



Future Analytics

# From Tradition to Innovation

How virtual reality is shaping the  
future of tourism and heritage



“Virtual reality technology is shaping the future of the tourism industry. **Immersive technologies** create competitive advantage for service providers and augment their **customers’ experience**. In Ireland, service providers are developing **innovative solutions** that preserve and build on a rich tradition of heritage and culture.”



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# Contents

<b>Section One:</b> Introduction	1
<b>Section Two:</b> VR in the Tourism Industry	3
<b>Section Three:</b> Conclusion	27
<b>Section Four:</b> About KPMG Future Analytics	29



# Introduction

Virtual reality has an important role to play in augmenting Ireland's tourism industry. National government, service providers and local authorities need to work together to ensure the industry achieves these potential benefits.

## What is Virtual Reality?

Virtual reality (VR) is a computer-generated simulation of a three-dimensional environment that can be experienced in a seemingly real or physical way using specialised equipment, such as a headset and handset or gloves. VR has a wide range of applications, including marketing, entertainment, research, design and training and is becoming increasingly popular for consumers and businesses alike.

The global VR technology market is valued at approximately \$12 billion and is expected to grow to more than \$22 billion by 2025.<sup>1</sup> With such rapid growth, a broad range of industries have recognised the potential disruptive or transformative change that this technology can facilitate, particularly in the retail, automotive and construction and engineering and healthcare industries.

In recent years, the tourism industry has begun to explore the uses of VR as a mechanism to enhance the customer experience. Notable benefits of incorporating VR within tourism include improved marketing, enhanced accessibility and greater flexibility for consumers to interact and learn about tourism and heritage at their convenience.

Within the Irish context, the use of VR in the tourism industry is a relatively new phenomenon, but it is quickly gaining traction as service providers seek new and innovative ways to remain competitive in a rapidly evolving marketplace.

We explore the intersection between VR and the tourism industry in Ireland, with a focus on the motives for adoption in the market and the strengths, challenges, opportunities and threats for the future. The insights provided are based on a review of existing literature on VR and the tourism industry and informed by the expert insights of KPMG's Future Analytics team. The findings are intended to provoke thought around the future of the tourism industry, which is regarded as Ireland's biggest regional employer, valued at over €10 billion."

“Notable benefits of incorporating VR within tourism include improved marketing, **enhanced accessibility and greater flexibility** for consumers to interact and learn about tourism and heritage at their convenience.”



### The following themes are further explored:



Adoption of VR in the tourism industry at the international and national level using case study analysis.



Relevant applications of VR in alternative industries and transferable learnings for the tourism industry.



A conclusion and recommendations for various key stakeholders to future-proof their strategies in response to VR developments.

# Virtual Reality in the Tourism Industry

A growing body of research exploring the use of VR in the tourism industry has emerged in recent years. Some studies have focused on the potential benefits of VR for tourism, such as attracting and retaining visitor attention at exhibitions,<sup>2</sup> enhancing the immersive quality of the experience,<sup>3</sup> and providing a platform for enhanced marketing.

