Standardization, Extraction

The subsequent discussion paid attention to how claims of universality are produced, challenged, and repurposed in both Western and non-Western contexts. A central question concerned what is at stake when values such as rationality, progress, equality, or freedom are criticized as “Western.” One does not do justice to such critiques if one reduces them to a simple denunciation of origins or to an automatic equation between universality and hegemonic power. Instead, these critiques must be understood in relation to theories of power, particularly the capacity of institutions to define standards, distribute symbolic and material capital, and legitimize hierarchies. In the contemporary U.S. context, for example, skepticism toward universalism intersects with the rise of identitarian politics, feminist standpoint theory, indigenous knowledge claims, and debates over meritocracy – illustrated by controversies surrounding elite university admissions and the authority to define “neutral” criteria of excellence.

Science and Technology Studies (STS) offers entry-points to such political analysis, for example by examining the role of calculation and standardization in universalizing projects. With Bruno Latour's notion of “centers of calculation” one can see how calculative practices enable knowledge to travel, stabilize, and circulate across space, often privileging certain epistemic forms over others (Latour & Woolgar, 2013, p. 51). Calculation thus appears not as a neutral technique, but as an expansionist and normative practice that renders diverse social worlds commensurable under universal rules – whether in markets, governance, or science.

With reference to the opening lecture one can further understand that universalization often entails extraction – of data, craft knowledge, or cultural forms. This becomes evident in the many examples of intellectual and cultural appropriation, such as

the commodification of traditional designs by global fashion brands. These cases reveal competing ontologies of knowledge with communal, intergenerational practices at one end of the spectrum, and proprietary, market-oriented logics at the other end. Accordingly, so-called resistance to universal values often comes to take the form of resistance to particular modes of standardization and circulation.[7]

Institutions

One cannot exclude from consideration also the institutional dimension of universal values. Western modernity spread globally not only through ideas but through institutional forms such as the nation-state, capitalism, legal systems and the rule of law, and democracy. All of these have been adopted worldwide but transformed in locally specific ways. One should therefore tend not only to the varieties of modernization but just the same to varieties of capitalism or varieties of calculation. This shows how universal values are enacted through plural, culturally embedded institutional arrangements rather than through uniform replication.

Historical examples from India, particularly the nineteenth-century Bengal Renaissance, complicated narratives of Western imposition. Here, reforms such as widow remarriage mobilized overlapping but not identical value frameworks: internal ethical concerns, colonial legal instruments, and global discourses of progress converged with local ideas of emancipation without collapsing into a single singular "Western" logic. Such cases can be analyzed with the concept of boundary objects (Star & Griesemer, 1989) and political "opportunity structures" (Tarrow, 2022) whereby different actors align around shared practices while attributing divergent meanings to them.

Shared practices with divergent meanings have always been a feature of Western notions of modernity, as demonstrated by comparative work in STS, but these fissures have spilled into the open as universal liberal values are increasingly contested: How can any society appropriate or mobilize such values when their normative authority is destabilized at the outset. Today, one might contrast liberal universalism with emerging claims of a "conservative international," in which traditionalist values are themselves framed as universal and are then mobilized transnationally against progressive liberalism (for the case of Russia, see Shcherbak, 2026).

Some might finally wish to question whether it remains analytically productive to speak of "universal values" at all, or whether it is more useful to focus on visions of the good life, power-laden technologies, and historically situated practices constituting diverse, and competing, sociotechnical imaginaries. The presumed universalism of human values is undermined by a fundamental tension in modern Enlightenment discourse: Modernization rhetoric often invokes freedom and emancipation, but its practices frequently rely on authoritarian structures, extractive economies, and technocratic governance. Technological development does not inherently produce liberalization. Instead, technologies are repeatedly reinterpreted and aligned with

[7] Perhaps it is more salient here that alleged universal values such as GDP and economic growth mask inequalities of distribution, such as by giving intellectual property rights to the commercial manufacturers but not to communities of craftspeople? Resistance to the universalisms is an expression then of political pushback.

divergent political projects, including conservative and authoritarian ones.

