


“World Science Forum: Trust in science and the sustainability challenges”

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ARTICLE INFO

Leonid Melnyk, Oleksandr Kubatko and Vladyslav Piven (2025). World Science Forum: Trust in science and the sustainability challenges. *Knowledge and Performance Management*, 9(1), 210-213. doi:[10.21511/kpm.09\(1\).2025.15](https://doi.org/10.21511/kpm.09(1).2025.15)

DOI

[http://dx.doi.org/10.21511/kpm.09\(1\).2025.15](http://dx.doi.org/10.21511/kpm.09(1).2025.15)

RELEASED ON

Monday, 30 June 2025

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JOURNAL

"Knowledge and Performance Management"

FOUNDER

Sp. z o.o. Kozmenko Science Publishing



NUMBER OF REFERENCES

15



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Published on: 30th of June, 2025

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Conflict of interest statement:

Author(s) reported no conflict of interest

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WORLD SCIENCE FORUM: TRUST IN SCIENCE AND THE SUSTAINABILITY CHALLENGES

Editorial

World Science Forum, titled "A Science and Policy Interface and Dialogue at the Time of Global Transformations", WSF2024, which was held on November 20-23 in Budapest, attracted 1,200 delegates from 122 countries (World Science Forum, 2024a). Leonid Melnyk, Doctor of Economics, Professor of the Department of Economics, Entrepreneurship and Business Administration of Sumy State University, took part in the World Science Forum, attending lectures, plenary sessions, and thematic sessions over four days. WSF2024 was organized to overcome the present limits of the wide-scale implementation of science-based policy measures on a global level. The Forum considered the current challenges of our time and the role of science in society's response to them. It was shown how investments in science create ripple effects in society, the economy, and governance. Among the key issues discussed at the Forum, the following can be highlighted (World Science Forum, 2024b):

- problems of trust in science;
- dynamic monitoring of the status of achieving sustainable development goals;
- formation of a new paradigm of life in a changing world;
- sustainable alternative to GDP;
- problems of education for sustainable development;
- evolution of artificial life forms.

The issue of trust in science was considered one of the priorities. It was stated that science, along with positive changes and technological disruptions, can carry new threats and risks with its discoveries. That is why public control over the use of scientific research achievements is so important. This is especially important with regard to those results that countries can use to implement their aggressive intentions. Speaking about trust in science, Nobel laureate in physics Takaaki Kajita (Tokyo) noted that for society to trust scientists, science must be, firstly, truthful, and secondly, understandable, that is, able to explain to society the content and possible consequences of its achievements in an accessible manner.

It is also necessary to highlight other relevant contemporary problems that have found a place in the discussion at the Forum.

Dynamic monitoring of the status of achieving sustainable development goals. The current state of sensor systems in combination with the latest satellite technologies and big data) create opportunities for monitoring changes in environmental, biosphere, and climate indicators almost in real time; accordingly, this lays the foundation for building a fundamentally new political and organizational decision-making system.

1. LIFE IN A CHANGING WORLD

The acceleration of the processes of civilization development actualizes the need to form a new paradigm of actions for life in a changing world. An increase in uncertainty, probability, and risk was noted in the conditions of the modern phase transition to new social principles during modern industrial revolutions (Industries 3.0, 4.0, 5.0) (Melnyk et al., 2021). An increase in natural, epidemiological, and social emergencies was noted (Meindl et al., 2021). This includes the creation of unprecedented systems for forecasting, monitoring, and warning based on modern scientific knowledge. Melnyk et al. (2024) note that digital tools and chatbots are changing the role in new environmental and social models of crisis management.

Alternative measurement of GDP. Today, there is an orientation towards economic development goals, the concentrated expression of which is the GDP of countries and economic entities. This is beginning to become a significant obstacle to achieving the multifaceted goals of sustainable development. The Forum proposed several approaches to forming an alternative metric system for measuring the achievement of sustainable development goals under the conditional name “sustainable GDP, or sGDP” (Agrawal & Sharma, 2023). This conditional indicator could be formed based on three key groups of indicators that would reflect, in addition to economic results, the state of natural systems and a complex of social indicators. It was separately noted what disharmony armed conflicts, in particular, Russia’s aggression against Ukraine, bring to the achievement of sustainable development goals.

2. EDUCATION FOR SUSTAINABLE DEVELOPMENT

Education and upbringing of youth are a key link in a comprehensive toolkit for achieving sustainable development goals. The dynamism of modern society and the variability of the state of the natural and social environment necessitate the construction of a dynamic system of education and upbringing of generations who will have to make decisions in the near future. This requires the introduction of at least two critical measures. First, a system of training and retraining of teachers themselves must be introduced (Zguir et al., 2021). Secondly, it is necessary to create a dynamic system with appropriate forms of taking into account the opinions of young people and their active participation in decision-making.

