INSTANT PAPER

Extended Reality

Virtual, Augmented and Mixed Reality.

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01 Uniting physical & virtual realms

In the realm of technology, numerous acronyms are prevalent, but **Extended Reality (XR)** stands out as the comprehensive term encompassing all forms of combined real and virtual environments, including **Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR)**.

Beyond these individual technologies, the convergence of VR, AR, and MR is paving the way for even more sophisticated and integrated digital experiences.
This convergence encapsulates the full spectrum of immersive technologies, providing a comprehensive platform for digital interaction.

XR aims to create **a seamless transition between real and virtual environments**. In practical applications, XR can facilitate complex tasks that require high levels of precision and collaboration. It essentially covers the full spectrum of technology, ranging from simple digital overlays to fully immersive digital experiences.
The XR industry represents a significant and rapidly evolving segment of the technology sector, distinguished by its innovative fusion of physical and digital experiences.

Companies and projects within this field are engaged in diverse key activities, **from consumer neurotechnology to intelligent systems, and from entertainment to health and wellness tools**.

This sector is characterized by emerging trends such as **Spatial Computing, immersive experiences, and virtual production**, which highlight the growing interest and investment in immersive technologies.

> With a strong market presence and a wide range of applications, the XR ecosystem is poised for **continuous growth**, offering substantial opportunities for companies to explore **new partnerships** and **strategic initiatives**.

The advent of XR is **transforming how people experience** both physical and virtual environments, shifting from mere observation to full immersion.
For instance, imagine a scenario where an inspection visit is required in a remote location or along a complex production line. Traditionally, such tasks necessitate on-site visits, incurring significant time and travel costs. However, XR technology revolutionizes this process by enabling the navigation of a **Digital Twin** of the production chain. This Digital Twin offers real-time data visualization, allowing inspectors to assess and even resolve issues remotely.

As companies approach their journey into XR with greater awareness, they also face the **increasing complexity** of these technologies.

The response to this complexity lies in the creation and management of an **XR ecosystem** where multiple stakeholders collaborate to ensure that the adopted Extended Reality models are resilient to change and sustainable in the long term, from economic, organizational, and environmental perspectives.

Virtual Reality (VR)

COMPLETELY DIGITAL ENVIRONMENT

VR immerses users in a completely digital, three-dimensional environment, achieved through a **headset device connected** to a PC.
By placing the user in an entirely synthetic world, VR offers a unique, immersive experience where they can explore, interact, and engage with digital content in ways not possible in the physical world.

From the thrill of stepping into a fantastical game universe to the practical applications of virtual training simulations in fields like medicine and manufacturing, **VR's ability to transport users to an entirely digital realm** opens up a myriad of possibilities. As Virtual Reality technology continues to advance, its applications are likely to expand even further, with immense potential to revolutionize various industries.

Augmented Reality (AR)

REAL WORLD WITH DIGITAL INFORMATION OVERLAY

AR overlays digital information onto real-world surroundings using **smartphones, tablets, and AR headsets**. This technology enhances the user experience by superimposing digital content onto the physical environment, enhancing the user's experience without replacing the real world.
By keeping the real world at the core, **AR seamlessly integrates digital components** to provide additional layers of information and interactivity. This technology enriches everyday environments, allowing users to visualize products in their homes before purchase, access real-time data and instructions for tasks like maintenance, and even enjoy interactive educational content. The combination of physical and digital elements through AR offers a more informed and engaging experience, transforming how we interact with the world around us.

Mixed Reality (MR)

REAL AND THE VIRTUAL ARE INTERTWINED

Mixed Reality (MR) blends AR and VR, enabling interaction with **both physical and digital elements** using advanced imaging technologies. By integrating virtual objects into the real world with specialized glasses, MR offers an immersive experience. These virtual objects are not only visible but also responsive and interactive, allowing users to manipulate and interact with them as if they were part of the physical world **MR technology engages with the real environment and alters it simultaneously**, creating a dynamic and immersive experience. The latest evolution in this field is **spatial computing**, which further enhances MR by enabling more sophisticated and intuitive interactions between digital and physical elements. This advancement allows for advanced training, collaborative design, and real-time problem-solving, transforming how we work, learn, and interact with our surroundings.

The dynamic landscape of Extended Reality

In recent years, a new way of immersive interaction has emerged, fueling growing interest in **advanced digital experiences**. XR has become essential for facilitating connections, from **e-learning, virtual tourism**, to enhancing **e-commerce experiences** from home. According to Statista, **VR hardware users** increased from 23 million in 2019 to a projected **150 million by 2026**. The popularity of mixed reality devices has also risen, driving growth in AR headsets and glasses, with AR hardware users set to nearly double in the near term. XR hardware users are projected to surge to 247.3 million by 2026.

New trends like **digital humans, shared experiences**, and **spatial computing** are emerging. Cutting-edge **hardware innovations** are delivering lighter, more powerful **VR and AR devices**, making these immersive experiences more accessible than ever. Moreover, advancements in software are **enhancing realism, interactivity, and accessibility**, with **AI** and **Spatial Computing** playing crucial roles in improving user experiences. As these technologies progress, we can anticipate even more lifelike simulations and **seamless integration** into our daily lives.

The next generation of **headsets** promises more powerful, immersive experiences with fully **three-dimensional user interfaces** controlled by the user's **eyes, hands, and voice**.

The XR industry is experiencing significant **growth and investment**, with companies across multiple sectors recognizing XR's vast potential in solving **real-world challenges** and optimizing **operations**. This recognition is translating into substantial **research, development**, and the creation of new **XR applications**.

> As XR technology continues to demonstrate its value, we can expect a surge in **investments and collaborations**, further accelerating its expansion into diverse fields.