TRAVEL COMPANIONS: MODERN TECHNOLOGY AND WESTERN VALUES[8]

The discussion above of technological modernization presented the conclusion that "in non-Western modernization programs, technological development is the only remaining component of the social-developmental program of modernity, stripped of its normative ideals of liberal democracy, personal autonomy, and emancipation." However, any such separating-out of spheres raises suspicion: According to Science and Technology Studies (STS) material artefacts can function as Trojan Horses that – along with promises of universal betterment – transport patterns of use, structures of power, logics of supply chains, and ideological constructions of users, buyers, divisions of labor, and hierarchical orderings. But it is not evident how this insight proves salient for the discussion of technologies in a multipolar world:

> Even in the recent past, a globalized world was often confronted with the hegemonic expansion of Western technologies in which all new gadgets and programs seemed to come from the country of Hollywood and McDonalds. In contrast, AI takes shape in the multipolar world of TikTok and X, ChatGPT and DeepSeek, Apple and Huawei, WeChat and WhatsApp, Tesla and BYD. This is a world of social media platforms under suspicion, blocked here, allowed there, a world where chip manufacturing sometimes includes malicious capabilities, a world of export and import controls, of different privacy policies and ecological costs for browsers and their search engines. (Wang et al., in press)

There are four different ways in which the diffusion of (Western) technologies comes with a diffusion of (Western) values: The first story is that of consumer products which promote the construction of the sovereign consumer-subject: As they are buying into the life-style that has been associated with a product, consumers are individuals who create themselves as products of their purchasing choices. To become a consumer in a global economy is not per se a political act, and yet it undermines cultural traditions and political ideologies. Inversely, and perhaps paradoxically, (Western) cultural attitudes are imported along with the goods, even if these are produced in China or India. – This story about consumption might be adapted to manufacturing technologies such as the assembly line, and it can be excavated as well from critical infrastructure design.

The second story is that of technological competence geared towards the advancement of state politics, such as surveillance technologies, public and personal data management – here, we might say that many countries are now buying into Chinese governance models. This would then be a story about „Chinese modernization" undermining modern Enlightenment values.

A third kind of story revolves around the sustainability transition, as articulated especially in renewable energy projects. China, with or without liberalism, provides an

[8] The following discussion was prepared by Alfred Nordmann.

example by featuring solar energy and the idea of sustainable modernization built around renewable energies. This model of sustainability as renewable energy transition has been exported across the developed and developing worlds (Jasanoff and Simmet, 2021; see also Simmet, 2018). Yet the rise of solar power plants in national and international development policies posits a notion of sustainability and the "good life" that may not be sensitive to local distributional issues, such as conflicting patterns of land use (Jasanoff and Simmet, 2021).

In contrast to the previous three, the fourth story is one of surrender to the mimetic force of technologies – also a surrender to whatever values are transported by a technical system or device. National capacities are utilized not to develop alternatives but simply to create the same products again and again as rails for global capitalists to travel on. For example, the user interfaces of smartphones, tablets, desktop computers look increasingly alike, independently of who produces them or where. Digital interactions thus become standardized at a time that would benefit from a proliferation of perspectives. One kind of testimony to this trend is the fact that censored or sanctioned products are replaced by near clones. If a famous US brand is no longer available, a local brand will imitate it rather than create a meaningful alternative: The disappearance of a dominant foreign brand is seen as a loss and not as an opportunity, perhaps because the globalized commodity signified that the modern consumer society had arrived.

As for these four stories (and others), how well do they describe what is actually going in countries that seek to modernize? And if technology always transports implicit values, one might investigate where this is explicitly utilized today as it was, for example, in the Soviet Union or the GDR for the design of household appliances. And for all such ways of interacting with the value-ladenness of technology – to what extent do these promote modernization programs, survival programs, or governance programs?

These questions place Chinese and Russian, Indian and Brazilian modernization in the wider context of so-called second or reflexive modernity (Beck, 1992, Giddens, 1990, Lash et al., 1995). It begins by acknowledging firstly that modern technologies and modernization originate in the Western "modern world" with its „modern science" and that this Western project has spread hegemonically throughout the world. It acknowledges secondly that the pervasive transformative effects of modernization include resource depletion, environmental degradation, alienation and economic injustice – effects that are reflected in the West and all the countries in the grip of modernization. Second modernity is thus a reflexive modernity, preserving its political, cultural, economic, and technological achievements while seeking to ameliorate the damages inflicted by first modernity. In non-Western countries, similarly, we see the Western modernization project taken up and modified, adapted to the requirements of the future. This would mean that by dissociating oneself from first or original modernity one can take technological modernization out of "the West," but – with reflexive modernity seeking to repair the original project – one cannot take "the West" out of technological modernization.