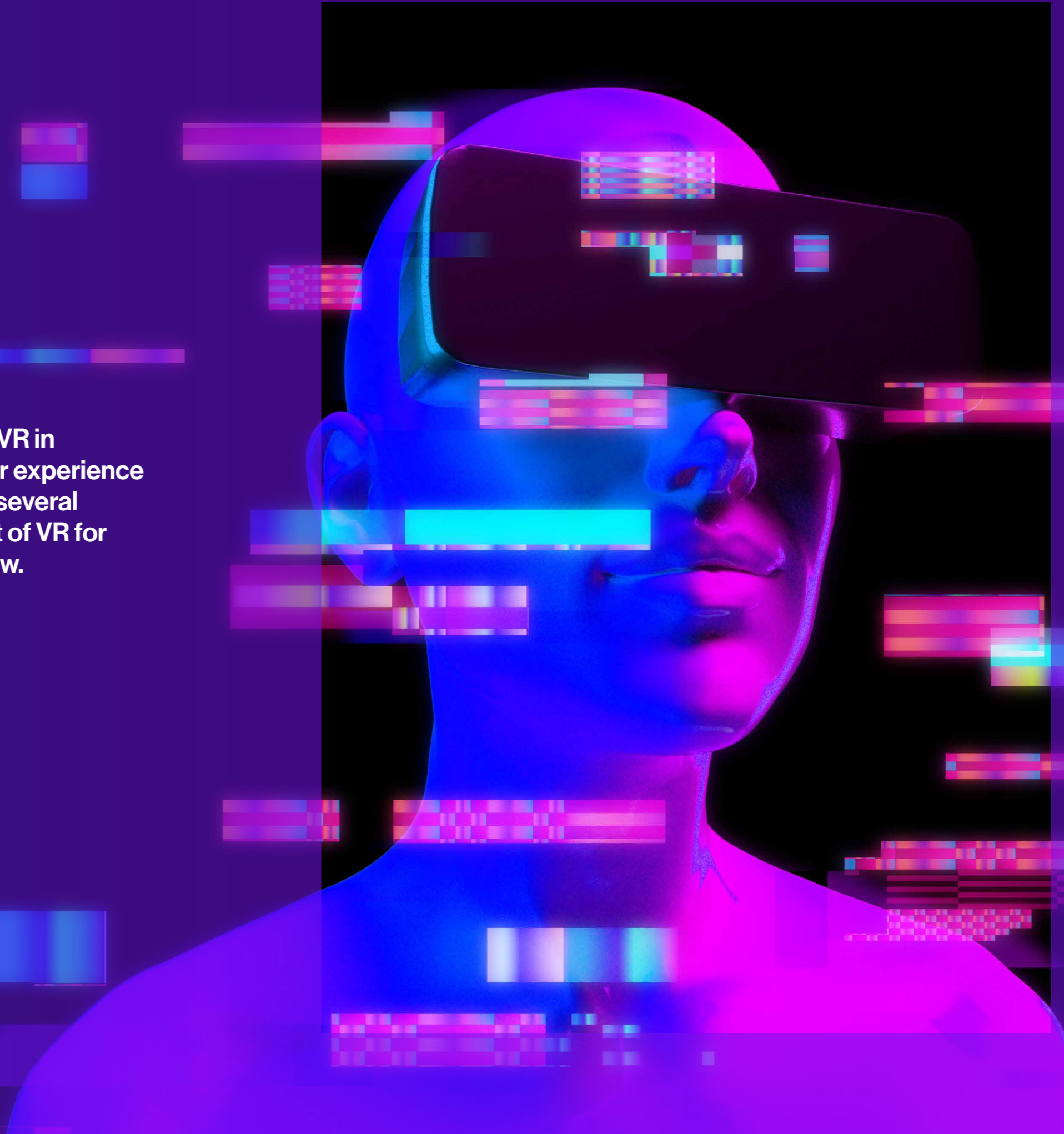
For example, a study part funded by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea found that VR offers an effective means to promote tourism, particularly because the enhanced sense of presence that is achieved through a head-mounted display leads to a more positive image of a given destination.<sup>5</sup>

On the contrary, research has highlighted the challenges and limitations of using VR, citing the high cost of equipment,<sup>6</sup> general technical difficulties and a feeling of unease among users.<sup>7</sup> Similarly, researchers at the University of Michigan found that users of VR technologies can often feel uncomfortable or ill while using a VR headset, the price of VR technologies and custom exhibitions remains high and there is a lack of technical standardisation within the VR domain.<sup>8</sup>

Taken together, these challenges and limitations present notable barriers to mass adoption of VR in the tourism industry.