By 2026, Statista notes that the consumer **XR market** is projected to reach **$49.4 billion**, with substantial growth in both **hardware and software segments**. Innovations in XR hardware, such as more comfortable and efficient devices, and advancements in software applications and connectivity, will drive this expansion. Industries such as **healthcare, manufacturing, and services** are expected to experience significant disruption due to XR technologies.

XR's ability to create **interactive, real-time design solutions** and its potential to revolutionize **data interpretation** mark it as a critical tool for **future innovation**. As the technology evolves, its applications will expand, integrating further into various professional practices to deliver better results and streamline complex processes.

The **design process** is one area where XR can have a significant impact today, serving as a powerful complement to professionals' expertise across different fields, enhancing their capabilities and efficiency. We can expect even more innovative applications that blur the lines between our **physical and digital worlds**.

This evolution will not only enhance individual experiences but also drive significant advancements across various industries, leading to a future where digital and real worlds are seamlessly integrated, enriching our lives in ways we are only beginning to imagine.

Key Trends

$604 billion

GLOBAL EXTENDED REALITY (XR) MARKET BY 2028

$24 bln
GLOBAL VIRTUAL TOURISM MARKET BY 2027

+90%
OF ONLINE CONSUMERS EXPECT PERSONALIZED EXPERIENCES

$25 bln
VIRTUAL REALITY MARKET FOR THE HEALTHCARE SECTOR BY 2030

$1,1 bln
THE GLOBAL WEARABLE DEVICES ITALY MARKET SIZE BY 2027

$900 bln
THE GLOBAL METAVERSE MARKET BY 2030

CAGR 43,76%
GROWTH OF METAVERSE EDUCATION MARKET BY 2030

THE MAIN CHALLENGES:

- **Human-like complex systems**
- **Seamless integration of the physical and virtual worlds**
- **Enhanced digital accessibility and transparency**

TOP 3 BUSINESS BENEFITS

SEAMLESS PHYSICAL –DIGITAL INTEGRATION

HUMANIZING DIGITAL JOURNEYS

AI-POWERED EXPERIENCE

Reimagine the CX by placing the individual at the center, delivering meaningful and immersive experiences.

DATA DISPLAYED REPRESENTS OUR ELABORATION OF DATA COMING FROM MULTIPLE SOURCES

03 Embracing a New Reality: the impact of XR in market sectors

The integration of XR technologies is not merely an upgrade but a transformation that **reshapes how businesses operate and interact with their customers**.

In the **entertainment sector**, XR provides immersive advertising experiences, interactive digital media, and engaging live events that captivate audiences in unprecedented ways.

E-commerce benefits from XR through stronger consumer-product connections, improved supply chain monitoring, and visual search, making online shopping more interactive and efficient.

The **fashion industry** leverages XR for virtual shopping experiences, virtual try-ons, virtual fashion shows, and virtual design and development processes.

In **industrial manufacturing**, XR is utilized for worker

training, maintenance operations, real-time instructions, schematics, and troubleshooting guides, enhancing efficiency and safety.

Tourism is transformed by XR through virtual tours of destinations, hotels, and cultural sites like art galleries and museums, making travel experiences accessible from anywhere.

Healthcare is enhanced by XR with remote medical consultations, telehealth services, improved patient care, advanced clinical training, and mental health support.

Education benefits from XR by creating immersive virtual learning environments and incorporating gamification, making learning more engaging and effective.

The **financial services** industry leverages XR to establish virtual branches and provide financial advisory services, offering clients a more personalized and convenient banking experience.

Real estate utilizes XR for virtual tours of properties, design visualization in real-world settings, and fostering imagination in potential buyers.

The **Gaming industry** is revolutionized by XR, providing highly realistic and immersive experiences that enhance player engagement and enjoyment.

> Overall, the integration of XR in various market sectors signifies a paradigm shift in how industries operate and deliver value to their customers.

By enhancing customer experiences and improving operational efficiencies, XR is paving the way for a future where the boundaries between the physical and digital worlds are increasingly blurred, offering limitless potential for innovation and growth.

entertainment

XR technology is revolutionizing the entertainment sector, particularly in Telecommunications and Media industries.

TRANSFORMATIVE POTENTIAL OF EXTENDED REALITY TECHNOLOGY IN ENTERTAINMENT

Enhanced Customer Engagement
XR applications provide immersive experiences that overlay digital information on real objects, deeply engaging users with products or services.
This immersive interaction fosters emotional connections between brands and consumers, making interactions more engaging, and appealing.

Innovative Distribution Methods
Affordable XR devices allow users to experience a new dimension of entertainment, such as realistic virtual worlds accessible through smartphones.
This shift enables long-form VR experiences for distributing sports content and live events, significantly enhancing user engagement.

Improved Training and Operations
Telco & Media organizations are utilizing XR environments to provide enriched training experiences that simulate real-world scenarios, thereby improving employee skills and operational processes.
Additionally, XR tools streamline operations by enabling remote assessment and inspection of devices, leading to cost savings and increased efficiency.

Future Network Requirements
To support the mass-market success of XR applications, future networks must be designed to meet evolving requirements, including low latency, high reliability, high data rates, and increased traffic capacity.
Network solutions need to adapt to the dynamic environments and interactions of advanced Extended Reality applications to ensure seamless user experiences.

CHALLENGES FACING EXTENDED REALITY TECHNOLOGY IN ENTERTAINMENT

Network Requirements
XR applications demand low latency, high reliability, and high data rates, posing significant challenges for network infrastructure. Ensuring seamless XR experiences requires substantial advancements in network capabilities to handle the increased traffic and dynamic interactions inherent in XR applications.

