



Glossary of Terms used in the ACCELERATE Project

This glossary was written to help give meaning to a range of technical and field-specific terms used throughout the project. These definitions are specific to this project. It is by no means an exhaustive list, but the definitions are intended to provide insight into how these terms have been understood and used by project partners, specialists, and participants throughout the ACCELERATE project.

(AR) Augmented Reality is an enhanced, interactive version of a real-world environment achieved through digital visual elements, sounds, and other sensory stimuli via technology. Augmented reality involves overlaying visual, auditory, or other sensory information onto the real world to enhance one's experience.¹

Assets / 3d Assets refers to different still and moving images, sounds, and 3d models that are used together to build a (VR) Virtual Reality environment. 3D assets are 3 dimensional digital files often used in movies, video games, and other animations. Referred to in UAL and IADT case studies.

Asset management system refers to a system that holds multiple assets to make complex environments with multiple parts load faster. Defined by A-Frame and referred to in UAL and IADT case studies.

Autodesk is a US multinational corporation producing a wide range of software which can be used to create assets and animations for VR environments and worlds. Autodesk software include AutoCad, 3D Studio Max, Maya etc.

Avatar is a graphical representation of a user in VR and XR.

Blender is a commonly used, open source software for the creation of 3D assets and animations

¹<https://dynamics.microsoft.com/en-us/mixed-reality/guides/what-is-augmented-reality-ar/#:~:text=Augmented%20reality%20is%20an%20enhanced,sensory%20stimuli%20via%20holographic%20technology>



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BSU refers to Bath Spa University. Accelerate has been working with BSU Schools of Art, Film, Media and School of Design.

CCI refers to the Creative Computing Institute based at UAL University of the Arts, London.

CCW refers to the three colleges Camberwell, Chelsea, Wimbledon which are managed collectively and referred to as CCW by staff at UAL University of the Arts, London.

CGI stands for Computer Generated Imagery. A term covering the creation, animation and rendering of 3D images and animations using computers.

CPU stands for Central Processing Unit; the component of a computer which processes information and tasks.

ChNU refers to Chernivtsi National University Chernivtsi, Ukraine.

Ecosystem is a collection of interconnected software applications, hardware devices, and other digital tools and platforms that work together to help users achieve specific goals. For example, an immersive ecosystem may include tools or platforms for making or finding 3d content, objects, textures, animations, tools for arranging content e.g., building virtual environments/worlds/assets, and tools for showcasing, experiencing or trading these environments/worlds/assets.

Frame VR is a commonly used, third party online VR platform, featuring templated VR meeting spaces and exhibition spaces

Game Engine is a complex piece of software which can be used to assemble 3D assets and animations to create immersive gaming or virtual world spaces. Game Engines (Unity and Unreal Engine are two examples) are frequently used to create complex VR spaces.

GPU stands for Graphics Processing Unit; Powerful computer chips, often sited within Computer Graphics Cards, which are responsible for processing image information and display. GPUs are frequently used to process the visual information in VR spaces and displays.

Gravity Sketch is an online platform used for the creation of three dimensional models which can be used in VR spaces



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Haptics is a system used in game controllers and in VR handsets, to provide sensory feedback to a user's hands.

Head Mounted Display or commonly known as a **Headset**. Head Mounted Displays (HMDs) are worn on the head and cover the user's vision. HMDs use two miniature display screens viewed through lenses. The display shows slightly different views of the virtual world simultaneously to create a 3d stereoscopic view.

Headset - see **Head Mounted Display** above.

High Poly refers to 3D models and scenes typically constructed in computers using a technique called Polygonal Modelling. Polygons form meshes which approximate the shape and surface of the required assets. High Poly indicates a very high polygon count, which creates a very detailed 3D model. High Poly models create a large amount of computer data and are therefore more difficult for digital systems and platforms to handle.

IADT refers to the Institute of Art, Design and Technology, Dun Laoghaire, Dublin, Ireland

Immersive Technology refers to augmented, virtual, and mixed realities, also called extended reality (XR)

Inclusive learning environment is a set of conditions, methods and means of their implementation for joint learning, education, and training of students by considering their needs and capabilities. To achieve the goal of inclusive art education, the following strategic goal was formed in accordance with the Concept of Inclusive Education in Art: citizens, regardless of the peculiarities of mental, psychic and physical development, have equal rights and opportunities to access art education and are equally involved in the creation of cultural artistic product.² Referred to in Chernivisti's case study, and defined by Myroslava Zhavoronkova and Nataliia Hatezh, Chernivtsi National University Chernivtsi, Ukraine.

