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A new era in digital development

The Metaverse for Poland



In collaboration with

 Meta

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Introductory letter

Dear Reader,

We are facing unprecedented innovation and rapid technological advances, and the remarkable thing about this time is the blurring of the boundaries between reality and the digital world. Technologies such as artificial intelligence, metaverse and blockchain are revolutionizing the way we work, learn, communicate and engage in social interactions.

This revolutionary phase of digital transformation is opening the door to new opportunities for us. According to experts, AI and metaverse technologies carry enormous potential for the economic and scientific development of our country, and, consequently, the businesses and universities operating here. Poland should do everything to take advantage of this opportunity.

This, of course, requires the thoughtful effort and determination of both government and business actors, as the opportunities that are emerging today

are accompanied by unprecedented challenges. The Metaverse Committee, which I had the honor of chairing, was formed in response to these challenges. The Committee's expert discussions led us to a clear conclusion - dialogue and cooperation between the public and private sectors is the best way to safeguard the interests of the country and its citizens.

We are presenting a report that summarizes the Committee's activities in 2023. The document in your hands contains many up-to-date observations, conclusions and recommendations that we hope will help us take advantage of emerging opportunities and protect us from possible risks. It also serves as an invitation for all interested individuals and institutions to undertake coordinated and in-depth work on a national metaverse strategy. We invite you to read the report and discuss our common future.

Andrzej Horoch
Chairman of the Metaverse Committee

Introduction and key points



The recommendations for the creation of “The Metaverse for Poland” strategy constitute a joint initiative aimed at positioning Poland as a global leader in the industry.

Poland, working to improve the quality of life, education, culture and democracy through the use of immersive technologies with respect for human dignity and fundamental rights, and in accordance with EU and OECD standards, has the opportunity to become a role model for the use of metaverse technologies.

The following document describes the activities that Poland should implement in the short and long

term to achieve goals for the development of Polish society, the Polish economy and Polish science related to the metaverse. Due to the convergence of activities and the link between the development of the metaverse and that of artificial intelligence technology, the recommendations proposed in the strategic document adopted by the Ministry of Digitization in 2020 are divided into six areas (“Policy for the Development of Artificial Intelligence in Poland since 2020”):

Metaverse and society

– recommendations for activities that will positively influence the development of society, shaping attitudes of conscious use of new technologies and supporting the desire to improve knowledge and skills, including digital competence.

Metaverse and innovative business

– recommendations for activities aimed at supporting Polish companies developing innovations in the metaverse sector, as well as funding mechanisms, cooperation between SMEs and the government and implementation of new pro-development regulations (including regulatory sandboxes).

Metaverse and science

– recommendations for actions to support the Polish scientific and research community in designing interdisciplinary solutions in the area of the metaverse, as well as the development of cooperation, financing and academic education in immersive technologies.

Metaverse and education

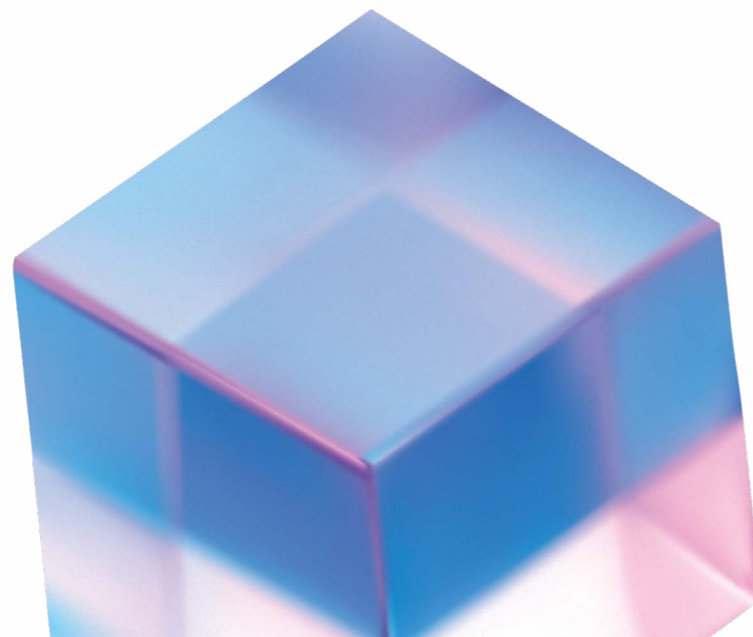
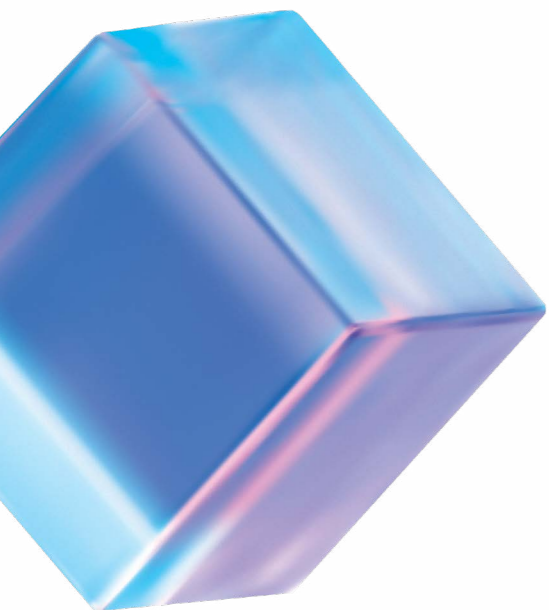
– recommendations for activities in primary and secondary education.

Metaverse and the public sector

– recommendations for actions to support the public sector in coordinating programs on immersive technologies.

Metaverse and international cooperation

– recommendations for activities in the international arena, including the European Union, aimed at deepening cooperation in the region and promoting Polish business in the growing sector of new metaverse-related technologies.



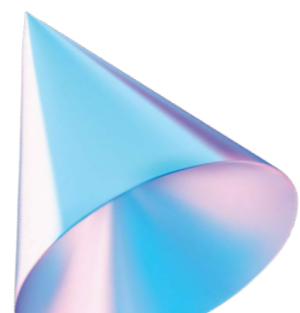
The document presents key conclusions and projects recommended by the Committee's experts, whose common goal is to accelerate the development of a national metaverse strategy for Poland.