Cost and Implementation
XR technology offers long-term benefits in the entertainment market, including cost savings, improved customer satisfaction, and enhanced brand differentiation. However, upfront costs can be a barrier for some companies. To create a compelling business case in the Telco and Media sectors, organizations must consider the evolving landscape and opportunities for operational improvement. While XR enhances customer engagement and transforms distribution methods, challenges like network demands and implementation costs must be addressed for widespread adoption.

Summary Entertainment ecosystem

AI-powered Interactive Storytelling with XR

Combine AI algorithms with immersive technologies to create engaging and personalized narrative experiences.

Multisensory XR Experiences

Revolutionising entertainment with greater emotional connection and presence, revealing new creative possibilities.

Educational Entertainment

XR revolutionizes education with interactive virtual field trips, science labs, and space exploration.

Ecosystem Innovation and Partnerships

Media companies will integrate XR into social platforms, redefining entertainment with immersive and highly social experiences.

Immersive Entertainment

Integrating XR into telco and media streaming platforms offers immersive entertainment experiences.

Glasses Revolutionizing Mobile Networks

Lightweight XR glasses are poised to revolutionize telecommunications

Next-Gen network applications for XR

More Interactions in virtual environments and improved streaming of immersive entertainment.

New Personalized XR Experiences

Tailored XR Experiences go beyond mere immersion, aiming to provide personalized interactions that cater to individual preferences and needs

Personalized Advertising in Telco/Media

XR Advertising to deliver hyper localized and contextually relevant advertisements to users based on their physical location and surrounding environment.

Short Term Developments | **Medium Term Innovations** | **Long Term Evolutions**

financial services

By integrating immersive technologies, financial institutions can enhance customer experiences, improve operational efficiency, and foster innovation.

TRANSFORMATIVE POTENTIAL OF EXTENDED REALITY TECHNOLOGY IN FINANCIAL SERVICES

Enhancing Customer Experiences
XR technologies offer financial institutions new ways to interact with customers, creating more engaging and personalized experiences. Virtual branches, for instance, allow customers to interact with bank representatives and conduct transactions in a virtual environment. This not only provides convenience but also helps maintain a personal touch in an increasingly digital world. Customers can access services like personalized financial advice, investment consultations, and mortgage applications from the comfort of their homes, making banking more accessible and efficient.

Improving Operational Efficiency
Beyond customer interactions, XR can significantly enhance internal operations within financial institutions. Training programs for employees can be conducted in virtual environments, simulating real-world scenarios without the associated risks or costs. This can lead to better-prepared staff and more effective operations.

CHALLENGES IN ADOPTING XR IN FINANCIAL SERVICES

Data Privacy and Security
XR platforms often handle sensitive personal and financial information, necessitating strong encryption and data protection measures. Ensuring that these systems are secure from cyber threats is paramount to maintaining customer trust and complying with regulatory standards.

Cost and Implementation
The initial investment required for XR technology can be a barrier for many financial institutions. Implementing XR involves significant costs, including hardware, software, and training for staff. Building a compelling business case that highlights the long-term benefits — such as improved customer satisfaction, operational efficiencies, and competitive differentiation — is essential for justifying these upfront expenses.

Accessibility and Inclusivity
Ensuring that XR experiences are accessible to all customers, including those with disabilities, is crucial. By implementing voice commands, customizable interfaces, and assistive technology compatibility, banks can promote equity and expand their customer base. However, to unlock XR's full potential, they must tackle challenges in network infrastructure, data privacy, security, and costs, paving the way for more innovative banking services.

Summary Financial Services

Banking of Things

BoT uses wireless tech like RFID to enable contactless payments via cards or phones, aiming to be the future of secure transactions.

Personalized Banking

"Netflix of Banking" personalizes financial products with data to increase customer satisfaction and bank engagement.

XR Training & Simulation

Training in AR/VR enhances learning by providing immersive, realistic simulations, improving safety, reducing costs, and offering flexible, repeatable scenarios for various industries.

Interactive Customer Experience

AR overlays bring financial data to life, allowing clients to explore investments and make decisions with greater ease and confidence.

Personalized Financial Planning

AI and ML support analysis of user data to create personalized financial recommendations delivered through AR interfaces.

Decentralized Data Marketplaces

Decentralized data marketplaces with Extended Reality tech offer secure, transparent data trading, boosting financial data accessibility.

Spatial Banking

Spatial banking uses Extended Reality for immersive banking experiences in virtual environment and personalizing interactions.

Advanced Financial Tools & Service

XR tech in finance creates immersive experiences and AR interfaces for innovative financial tools and services.

Immersive Banking Experiences

Extended Reality tech creates virtual bank branches for immersive experiences, offering convenient and personalized services.

Short Term Developments | **Medium Term Innovations** | **Long Term Evolutions**

healthcare

XR is enhancing medical training, patient treatment, and healthcare operations, promising a future where healthcare is more efficient, effective, and accessible.

TRANSFORMATIVE POTENTIAL OF EXTENDED REALITY TECHNOLOGY IN HEALTHCARE

Medical Training and Education
XR revolutionizes medical training by providing a risk-free environment for surgeons to practice complex procedures and allowing students to explore human anatomy in 3D, which enhances learning retention and skill acquisition for better-prepared healthcare professionals.

Patient Treatment and Therapy
XR is being used for pain management, where immersive experiences can distract patients from chronic pain or discomfort during medical procedures. In mental health, XR environments are used for exposure therapy, assisting patients in managing PTSD, anxiety, and phobias.

Surgical Planning and Assistance
Surgeons are leveraging XR for pre-operative planning and intra-operative guidance and can overlay critical information, such as anatomical structures or surgical pathways, onto a surgeon's field of view, enhancing precision and reducing the risk of errors.

Remote Collaboration and Telemedicine
Doctors can consult global specialists in real-time, sharing patient data and imaging in an immersive environment. This technology enhances telemedicine, providing remote patients with high-quality care and interactive consultations, bridging the gap with healthcare providers.

