



IMMERSIVE TECHNOLOGIES IN REGULATED INDUSTRIES

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BENEFITS AND BARRIERS

The emergence of immersive technologies present a wealth of new opportunities for both businesses and consumers - but at the same time present a raft of challenges.

Technologies such as augmented reality, virtual reality and e-learning can create tremendous value for both sides. However, businesses face bigger challenges - none more so than firms in regulated industries. Compliance across almost every industry is becoming increasingly onerous and complex.

Businesses must address issues about who owns augmented spaces and navigate barriers governments and industry regulators will inevitably construct. If immersive technologies are allowed to reach their full potential, ruling authorities and businesses must protect the interests of end-users without stifling innovation.

Sliced Bread Animation has many years of experience working with firms in regulated industries. We are fully aware of the restrictions specialist industries face together with a vision for potential regulations that could impact on the way regulated industries use immersive technologies.

In this guide, we explore how immersive technologies can benefit companies in regulated industries and discuss issues that may pose potential problems.



HOW DO IMMERSIVE TECHNOLOGIES WORK?

Immersive technologies essentially replace or enhance the real world with digitally enhanced animation. There are several ways the physical world can be manipulated - and the potential benefits for businesses promise an exciting future for companies and customers.

VIRTUAL REALITY (VR)



VR is arguably the most exciting immersive technology available. Users wear head-mounted goggles which transports them into a virtual 3D environment that imitates the real world.

The important aspect of virtual reality is that the headgear closes down the user's senses (sight, hearing and touch) to the physical world and stimulates the brain into believing the experience the individual is having in the virtual world is actually happening in the real world.

As a result, neurones in the brain connect. This, ultimately makes the experience more powerful for users, but also means they retain more information and gain a better understanding of products, places or events.

AUGMENTED REALITY (AR)



For commercial purposes, AR has the most potential for businesses. The technology enables designers to create 3D animations that can be superimposed over the real-world, or reconfigure real objects and bring them to life in 3D format.

AR is accessed through a custom-built app or web browsers. The content is typically accessed through a smartphone or tablet and allows users to interact with the physical world and the virtual world in a variety of ways.

Unlike VR, augmented reality is not fully immersive, but has huge potential to engage customers and employees which are cost-effective and easily accessible.



／ E-LEARNING



E-Learning offers an alternative way of educating staff than traditional classroom-based training. Using 3D animation, games, VR and/or AR computer-generated graphics, learning in schools, Universities and on-the-job training provide a stimulating solution that enhances memory recall.

With a central database that can be accessed from anywhere, companies in regulated industries can facilitate consistent training across multiple sites and ensure all your employees are compliant with the latest industry and government regulations.

／ GAMES



Scientific research reveals computer games that deliver engaging experiences and enriching 3D virtual environments provide the brain with meaningful stimulation. User cases are subsequently as far-ranging as increasing brain matter and providing pain relief.

3D animated games have obvious commercial benefits for engaging customers. However, there is also the potential to introduce games into the workplace to help employees develop valuable skills that reflect specific aptitudes.

For example, skills learned from playing computer games translate to problem-solving, strategy and resource management, all of which are essential skills in the workplace.

／ ANIMATION



In a competitive marketplace, animated videos enable businesses to stand out from the competition and engage customers. Statistics reveal animated videos on a landing page can increase conversion rates by as much as 80%.

If you want to impress clients and customers or engage employees in your staff training efforts, you will need to replace standard content and ordinary powerpoint presentations with animated content that stimulates, informs and educates.



IMMERSIVE TECHNOLOGY USER CASES

Immersive Technology in the Pharmaceutical Industry



Immersive technologies have already had a significant impact on the healthcare sector in several ways - and there is much more potential for the pharmaceutical industry.