The ongoing development of the metaverse is expected to significantly change our daily lives, work and leisure activities, heralding a new era of interconnectedness and virtual exploration. The metaverse, some experts predict, will be a fully simulated virtual world, while others see it as an overlay of augmented reality on top of the real world. To realize its full potential, it is necessary to respond flexibly and continuously to the development of technology by creating friendly R&D legislation, new economic models, removing obstacles and strengthening legal readiness for market changes.

The Committee proposes a multi-dimensional approach to the integration of the metaverse. It recommends the use of modern technologies that overcome accessibility barriers and provide an immersive environment tailored to

different user needs. Ethics and legal issues such as privacy and anti-discrimination are crucial. The proposed framework emphasises technological adaptation, innovation, universal access, social and economic aspects and global standards.

The following set of recommendations, developed by representatives of business and academia, is a prelude to further action and the beginning of a debate on Poland's future as a leader in the new technology market. The recommendations are in line with the objectives of the Digital Decade 2030 policy programme developed by the European Commission. The document presents key conclusions and projects recommended by the Committee's experts, whose common goal is to accelerate work on the development of a national metaverse strategy for Poland.



Metaverse and its definition



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While the word “metaverse” first appeared in a novel by Neal Stephenson, published in 1992, the concept of virtual reality dates back much earlier – to the mid-1930s, when American science-fiction writer Stanley Weinbaum published “Pygmalion’s Glasses.”

Agreeing on a single, common definition of metaverse is incredibly difficult, and yet vital to its further development. Primarily, this is because the metaverse is much more than a single product, technology or service. Further development of this ecosystem will require a uniform understanding of the concept, as such an approach will allow all market participants to communicate effectively, operate under consistent rules and collaborate on the development of individual elements of the metaverse.

The legal definition of the metaverse can also influence how the technology will develop, how this development will be regulated and what consequences this will have for the state, businesses and users. Instead, a lack of a definition, or different

versions of it, could lead to different legal interpretations and thus conflicting regulations from country to country, which would not be conducive to the further development of this ecosystem and its tools.

For the purposes of the report, a technical definition of metaverse was adopted, according to which it is **a collective virtual shared space created by the convergence of virtually enhanced physical and digital reality. It is a collection which provides exciting 3D experiences in digital spaces that are interconnected, allowing their users to easily move between them.** The easiest way to portray it is as a kind of hybrid of the familiar social experiences of today’s Internet, which are sometimes extended to three

dimensions and sometimes superimposed through projection onto the world around us. The distinguishing feature of the metaverse is the sense of the presence of another person – as if we were in the same room with them. According to this definition, the metaverse is the successor to the mobile Internet¹.

The metaverse is not device-independent or owned by a single vendor, but instead requires multiple systems and technologies to work together. Virtual reality (VR), augmented reality (AR), Internet of Things (IoT), 5G, artificial intelligence (AI) and spatial computing technologies all contribute to the metaverse:



Augmented Reality (AR)

– is a technology that superimposes digital images or animations onto a user’s view of the real world, thereby enhancing or “augmenting” reality.



Virtual Reality (VR)

– uses computer technology to create a 360-degree simulated environment that the user can explore. It allows users to be socially present in a mapped virtual world space or experience conditions that would be impossible to achieve in the physical world.



Extended Reality (XR)

– is a general term referring to all technologies, such as AR and VR, that enhance or simulate reality.

¹Meta (2023) The Metaverse and the Opportunity for the European Union. [Report](#)



On the other hand, what is certain is that the metaverse represents a revolutionary stage of digital transformation that offers society unprecedented opportunities for interaction and communication and new experiences at the intersection of two worlds: the physical and the digital.

In the ongoing era of digital society, the boundaries between reality and virtuality will become increasingly fluid.

It is also worth emphasizing that no current definition specifies an ideal and final model of the metaverse, and the forms it may take in reality may differ from these definitions. As a result, it is necessary to agree with the European Commission's approach, which holds that "Virtual worlds will be an important aspect of Europe's Digital Decade and will impact the way people live, work, create and share content, as well as the way businesses operate, innovate, produce and interact with customers"².

At this stage, the following features of the metaverse can be distinguished:

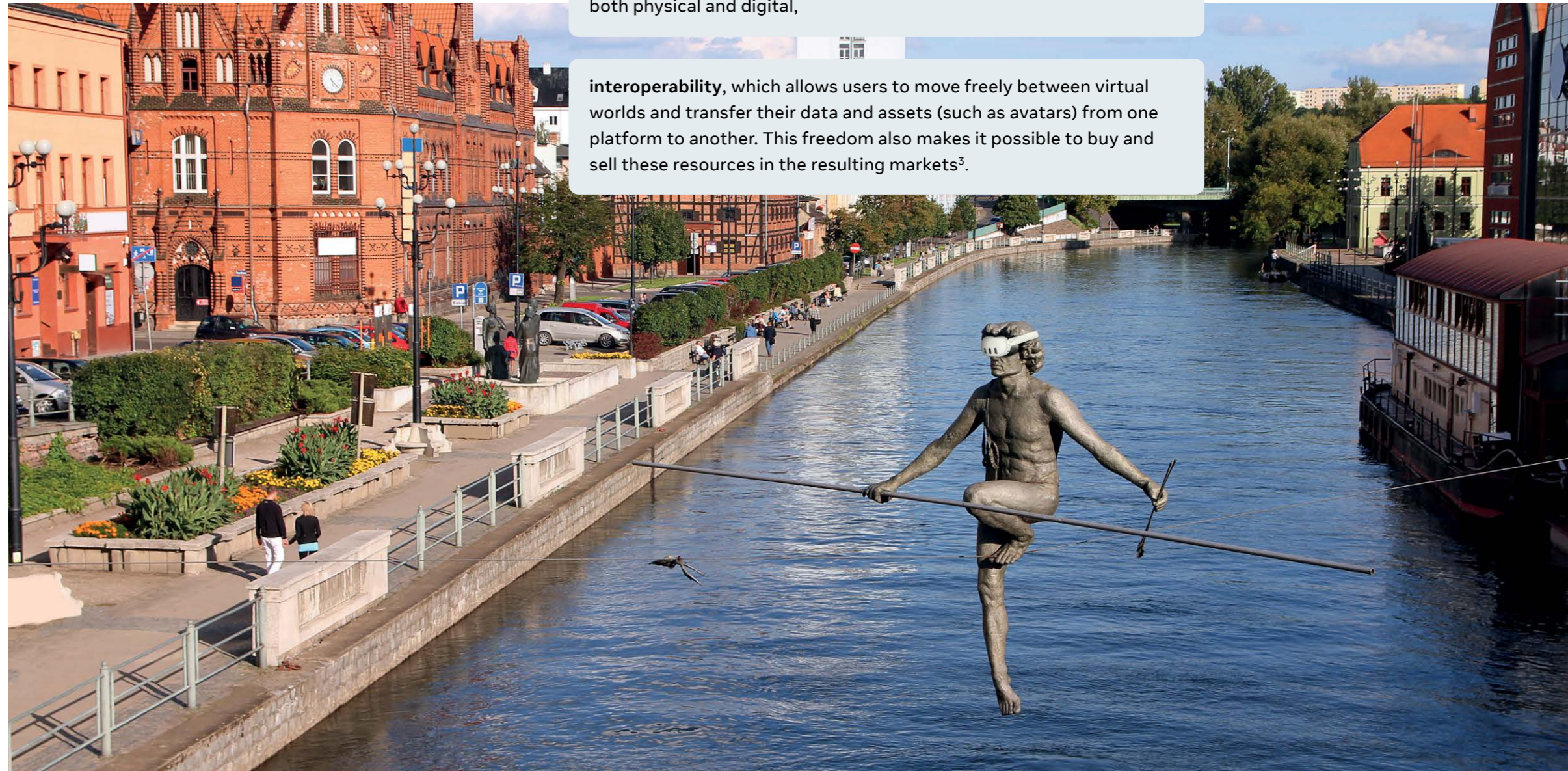
permanence, or the ability to remember the user and their environment between sessions,