CHALLENGES IN ADOPTING XR INTO HEALTHCARE

Technical Limitations and Infrastructure
The implementation of Extended Reality technologies requires robust technical infrastructure, including high-performance computing, reliable internet connectivity, and sophisticated hardware.
Many healthcare facilities, especially in underserved areas, lack this infrastructure.

Cost and Accessibility
Patient privacy and data security in immersive environments are crucial. Regulatory bodies must establish standards for XR use in medical settings.
Ethical considerations, such as the potential for over-reliance on technology and the need for informed consent, must also be addressed.

Regulatory and Ethical Concerns
Patient privacy and data security in immersive environments are crucial. Regulatory bodies must set standards for Extend Reality use in medical settings, and ethical considerations, like over-reliance on technology and informed consent, must also be addressed.

Training and Adoption
Healthcare professionals require training to use XR technologies. Resistance to change and lack of familiarity with XR can hinder its adoption. Continuous education and training programs are essential.

Validation and Evidence-Based Practice
Demonstrating efficacy, safety, and cost-effectiveness through rigorous studies is essential for acceptance and integration into standard practice.

Summary Health world

XR-Powered Mental Health Therapy

XR therapy addresses mental health challenges by providing tailored exposure experiences, combating therapist shortages, for effective treatment.

Digital Therapeutics with Gamification

XR with digital therapeutics provides interactive VR rehab, boosting engagement and outcomes.

Medical Education and Training

Extended Reality offers immersive 3D exploration and interactive simulations for enhanced learning.

Chronic Disease Management

The overwhelming nature of chronic disease management leads to a decrease in motivation and a sense of isolation that has to be overcome.

Remote Collaboration with Haptic Feedback

Geographic barriers limit access to specialized surgeons. Integrating XR with haptic feedback enhances remote surgery, offering realistic sensations.

AI for Personalized Treatment Plans

AI and XR enable personalized treatment plans, empowering patients to engage actively in decision-making revolutionizing healthcare delivery.

Integration with Smart Glasses/Contact Lense

XR will integrate Vital Health Data Overlays, Real-time Consultations, and AR Guidance to enhance patient-provider communication and satisfaction.

BCI for Physical Therapy

Patients to control avatars in VR environments, promoting engagement, motivation and ultimately improving rehabilitation outcomes.

Democratization of Healthcare with XR

XR technology introduces immersive consultations and remote training, aiming to revolutionize access reduce disparities in healthcare.

Short Term Developments | **Medium Term Innovations** | **Long Term Evolutions**

Focus On

Responsible and Ethical considerations

As we have seen, **XR** is revolutionizing sectors such as **education, healthcare, manufacturing, and entertainment**, offering **new opportunities** and improving **operational efficiency**. These are just a few examples of the extraordinary **market applications of XR**. However, as we explore these opportunities, it is crucial to also consider the cross-cutting impacts this technology has on industry **responsibility** and **ethics**.

Ethical considerations are paramount in the XR landscape. Ensuring **user data privacy** is critical, as XR platforms often handle **sensitive personal information**. Companies must implement strong **privacy policies** and advanced **encryption methods** to protect user data. Additionally, XR introduces new **security challenges**, **requiring robust authentication methods** like **biometric** and **multi-factor authentication** to prevent **unauthorized access**.

Accessibility is another vital aspect. XR applications should include features such as **voice commands, customizable interfaces**, and compatibility with **assistive technologies** to ensure **inclusivity** for individuals with **disabilities**. Furthermore, XR fosters **cultural engagement** and promotes **innovation**, driving continuous improvement and creativity within organizations. We advocate for companies integrating XR to ensure an **innovative, inclusive, and secure digital transformation**.

Neglecting ethical considerations can lead to **data breaches, security vulnerabilities**, and the exclusion of certain **user groups**, ultimately damaging a company's **reputation**.