Historical Process and Future Aspiration

With these considerations, the discussion shifts the focus from abstract models of modernization toward concrete political, ethical, and infrastructural dynamics, with

particular attention to Chinese, Russian, and comparative non-Western perspectives. A central theme was that non-Western modernization should be understood as a strategic and political project rather than a simple transfer of Western norms. Technological development was repeatedly described as state-driven, security-oriented, and closely linked to concerns over territorial integrity, sovereignty, and infrastructural cohesion – especially in large, heterogeneously constituted states. Modernization in this sense was framed not primarily as cultural convergence, but as the construction of national capacities through localized technological systems.

This also suggests that modernization is experienced differently at the level of everyday life. Rather than being understood as a historical stage, modernization was described as an aspiration toward a "better life," materialized in concrete improvements to living conditions, governance capacity, and social stability. From this perspective, modernization functions as a future-oriented goal rather than a retrospective narrative. This framing highlighted the importance of contextual meanings and cautioned against treating modernization as a uniform process.

Ethical governance of emerging technologies served as a major axis of discussion. Case-based reflections on biotechnology and artificial intelligence illustrated how technological crises can expose regulatory gaps while simultaneously catalyzing rapid institutional learning. Rather than indicating the absence of ethical reflection, these cases were presented as evidence of reflexive modernization in which societies respond to unintended consequences by strengthening governance frameworks, expanding stakeholder participation, and integrating ethical considerations into technological design and education. Digital platforms, surveillance systems, and data infrastructures thus become examples of material artifacts that embed specific models of governance, subjectivity, and social order. In a technologically multipolar world, where innovation no longer flows from a single Western center, value-laden technological systems now circulate in multiple directions, creating new forms of dependency, competition, and influence.

Alternative Modernities

Comparative perspectives highlight significant variation in state ‑ technology relations. In some contexts, strong state control over digital infrastructures leads to centralized governance, censorship, and surveillance. In others, powerful technology corporations increasingly assume roles traditionally associated with the state, particularly in the provision of critical infrastructures, the privatization of public services, or the appropriation of policing functions and the public sphere. These dynamics complicate simple distinctions between "state-led" and "market-driven" modernization and point to new sites or emergent political struggle over technological power.

A recurring concern was that broad narratives of alternative modernities risk becoming empty unless grounded in concrete cases. Participants called for closer attention to regulatory regimes, production systems, and economic infrastructures – the often-invisible foundations shaping technological development. Surveillance, while politically salient, was described as only one surface manifestation of deeper transformations occurring in manufacturing, services, and digital platforms that structure

contemporary social life.

Modern technologies cannot travel alone. Even in a multipolar world, they advance globalization and continue to transport values, institutional logics, and political imaginaries. Non-Western modernization does not simply reject Western models, nor does it replicate them wholesale. Instead, it involves selective adaptation, ethical negotiation, and strategic reinterpretation shaped by national narratives, governance capacities, and global challenges. Modernization has thus emerged not as a single trajectory, but as a set of contested, reflexive, and politically charged pathways into uncertain futures.

(DE)GLOBALIZATION BETWEEN PLANETARY RISKS AND ENTREPENEURIAL HEGEMONIALISM[9]

The question of deglobalization has been broadly discussed at least since the radical disruption of the established international order in 2022. The topic remains relevant because global trade, investment flows, and geopolitical alignments are undergoing visible shifts, with protectionism, reshoring, and industrial policies reshaping the international order. Nations are actively bringing supply chains closer to home or to trusted allies, especially in critical sectors like semiconductors. Although global trade flows have not been significantly reduced, the logic of globalization – interdependence, open markets, and peace – is being questioned. Deglobalization is not just about economics – it intersects with security, technology, climate policy, and inequality.

One way in which the focus has shifted is in respect to political imagination, driven by far-right populists in the USA, the EU, and also in Russia, where The Conception of the Foreign Policy of the Russian Federation (https://www.mid.ru/ru/detail-material-page/1860586/) was adopted in March 2023. There, Russia was unequivocally defined as a conservative, technologically oriented sovereign state in contrast to the West. Russia aspires to be the vanguard of the global anti-colonial movement, appropriating parts of the Soviet legacy but reformulating them in terms of civilizational identity (Shcherbak, 2026). Russian "anti-colonialism" is expressed in conservative rhetoric. It is interesting to see how this is echoed by the recently published US National Security Strategy (NSS), which, in fact, has proclaimed the end of globalism and thus the end of what Pete Hegseth called the "utopian idealism" in International Relations (Hegseth, 2025).