connection to the real world via the IoT or similar technologies,

immersiveness, which provides users with a sense of presence,

collaboration and social interaction, through which users can coalesce, socialize and communicate in the digital space. Interactions can become increasingly inclusive and connect multiple spaces, both physical and digital,

interoperability, which allows users to move freely between virtual worlds and transfer their data and assets (such as avatars) from one platform to another. This freedom also makes it possible to buy and sell these resources in the resulting markets³.



² European Commission, 2023. [An EU initiative on virtual worlds: a head start in the next technological transition](#). [Shaping Europe's digital future, [dostęp: 18.04.2024 r.]

³ The Metaverse in Asia | Strategies for Accelerating Economic Impact. Deloitte [The Metaverse in Asia I](#). Deloitte SEA

The economic and social potential of the metaverse



Metaverse and society

Poland is one of ten countries in the region that can be seen as so-called Digital Challengers⁴ due to their digital potential. The development of the metaverse is opening new horizons for Central and Eastern Europe, where more than 170 million residents of 20 countries, located between three seas, offer opportunities for economic growth in many sectors. Leveraging its co-creation technologies, which include artificial intelligence, automation, XR and blockchain, Poland has an opportunity to benefit from the digital transformation, driving growth, innovation and sustainable development in the coming years.

It is equally important for society that technology-induced social changes and government-implemented investments ensure fair and equal access to digital resources. The principle of universal access is fundamental in this case, as it implies the need to include all

people in the adoption of technology by society, from its inception. The metaverse opens up opportunities for people to strengthen social interaction within the digital economy, which is accessible to all through universal access to the Internet. By establishing national standards and governance structures for the metaverse, Poland will join the ranks of countries investing in immersive technologies. Over the past two years, national metaverse strategies have been developed by Finland, Hong Kong, Singapore, Brazil and Japan. These comprehensive frameworks, which include national strategies, serve not only as guidelines for creating a more accessible and secure digital world, but also as an open invitation to collaborate on developing the potential of the metaverse.

Accessibility and inclusion must be decisive factors around the metaverse. They cannot be ignored, as the development of digital environments requires guaranteeing equal opportunities for all people, regardless of differences in skills or background. Fostering an inclusive environment in the metaverse, in which barriers are eliminated and each person can openly express their opinions and presence, guarantees universal participation and the development of this ecosystem.

The development of a national metaverse strategy should also include promotional activities that increase public confidence in these high-tech solutions. By

creating an accessible model of the metaverse, users can be aided in understanding its capabilities through direct contact and personal experience.

In this context, we propose the creation of an initiative called “the Metaverse of Polish Culture”, which will integrate digital activities on a national and broader regional scale. This virtual space will be filled with interactive exhibitions and educational zones. Thanks to VR/AR and AI technology, both Polish and foreign users will have the opportunity to explore Poland’s rich history and traditions in an engaging way, regardless of where they are located.

“The Metaverse of Polish Culture” means the creation of a shared model of the metaverse, which will systematically collect virtual assets representing the cultural heritage of our country under a single digital address. These will include digital replicas (“twins”) of monuments, works of art and historical figures which are significant to our heritage. Our priority is to bring all these items together in one place to provide users with easy access.

The development of the metaverse is opening new horizons for Central and Eastern Europe, where more than 170 million residents of 20 countries, located between three seas, offer opportunities for economic growth in many sectors.

⁴ Raport (2020) *Polska jako Cyfrowy Challenger w nowej normalności* | McKinsey

⁵ The Metaverse in Asia | Strategies for Accelerating Economic Impact. Deloitte [The Metaverse in Asia](#) | Deloitte SEA



“The Metaverse of Polish Culture” will become a space for inspiring lessons, meetings and the promotion of what regional museums and Polish cities have to offer. Ensuring the high educational value of the project will increase the confidence and likelihood of regular use of this solution by teachers, students and a wide range of enthusiasts of history and culture.

The project also provides an opportunity to restore Polish monuments that have been lost over time and make them available in digital form. In this way, the metaverse can contribute to preserving national heritage and passing it on in a digital form to future generations, both at home and abroad.

The “Metaverse of Polish Culture” initiative provides an opportunity to create a project using modern virtual technologies for the benefit

of the general public, which could become a model on a global scale. At the same time, it can significantly affect the acceleration of development, standardization and interoperability of technological solutions in the education sector in Poland.