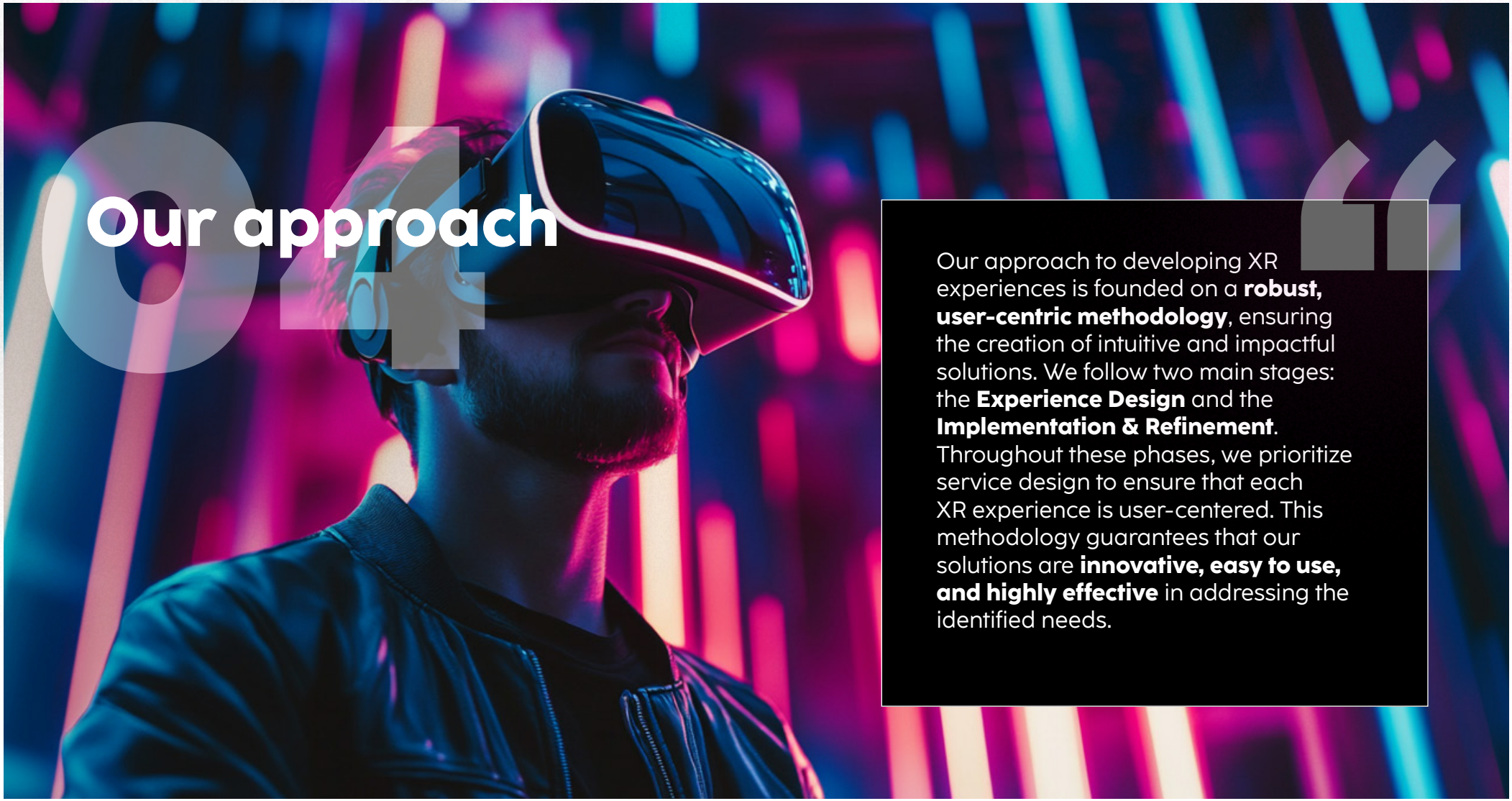
Therefore, it is imperative for companies to prioritize **ethical practices** in their XR applications, ensuring they are **technologically advanced and socially responsible**.

As we venture further into the universe of XR, it is essential to balance the enthusiasm for new market applications with careful reflection on **responsibility** and **ethical impacts**. Only in this way can we ensure that XR technology contributes to a better future—one that is not only more innovative but also more responsible and inclusive.

One critical consideration in the adoption of XR is its **environmental impact**. By enabling **remote work**, **virtual meetings**, and **online events**, XR has the potential to reduce the need for travel, leading to decreased **carbon emissions** and a positive effect on the **environment**. Additionally, XR technologies promote **resource efficiency** through **virtual prototypes** and **simulations**, minimizing the need for **physical materials** and **waste**.

Companies that integrate XR into their operations can facilitate the adoption of more **sustainable business practices**, such as reducing **office space requirements** and lowering **energy consumption**.

Ignoring responsibility in XR can lead to greater **environmental impact** and missed opportunities to advocate **eco-friendly practices**, making it essential for companies to prioritize responsibility for **long-term benefits**.



04 Our approach

Our approach to developing XR experiences is founded on a **robust, user-centric methodology**, ensuring the creation of intuitive and impactful solutions. We follow two main stages: the **Experience Design** and the **Implementation & Refinement**. Throughout these phases, we prioritize service design to ensure that each XR experience is user-centered. This methodology guarantees that our solutions are **innovative, easy to use, and highly effective** in addressing the identified needs.

EXPERIENCE DESIGN

Understand Customer Needs

User & Business Needs: we identify client objectives and stakeholders, understand the end-users and the expected impact of the immersive experience, and evaluate the context to ensure that our solutions are tailored to meet the unique needs.

Explore XR Possibilities

Scenarios: analyze use cases and market trends to inspire innovation by examining successful XR implementations across industries. Engage in brainstorming sessions to develop creative solutions tailored to client needs, considering applications such as virtual training, immersive marketing, and enhanced CX for a comprehensive approach.

Conceptualize Use Cases

Service blueprint: conceptualizing the use case involves creating a detailed user journey to visualize the user experience. Map out each step of the interaction, from initial engagement to the desired outcome, highlighting key touchpoints and user actions.

IMPLEMENTATION & REFINEMENT

Implementation

Roadmap & delivery: break the project into manageable phases, delivering incremental updates to the client. This allows for continuous evaluation and feedback, ensuring the solution evolves to meet expectations. Regular check-ins and revisions based on client input ensure alignment with goals and improve the final product's quality and effectiveness.

Test with Stakeholders

Stakeholder insight: testing with stakeholders is critical for validating the XR solution. Conduct thorough testing sessions with key stakeholders, including end users, to gather feedback on functionality and user experience. Given that immersive experiences are relatively new and less familiar compared to mobile applications, hands-on testing is essential to truly understand their benefits.

Refine and Iterate

Prototype refinements: continuously improve functionality and user experience by addressing identified issues and incorporating suggestions. This iterative process ensures the final product is optimized, user-friendly, and meets the client's goals, delivering maximum value.

XR Platform

Whether it's **training**, **remote assistance**, or **team collaboration**, this platform **transforms workflows**, **drives innovation**, and **boosts engagement**.

A **Digital Twin** platform that **bridges the physical and virtual worlds**, powered by the **Digital Enabler Platform**.

Our platform for next-generation immersive and XR experiences

engX

Our XR platform connects real and virtual worlds to revolutionize workflows, drive innovation, and enhance engagement.