However, deglobalization is not merely a matter of rhetoric and political imagination. In China, globalized infrastructure such as the internet is heavily restricted and recast as a tool heavily controlled by the national government, with 'the great firewall' turning the free flow of information into an incredibly effective method of political control. Russia follows the same path, increasingly seeking control of social networks and private communication, and building a digital 'iron curtain' between itself and the "collective West" to ensure its sovereignty. The attendant question of digital sovereignty has become a pressing concern also in Europe, it is a code-word for the EU or member states taking the process of digital modernization into their own hands.

[9] The following discussion was prepared by Svitlana Shcherbak.

This situation raises many questions about digital technologies, policy, production, and regulation, as well as concerns about the climate crisis and AI, both of which are of existential importance. In this context, China published a report entitled "China's Modernization: The Way Forward" (2024). It reflects the "Chinese leadership's proposal to the rest of the world." The doctrine of "Chinese-style modernization" emphasizes promoting green, low-carbon modes of production and living, accelerating technological development, and advancing multipolarity and diverse models of sociocultural and political development. At the same time, the idea of "global governance" gains special prominence.

From a non-Western perspective, one might say that modernization „colonizes" the world by insinuating a type of sovereign subjectivity which has been rejected as bourgeois – to be overcome by a proletarian type of modernity that was embodied, for example, in the „New (Soviet) Man. "But the consumerist or bourgeois sovereign subject can also be rejected by conservative populism that propagates national identities rooted in religious traditions. As the Enlightenment subject of a liberal democratic state it can be rejected as well by emphasizing instead the solidarity of a collectivized subject. But all these modes of rejecting the sovereign modern subject are implicated in a *Bildungsprozess* or formative trajectory that advances all humankind in a progressive development towards emancipation, democracy, and liberalism.

The idea of second or reflexive modernity strips from this *Bildungsprozess* the pathos of progress but preserves the modern subject in its democratic culture. Second or reflexive modernization foregrounds learning (*Lernprozesse*) and, as such, it is cautious and reactive. Consumed by the need to remediate the negative „side-effects" of (first) modernization, it nevertheless maintains its confidence (Kurtov, 2023). The ideas behind Chinese modernization and Russian conservative modernization go further in that they reject its supposedly hegemonic liberalism, thus learning to integrate modernization into conceptions that, perhaps, distort it beyond recognition.

Global Perspectives

Rather than treating deglobalization as a singular economic process, the final discussion framed it as a multidimensional transformation that mobilizes political imagination for technological governance, security, climate change, and an ideological realignment of modernization projects.

A central theme was the erosion of the classical globalization narrative, which linked open markets, interdependence, and peace. Recent developments – including military conflicts, the rise of protectionism, industrial reshoring, and strategic trade restrictions – were discussed as symptoms of a broader reconfiguration of the global order. Deglobalization was understood not simply as challenges to free trade, but as a questioning of globalization's normative foundations and promises.

If deglobalization is driven by ideological and civilizational narratives, one such narrative stands out: The appropriation of anti-colonial rhetoric by illiberal and conservative political projects. In this context, modernization is increasingly portrayed not as emancipation but as a form of Western domination that calls for a non-Western response. This reframing enables a rejection of liberal democracy and universalist norms

while selectively embracing technological development, often decoupled from questions of social justice and egalitarian ideals. Modernization thus appears as a layered concept that refers to infrastructure, science and technology, political economy, and ideology, allowing for its reassembly in divergent and sometimes contradictory ways.

Another emerging narrative is that of digital sovereignty as a key dimension of deglobalization. The fragmentation of the global digital space – through national firewalls, state control of platforms, and restrictions on data flows – was discussed as both a response to geopolitical insecurity and a new mode of governance. Digital technologies were repeatedly described as non-neutral, deeply entangled with power, surveillance, and state capacity. These developments raise questions about regulation, production, and ethical responsibility, particularly in relation to artificial intelligence and climate governance.

In contrast to rhetorics of civilizational closure, the discussion also examined alternative modernization narratives that foreground sustainability, low-carbon development, and long-term governance of technological risks. Such approaches were interpreted as signs of reflexive or "second" modernity, in which the goal is no longer unlimited progress but the management of unintended consequences and the stabilization of social and ecological systems. This shift is reflected in changing attitudes toward prosperity and well-being, where maintaining existing standards of life replaces expectations of continual improvement, thus bracketing the forms of governance that were thought to be most conducive for a continual advancement of humankind.