Ultimately, we also see merit in establishing a dedicated program to support the development of the metaverse in education. Such a program would involve the competitive selection of operators who would be responsible for disseminating the metaverse at the regional level. Under such a program, it would be possible to include a broader spectrum of virtual content, such as digital chemistry labs, virtual specialized solutions for vocational schools, or interactive tools for language learning.

The metaverse and innovative business

To adapt Poland’s economic ecosystem to the rapid development of metaverse technology, it is necessary to identify key sectors and its impact on the Polish economy, in its economic, social and environmental dimensions, as soon as possible. Preliminary estimates show that the value of the Polish metaverse market could reach 5 to 10 billion EUR by 2035⁶, and its potential growth could be as high as 40% per year. This prospect makes the metaverse one of the most promising technological fields, with a real impact on the economy on a global, European and national scale. In an era of digital transformation, this will require companies to adapt quickly to compete effectively in the market.

Consistent implementation of the national metaverse strategy should aim to create and support a dynamic ecosystem of business and technology that will connect Polish companies, startups, universities, research institutions, technology providers and creative content creators.

Investment in VR/AR and AI innovation is an investment in the country’s economic development. Polish leaders in innovation are already successfully testing metaverse technology in industry, banking, telecommunications, healthcare and education. However, to increase the number of systematic implementations, the vast majority of companies need examples of implementation and scalable solutions that they can easily put into action

and expand upon. To create these examples for metaverse technology, it is necessary to share the experiential knowledge built from a sufficient number of implementations. Our intention is to significantly accelerate this process.

A digital transformation information hub would be a good tool to accelerate this process. The creation of a platform of knowledge would give companies access to the latest information, trends and training in the field of immersive technology, as well as existing tools and resources to implement this technology in existing operations. Effective use of new technologies requires ongoing education, so training of employees and executives is key to adapting business models to the innovative conditions of rapid economic development. In order to significantly accelerate the development of the market and increase the number of implementations of VR/AR and AI, we propose taking advantage of tried and tested activities in Poland, such as the Digital Innovation Hubs and Start in Poland.

A key element of the development of Polish businesses is the establishment of the “Metaverse for Business” program, which aims to support lower-level economic development by connecting businesses with metaverse technology. As part of the program, we propose the creation of an educational platform for SMEs, which will contain a database of metaverse training courses and demonstrate its capabilities (starting at the basics).

⁶ Meta (2023) The Metaverse and the Opportunity for the European Union. [Report](#)

“Metaverse for Business” includes 4 components:

- education about the metaverse,
- operational support and networking among stakeholders,
- funding for test implementations and research,
- post-acceleration, i.e., original efforts to scale developed solutions (developed by operators).

The priority is to focus on the creation of complete solutions that support standardization, interoperability, risk and compliance management, while meeting public administration requirements and the expectations of the stakeholders who make up the metaverse’s ecosystem.

The implementation of the program will also help to identify Poland’s individual differentiators as part of the European Union.

Grants and subsidies from EU funds are an important source of support for innovative business. The goal of this support is to accelerate the country’s digital transformation through the implementation of

We recommend initiatives that will give top priority to the digital transformation by:

- accelerating the development of corporate innovation,
- developing digital education and training process in the metaverse,
- promoting innovation among SMEs,
- digital development that takes the Sustainable Development Strategy and the Sustainable Development Goals 2030 into account.

Securing these areas will support the mission of building a modern and competitive society based on innovation and new technologies.

Metaverse and science

In the strategy for the development of the metaverse, it is crucial to include scientific research that responds to existing trends and public demand and creates conditions for the development of Polish academia in this new area. We recommend that the government’s work on the strategy be preceded by scientific research that will independently confirm the document’s assumptions and identify new areas for analysis. The Committee sees the need for further cooperation with universities, not only during the process of building the future metaverse strategy, but also in subsequent years, during further research to support independent academic projects. This is also an opportunity to identify new sectors that may depend on immersive technologies for their development.

An example of successful cooperation between the academic and business sectors is the European



cooperation program, carried out by Meta. Thanks to the participation of the Poznań University of Technology and the “Beyond Imagination” project, we can observe the impact of technology on Polish society and local development conditions. Observations on improving the quality of life of people at risk of social exclusion already show how Meta can positively affect the reduction of digital isolation of representatives of marginalized groups. It can also accelerate the development of medicine, especially telemedicine, by improving the comfort of patients staying at home and modernizing the diagnostic process.

Immersive technology presents an opportunity to level the playing field for many social groups due to its inclusive qualities. Potential users of this technology are not limited to the elderly. They can also include people with disabilities, people struggling with mental illness, refugees, people with childcare responsibilities (including caregivers

on parental leave), and any individual facing social exclusion due to an inability to participate in society.

In addition to the Poznań University of Technology, the University of Applied Sciences Magdeburg-Stendal (Germany), the University of Paris-Dauphine (France), the Institut Renaissance Numérique (France), the Polytechnic University of Milan (Italy), the RISE Institute (Sweden), the University of Alicante (Spain), and the Netherlands Organization for the Application of Science (TNO, Netherlands) are participating in the European research program. The universities are collaborating in the sectors of **labor, development of legal frameworks, economic impact and research on sustainability in immersive technology**. Research into the creation of R&D sandboxes and test environments that contribute to the field under development, including legislative sandboxes, are key to scientific development. Demonstration environments, including VR and MR functions, make

it possible to test cutting-edge solutions and their effectiveness in practice. Conclusions from this research and metaverse projects can have a huge impact on the development of science and the economy of Poland.

As a result, it is nevertheless important to invest in the education of future generations and to adapt the education provided by universities to the future requirements of the labor market and the growing creative industry. Therefore, we point out the need for the introduction of faculties closely related to immersive technologies and visual arts at Universities of Tech-

nology and Academies of Fine Arts. **The allocation of government ministry funds for academic grants** in the field of the metaverse and immersive technology development, where doctoral theses would relate to particular goals of the strategy, will enable the acceleration of economic development and digitization in Poland.

Among the Committee's recommendations, especially from representatives of the academic community, the importance of further research on the metaverse and the need for good cooperation between the academic and business sectors is emphasized.