ENABLER OF INNOVATIVE EXPERIENCES

Augmented Reality(AR)

A REAL-WORLD EXPERIENCE ENHANCED BY A LAYER OF DIGITAL INFORMATION

+ **NO ALTERATION OF THE PERCEPTION OF THE REAL WORLD**

Mixed Reality (MR)

A DIGITAL EXPERIENCE THAT BLENDS PHYSICAL AND VIRTUAL ELEMENTS ON THE SAME LEVEL

+ **HIGH DEFINITION AND QUALITY OF VIRTUAL OBJECTS**

SOME OF THE MAIN FEATURES AVAILABLE TO THE END USER

+ **COLLABORATIVE SCENARIOS**
+ **REMOTE & IN PRESENCE**
+ **ROLES MANAGEMENT**
+ **DIGITAL ASSET EXPLORATION**
+ **PHYSICAL TWIN CONTROL**
+ **STEP-BY-STEP GUIDANCE**
+ **AI-SMART ASSISTANCE**
+ **HANDS-FREE INTERFACE**
+ **REAL-TIME DATA**

EngX/ At a glance

Reimagine Digital Redefine Experience

We create meaningful human centric, data-driven experiences, building relationships, driving growth. We craft captivating and immersive interactions with innovative technologies and deliver tailored solutions to elevate brand engagement.

Key strategic Partnerships & Collaboration

Adobe · KPI6 · myMeta · Contentsquare · superhumans

300+ DX Specialists

150+ Individual Certifications

150+ Clients

B2B2C Clients

Cross Markets

OUR MAIN **PILLARS**

- Brand Strategy & Activation
- Marketing & Communications
- Experience Design
- Solutions Development

+ ADVISORY
+ TECHNOLOGY & IMPLEMENTATION
+ DX DESIGN SERVICES

DIGITAL EXPERIENCE • DATA-DRIVEN • MACHINE LEARNING
COMPOSABLE HYBRID ARCHITECTURE • DESIGN THINKING
IOT, ARTIFICIAL INTELLIGENCE • CONVERSATIONAL INTERFACE
ACCESSIBILITY • SOCIAL MEDIA • XR • OMNICHANNEL • METAVERSE
VOICE RECOGNITION, MOBILE, WEB • BRAND EXPERIENCE
IMMERSIVE TECHNOLOGIES • CUSTOMER JOURNEY • GENERATIVE UX

EngX has a comprehensive service & solution portfolio, from strategy design to implementation, and a solid experience in Digital Learning and Extended Reality.

Brand Strategy & Activation

MEMORABLE AND INTERACTIVE EXPERIENCES BETWEEN BRANDS AND PEOPLE

- Branding Strategy
- Brand Management
- Market Analysis & User Insights
- Event Activation

Marketing & Communication

WE DESIGN THE BEST ACTION TO PROMOTE PRODUCTS AND SERVICES THROUGH DIGITAL CHANNELS

- Communication Strategy
- Engagement & Conversion
- Content & Campaign Management
- Social Media Marketing
- Marketing Automation

Experience Design

DESIGN-LED INNOVATION STRATEGIES TO ENGAGE AND LEVERAGE CUSTOMER EXPERIENCE

- Service & CX Design
- UX/UI Design
- Accessibility Advisory
- Digital Learning & Adoption

Solutions Development

CUSTOM BUILT CUTTING EDGE SOLUTIONS TO MEET THE EVOLVING NEEDS OF MODERN BUSINESSES

- Web & Mobile
- Digital Channel Enablers
- XR & Immersive Experience
- eCommerce & Product Information Mgmt.
- CMS & Digital Asset Management

ENG BACKBONE ENABLING TECHNOLOGIES

▪ AI FIRST ▪ CLOUD READY ▪ CYBERSECURE BY DESIGN ▪ XR ENABLED

05 Our projects

CASE STUDY | MEDIA & COMMUNICATION

Planetaria Festival: interactive theater featuring avatars on climate change

We combined photorealistic 3D avatars with Generative Artificial Intelligence to offer significant benefits that radically transform digital and interactive experiences.

By designing avatars that resemble real people, we created strong emotional connections with users, increasing immersion and making the experience more engaging and memorable.
Our avatars, modeled to closely resemble real actors, use generative AI to produce responses that are both smooth and incredibly natural.

This naturalness in interactions helps users feel at ease and comfortable, significantly enhancing their overall experience.

CASE STUDY | TRANSPORTATION

XR Assistant: immersive showroom, anywhere and without limits

Thanks to XR, the showroom becomes virtual, immersive, and free from space constraints: vehicles are digitized through photogrammetry and laser scanning, transformed into realistic 3D models, and collected in an unlimited catalog accessible both in mixed reality within the physical store and remotely via XR devices. The 1:1 scale experience is engaging and collaborative: it increases average dwell time and interaction levels, enhances the purchasing journey and brand recall, enables the entire inventory to be showcased virtually, and makes it possible to activate temporary or traveling showrooms in no time. In this way, the entire fleet is enhanced, and the showroom can be brought anywhere, closer to the customer.

CASE STUDY | AUGMENTED CITY

City Metaverse Experience

Orvieto in the Metaverse is the app that Engineering, together with the Municipality of Orvieto, has designed to make the artistic, historical, and cultural heritage of the charming Umbrian village accessible to anyone through an immersive and sensory experience.

Users are guided by Anna, the city's avatar, through a simulation viewable on traditional devices or 3D viewers.
The interactive journey begins at the Space, explores the town center, and lands in Piazza Duomo. From there, users can interact with virtual objects, access multimedia information on local museums and attractions, and take virtual tours.
They can also request an NFT Identity Card to become a virtual citizen of Orvieto.

RESEARCH PROJECT | MEDIA & COMMUNICATION

SUN project: where the physical and virtual worlds meet

The SUN XR Platform leverages XR technologies to support the large population of stroke patients (WHO: over 15 million cases per year).
At the core of the platform is the SUN VR App, which combines immersive multisensory experiences and multi-user virtual collaboration.
It integrates haptic, thermal, and reinforcement feedback with AI-driven solutions based on hyper-realistic avatars and 3D digital twins for rehabilitation.

