Toolkit
Digital Trails

Fáilte Ireland

...DESTINATIONS AND TOURISM ORGANISATIONS ARE INCREASINGLY TURNING TO DIGITAL TRAIL DEVELOPMENT AS A METHOD OF INTERPRETING AND ENHANCING THE VISITOR EXPERIENCE...

contents

DIGITAL APP DEVELOPMENT IN TOURISM

...WE BELIEVE THAT DIGITAL TRAILS AND TOOLS WILL FAST BECOME ESSENTIAL FOR EVERY DESTINATION.

SO IMMERSE YOURSELF IN THIS GUIDE'S IDEAS AND USE THEM TO INFORM YOUR THINKING AROUND CREATING RICHER VISITOR EXPERIENCES. IF YOU DO, EVERYONE WILL BENEFIT: YOUR VISITORS, YOUR BUSINESS AND THE WIDER IRISH TOURISM SECTOR TOO...

foreword

Digital technology has completely transformed the way we all live. At the same time, it has unlocked opportunities in virtually every business sector. Tourism and hospitality are no exception – in fact, consumers are increasingly planning, booking, engaging in and sharing their holiday experiences in the digital environment.

It could be via their smartphone, tablet, smart signage or other technology. No matter what their age or background, visitors are more and more willing to engage with digital, in all its forms.

However, for a digital trail to succeed, imagination is needed – and so is technical know-how. This guide, therefore, offers an invaluable introduction to all aspects of developing a successful digital trail. It features inspirational examples from leading trails worldwide and outlines all the practical steps needed to develop your own.

Creativity is vital. So too is an understanding of what will interest, excite and engage visitors. So, at every step of your trail's development, try to see it through the eyes of a visitor. And don't get captured by technology – it can allow you to do very sophisticated things. Although, sometimes the most powerful experiences can also be very simple and the technology adopted is also mindful of the targeted growth and return on investment from the trail.

We believe that digital trails and tools will fast become essential for every destination. So please immerse yourself in this guide's ideas and use them to inform your thinking around creating richer visitor experiences. If you do, everyone will benefit: your visitors, your business and the wider Irish tourism sector too.

GOOD LUCK!

PAUL KEELEY
Director, Regional Development
Fáilte Ireland

executive summary

Destinations and tourism organisations are increasingly turning to digital trail development as a method of interpreting and enhancing the visitor experience.

Although there are many different types of app and digital trail developments in the tourism industry, there are few examples of toolkits developed specifically for organisations who are interested in building their own digital trail.

Whether a circular or linear trail, each experience provides visitors with rich storytelling and immersive content making the best use of technology. Digital trails are an opportunity to showcase our incredible history, heritage and culture from the most well-known monuments to hidden corners of our cities and countryside.

This industry toolkit is designed to help Irish tourism businesses, local authorities and public bodies leverage these new opportunities and create exciting and unforgettable digital experiences.

You do not need to have a big budget or be a developer to build your own interactive digital trails. Working to your resources and timescale, this toolkit provides practical steps and checklists for you to:

••• Identify your audience

••• Select your Big Idea

••• Develop your own content

••• Explore which app platform best suits your project

••• Achieve the best service from your external suppliers

This toolkit presents current national and international best practice in digital trail development. Using information gathered from an expert working group and case studies of best practice, a framework of steps is provided for those who are interested in developing a digital trail for their visitors.

The appendix lists additional helpful resources and templates to help you develop your own digital trail.

This toolkit was produced by Fáilte Ireland and the Smart Tourism Programme for Dublin.

Disclaimer
This toolkit provides an overview of current best practice and is not intended to address every single step of the process and you are advised to undertake your own research and analysis as well as obtaining professional advice as required. No responsibility for any errors or omissions or for any loss occasioned by any person or body, acting or refraining from acting as a result of the contents of the toolkit, can be accepted by Fáilte Ireland or any of the above-named bodies or their servants or agents.

glossary of terms

App: App is the abbreviation for 'application'. An application is a piece of software which can be pre-installed on a device or installed manually.