Metaverse and education

The metaverse, as the next stage in the evolution of the Internet, has the potential to revolutionize education. It can transform the way we learn and teach, creating infinitely customizable, interactive, and engaging learning environments. Education is a field closely related to investment in human capital, so it is evolving together with technology. Today, this process is becoming increasingly flexible, especially when it comes to methods of increasing student engagement and interest in educational institutions. Academic research has shown that VR can positively affect various aspects of learning - such as comprehension, memorization, student engagement, attention span and motivation⁷. Including the metaverse in education, through training students and teachers, can open up new avenues in the Polish education system, positively affecting the quality of education.

More and more Polish teachers are being exposed to projects in the metaverse, because of the expansion of their curriculum in accordance with the core curriculum. A training program conducted in 2023 in cooperation with Meta, NASK and VRheroes trained teachers in the use of VR goggles. This demonstrated the broad range of possibilities of integrating modern technology into the core curriculum and lesson structures. In addition, the workshop identified educational applications of AR technology. The trainings reached 1,000 teachers from all over Poland, 30% of whom were employees of institutions located in towns with a population of less than 50,000.

By gaining knowledge about modern technologies and the benefits of including virtual reality in the core curriculum, the teachers were a test group. They found that the metaverse is an excellent environment for students to gain new

“The ability to create in the VR world enhances creativity among students and enables them to feel the joy of creating their own works. Using VR goggles to teach lessons triggers positive emotions, which is the basis of the learning process, among teenagers.”

– Edyta Mruk, a computer science teacher and therapist at an elementary school

experiences and develop their creative and digital skills.

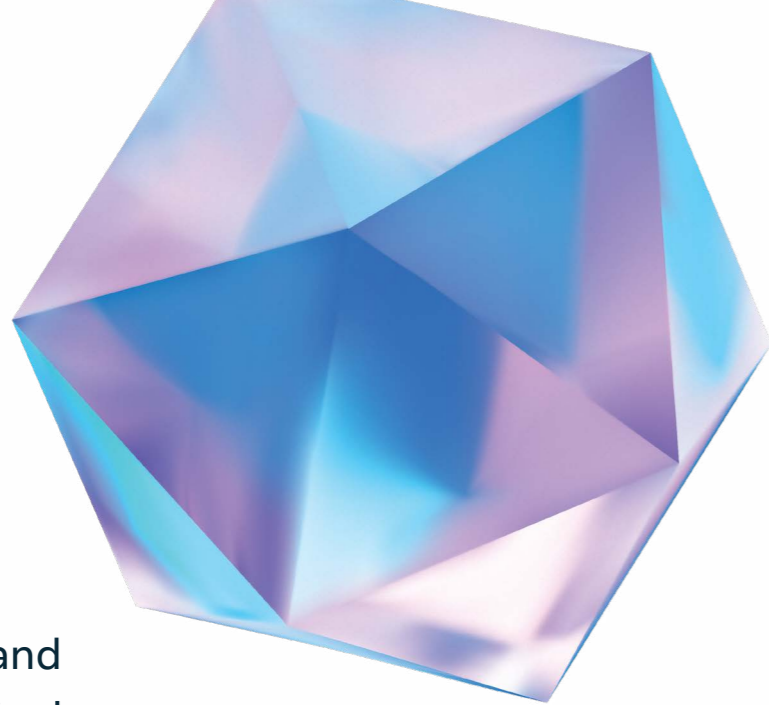
In addition, the metaverse enables the formation of partnerships between schools around the world. Thanks to this technology, students can connect with their peers from other countries and learn more about their culture, as well as share their experiences and knowledge. As part of this cooperation, it is possible to organize student exchanges, international classes, or class partnerships. This form of education can be particularly attractive to young people, as it gives them the opportunity to learn about other cultures and make new friends.

In order to identify the most talented individuals, we recommend the establishment of technology contests for students at every level, which will help find and develop the potential of outstandingly talented young people early on. We also call for the introduction of

a new subject to the core curriculum of elementary schools, high schools, and universities, entitled “New Technologies and Digital Awareness.” This course would broaden awareness of the metaverse and help prepare young people to function in an increasingly digital world.



⁷ D. Hamilton, J. McKechnie, E. Edgerton & C. Wilson (2020), Immersive virtual reality as a pedagogical tool in education: a systematic literature review of quantitative learning outcomes and experimental design.



Metaverse and the Public Sector

The metaverse is not only a new technology, but also a new challenge for the public sector. Even at this early stage, it is crucial to understand the role the public sector can play in shaping and developing it. Ensuring citizens' security and democratic access to new innovations should be fundamental principles of government. By implementing immersive technology-based solutions, such as VR training simulators or VR first aid, the public sector can accelerate and improve the efficiency of local government.

However, to develop a strategy, sufficient knowledge and experience in advanced implementations of various innovations are needed to see the possibilities of the metaverse and effectively invest in systemic solutions. The Committee therefore proposes the establishment of an expert working group on the metaverse, which will identify the key opportunities for the country and synchronize the implementation and education activities necessary for their realization. This group will create an environment for the exchange of information be-

tween the government, academia, business and the non-profit sector.

Within the framework of public sector action, the need to safeguard the needs of the younger generations through dialogue with high level public officials should be emphasized. The Committee recommends the establishment of a **“Youth Council for the Metaverse”**, which will be part of the Council for Dialogue with the Young Generation in the Public Welfare Committee. Ensuring that the needs of all citizens are considered is also a guarantee of the consultations carried out by the Ministry of Digitisation for the effective implementation of the metaverse.

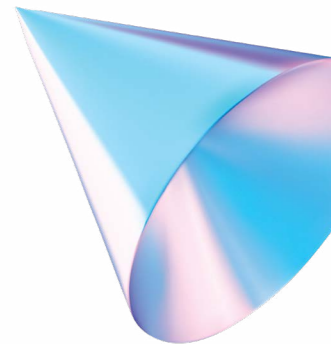
The Ministry of Digitisation should organize regular meetings with metaverse stakeholders, such as the Metaverse Committee, who can act as experts and advisors. A platform for the exchange of knowledge and views is important as it enables the exchange of information and experience, which will contribute to taking better advantage of the potential of the metaverse in the public sector. Implementing solutions

based on this technology requires not only the right knowledge and experience, but also investment and commitment from the public sector. **Due to the dynamic development of the technology of the metaverse, it is important that the scope of legislative work in Poland is constantly monitored and that regulations are actively adapted in parallel with the development of VR/AR and AI technologies.** We recommend the implementation of legislative sandboxes that will contribute to the effective digitalisation of the public sphere.