The project has been funded by the European Union's Horizon Europe research and innovation programme under grant agreement No. 101092612.

RESEARCH PROJECT | ENERGY & UTILITIES

TwinEU: Digital Twins for European Elecricity Systems

The TwinEU project defines and implements a federated ecosystem of digital twins, integrating the Energy Data Space and enabling data exchange among different players in the energy sector through various use cases.
As part of a consortium of more than 70 partners, we are developing a multi-user XR platform for the creation and management of high-quality digital twins, delivering advanced, real-time interactive 3D experiences in XR environments.

The project has been funded by the European Union's Horizon Europe research and innovation program under Grant Agreement No. 101136119.

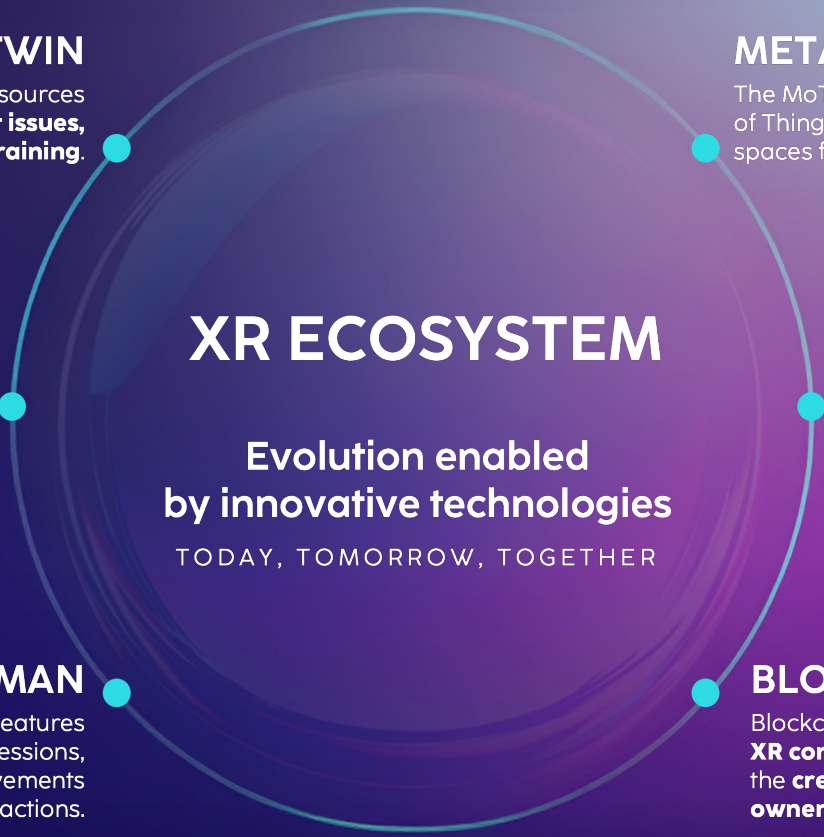
06 Integrating XR whith emerging technologies

A gateway to imagination and innovation - XR technology is experiencing rapid growth and evolution, inviting us into an exciting realm **where reality seamlessly blends with imagination**. Advancements in mixed and immersive realities are set to transform how we interact with digital content, allowing users to dive into enchanting realms that spark their creativity. As this technology develops, the possibilities will only expand, limited only by our imagination. The integration of XR with other cutting-edge innovations promises to reshape operational practices, driving **improved efficiency** and **richer user experiences**. This shift not only personalizes and enhances accessibility but also positions AR/VR/MR as a vital contributor to global innovation and collaboration.

Industries are rapidly adopting XR solutions, fundamentally changing complex systems like manufacturing and supply chain management. One particularly promising application is in field management, where Augmented Reality enables professionals to visualize essential data in real-time, thereby enhancing decision-making and productivity on-site.

By combining XR with advanced technologies such as Digital Twins and the IoT, organizations can gain a comprehensive insight into their operations. Additionally, the integration of XR with sophisticated hardware is making these immersive environments more personalized and accessible, promoting seamless collaboration. This makes **innovation more inclusive and impactful**. Businesses that harness its capabilities will redefine user experiences, positioning themselves at the forefront of progress and creating a more interconnected and dynamic digital ecosystem.

Scopri l'ecosistema XR



DIGITAL TWIN

Create interactive 3D models of physical resources to **optimize processes, solve equipment issues,** and **enable remote training**.

AI / GenAI

AI and GenAI analyze user data to **create personalized XR experiences, power virtual assistants**, and **generate new content** such as text, images, and audio.

DIGITAL HUMAN

Digital human data sets capture various features of an avatar (skin tone, gestures, expressions, voice cloning) while also focusing on movements and detailed human interactions.

METAVERSE OF THINGS (MOT)

The MoT combines the metaverse with the Internet of Things (IoT), connecting physical objects to virtual spaces for a seamless digital-physical interaction.

WEARABLE HAPTICS

Haptic wearables enhance the experience by providing **realistic feedback** through technologies such as **magnetic fields and elastic materials**, increasing **immersion and presence**.

BLOCKCHAIN / DLT / NFTs

Blockchain technology strengthens the **protection of XR content** by enabling **tokenization**, which facilitates the **creation of digital assets or tokens** that represent **ownership or access rights to XR content**.