# International Context

International trends and developments in the use of VR in tourism include virtual tours, VR-enhanced customer experience and improved marketing and promotion. We outline several international case studies demonstrating the benefit of VR for promoting tourism, culture and heritage and art below.



# National Tourism Strategies

ECO Egypt is a nationwide VR tourism campaign led by Egypt's Ministry of Environment, funded by the Global Environment Facility and implemented by the United Nations Development Programme with the National Bank of Egypt as a strategic partner.<sup>9</sup>

The VR tourism campaign aims to take users on a journey of discovery through some of Egypt's most diverse protected areas. The tour covers seven different areas, including the White Desert, the Sannur Cave and Taba.

The VR was developed in response to a decline in tourism attributed to the pandemic. The tours are intended to not only provide users with vivid 360-degree simulations but also to encourage travel and exploration within Egypt.



# Cultural Heritage Sites

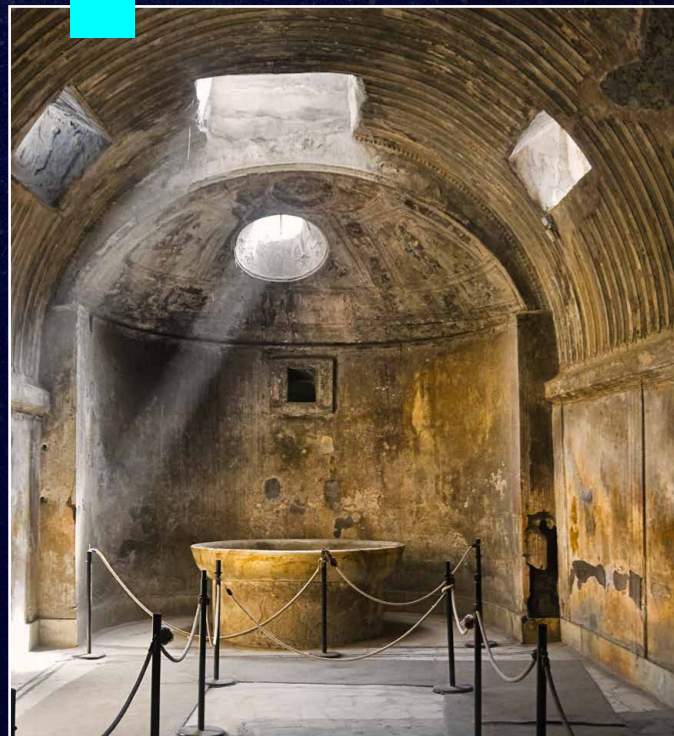
VR has been used create virtual experiences of cultural heritage sites, such as the ancient city of Pompeii. One such example created by GEDEON Programmes in partnership with UBISOFT offers users the opportunity to experience the archaeological ruins of Pompeii, a UNESCO World Heritage Site, from the Grand Palais in Paris.





# “Explore the ruins of Pompeii...”

The experience allows three simultaneous users to explore the ruins of Pompeii from the Grand Palais in Paris. Users can collectively explore a fully reconstructed room, in its original state and gain access to historical and scientific information.<sup>10</sup> This approach to tourism and heritage is particularly interesting due to its facilitation of a sustainable tourism experience that allows people to experience a UNESCO World Heritage Site without the environmental impact of travel.





# Art Exhibitions

Brazilian company Compass UOL created a new virtual reality exhibition called “The Stolen Art Gallery” which displays major works of art that have been stolen or are missing. Users can interact with masterpieces that disappeared decades ago through a smartphone app<sup>11</sup>.

The creators incorporated interactive elements similar to those found in museums, including audio descriptions of each painting. Additionally, users can make notes or sketches that are visible to other users and can get closer to the art in a VR setting than would be possible in the real world. The gallery includes Caravaggio’s *Nativity with St. Francis and St. Lawrence and Christ in the Storm on the Sea of Galilee*<sup>12</sup>. This VR offering facilitates enhanced accessibility for the public to engage with masterpiece artwork for free.