Research groups have been applying immersive solutions in multiple ways:

- Training HCPs in a safe environment without the risk of negative consequences
- Enhancing the performance of surgeons by providing them with first-hand experience of performing difficult operations
- Using 3D virtual mapping to diagnose patients
- Developing a patient AR application for a physician to provide during a consultation that supplies an educational interactive environment on conditions and treatments
- Treat phobias, rehabilitate patients that have suffered the loss of limb use and understand more about conditions such as autism
- Help to diagnose and treat patients with neurodegenerative diseases

The next step for immersive technologies will be to help pharmaceutical companies develop drugs, treatments and therapies in less time and at less cost. Immersive technology can also be used to provide HCPs with the opportunity to understand the latest pharmaceutical products and determine how they can help their patients.

Potential Regulatory Issues

Pharma has an opportunity to bridge the gap in manufacturing processes, clinical trials, packaging lines and facilitating adoption. Immersive technologies remove many of the barriers that have previously hampered the industry.

However, there are regulatory requirements to navigate together with current issues around data privacy, storage and security. The key regulatory barriers for the pharmaceutical industry include:

- **Image Rights:** What authorisation will patients have to give medical practitioners to share their data with specialist consultants, colleagues from other hospitals or for training purposes.
- **Data protection:** How will the creation of a patient's personal data be stored securely and who will have access to it?
- **Malpractice:** There are no guarantees that immersive tools will help or hinder some patients and the threat of malpractice looms as large as ever. Whilst there is clearly greater potential to narrow the possibility of medical errors occurring, only time will tell just how effective immersive tools will be.