AR/VR: Augmented Reality (AR) is an immersive experience in a real-world setting where physical and real-world objects can be enhanced by computer-generated animation. AR can include multiple sensory possibilities including audio and visual. AR can be enabled via a mobile application.

Virtual Reality (VR) is a simulated reality that can be real or fabricated. VR is typically experienced via a headset.

Content: Content is the element of a trail that helps tell your story. It is your writing, images, video and audio elements that create content; one of the most important components of digital trail development.

Gamification: Gamification prompts digital trail users to engage in an inbuilt reward system within the app. Layered into the storytelling function, gamification keeps the experience fresh and novel, prompting users to download and keep using the app.

Native/Web-based: A 'native' app is one that you can download from an app store. A 'web app' or 'web-based' app is accessed via a browser, you do not need to download it from an app store also known as 'progressive web app' or PWA.

Platform: A digital trail platform is a defined infrastructure that has the capability to host multiple apps or, in this case, trails. It is a model of development that allows you to build digital trails without being an expert in technology.

QR Codes: QR codes are unique identifiers that help activate applications. They are re-programmable, easily printed and installed and can be replaced cheaply.

UX: User experience design is about how a user interacts with and experiences a product or service. It puts the user's needs at the centre of your digital trail project.

Wireframe: A wireframe is the skeletal outline of an app in 2D. It contains the basic content and information hierarchy, page structure and design layout of your app. You can produce a wireframe using software or pen and paper.

White label: Some digital trail platforms will let you build a digital trail network and then brand it on behalf of your organisation or destination.

How to use this toolkit:

QUICK START

Go straight to the section that interests you by tapping on the heading

STEP 1: IS A DIGITAL TRAIL THE RIGHT CHOICE FOR YOU AND YOUR VISITORS?

Identify your audiences and the potential audience(s) for your digital trail

STEP 2: CLARIFYING YOUR BIG IDEA

Clarify your Big Idea and the stories that will showcase it

STEP 3: DEVELOPING CONTENT FOR YOUR DIGITAL TRAILS

Identify your existing assets and the potential new assets required to tell your stories

STEP 4: CHOOSING YOUR TECHNICAL AND CONTENT COMPONENTS

Explore different types of interpretation

STEP 5: SELECTING THE RIGHT PLATFORM FOR YOUR DIGITAL TRAIL

Consider which platform approach is best for you and your organisation

STEP 6: DIGITAL TRAIL APP LIFECYCLE

Specify the benefits of your project and identify how you will recognise and measure success

Is a digital trail the right choice for you and your visitors?

Explore these questions with your project group as you decide whether developing a digital trail is the best solution for your audience and organisation. Our other toolkits provide additional resources to help your decision-making.

Have we identified an audience for a digital trail?
Toolkit: Sharing Our Stories: Identifying Audiences

Is a digital trail the best way to develop our Big Idea
Toolkit: Dublin's Surprising Stories: Focus on one Big Idea

Do we have internal support to develop content for a digital trail?

Does this fit into our organisation's interpretation strategy?

Does a digital trail fit into our brand?

Do we have the IT framework to support a digital trail?

Can we support, maintain, evaluate and refresh a digital trail?
Toolkit: Experiences Explained: Evaluate your Experience

NEXT STEPS

what are the advantages of developing a digital trail?

When a digital trail is a good fit for an organisation, it brings significant benefits. But for optimum success, the development of a digital trail must be part of your organisation's business and interpretation strategies.

CREATE A HOLISTIC EXPERIENCE

Creating a digital trail can help embed your existing products and bring them under one roof. The best digital trails allow visitors to experience your destination or product in an efficient way. This can complement your product by increasing visitation, foot fall, dwell time and improving orientation and wayfinding. Adding a digital trail will compel visitors to engage with your site in a new and interactive way.

