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DTD Webinar
Digital Inclusion and Accessibility: Leaving No One Behind in Virtual Worlds and the Citiverse

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Presentation outline

- Based on a Technical Report on *Accessibility in a sustainable metaverse* [ITU FGM-16].
- Published 2023 as part of Working Group 8 on *Sustainability, Accessibility and Inclusion*.
- Promotes and instructs on the adoption of an integrated approach to accessibility and sustainability in the metaverse.
- Highlights the connected challenges of digital transformation and environmental/social sustainability.

Technical Report ITU FGMV-16

Accessibility in a sustainable metaverse

Summary

This Technical Report ITU FGMV-16 promotes and instructs on the adaptation of an integrated approach to accessibility and sustainability in the metaverse. It explores the integration of accessibility products and services in the metaverse and their associated social benefit and environmental impact. Emphasizing the need for the early integration of accessibility and sustainability, this Technical Report presents information and guidance on how to incorporate sustainable accessibility products and services in the metaverse from the outset. Questions related to sustainability and accessibility in the metaverse need to consider the following:

– Social benefit of sustainable accessibility products and services in the metaverse;

– Challenges and opportunities of an accessible and sustainable metaverse.

Keywords

Accessibility, design, inclusive, metaverse, sustainability.

Note

This Technical Report is an informative ITU-T publication. Mandatory provisions, such as those found in ITU-T Recommendations, are outside the scope of this publication. This publication should only be referenced bibliographically in ITU-T Recommendations.

Change Log

This document contains Version 1.0 of the ITU Technical Report on "*Accessibility in a sustainable metaverse*" approved at the 4th meeting of the ITU Focus Group on metaverse (FG-MV), held on 4-7 December 2023 in Geneva, Switzerland.

Acknowledgements

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Additional information and materials relating to this Technical Report can be found at: https://www.itu.int/go/fgmv. If you would like to provide any additional information, please contact Cristina Bueti at tsbfgmv@itu.int.

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What is the metaverse?

The metaverse holds the potential to transform how we interact, offering new ways to work, connect, and learn online.

Opportunities

The metaverse offers new avenues for education, employment, and social connection for everyone, especially for people with disabilities

Challenges

What challenges does the metaverse pose from an environmental and social standpoint?

Recommendations & Call to action

Can we create a metaverse that is both sustainable *and* accessible for all? If so, how?

*"an integrative ecosystem of **virtual worlds** offering **immersive experiences to users**, that modify pre-existing and create new value from **economic, environmental, social** and **cultural perspectives.**"**

**[b-FGMV-20] ITU Focus Group on the metaverse.*

Artificial Intelligence

Natural Language Processing

Internet of Things

Blockchain

Virtual/Augmented/Mixed/Extended Reality

Question I

What environmental and social impacts (both positive and negative) arise from the metaverse and its underlying technologies?

- Potential to transform how we interact, offering new ways to work, connect, and learn online.
- This is particularly relevant for people with disabilities who often face barriers to traditional employment (UN Department of Economic and Social Affairs).

27%

of people with disabilities of working age are employed globally *

56%

of people without disabilities of working age are employed globally *

*According to the UN Flagship Report on Disability and Development 2024

Virtual spaces, like the metaverse, offer new ways to work, connect, and learn remotely, eliminating the need for physical travel.

- While this eliminates the necessity of physical travel, a **significant trade-off** lies in the **substantial computational power** needed to support the underlying technologies of the metaverse, such as **blockchain** and **AI**.

5t CO2e/year
Average Human Carbon Emissions*

284t CO2e
Large Transformer (neural) model training*

1,438t CO2e
Training BERT (Google, 2019)*

(Strubell et al., Shterionov et al.)

The current development phase of the metaverse is an opportunity to prioritise ***social justice*** *through* ***accessibility***, ***inclusion***, *and* ***sustainability***.

Question II

What are the key considerations for building a metaverse that dismantles, rather than replicates, the challenges people with disabilities experience offline?

Recommendation 1

Ensure usability by default

Recommendation 2

Avoid duplication of content

Recommendation 3

Create simple user interfaces

Recommendation 4

Prioritise icons for navigation

Recommendation 5

Build a more energy-efficient metaverse

Recommendation 6

Find alternative file and media formats

Recommendation 7

Use more energy-efficient AI (Green AI)

Recommendation 8

Design with easy-to-understand language in mind

“

People with disabilities are disproportionately affected by climate impacts but are often excluded from policy discussions and accessible climate communication.*

***Office of the United Nations High Commissioner for Human Rights, 2020.**

Call to action

Are we building the metaverse with inclusion at its core – designing for diverse needs, clear navigation, and easy-to-understand language from the start?

How can we make our metaverse more sustainable – by reusing content, choosing efficient formats, and optimizing for older devices and slower connections?

Are we prioritising energy-efficient technologies like Green AI to reduce the environmental impact of accessibility tools and digital experiences?

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Thank you!

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