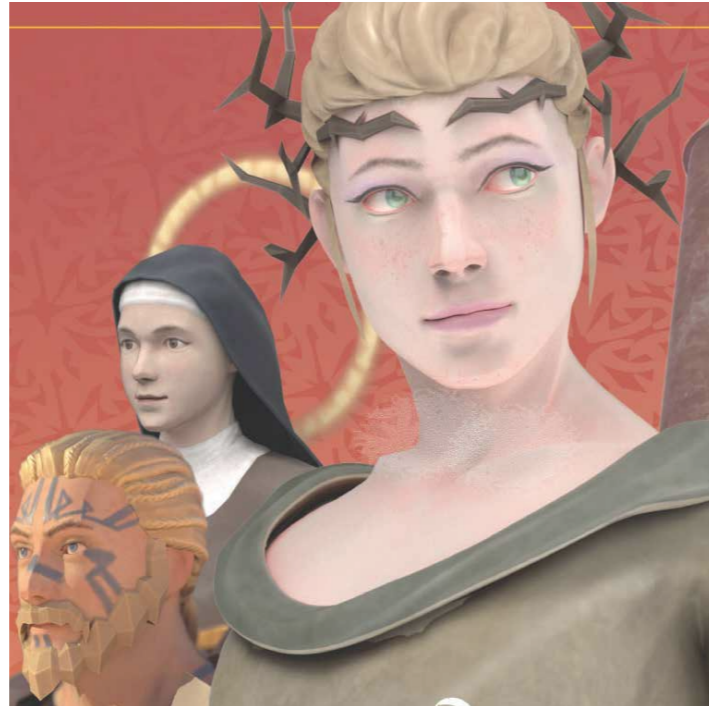
# National Context

The global tourism industry has leveraged VR technologies for a variety of reasons, including promotion and marketing, ensuring sustainable tourism and improving accessibility around art, culture and heritage. The Irish industry has mirrored these global trends and has recognised the unique benefits that VR technologies can offer.

Within the Irish context, particular focus has been placed on leveraging Ireland's historic significance, heritage and cultural diversity. This focus is unsurprising given that Ireland's heritage is considered by foreign holidaymakers as a key attraction according to research conducted

by Fáilte Ireland.<sup>13</sup> Moreover, heritage-based attractions also consistently dominate the annual visitor lists, with the vast majority of the top 20 fee-paying and free attractions being historic buildings or places of natural beauty.





## The Gates of Hell

The Gates of Hell VR Experience is a recent attraction that was launched at Wicklow Historic Gaol following significant investment from Fáilte Ireland.<sup>14</sup> The experience is one of 19 new technology-driven experiences that are planned to open over the coming years as part of Fáilte Ireland's €2.3 million Storytelling Interpretation Grants Scheme. The VR experience transports users back in time to interact and learn about the rebellion of 1798, the famine era and the War of Independence from the perspective of inmates. This offering provides a unique tourist attraction while also promoting the rich history and heritage of Ireland.

## The "Legends of Kildare"

The "Legends of Kildare" 3D Experience is a state-of-the-art VR experience that has been launched at Kildare Town Heritage Centre following investment of €156,000 by Fáilte Ireland alongside financial support of €44,000 from Kildare County Council.<sup>15</sup> The attraction is expected to draw an additional 30,000 visitors to Kildare Town Heritage Centre between 2019 and 2024 and is forecast to generate €1.3 million in revenue for the local area.<sup>16</sup> The experience immerses users in the history of Kildare featuring the stories of St. Brigid and several mythological legends. The experience caters to a diverse range of tourists and is available in English, French, German and Chinese. Much like the Gates of Hell VR Experience, the investment in this experience is part of a wider tourism strategy that leverages Ireland's rich history and heritage and embraces VR as an innovative technology solution.