By monitoring trends and, in parallel, anticipating the regulations that shape legislation, we can aim

to harmonize company and trade law with the EU digital market. This will enable domestic entrepreneurs to seamlessly establish cooperation abroad and counteract market fragmentation.

We also highlight a number of key technologies that are creating metaverse solutions beyond VR/AR and AI - including issues related to digital identity, creative and virtual assets, digital twins, the issue of user identification and security, payments (e.g. blockchain) and countering online disinformation. These aspects should be considered and made consistent in the legislative process. Only predictable and stable regulations will allow innovation and



creativity in VR/AR and AI technologies, while providing adequate investment protection and enhancing the credibility of the entire sector of metaverse technology.

The benefits of taking advantage of the metaverse in the public sector are immense - from improving government efficiency to providing better services to citizens. Therefore, we recommend the creation of a comprehensive education programme on the metaverse, aimed at government employees, public institutions, as well as primary, sec-

ondary and higher education staff. This programme should include ready-to-use tools, training and, in the longer term, funding opportunities for implementations that will help to better understand the potential of the technology and to acquire the necessary competences to effectively manage the digital transformation process towards the metaverse.

Taking into account the promotion of digital inclusion, the need to protect users' interests and the articulation of the right ethical

attitudes, such an education programme should be gradually extended to other groups of stakeholders, including citizens, creators and users of all ages - including pupils, students, professional groups and entrepreneurs operating at different scales.



Metaverse and International Cooperation

The Metaverse strategy should emphasize Poland's technological ambitions and readiness to play a leading role in this area. The Polish creative sector, including the game development industry, already stands out on the international stage. "Cipher Game", developed by the Institute of National Remembrance and presented for the first time at the world's largest gaming fair PAX West in Boston, is an excellent example of a first-person perspective (FPP) game based on documented historical events.

Another example is the work of Carbon Studio, a company that is a pioneer on the Polish and global market in the development of games and applications for VR technology. The studio has released the game "The Wizards", which has been recognised with numerous awards and nominations, including as the best VR game at the Casual Connect Indie Prize in Singapore in 2017.

The current ecosystem of information sharing and the availability of EU grants are additional assets for entrepreneurs looking to grow their businesses. The European Digital Development Fund (2021-2027) is one of the tools that can support SMEs in digital transformation⁸. The Committee's recommendations stress that the metaverse strategy should include links to the EU's

2030 digital goals. It is important that digital technologies protect human rights, support democracy and operate in a responsible and secure way. User safety and security, solidarity and inclusion, citizen participation and sustainability are other important values that should be included in the strategy⁹.

Given the need for harmonization of rules at the European level, we recommend the European Commission to establish a working group to ensure a smooth exchange of experiences between Member States working on national immersive technology strategies.

The outlined activities and examples influencing Poland's development in the area of the metaverse are aimed at strengthening Poland's position on the international stage and realizing the potential of the digital transformation. When building the metaverse strategy, it is also worth highlighting partnerships in Central and Eastern European countries. Harnessing the potential of immersive technologies in education, culture and tourism will allow Poland to develop faster and gain a potential advantage in these sectors, thanks to which Poland can offer new, innovative products and services on global markets, directly contributing to the country's international competitiveness.

⁸ Program Fundusze Europejskie na Rozwój Cyfrowy 2021-2027 - Ministerstwo Funduszy i Polityki Regionalnej

⁹ Cyfrowa dekada Europy: cele na rok 2030 r. | Komisja Europejska (europa.eu)

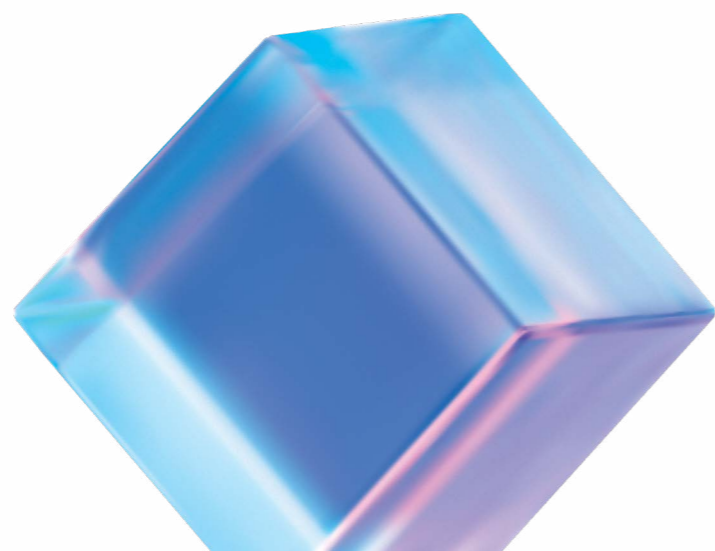
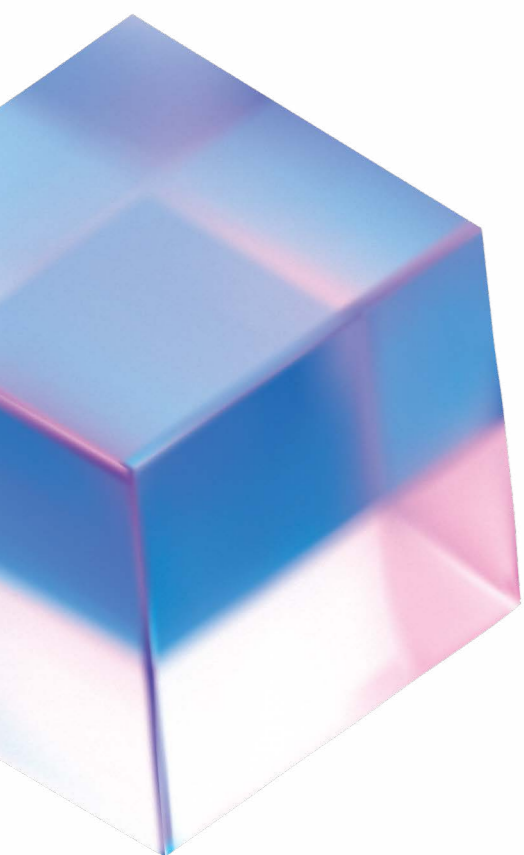
Strategic goals, programs, and recommended actions

4

The implementation of the national metaverse strategy, including its recommendations, requires support for solutions that observe trends and simultaneously anticipate regulations that shape legislation.