Low Poly refers to 3D models and scenes typically constructed in computers using a technique called Polygonal Modelling. Polygons form meshes which approximate the shape and surface of the required assets. Low Poly indicates a reduced polygon count, which

² The concept of inclusive education in art .Gov.ua:
<https://mkip.gov.ua/files/pdf/%D0%9A%D0%BE%D0%BD%D1%86%D0%B5%D0%BF%D1%86%D1%96%D1%8F.pdf> .



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creates a less detailed 3D model. Low Poly models create smaller amounts of computer data and are therefore easier for digital systems and platforms to handle.

Mach Banding is an optical illusion that exaggerates the contrast between the edges of differing shades of grey. Referred to in IADT case study, and defined by Aoife Balfe, IADT Institute for Art, Design & Technology, Dublin.

Maya is a complex software package created by the Autodesk corporation. Maya can be used to create assets and animations for VR environments and worlds.

Modelling refers to 3D models and scenes typically constructed in computers using a technique called Polygonal Modelling. Polygons form meshes which approximate the shape and surface of the required 3D assets (scenes, objects, characters).

Platform A WebXR platform is a collection of tools that enable the development and deployment of virtual and augmented reality experiences on the web. It allows developers to create immersive and interactive experiences that can be accessed using a compatible web browser, without the need for users to install any additional software or plug-ins.

Skybox is a simple method of creating game or VR backgrounds by 'projecting' images onto an all-encompassing box or sphere.

Software is a set of instructions, data or programmes used to operate computers and to execute specific tasks. 3D software refers to applications, scripts and programmes which are used to create the computer models and animations which can be used in VR scenes. VR Software is a generic term for applications, scripts and programs used to create VR worlds and immersive experiences.

Spawn spot is a feature used in Frame VR that lets you choose a specific location where guests will appear when they join. Referred to in UAL case study, and defined by Darryl Clifton and Matt Hawkins, UAL University of the Arts, London.

Stitching is a technique which joins images together to form a 360 degree 'wraparound' image which can be used in a VR scene's Skybox.

SWPS refers to the School of Form University of Social Sciences and Humanities, Poland.

SUMY refers to Sumy State University, Ukraine.



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Technologies of augmented reality (AR) are capable of projecting digital information (images, video, text, graphics) outside the screens of devices and combining virtual objects with the real environment. Immersive learning methods can potentially become a major tool in education and revolutionise the education of art students. Teachers can use virtual and augmented reality for students to interact with various objects in three-dimensional space. Technologies of VR and AR give students the opportunity to study art, various academic subjects in a more comprehensive way, and most importantly, in an easy and relaxed form, VR allows them to acquire a new experience to which students (due to various circumstances) usually do not have access. Referred to in Chernivisti's case study and defined by Myroslava Zhavoronkova and Nataliia Hatezh, Chernivtsi National University Chernivtsi, Ukraine.

Texturing in computer 3D and VR, texturing refers to the technique of colouring the polygonal meshes used to create 3D or VR models, objects, scenes and characters. Texturing allows a digital artist to apply virtual textures, surfaces, colours and images to the polygonal mesh.

UAL refers to the University of the Arts, London.

UV division in algorithmic 3d modelling each surface is defined by control points in 2 directions ("U" and "V"). These letters are conventional variables. "X", "Y", and "Z" are already used to denote the axes of the local cartesian coordinates in the software. Referred to in SWPS Bionics Case Study and defined by Sara Bos, SWPS School of Form, Poland.

Virtual Reality (VR) Environment refers to a computer-generated, simulated world or space that a user can interact with using a compatible web browser or be fully immersed in a VR headset.

Web 4.0 is the fourth generation of the World Wide Web. It is characterised by increased user interaction and collaboration and more seamless integration between the physical and virtual worlds.³

(XR) Extended reality refers to any environment that extends beyond the physical world by incorporating digital and simulated experiences. It is an umbrella term that encompasses

³ <https://www.linkedin.com/pulse/web-40-explained-brief-agiledistrict/?trk=pulse-article>





virtual reality (VR), augmented reality (AR), mixed reality (MR)), and other related technologies.

X,Y,Z is an axis system used to orient users and objects in any three dimensional space. X movement is from side to side, Y movement is up and down and Z movement is into and out of the 3D space.



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