## Lismore Castle

The Lismore Castle VR Experience provides users with an opportunity to tour the rooms and halls of the Castle while simultaneously listening to information about the history of Lismore.<sup>17</sup> The tour audio is narrated by world-famous scientist Robert Boyle, who outlines the history of the castle. This experience offers users an enhanced opportunity to experience and learn about Lismore Castle, which is regarded as a significant tourism attraction in Ireland.

## The King of the Vikings

The King of the Vikings VR experience was produced by Emagine, an Irish creative agency. It offers an immersive VR experience inside a reconstructed Viking house in the ruins of a 13th century Franciscan Friary in the heart of Waterford's historical quarter.<sup>18</sup> The experience couples VR technology with an educational experience that is centred around history, tradition and heritage.

These case studies have focused on the use of VR in the tourism industry at the international and national level. Several strengths, challenges, opportunities and threats for the future use of VR in the Irish context need to be considered:

**Strengths:** VR can increase customer satisfaction, enhance the immersive quality of the experience, provide a platform for enhanced marketing and can promote national and local tourism and heritage.

**Challenges:** VR technologies can be uncomfortable for some users, custom exhibitions can be expensive and there is a lack of technical standardisation within the VR.

**Opportunities:** VR can be used to facilitate enhanced accessibility to a wider audience, offer sustainable alternatives to conventional tourism and can preserve and celebrate local history, culture and heritage.

**Threats:** With VR, users can experience a location without physically being there (such as those users in the Grand Palais in Paris exploring the reconstructed ruins of Pompeii). Tourist attractions in Ireland will need to provide value over and above the VR experience to maintain their real-life appeal.

14. "Gates of Hell" Virtual Reality Experience launches at Wicklow Historic Gaol | WicklowNews  
 15. New Virtual Reality Experience Unveiled at Kildare Town Heritage Centre | Hospitality Ireland  
 16. New Virtual Reality Experience Unveiled at Kildare Town Heritage Centre | Hospitality Ireland  
 17. Castle Experience - Lismore | discoverlismore.com  
 18. Viking Virtual Reality Experience | King of the Vikings

# Learnings from Other Industries

VR has transformed a broad range of other industries, providing **immersive experiences** that were once considered impossible.

There are key learnings from other industries that can be considered for application to the tourism industry. Specifically, it is certainly beneficial to examine the retail, automotive, construction and engineering and healthcare industries to reveal opportunities for enhanced customer engagement and experience, employee training and upskilling and inclusive service offerings.

# Retail

According to research by PYMNTS, revenue related to VR generated as much as \$1.8 billion for retail and marketing companies in 2022.<sup>19</sup> One example in Ireland is luxury retailer Kilkenny Design, which has embraced VR technology and in response to the pandemic, opened a virtual reality store.

As noted in the Irish Times,<sup>20</sup> VR provides global shoppers with an immersive in-store experience. Through this innovative service offering, customers can get a panoramic view of the shop floor and browse a wide variety of products on virtual racks and shelves using a VR headset and handset controls.<sup>21</sup>

## Relevance for Tourism Industry:

enhanced service offering,  
improved customer experience,  
additional revenue streams,  
competitive advantage.