The metaverse is a technology that, through its virtual form, has no borders. The harmonization of company and trade laws with the EU digital market, which will enable domestic entrepreneurs to seamlessly establish foreign cooperation and counteract market fragmentation, is essential.

To develop a strategy, adequate knowledge and experience of advanced implementations of various innovations is necessary, which allows individuals to see the possibilities of the metaverse and effectively invest in systemic solutions. Therefore, it is essential to centrally coordinate the work and strengthen the digital competence of public administration.



Key values for developing a national metaverse strategy:



Prioritization of digital solutions



Autonomy and security of users



Equal access to knowledge and technology



Counteracting digital exclusion



Shaping ethics in technology



Promoting digital awareness



Pursuit of open standards for metaverse solutions



Cohesion within EU countries



Balance between the virtual and physical worlds



Constant monitoring of the impact of metaverse technologies

Long- and short-term goals:

- Strengthen the perception of Poland abroad as an innovative country which is open to new technologies.
- For Poland to become a leader in developing ethical use of data in the metaverse
 - developing recommendations for the metaverse in relation to the protection of human rights, rule of law and democracy.
- Ensure security and build public trust and willingness to use metaverse solutions in conjunction with democratization of access to the metaverse, including using the following tools:
 - promoting awareness of the metaverse with educational and public awareness campaigns,
 - combating misinformation and disinformation about the opportunities and risks associated with metaverse technology,
 - raising the competence of public officials in the use of metaverse technology in relations between the state and its citizens (development of the “Digital Twin” project, which is the next stage of updates in the government’s “mObywatel” application), including counteracting discrimination.
- Analysis and elimination of legislative barriers and administrative burdens for new enterprises engaged in the co-creation of the metaverse (tax credits).
- Identification of permanent programs to support academic, including artistic and creative, activities in the metaverse.
- Place Poland among the top ten most ready countries to implement metaverse technology (Metaverse Readiness Index).
- Increase the use of modern metaverse technologies by businesses operating in Poland, including special consideration, on a transparent basis, of the metaverse when calculating the research and development tax credit, innovation tax credit and other entrepreneurial support instruments, and supporting demand on the part of entrepreneurs through incentives in support programs for the use of metaverse technologies.
- Disseminate practical knowledge of the metaverse at all stages of education and integrate a core curriculum.
- Establish Poland’s image as an attractive place to acquire the qualifications and develop the skills needed to co-create the metaverse and the AI tools that drive it.
- Increasing the number of educational and scientific competitions at the regional, national and international levels will help identify IT talent.
- Take into account the specifics of the metaverse in EU legislation and regulation work
 - technology use framework,
 - code of ethics,
 - national standards,
 - interoperability with the EU digital market.

Examples of projects and activities dedicated to the metaverse’s development:

Technology Enablers - Metaverse ecosystem: platforms; users and their experiences, hardware, protocols and standards; Digital infrastructure

Support for research projects on the metaverse - described in the section “the Metaverse and Science”

The Metaverse for business program - described in the section “the Metaverse and innovative business”

The Metaverse of Polish Culture - a program to transfer the richness of Polish culture to the metaverse, available in every library in the region

Expert working group on the metaverse at the Ministry of Digitization

Expansion of the core curriculum with an additional subject: “new technologies and digital awareness,” introduced in elementary schools, high schools and university programs

Contests in the field of immersive technologies

Achieving potential economic impact depends on the strategies adopted by the Polish economy. Therefore, we encourage you to **take action and cooperate to develop the metaverse in Poland.**



Potential strategic partners for achieving the goals of the metaverse:

- Ministry of Digitization
- Ministry of National Education
- Ministry of Science and Higher Education
- Ministry of Finance
- Ministry of Infrastructure
- Ministry of Family, Labor and Social Policy
- Ministry of Health
- Ministry of Funds and Regional Policy
- Ministry of Culture and National Heritage,
- Voivodeship government offices
- Economic and public policy think tanks
- The National Center for Research and Development (programs for financing scientific research or development work)
- Social Insurance Institution (ZUS)
- Presidents and representatives of local government

The upcoming Polish Presidency of the Council of the European Union and the planned update of the government's AI policy (including the implementation of the Artificial Intelligence Act) should initiate a discussion of the national metaverse strategy in the era of the technology's development.

We urge government officials to discuss the recommendations and initiatives presented in this document, and in particular to form a working group to work on the national metaverse strategy. We hope that government experts in various ministries will be willing to review our recommendations and present their points of view.

The proposed activities will have a positive impact on realizing the potential of immersive technologies and creating a dynamic and innovative digital ecosystem that supports Poland's economic, social and cultural development.



About the Metaverse Committee

5

The Metaverse Committee, as part of the Digital Poland Association, was established in June 2023, bringing together a wide range of experts representing major technology companies, institutions, creative sector entities and academia, with the inclusion of those not affiliated with the Association.

The Committee's initiator was Meta, an American technology company that has been working on the development of the metaverse and VR/AR and AI technologies for many years.

The institutionalization of the Committee in the Association serves to develop and take advantage of the technological potential of the metaverse as an instrument for shaping a dynamic, innovative digital ecosystem that stimulates Poland's economic, social and cultural development. The Committee seeks to implement a unified strategy, consistent with existing strategic government documents in the area of digitization, which will increase the likelihood of effective applica-

tion of solutions based on VR/AR and AI technologies, while meeting the highest standards of ethics, digital security and user protection.