> **92% OF VISITORS USE THEIR OWN DEVICE TO LOOK UP INFORMATION WHILE IN IRELAND**
> FÁILTE IRELAND MOBILE TRENDS 2017

> **69% OF VISITORS USE THEIR OWN PHONE**
> FÁILTE IRELAND MOBILE TRENDS 2017

Sightrun App

Challenge: Popular running tours in the city of Zagreb relied on the availability of tour guides for them to take place.

Solution: The Sightrun App was created to enable joggers and walkers to experience an immersive audio, self-guided running tour in English. The app suggests routes for joggers and walkers while offering interesting stories about the city and its attractions along the way.

ACCESS NEW AUDIENCES

Developing a digital trail provides an opportunity for your organisation to broaden its access to new audiences. This can range from families, social groups, tourists and differing age profiles as well those who haven't previously been able to access your offering.

IMPROVE ACCESSIBILITY

Digital trails are an opportunity to make experiences more accessible to visitors. Working closely with your audience to identify their needs, digital content can be provided in many formats, for example: audio, audio description, clear print (with magnification), subtitles and sign language to provide rich on-site experiences. Mobile apps easily allow experiences to be interpreted in multiple languages, which increases access to a wider audience.

Signly App

Challenge: To make the Roald Dahl Museum more accessible to hearing impaired visitors

Solution: The Roald Dahl Museum created the Signly App which allows deaf visitors to explore the galleries with sign language interpretation via their smartphones using AR. When visitors point their phone at exhibit labels with the Signly logo, the app automatically provides a video showing signed content.

28% OF VISITORS USE THEIR OWN TABLET

FÁILTE IRELAND
MOBILE TRENDS 2017

IMPROVE VISITOR FLOW
Digital trails can be used as an additional tool to improve visitor flow. A well-designed digital trail can distribute visitors more evenly throughout a destination or experience and highlight lesser-known areas and stories. A digital trail can also offer a product or experience where there is no physical infrastructure or traditional amenities. Using a digital trail for this purpose can help direct foot fall to previously under visited areas.

Linz App

Challenge: To encourage visitors to explore more of the city of Linz through an interactive, gamified digital trail experience.

Solution: The Linz App allows visitors to explore the city through an interactive city map. The app encourages visitors to experience the city as an interactive game by going on scavenger hunts, catching cakes and answering quizzes. Using gamification, visitors can collect digital currency and redeem benefits in local cafes and museums. The gamification of the Linz App encourages visitors to explore and interact with the whole city and its history through a creative lens.

IMPROVE SUSTAINABILITY
A digital trail is a useful tool in destination sustainability and environmental protection. It can educate and influence the behaviour of your visitors in ecologically sensitive areas, reducing the need for physical infrastructure and human presence.

Digital trails have been used successfully to help manage capacity and improve visitor orientation and distribution. Analysing visitor behaviour via your digital trail footprint can also help you understand visitor use, capacity and pinch points. These components can help improve the sustainability and environmental management of a destination. Digital trails allow us to build unique experiences for visitors without compromising the subject or the environment.

Bull Island App or Sensing Ecologies App

Challenge: To develop an immersive experience within an environmentally sensitive area.

Solution: The Sensing Ecologies App is an augmented audio experience developed for Bull Island in Dublin's UNESCO Bay Biosphere. The app uses geo-located soundscapes to guide and educate the visitor from inside the protected area. This not only helps guide the visitor within the area but also helps animate the experience, bringing to life content about plants, animals and heritage.

SHARE EXPERIENCES

A key benefit of mobile apps is that they allow visitors to be more easily directed to interacting with your organisation/destination online by sharing their experience directly to social networks in real time. This gives visitors another avenue to share your digital trail or experience. Having a digital trail connected to the internet, either by WiFi or mobile signal, allows your visitors to directly give you feedback, donate, share, review and interact with your business in real time.

Old Tintern Station App

Challenge: To bring to life the history of Old Tintern Station and showcase its surrounding countryside for tourists and its local community.

Solution: The app features audio memories from members of the local community as they share their knowledge and expertise of the area. It's an on-going community project that can be easily added to and updated on the app. The app also encourages visitors to take and share photographs of the stunning Wye Valley via social media as a way of creating and recording new memories.