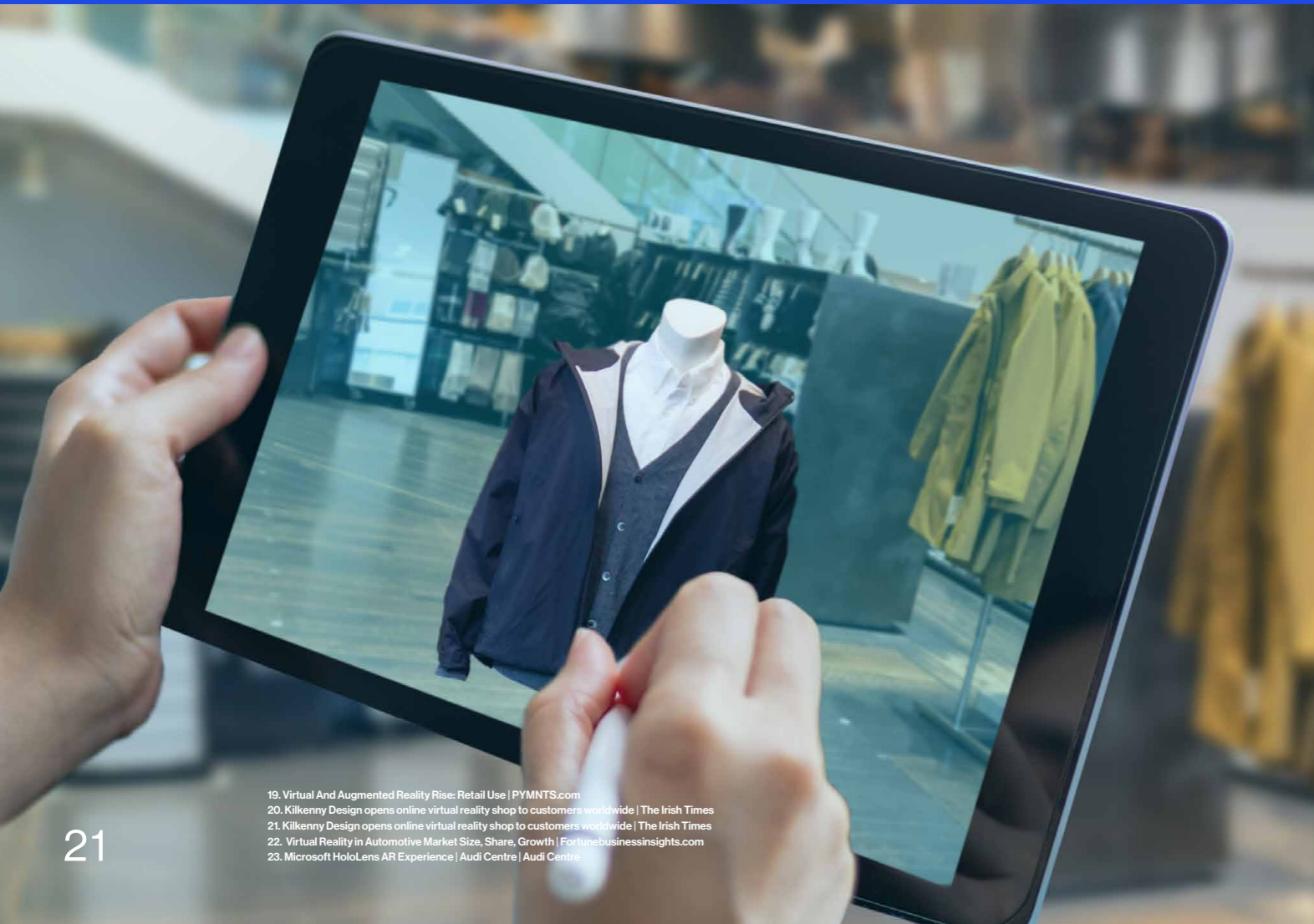


# Automotive

In 2019, the global VR market in the automotive industry accounted for approximately \$760 million.<sup>22</sup> Many leaders in the automotive industry have adopted a similar approach to retailers in terms of using VR to display virtual showrooms. For example, in 2018, Audi introduced a VR system to selected dealerships in Ireland, which enabled customers to immerse themselves in the VR experience led by a holographic guide to tell the Audi technology story and interact with the exterior, interior and technology of the Audi A7.<sup>23</sup> Auto manufacturers have also adopted VR to support testing and training.

## Relevance for Tourism Industry:

enhanced service offering, improved  
customer experience, additional revenue  
streams, competitive advantage,  
alternative approaches to employee  
training and upskilling.