During the Committee's subsequent meetings between June and October 2023, the goals and scope of the group's work were discussed, working groups were formed, and it proceeded to identify the strategic areas necessary to begin cross-sector work on a national metaverse strategy. The Committee - which included representatives of technology companies, legal experts specializing in new technology, academics, ethicists, technology providers and NGOs - consists of:



Andrzej Horoch
Owner of Connected Realities,
chairman of the Committee



Jakub Turowski
Public Policy Director, Central
and Eastern Europe, Meta



Ksenia Nowicka
Public Policy Manager
CEE, Meta



Michał Kanownik
Chairman of the Board, ZIPSEE Digital
Poland Association



Dominik Dobek
Program Director, ZIPSEE Digital
Poland Association



Ewelina Danowska
Head of Learning Europe
and Latin America, Ericsson



Andrzej Urbańczyk
Leader in Metaverse Competence
Center in B2B, Orange Poland



Jakub Kaszuba
Metaverse Product Owner, Innovation
Office PKO Bank Polski



Tomasz Dobosz
CEO, VRheroes



Prof. dr hab. inż. Piotr Skrzypczyński
Professor, Faculty of Control, Robotics &
Electrical Engineering, Poznan University
of Technology



Marcin Mastalerz
Trust Services Team Leader,
Asseco Data Systems



Bartosz Żuk
Regional Product Manager, HTC



Jagna Pomorska
CEO, Connected Realities



Jerzy Brodzikowski
General Manager, CIC Warsaw



Katarzyna Chojecka
Head of Government Affairs CEE, Cisco



Magdalena Hajduk

Director, New Technology Division IPN



Kamila Zawistowska

Country HR Lead Poland & CEE,
SoftwareOne, Podcast Creator & Host,
Departament Kobiet



Prof. Dariusz Szostek

Professor, University of Silesia
in Katowice



Agnieszka Sygitowicz

Expert on new technologies and business development Business, Member of the Committee on behalf of the Lodz Special Economic Zone



Tomasz Kasprówicz

Managing Partner at Gemini
Editor in chief, Res Publica Nowa
VP, Res Publica Foundation



Paweł Tuszyński

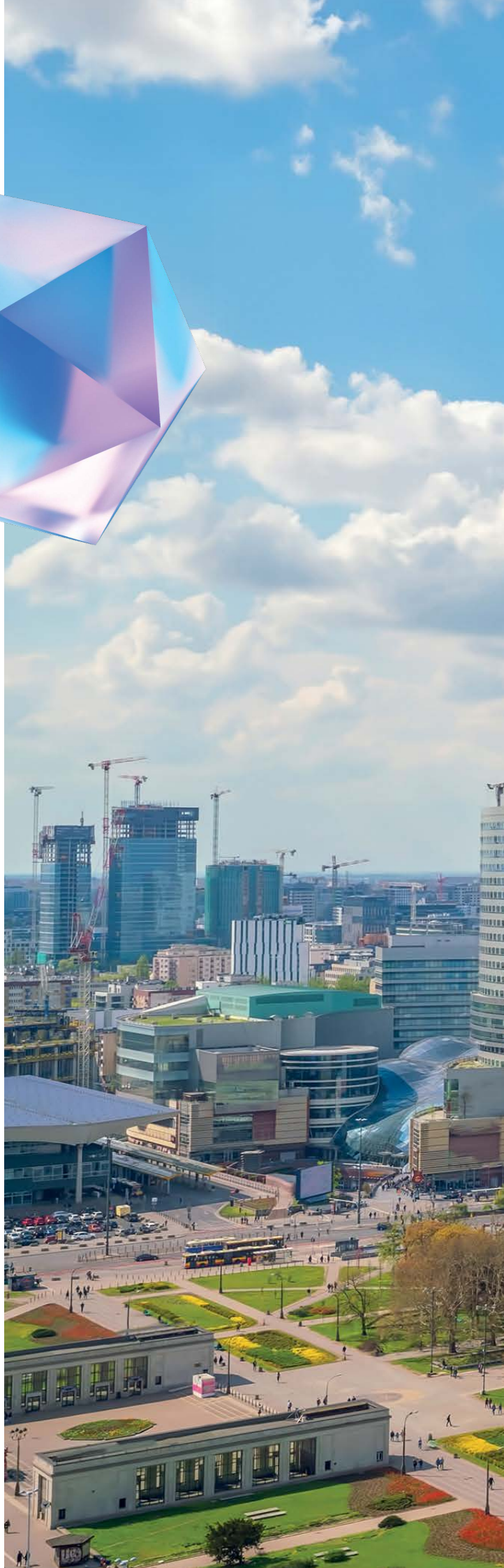
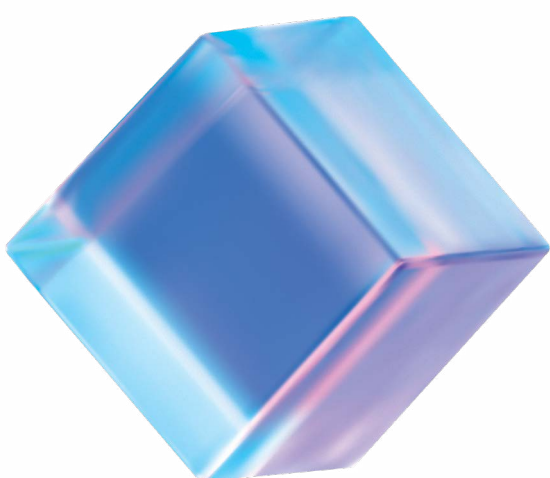
AI Skill Centre,
Orange Innovation Poland

The report is a synthesis of the Committee's work in 2023 and its resulting conclusions and recommendations.

The common goal of the report's authors is to accelerate the government's work on developing a national metaverse strategy for Poland and all initiatives aimed at transforming Poland's scientific and industrial potential into a leading ecosystem for the development of VR/AR and AI technologies in Europe.

References:

1. [Meta \(2023\) The Metaverse and the Opportunity for the European Union. Report](#)
2. The Metaverse in Asia | Strategies for Accelerating Economic Impact. Deloitte [The Metaverse in Asia | Deloitte SEA](#)
3. [An EU initiative on virtual worlds: a head start in the next technological transition | Shaping Europe's digital future](#)
4. Report (2020) [Polska jako Cyfrowy Challenger w nowej normalności | McKinsey](#)
5. The Metaverse in Asia | Strategies for Accelerating Economic Impact. Deloitte [The Metaverse in Asia | Deloitte SEA](#)
6. [Wystawa - Kartka z Powstania](#)
7. [Program Fundusze Europejskie na Rozwój Cyfrowy 2021-2027 - Ministerstwo Funduszy i Polityki Regionalnej](#)
8. [Cyfrowa dekada Europy: cele na rok 2030 r. | Komisja Europejska \(europa.eu\)](#)



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