07 Key takeaways

1 The growing potential of the extended reality industry

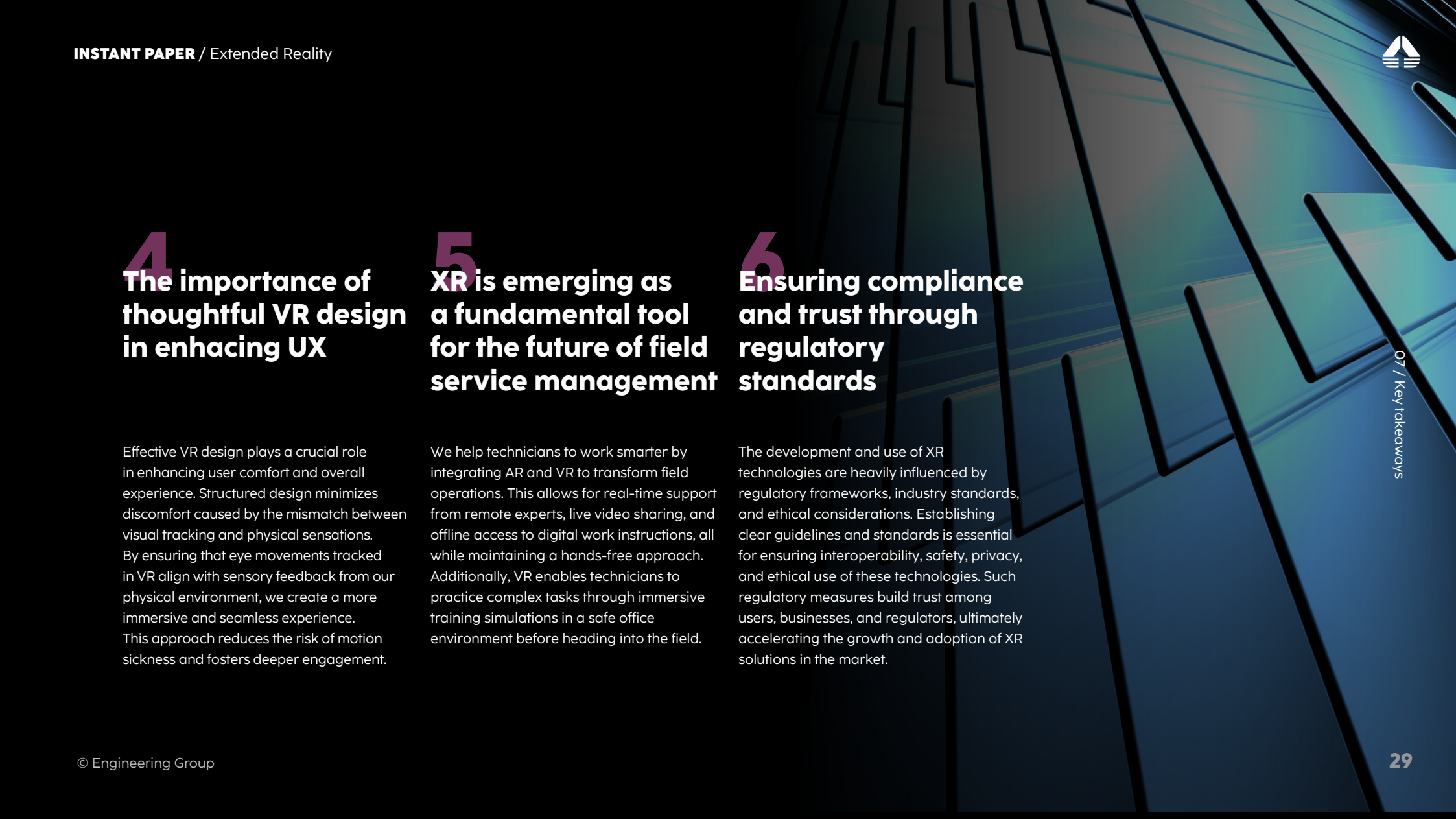
XR is transforming business operations and customer engagement across various sectors, from entertainment to healthcare. With explosive growth, it offers companies a competitive edge through innovative and meaningful user experiences.
By integrating with technologies like Digital Twins and IoT, XR enhances operational efficiency and enables real-time data visualization, improving also decision-making and productivity.

2 Empowering consumers with engaging and personalized experiences

In a market where consumers crave more engaging, interactive, and personalized experiences, XR technologies offer powerful solutions. These technologies enable brands to stand out by delivering unique and immersive experiences that captivate users. By leveraging XR, businesses can meet consumer demands for personalization and interaction, thereby gaining a competitive edge and fostering deeper customer loyalty.

3 Navigating the technological transition from 2D to 3D

The shift from two-dimensional (2D) to three-dimensional (3D) interactions presents a significant design challenge. This transition requires a comprehensive adaptation of user experience (UX) and user interface (UI) design principles to effectively manage the depth and complexity of volumed space. Success in this area demands innovative thinking and a deep understanding of spatial interactions to create intuitive and user-friendly banking interfaces.



4 The importance of thoughtful VR design in enhacing UX

Effective VR design plays a crucial role in enhancing user comfort and overall experience. Structured design minimizes discomfort caused by the mismatch between visual tracking and physical sensations. By ensuring that eye movements tracked in VR align with sensory feedback from our physical environment, we create a more immersive and seamless experience. This approach reduces the risk of motion sickness and fosters deeper engagement.

5 XR is emerging as a fundamental tool for the future of field service management

We help technicians to work smarter by integrating AR and VR to transform field operations. This allows for real-time support from remote experts, live video sharing, and offline access to digital work instructions, all while maintaining a hands-free approach. Additionally, VR enables technicians to practice complex tasks through immersive training simulations in a safe office environment before heading into the field.

6 Ensuring compliance and trust through regulatory standards

The development and use of XR technologies are heavily influenced by regulatory frameworks, industry standards, and ethical considerations. Establishing clear guidelines and standards is essential for ensuring interoperability, safety, privacy, and ethical use of these technologies. Such regulatory measures build trust among users, businesses, and regulators, ultimately accelerating the growth and adoption of XR solutions in the market.

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