# Construction and Engineering

Firms increasingly use VR to train staff and ensure health and safety compliance. This is particularly relevant for the construction and engineering industries.

Research from Global Market Insights indicates that operator training market will be worth over €17.79 billion euro by 2025.<sup>24</sup> This market size is partially attributed to improvements in VR technology, which can increase efficiencies and reduce risk of accidents or incidents. For example, ExxonMobil launched a training initiative ahead of an expansion of its Baton Rouge polyolefins plant in 2019.<sup>25</sup> As part of this, a VR module was developed to prepare crane operators before training in-person. This unconventional training approach can be regarded as a superior training experience because it can facilitate conditions that could be unfeasible or dangerous in a real-world scenario.

## Relevance for Tourism Industry:

alternative approaches to employee training and upskilling, enhanced accessibility.

# Healthcare

VR technologies have opened a range of potential opportunities within the healthcare industry. As noted by the NHS, VR has the potential to distract children from 'self-reported pain and anxiety during medical procedures' and is being increasingly trailed by clinicians to explain complex procedures.<sup>26</sup>

This reduction of anxiety can result in a reduced dose of general anaesthesia and can help with a reduction of reliance on pain-relief medication. Similarly, therapists have been using VR to help individuals rehabilitate from strokes, Parkinson's disease and other injuries.<sup>27</sup>



**Relevance for Tourism Industry:**  
enhanced accessibility and inclusive approaches to service offering.



# Conclusion

The tourism industry has been exploring the use of VR to improve visitor experience, promote destinations/ attractions and enhance accessibility and align with climate action. By leveraging VR technology, organisations can further promote Ireland as a choice destination. With careful collaboration between public and private stakeholders and also the wider tourism community, VR can become a mainstream technology in the tourism industry and transform the sector. To conclude, we highlight the main implications by stakeholder type.



## Government

**Regulation:** pursue regulatory policies that foster the development of the VR market

**Best practice:** learn from international best practices such as ECO Egypt.

**Sustainability:** promote the sustainable benefits of ecotourism.

**Incentives:** consider incentives to stimulate development in the Irish VR market.

**Economic development:** consider the economic benefit of supporting the transformation of Ireland's tourism industry.



## Local Authorities

**Promotion:** promote local tourism attractions through targeted communication strategies.

**Community development:** consider how VR can be used to promote inclusion and improve accessibility.

**Collaboration:** actively engage with local enterprises to increase awareness of available funding and contribute to the establishment of local and national networks.



## Service Providers

**Customer engagement and service offering:** consider the potential uses of VR to increase customer engagement and enhance service offerings.

**Employee training and upskilling:** consider innovative approaches to employee training and upskilling.



## Visitors

**Experience:** explore novel approaches to tourism and the promotion of heritage through VR technologies.

**Accessibility:** promote awareness of the potential of VR to improve accessibility.

**Inclusivity:** consider the uses of VR to promote inclusive and equitable experiences for the wider community.



**“By leveraging VR technology, organisations can further promote Ireland as a choice destination.”**

# About KPMG Future Analytics

**Our unique combination of a thorough understanding of tourism and heritage, underpinned by our data and market research teams, mean we have the skills and experience to deliver solutions that drive positive change.**