ADDITIONAL REVENUE STREAM
Digital trails can be used to provide information about other products and resources available to visitors. Digital trails can also have a donation feature which easily allows your user to directly donate to your cause or organisation.

DATA INSIGHTS AND CAPACITY ANALYSIS
Mobile apps can tell you important information about your visitor and their behaviour. The most common metric output of apps is often 'downloads'. You may be able to gain other meaningful information from your visitor, such as: distribution and flow behaviour, interests, nationality and post-visit feedback. Some digital trail apps also have in-built systems which can help destinations understand and manage capacity.

Dark Hedges App

Challenge: To improve understanding and management of capacity issues at Dark Hedges in Antrim.

Solution: Touristwise are developing a simple mobile interface for capacity management for the Dark Hedges in Antrim. The app will have inbuilt capacity analysis and management tools. The app demonstrates the potential for real-time analysis, as well as pinch point analysis. During peak times of congestion, the destination can propose alternative routes via push notifications.

...CREATING A DIGITAL TRAIL CAN HELP EMBED YOUR EXISTING PRODUCTS AND BRING THEM UNDER ONE ROOF. THE BEST DIGITAL TRAILS ALLOW VISITORS TO EXPERIENCE YOUR DESTINATION OR PRODUCT IN AN EFFICIENT WAY....

steps to develop the best content for your digital trail

Content curation for digital trails

Content curation is how you convert your Big Idea into smaller themes, or stops, to create a digital trail that is tailored to your targeted audience.

You will first need to identify your audience and their needs. What are their expectations? What is their existing knowledge? How best do they receive and process information?

Next, identify the story, themes and messages that best interpret your site to create your narrative structure. Source and gather your content assets and be clear about the objectives of your trail.

Once you have decided on how you will break down your ideas for your audience, work with your project team to create storyboards and wireframes for your trail.

Building your story

Storytelling is one of the most important steps in the content curation of your Big Idea.

- Use your Big Idea to choose the stories you tell and the information you give.
- Identify your best story – think about what you want people to remember about their visit and how you can convey this.
- Identify characters and dramas that will capture your visitors' attention and imagination.
- Identify the key themes and messages that will form your narrative structure.
- Think about what you want your visitors to learn, feel, experience from your digital trail and how you can achieve this.
- Make your stories as authentic and engaging as possible.

For more information see Fáilte Ireland's Sharing our Stories Manual

Developing written content

On-screen text is an important part of a digital trail, often providing a 'hook' for a theme or a story that can be explored more fully through subsequent content such as film, scripted audio narration or soundscapes.

Differentiating between audiences is important to the success of all interpretation. Children require ideas to be expressed in language that is suitable to their age and often prefer shorter stops. However, they are often at ease with more sophisticated functionality reflecting other uses of technology in their lives. Digital trails developed for local communities benefit from early co-creation to reflect their needs. Ensuring your content is appropriate for your various audience types is a big key to success for digital trail development.

Building a content pool for your trail

Throughout the content development process, create a pool of digital assets to be stored in your content management system. As your ideas develop, identify which digital assets are missing and which may need to be developed or commissioned from third parties such as copywriters, audio-visual specialists, illustrators, photographers etc. Make sure to check that your content respects the privacy, data protection, copyright and other intellectual property rights of others at all times.

It is important to store and keep your content in a digital repository which is not the live application or platform that your trail is built into. This will allow you to update, maintain and develop your digital trail and store your content safely and separately to your platform or application. Keeping your content pool in a structure which mirrors your actual trail will make it easier to update and maintain.

Using a storyboard

Storyboarding is a helpful way to plan out the points of your trail and what content will go with each point. Planning out each step of the trail will allow you to visualise the entire trail and how it all comes together. Trails can have any number of points of interest. Keep in mind the audience of your trail, what they are interested in, how much time they have for their visit.