3. EVOLUTION OF ARTIFICIAL LIFE FORMS

Today, humanity is on the verge of creating new entities of nature with the potential for self-organization and self-development. The creation of new artificial biological organisms, the development of artificial intelligence of cyber-physical systems and machine learning are becoming the reality of our lives (Ahmed et al., 2022; Melnyk et al., 2022). This lays the foundation for a new, unprecedented type of evolution – the evolution of artificial life forms and intelligence created by man. The problems of building reasonable trajectories of co-evolution of society and the aforementioned artificial entities are becoming an indispensable necessity.

A number of speeches at the Forum expressed concern about armed conflicts in the world, which undermine the peaceful community of countries and humanity’s years of sustainable development.

The Forum ended with the adoption of a declaration, which placed special emphasis on the responsibility of science for the fate of civilization. In particular, the declaration of the 11th World Science Forum “The science and policy interface at a time of global transformations” adopted on November 23, 2024, Budapest states such main aspects (World Science Forum, 2024c).

In an era of significant transformations, science serves as *a universal language* and one of the most important tools for understanding and shaping our world. It must guide society, policymakers, and economies in making informed decisions about risks, opportunities, and long-term sustainability. However, science must also remain open, inclusive, and adaptable, engaging with other disciplines and societal needs as well as ensuring that its applications do not undermine evidence-based solutions or ethical considerations. In this context, the *collaboration between science and policy* has never been more critical. The world faces a lot of severe crises, from climate change to geopolitical instability; therefore, the integration of scientific expertise into decision-making processes is important for addressing various global challenges. Science diplomacy plays an increasingly important role in developing international cooperation, promoting peace, and ensuring that policies are grounded in reliable and objective evidence. *Countering disinformation and distrust* is another task that science should effectively solve. The rise of disinformation and the politicization of science threaten the foundation of evidence-based policymaking. Distrust in science, often driven by misinformation campaigns, poses significant risks to global progress and public well-being. Addressing these challenges requires proactive efforts to rebuild trust in scientific institutions, improve science communication, and counteract the deliberate spread of falsehoods that undermine the credibility of research and expert knowledge (World Science Forum, 2024c).

The participants of the Forum paid a lot of attention to the **issues of sustainability metrics**. Sustainable development requires robust, integrated methodologies to measure progress in order to assess the transitions toward sustainability. The global scientific community must work together to refine these methodologies and support their implementation, therefore contributing to the achievement of the Sustainable Development Goals. Sustainability metrics are used to measure and track the environmental, social, and economic impacts of policies, projects, or organizations (Hoff et al., 2021; Saadi et al., 2023). Common environmental metrics include carbon footprint, greenhouse gas emissions, energy efficiency, water usage, waste generation, and biodiversity impact. Social sustainability metrics might assess community engagement, labor conditions, gender equality, health and safety standards, and access to education or essential services. Economic metrics often focus on inclusive growth, local job creation, responsible sourcing, investment in innovation, and the long-term financial viability of operations (O’Donovan, 2024). All participants of the Budapest Forum agreed that a holistic approach to sustainability should be applied. Cross-cutting indicators such as the Environmental, Social, and Governance (ESG) scores, the UN Sustainable Development Goals (SDG) alignment, or green GDP are also widely used to provide a holistic view of sustainability performance (Zheng & Chen, 2024; World Science Forum, 2024d).

To conclude, the World Science Forum, titled “*A Science and Policy Interface and Dialogue at the Time of Global Transformations*,” was a truly special experience for all participants, including Dr. Leonid Melnyk. It created a powerful synergy effect because it enables the exchange of knowledge, ideas, and expertise among scientists, policymakers, and stakeholders from around the world. Events like this are particularly important in times when the fundamental pillars of sustainable transition and democracy are under threat. They serve not only as a platform for dialogue but also as a foundation of collective responsibility and action. In a world facing accelerating climate change, social inequality, and geopolitical instability, forums like this help build bridges between scientific evidence and policy decisions. They develop mutual understanding, trust, and a shared vision of a better future. It is crucial to continue such cooperation in the future, as science remains a key element in addressing global challenges.

ACKNOWLEDGMENTS

The paper is prepared within the scientific research projects “Digital transformations to ensure civil protection and post-war economic recovery in the face of environmental and social challenges” (No. 0124U000549) and “Fundamental grounds for Ukraine’s transition to a digital economy based on the implementation of Industries 3.0; 4.0; 5.0” (No. 0124U000576).

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