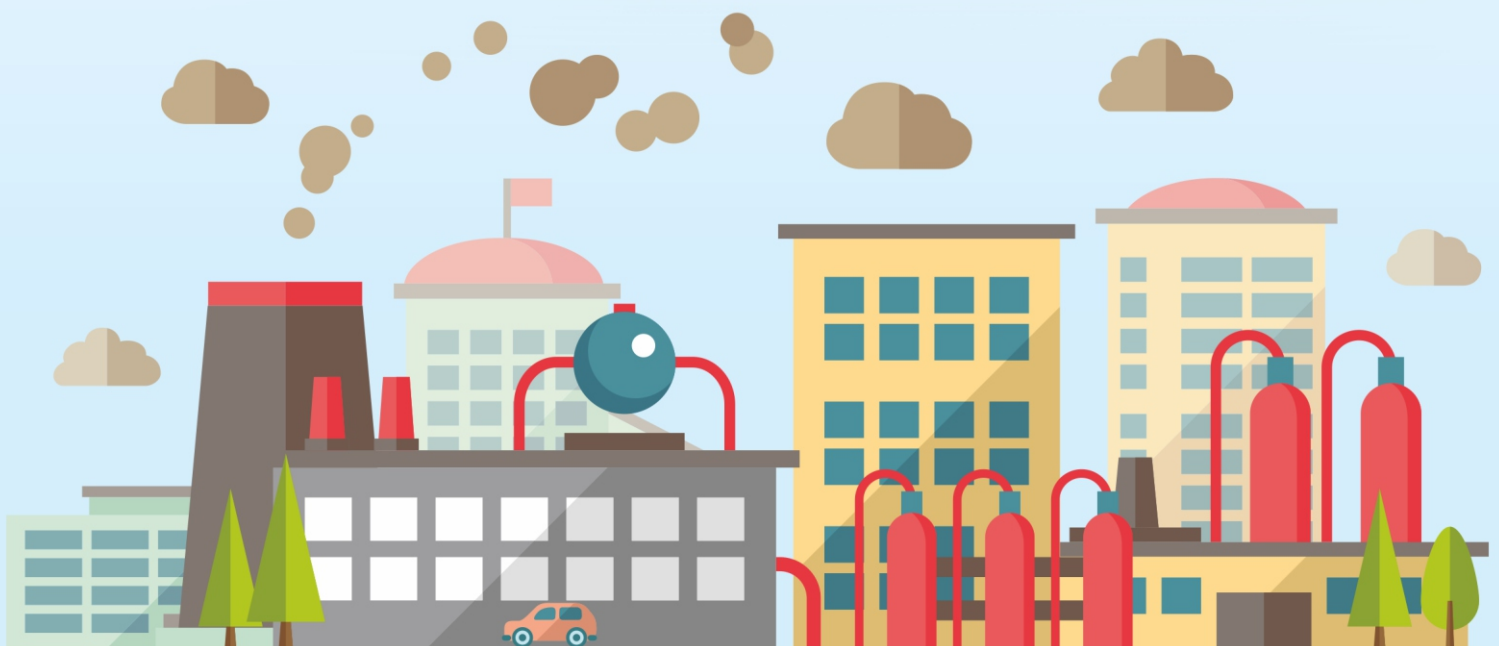


The introduction of immersive technologies provides companies in the finance sector with the potential to transform the customer experience and regain the trust of consumers.

By providing an interface customers can access with their smartphone, financial service providers can enhance the seamless transition into the digital age and deliver your service with little disruption or learning curve for customers.

We are already starting to see how fintech is making an appearance with:

- AR applications that allow customers to locate a nearby ATM or branch
- Enable customers to identify offers in a shopping centre or high street simply by pointing their phone towards an advertisement
- Gives customers the option to interact with bank tellers in a virtualised space superimposed over natural bank surroundings and cut down on waiting times
- Unify the real estate and the banking experience to significantly reduce the time it typically takes to schedule mortgage appointments and other loan applications in face-to-face meetings
- Analyse and comprehend huge swathes of complex data points to make informed and accurate decisions
- Tap into the potential of online payments, allowing customers to make payments from anywhere, anytime directly from their smartphones or desktop computers
- Create interactive environments that provide access to 3D diagrams, charts, graphs and written information so trainees can readily grasp complex concepts and important aspects of the financial services you offer
- Eliminate the need to schedule live interviews during the recruitment process
- Enable customers to visit banks from the comfort of their own homes and perform actions such as money transfers, check bank statements, open bank accounts and clarify doubts with the need for human interaction



Potential Regulatory Issues

Whilst immersive technologies promise huge potential for the financial sector, banks and other financial service providers face serious challenges. Firms will be responsible for designing safeguards, incentives and collaboratively-defined principles that do not encroach the protection of consumer use.

As companies develop innovative applications there is an argument to suggest introducing new metrics that go beyond measuring engagement and customers satisfaction - fulfilment and the enhancement of wellbeing are also factors that should be considered together with potential regulatory policies and consumer behaviour. Potential pitfalls include:

- **Limited Progress:** The failure of the governments to take an active role in investing in immersive content and enable financial institutions to develop strategic planning could hinder how immersive technologies are adopted and prevent an entire sector from taking a leading edge in the next computing frontier
- **Infringement of data protection policies:** Consumer protection policies may be imposed on when using consumer data with a view to heightened ad targeting
- **Privacy concerns:** Failure to provide clear and agreeable terms of use may prompt regulators to introduce laws that protect consumers
- **Mental Health:** Encouraging customers to spend more time using devices and screens may potentially have a detrimental effect on health and wellbeing
- **Private data storage and sharing:** Potential for consumers to transfer their data across platforms and allow innovative tech start-ups to compete with the major industry players could pose problems with regards entitlement to data
- **Data Misuse:** VR and AR data misuse could cause consumers to lose control of their identity and how they choose to present themselves to employers, insurers and others



Immersive Technologies in the Construction Industry



Cutting edge technologies have the potential to include consumers as part of the change. With the amount of innovation required in the construction industry in respect of health and safety of buildings, together with climate change policies and wellbeing, immersive technologies can remove potential concerns of citizens.

VR and AR, in particular, can reinvent the construction industry by enabling property investors and owners to envisage how building designs will benefit them. Immersive technology enables construction firms and engineers to plan advanced modelling and get structural designs right at the first attempt.