Mindfulness Trail for Luxury Hotel

Challenge: To create an outdoor mindfulness experience for a hotel spa that will complement the treatments already offered. The hotel owners wanted the natural environment to be integral to the digital experience.

Solution: The writer used a storyboard to map out seven key sections required for a multi-sensory outdoor trail through gardens and woodland. Hotel guests reflect and connect with nature at each of the sections that represent the seven pillars of strength. The guide gently instructs guests to mindful breathing combined with an on-screen animation of expanding and contracting circles to help keep time with the in, out and holding of breaths.

Types of content

There are many types of content to be considered for a digital trail, including: text, images, film, audio, soundscapes, interviews and interactive functionality such as drag and drop, magnifying and overlays.

Digital platforms provide good opportunities to offer innovative contextual information. All these elements need to fit together seamlessly and be intuitive for visitors to use. Think about the best match of media to idea, how long you expect visitors to explore each stop and adapt your content accordingly.

SOUNDSCAPES

INTERVIEWS

AUDIO

INTERACTIVE

FILM

IMAGES

TEXT
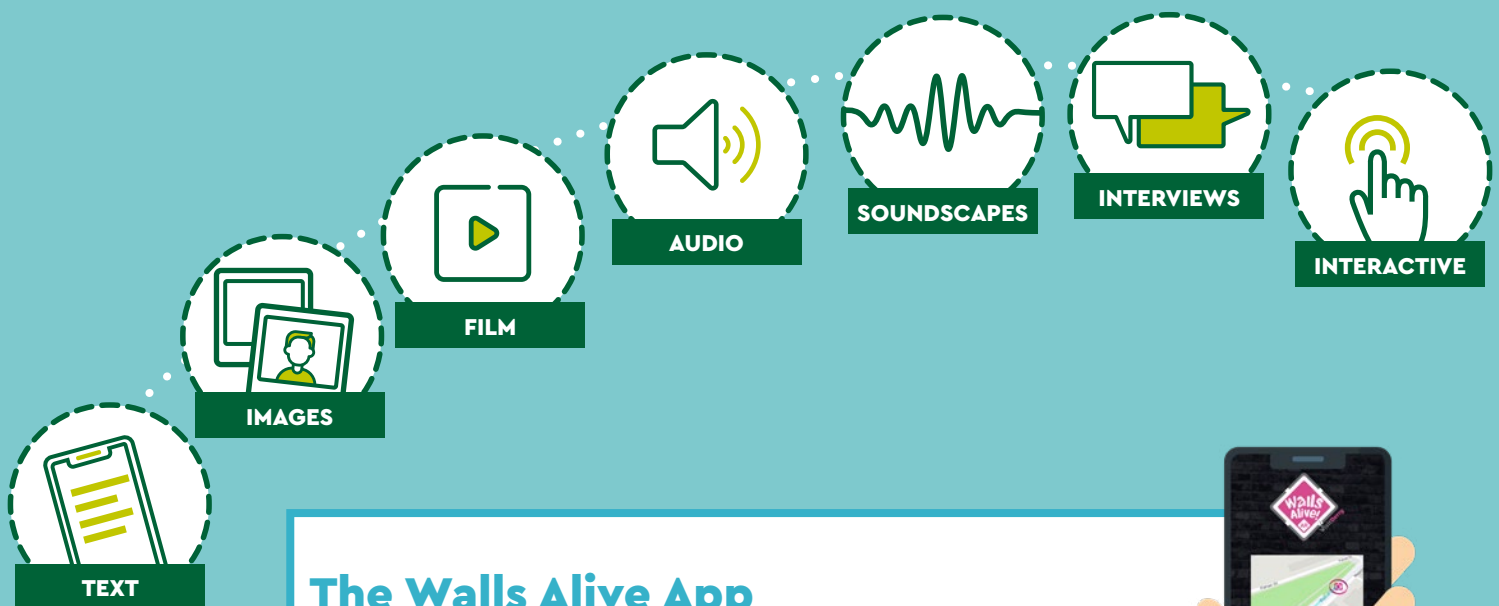
The Walls Alive App

Challenge: Bringing city history to life using immersive technology.

