Boston Hospitality Review

Digital Trail Development Opportunities for Tourism and Hospitality: Lessons from Ireland

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Consumer Behavior - October 2021

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Image, Smart Dublin: Market Consultation for Heritage Trail Augmented Reality App

Abstract

As technology advances, its application in the tourism domain has continued to expand. Among the most promising ways technology can be deployed in this context are digital trails. Immersive technology and AR (Augmented Reality) offers the prospect of providing tourists with a digital layer of information to curate and add value to their experience. For tourism and hospitality organizations, new technology provides an opportunity to connect more meaningfully with new target segments, provide a possible new revenue stream, and integrate stakeholders promotional activities, including those of the local hospitality sector. This paper will explore the application and opportunities of immersive technology and digital trails through the lens of experiences centered on the ongoing exploration of the subject of Digital Trail development in Dublin, Ireland.

Background

In 2020, Fáilte Ireland (the National Tourism Development Authority of Ireland) and Dublin City Council (DCC) came together to launch the Smart Tourism Programme for Dublin. The goal of the Smart Tourism programme is to establish Dublin as a

world-leading "Smart Destination" through innovative projects, research, and partnerships. A key focus of this programme is digital trails development. The programme aims to define best practices in digital trail development and publish a national Digital Trail Toolkit while assisting and advising partners with digital trail development projects. In Q1 2021, an expert working group was formed by the Smart Tourism programme to guide the development of this Toolkit. Alex Gibson from the School of Marketing at Technological University was asked to contribute as a member of this working group. In Q2 2021, the Smart Tourism Programme for Dublin also partnered with DCC to publish one of the largest digital trail and immersive technology tenders on the market; Mobile App for Heritage Trail(s) Dublin.

Ongoing Journey

The background to this paper is contextualised by the learnings surrounding these digital trails and immersive technology projects. It is an ongoing journey of learning and exploration on the subject of immersive technology and digital trail development within the tourism industry. Covid-19 has had an accelerating effect on the interest of digital development use cases within the tourism industry. Alongside the rapidly maturing nature of immersive technology, there are many opportunities for learning, discovery, and continued exploration of this subject. The authors believe that the hospitality industry has much to gain from a deeper understanding of the potential offered by developments in digital trails.

An earlier piece of research by Han, Jung, and Gibson (2013) has informed the development of this paper. In this earlier research, an exploration of the use of augmented reality as part of a prototyped digital trail for Dublin was investigated. Among the key findings was that any mobile-enabled digital trail needs to be cognizant of the following customer priorities:

Local Context
Tourists argued that relevant information of the area was necessary, such as on-going events and markets that run only during specific times of the year and week. This would avoid the unnecessary visit to a closed attraction.

Reviews/Social Network
Furthermore, most of the tourists thought that reviews from other people, preferably other tourists, as well as ratings, were very helpful for the decision-making process of which tourist attraction to visit or where to dine. The social aspect was also considered by many tourists as an important factor to encourage regular usage of the application.

Personalization, user empowerment
Most of the interviewees were looking for a tourist application that could organize trips and save individual profiles in order to make the application more personal and shape the trip according to their interests. It should be designed to make traveling and planning easier and more efficient, rather than having to spend hours planning prior to the visit. This personalized dimension was subsequently informative in terms of identifying possible segmentation and targeting opportunities for the development of a digital trail.

Map, easy navigation
As most interviewees were using map applications on a daily basis, it was advised that the application should include a map of the destination, which was easy to navigate and could pinpoint locations. A common method was to link the application to Google Maps. However, since AR features are included in the application, tourists were unsure whether this link was possible. Alternatively, navigation would be built through the camera lens and show virtual arrows and route indications overlaying the real environment. However, many tourists resented holding their mobile device for long periods of time in front of them to navigate through the city. Furthermore, the accuracy of the application was an issue as many tourists had negative experiences with the GPS accuracy of their mobile device.

Multilingual, internationality
Another theme that emerged was the multilingual aspect of the application, as many tourists did not find it sufficient to only provide the application in English. Furthermore, this would significantly limit the market that is able to use the application. Thus, it requires the application to be translated accurately in order to present the same quality and functions in every available language. A translating feature and often-used phrases, as well as money exchange rates, were also mentioned multiple times. AR was seen as a potential technology to implement a translating function by screening signs and names and being able to translate them into the relevant mother tongue.