Global governance emerged as a contested but necessary horizon. While skepticism was expressed toward universal regulatory regimes in a fragmented geopolitical landscape, participants highlighted the potential of regional leadership, regulatory exemplars, and plural pathways to shape global standards indirectly. The discussion stressed that governance challenges posed by climate change and emerging technologies are fundamentally shared human problems, cutting across national and ideological divisions.

Finally, the workshop discussion underscored the importance of empirical and everyday perspectives – such as infrastructure, consumption patterns, and material culture – for understanding modernization. It advocated comparative, historically informed, and reflexive research into modernization imaginaries, technological visions, and their political consequences in a multipolar world.

REFERENCES

Beck, U. (1992). *Risk Society: Towards a New Modernity.* Sage.

Beck, U., Giddens, A. and Lash, S. (1994). *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Stanford University Press.

China Media Project. (2023, May 12). Chinese-Style Modernization. *China Media Project*. https://chinamediaproject.org/the_ccp_dictionary/chinese-style-modernization/

Feyerabend, P. (1989). Realism and the Historicity of Knowledge. *The Journal of Philosophy*, *86*(8), 393–406. https://doi.org/10.2307/2026649

Fukuyama, F. (1992). *The End of History and the Last Man.* The Free Press.
Giddens, A. (1990). *The Consequences of Modernity*. Polity Press.
Hegseth, P. (2025, Dec. 6). Keynote Address at Reagan National Forum. *LiveNOW from FOX*. www.youtube.com/watch?v=tyuISf1xYX4
Jasanoff, S. (Ed.) (2004) *States of Knowledge: The Co-Production of Science and the Social Order*, Routledge.
Jasanoff, S. & Kim, S-H. (Eds.) (2019). *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. University of Chicago Press.
Jasanoff, S. & Simmet, H.R. (2021). Renewing the future: Excluded imaginaries in the global energy transition, *Energy Research & Social Science*, *80*, 102205. https://doi.org/10.1016/j.erss.2021.102205
Kagan, R. (2024). *Rebellion: How Antiliberalism Is Tearing America Apart–Again*. Knopf.
Kant, I. (1996). *Practical Philosophy*. Cambridge University Press.
Kurtov, M. (2023). Russia and Europe: The Culture of Breakages and the Culture of Repairs, *Technology and Language*, *4*(2), 116-127, https://doi.org/10.48417/technolang.2023.02.11
Lash, S., Wynne, B. & Szerszynski, B. (1995). *Risk, Environment and Modernity: Towards a New Ecology*. Sage Publications.
Latour, B., & Woolgar, S. (2013). *Laboratory Life: The Construction of Scientific Facts*. Princeton University Press.
Lipset, S.M. (1959). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *American Political Science Review*, *53*(1), 69–105. https://doi.org/10.2307/1951731
Nordmann, A. (in press). Technology, Science, and Modernization: Progressive Tales and Modern Myths. In L. Checketts (Ed.) *What Went Wrong with the West: Carl Mitcham's Critique of Western Philosophy of Technology*. Springer.
Parayil, G. (1996). The 'Kerala Model' of Development: Development and Sustainability in the Third World. *Third World Quarterly*, *17*(5), 941–958. https://doi.org/10.1080/01436599615191
Shcherbak, S. (2026). From Conservative to Technological Modernization: Discourse and Policy. *Technology and Language,* *7*(1), 42-62. https://doi.org/10.48417/technolang.2026.01.04
Simmet, H.R. (2018). 'Lighting a Dark Continent': Imaginaries of Energy Transition in Senegal. *Energy Research & Social Science*, *40*, 71–81.
Star, S.L. & Griesemer. J. (1989). Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, *19*(3), 387–420. https://doi.org/10.1007/978-3-031-84609-0_8
Tarrow, S. (2022). *Power in Movement*. Cambridge University Press.
Tolstoy, L. (1904). *Essays and Letters* (pp. 219–235) (A. Maude, Trans.). Funk and Wagnalls.

Wang, G., Mitcham, C., and Nordmann, A. (in press). Introduction. In G. Wang, C. Mitcham, & A. Nordmann (Eds.), *AI Ethics: A Cross-Cultural Dialogues.* Springer.

Weber, M. (1946). Science as a Vocation. In *Science and the Quest for Reality* (pp. 382-394). Palgrave Macmillan.

Xinhua News Agency (2024, May 4) *Chinese Modernization: The Way Forward*. https://english.news.cn/20240504/ae50c03d5f544ae8a651f146c08e5be9/c.html

Young, R. (1971) Darwin's Metaphor: Does Nature Select? *The Monist, 55*(3), 442-503.

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