- Save time and cut costs of planning, development and building
- Significantly improve different aspects of the construction process
- Place a 3D model of a proposed design onto a prospective building site
- Gain insights into the accuracy of design and improve the quality of the end product
- Provide buyers with direct experience of how they can interact and experience the property in the real-world
- Allow companies to reduce the number of costly prototypes, enhance the conceptual design and provide more information during the commercialisation process
- Iterate plans numerous times before a spade goes into the ground
- Provide students of architecture, construction and engineering with an immersive learning experiences
- Give trainee construction workers the opportunity to learn complex building techniques and practice teamwork in a safe environment

Potential Regulatory Issues

The recreational and commercial opportunities for immersive technologies to positively impact the construction industry cannot be disputed. However, policymakers still feel there is plenty of work to be done to ensure the technology is not implemented to the detriment of the general public.

There are still some elements of emerging technologies that come into direct conflict with existing regulations or can be an invitation for governments and regulatory bodies to fill in policy gaps in which tensions arise. Some of the issues that should be considered within the construction industry are:

- Personal data protection: Firms must adhere to the EU's GDPR (General Data Protection Regulations)
- Sharing data: Finance companies have to find a way to protect confidentiality in respect of shareholders, property owners and prospective buyers when sharing data with other players in the property chain
- Intellectual property: Copyright laws could pose problems when designs are used for commercial purposes and will need to be protected
- Liability disputes: In the event of a flawed project, there may be a question over responsibility if construction firms make a decision based on erroneous data within a software program

Immersive Technologies in Engineering



Immersive technologies have the capability of transforming the construction sector in ways that enable engineers to make informed decisions. Advanced modelling provides critical insights that enable construction projects to be significantly ramped up.

Whereas existing technologies only provides a window into the world of possibilities, immersive technologies enable engineers to step into simulated worlds and experience constructions projects before production even starts. The list of uses and potentialities includes:

- Conceptualising how a building will look before it is built and avoid delays and increased costs
- Allow parties involved to easily perceive and engage with a property
- Eliminates a request for changes to be made once a project is already underway
- Provide valuable insights that enable construction site workers to be more productive
- Allows engineers to manage, coordinate and communicate key data about a building and potentially make bigger gains in reliability, quality and efficiency
- Enable trainees to visualise engineering projects and create a short learning curve by enabling complex data to be presented clearly and simply
- Gives prospective buyers more accessible information about the key features of a property
- Frequently update models as more data is fed in
- Train staff about health and safety issues without exposing them to real-world dangers
- Connect teams in remote locations and allow them to interact with the same model at the same time thus enhancing communication on collaborative projects

Potential Regulatory Issues

Whilst engineering companies have the opportunity to significantly capitalise through the adoption of immersive technologies, organisations are not immune to potential regulatory issues.

The areas of concern for engineering companies include physical harm, damage to property or the environment and public safety. Addressing risk management from the early stages will enable you to troubleshoot any problems should they arise. Important factors to consider are:

- **Data sharing:** How can engineering firms protect and safely share sensitive data with third parties
- **Copyright Laws:** How to protect intellectual property rights and ensure you don't infringe on another copyrighted material
- **User Data:** How will user data will be protected in a shared digital environment?
- **Deflected or Shared Liability:** If erroneous information is used on the basis of programmed software, how will liability disputes be managed in the event a project is flawed?
- **PTSD:** How will you defend lawsuits if an end-user suffers from psychological damage after experiencing a traumatic experience in a VR simulation?

WHY SLICED BREAD?

Sliced Bread is a trusted partner for companies operating within regulated industries. With many years of design experience, there is no questioning our creative acumen or our ability to create essential tools.

What stands us apart is that we are well aware of the potential risks and regulatory limitations organisation face in relation to immersive technologies. This knowledge enables us to navigate potential barriers from the earliest stages and provide you with immersive tools you can rely on for the long-term. We trust you have found the information in this guide informative and encouraging. If you want to know more about how immersive technology can benefit your organisation, do not hesitate to get in touch and speak with one of our knowledgeable advisors.



The Sliced Bread team



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