Up-to-date Information and Speed
In order to assure long-term functionality and usage, it was important to keep the application up-to-date. This refers to the need to promote relevant time-sensitive information to the tourist in-destination as well as public information, such as timetables for public transports, menus and prices, and opening times of attractions. However, although tourists believed the application should include a lot of information, it was pointed out that the design of the application should be simple and user-friendly, while keeping the application fast. Since content expansion significantly increases the size of

the application, an alternative solution would need to be found, as tourists were deterred from downloading an application of a large size.

Many of the key findings of the piece of research by Han, Jung, and Gibson (2013) were reflected in the work of the Smart Tourism Digital Trails Toolkit working group (2021). The group endeavored to establish best practice in Digital Trail Development and to deliver a Toolkit on the subject so that members of the tourism industry in Ireland may benefit from the experience. As well as reflecting the findings of Han, Jung, and Gibson (2013) the group also made several observations on core design concepts of digital trail development, such as:

Audience and Accessibility
Building a digital layer into traditional tourism experiences can have many unanticipated benefits. This digital layer is a design opportunity for tourism and hospitality organisations to access new audiences and better serve existing audiences. This can be achieved by designing tailored experiences for new and existing audiences such as the differently abled, family groups, young people or the elderly. This digital layer can be used to create new and tailored products to enhance an existing experience. For example, Novotel in Paris, worked with Runnin'City to develop a suite of running digital trails for their hotels' clientele (Runnin' City, 2021). According to L. Mauguit, GM Novotel Paris Centre Tour Eiffel, "I am delighted with our Runnin'City partnership." This example provides an interesting use case for how digital trails can be tailored for an existing audience base to enhance a traditional hospitality experience.

The Importance of Content
Content is the media by which a digital trail is consumed. From the user's perspective, it is important that the content is rich, interesting, timely, and appropriate to the experience. From the developer's perspective, it is important to think of content development as a key priority area within the development approach. Making content, be it AR, image, video, audio or text, that is interoperable means that it can be used and recycled into other areas of digital development as well as future digital trail projects. Where a technology becomes obsolete or is phased out, well-developed content can often live on and be reused. Content development is a key opportunity for hospitality businesses to become involved in the digital trail development process. Hospitality businesses can also perform a key role in supplying content for digital trail development.

Insights Opportunities
The digital layer can provide many advantages such as providing accessibility infrastructure, allowing access to new audiences, and diversifying experiences for existing audiences. It can also allow the developer to gain useful insights and

understandings about their visitor or user. These insights can be both qualitative and quantitative. Quantitative insights, which are anonymised such as downloads, hits, and dwell time, can be very valuable for tourism and hospitality businesses to help understand their user. As discussed by Han, Jung, and Gibson (2013) the digital layer can also support social interaction and post-visit engagement, which can be helpful for gathering qualitative insights such as feedback, bugs, and reviews.

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Digital Transformation in a Post-COVID-19 World

As hospitality organisations seek to address the digital transformation agenda, there are a number of observations we can make. Digital trails offer the opportunity to allow for more self-directed tours, rather than necessitating the formation of larger groups. This can be particularly advantageous in the context of indoor tours where ventilation might be an issue. Secondly, the ability of the digital tour to curate and influence traffic flows and capacities in both indoor and outdoor contexts should be a compelling reason for more development. As the primary device to access these tours is the tourist's own mobile phone, it may obviate the need for loans of headsets which will require sanitization after each use.

As the World Travel and Tourism Council (WTTC, 2020) have recently said, "Health and safety are paramount in this new era. Personal experiences, advice from experts,

and concerns for distancing will guide consumer behaviour in the short- to mid-term. Businesses will have to collaborate even more closely with their extended value chains to ensure readiness and the implementation of like-minded protocols, such as WTTC's Safe Travels protocols."

Finally, and perhaps less certain, is the ability to allow for better flow of public health information to visitors and potentially also to understand their behavior. At the time of writing, the European Union had just launched the European Digital Covid Certificate. This will be operationalized as both a physical certification but also as a QR-activated mobile app, and has been expeditiously developed as a means of allowing unfettered travel access to countries within the EU.