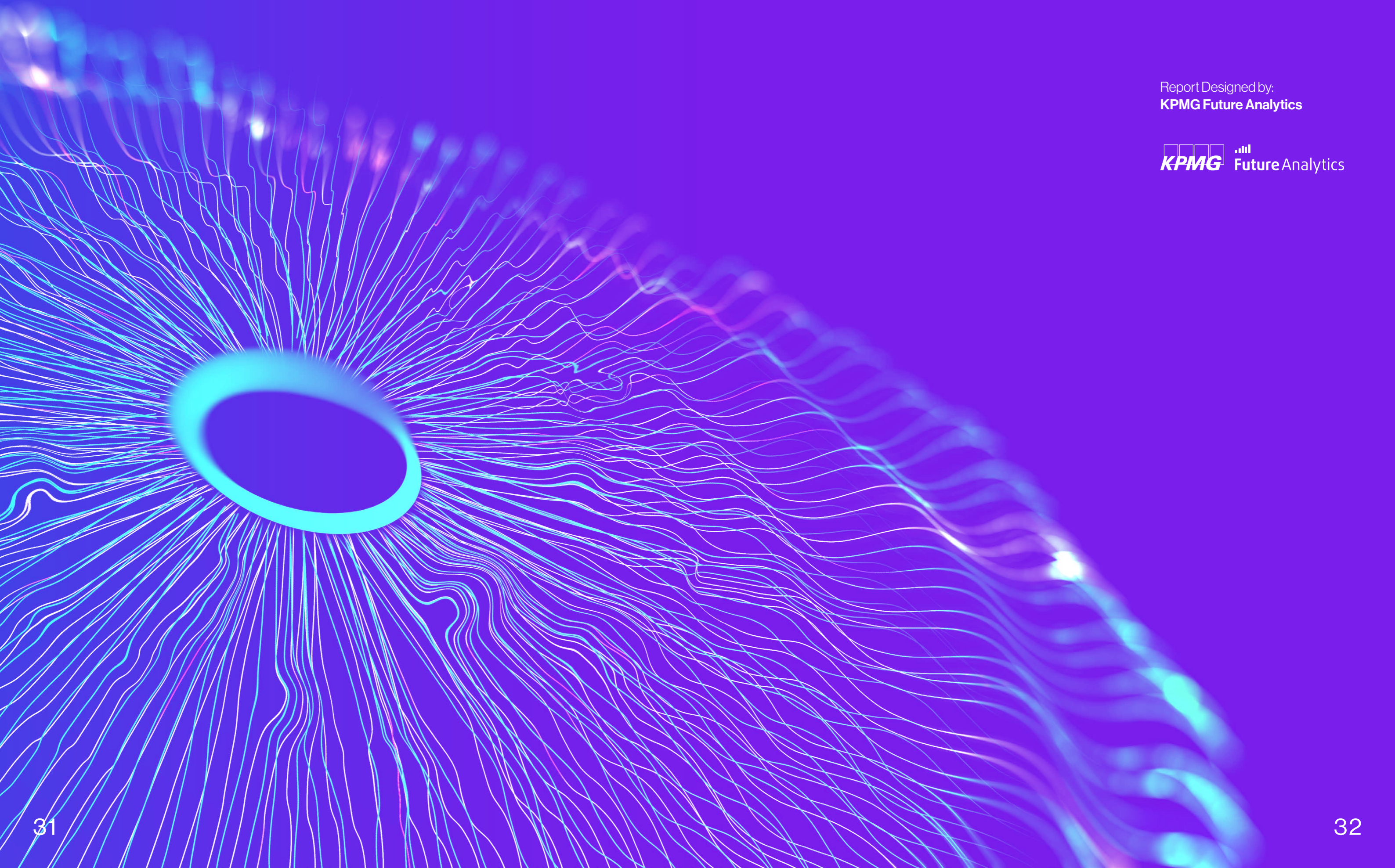
We offer a distinctive and client-focused service, based on our extensive industry experience and our team's exceptional knowledge of the tourism and heritage sectors. With a strong focus on research, innovation and creativity. We also pride ourselves on a deep awareness of emerging best practice and trends in the tourism industry.

Our services encompass the full range of tourism and leisure planning from initial situation and market analysis to strategic option development and action planning. Our focus on data analysis, as well as development planning, means that we can offer our clients a service that ranges from research through to obtaining final planning consent if this is required.

To find out more about our KPMG Future Analytics team and how we can help you focus on what's next for your business or organisation, please get in touch.



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