There are several managerial implications flowing from our earlier discussion.

Hospitality as a Key Digital Trails Stakeholder

On the demand side, there is recognition that the hospitality guest is increasingly looking for the experiential and one which is contextualized in a particular place (Gilmore and Pine, 2002). In this context, a digital trail provides an opportunity to augment the narrow hospitality "product." On the supply side, hospitality organizations can potentially themselves be important heritage or cultural components in any trail. This is particularly the case where the hotel property has a distinctive provenance and historical significance.

Digital Concierge, Content, and Product Diversification

Digital trails provide an opportunity to cater unique experiences to existing clients and new audiences. This can help diversify existing experiences and offerings as well as create entirely new experiences. The opportunity exists to use digital platforms to showcase and share real-time information to users. This information sharing can exist in both directions, allowing hosts to share updates, events, sales, and offers. For example, the user can share feedback and valuable post-engagement information. This opportunity has significant implications for value creation, cross-selling, information sharing, and co-creation between the user and host, ultimately helping to create a richer and more tailored hospitality experience.

The Digital Layer and Experience Curation

Many examples of digital curation for hospitality exist. Partnerships such as Novotel and Runnin'City collaboration demonstrate the opportunity for businesses to curate

experience for their client base and "generate more bookings and a unique opportunity to communicate and stand out" (Runnin'City, 2021).

As well as opportunities to allow for real time updates and in-experience curation, the digital layer allows the developer to utilize qualitative and quantitative feedback directly from the user. This can be achieved by giving users the ability to feed back information digitally as well as building in back-end insights capability within the design of the app or platform. Qualitative indicators such as downloads, dwell time, and post visit engagement can help hospitality and tourism businesses tailor and improve their experiences.

Localism

The digital trail design process can often be used as an opportunity to co-create experiences between a business and the community in which it exists. The content development stage in particular can offer opportunities to collaborate and co-create unique and authentic experiences for the visitor. This networking effect has the added benefit of strengthening and deepening stakeholder relationships. For example, a Wonderful Copenhagen "tourism hackathon" resulted in the "Know Your Bro" application, which is composed of locally generated self-guided tours through the city aimed at redistributing visitors to lesser known parts of that city (Visit Copenhagen, 2021).

Post-Covid Digital Experience Landscape

Covid-19 restrictions have helped to accelerate the adoption of digital technology in tourism. In a post-Covid-19 landscape, visitors will expect more digital experiences from their destinations. In 2020, the World Travel and Tourism Council (WTTC) Report: To Recovery and Beyond The Future of Travel and Tourism Post-Covid-19, highlighted the importance of Innovation and Digitalisation within the tourism landscape post-Covid-19.

"Covid-19 is proving to be an unexpected catalyst in the Travel & Tourism sector's quest for innovation and the integration of new technologies. Amid stay-at-home orders, digital adoption and consumption are on the rise, with consumers now expecting contactless technologies, including biometrics among others, as a basic prerequisite for a safe and seamless travel experience." (WTTC, 2020,)

Visitors have become accustomed to using activation technology such as QR codes associated with Covid-19 measures. For tourism and hospitality businesses, this means that visitors will have higher digital expectations as well as digital expertise.

Regarding digital certification, it is not difficult to see how it and similar apps help normalize digital applications amongst locals and visitors. In the Irish case, there is active consideration of using the Covid Certificate as a verification for access to indoor dining and events. Whilst it was certainly not a primary consideration in the development of digital trails, the association and enforcement of digital tools within the visitors' experience will create new opportunities for tourism.

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Conclusion

As digital experiences and immersive technology become more and more integrated into the traditional tourism experience, digital trails provide an excellent opportunity for tourism and hospitality businesses to capitalize on new opportunities. The digital layer allows for the development of immersive tailored experiences, community based co-creation, as well as qualitative and quantitative data gathering. In the post-Covid-19 landscape, destinations have an opportunity to capitalize on accelerated digital literacy and awareness. These learnings are primarily centered around the ongoing experiences and explorations of mobile app development in Dublin. Broader opportunities exist for hospitality organizations to leverage digital trails and, as we recover from Covid-19, there is no better time for the hospitality and tourism industry to embrace the benefits of digital trail development.

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