Solution: Walls Alive is a mobile phone app aimed at engaging local and international tourists with the culture of Derry/Londonderry, in a new and exciting way. Through Augmented Reality (AR) and GPS technology, Walls Alive will bring visitors phones to life and enable animation of some of the Walled City's most unique hidden locations.
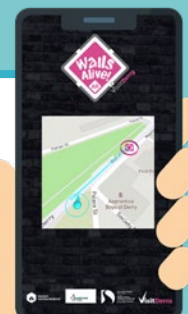
bringing your content to life through technology

Augmented Reality

Augmented Reality (AR) can be a valuable tool for making a digital trail more interactive and interesting. Using AR in your trail could impact your design requirements or budget of your project. Your developer will be able to tell you the best way to implement AR into your digital trail. Augmented and Virtual Reality are becoming more popular components of digital trail and virtual tour design.

Lumin App

Challenge: To provide visitors with new, in-depth ways to engage with the Detroit Institute of Arts.

Solution: The Detroit Institute of Arts created a mobile tour that uses Google's Tango technology to showcase their artworks. It is the first art museum in the world to use new immersive technology such as Augmented Reality (AR) to bring existing tour exhibits to life.

Virtual Reality

Virtual Reality (VR) is less represented in digital trail design as it requires visitors to use a headset. However, there are some examples of destinations that have used VR for guided tours.

Lasi VR App

Challenge: Using Virtual Reality to help inform and inspire visitors.

Solution: Visitors who are interested in visiting Lași, Romania can do so remotely via the Lași VR App free of charge. The virtual reality platform offers curated tours of the most beautiful locations in Lași in Romanian and English. The app is available to all users via smart phones or tablet and allows potential visitors to explore the city using VR before they arrive.

Quick Response (QR) codes

QR codes offer supplementary information for smart phone users. The first versions of this technology were clunky and proved unpopular with visitors. However, QR codes are now firmly established in the tourism space. They are re-programmable, easily printed and installed and can be replaced cheaply and easily. They are a useful visual indicator of a content trail point and prompt the visitor to scan them without the need for multiple language signage. You can then place these codes on signage or promotional material for your trail.

Geo Fencing App

Challenge: To use visitor location to activate digital trails in the city of Klagenfurt.

Solution: The Geo Fencing App has an inbuilt functionality that allows visitors to interact with the city trail based on geographic location. The location of a device triggers activation within the digital trail, within a predefined perimeter. Over 60 mini transmitters around the city help locate visitors and give them up to date information about events, as well as points of interest they may be walking past. The app uses images and audio to build a real-time geo located experience for the visitor.
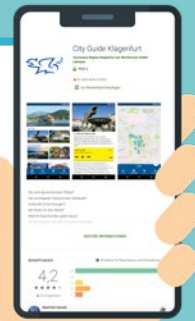
Stonehenge App

Challenge: To update the existing multi-lingual native app and allow visitors to navigate using GPS enabled maps. The site is open all year round, with weather conditions an operational consideration.

Solution: The developers evaluated potential visitor journeys and tour types, taking into account the seasonality of the site. They designed and developed an interactive navigational app, appealing to a diverse range of visitors, and provided an easy means of accessing mobile multimedia content via the innovative use of GPS location-based triggering and interactive maps.

Near Field Communication (NFC)

NFC is used in some digital trails to allow users to activate points of interest. NFC tags or chips can be placed at each trail point location. Placing the device near the NFC will activate or prompt the digital trail application. Information is implemented inside the NFC tag to be weather and dirt resistant as well as to be protected against vandalism.

Mantyharju Trails App

Challenge: To engage with hikers along the Mantyharju trails.

Solution: The Mantyharju Nature trails are connected to signage and an NFC tag system to allow hikers to activate points of interest along the trails. They NFC tag system allows trail users to safely navigate the path and trail designers to manage and easily modify trail points and hiker information.
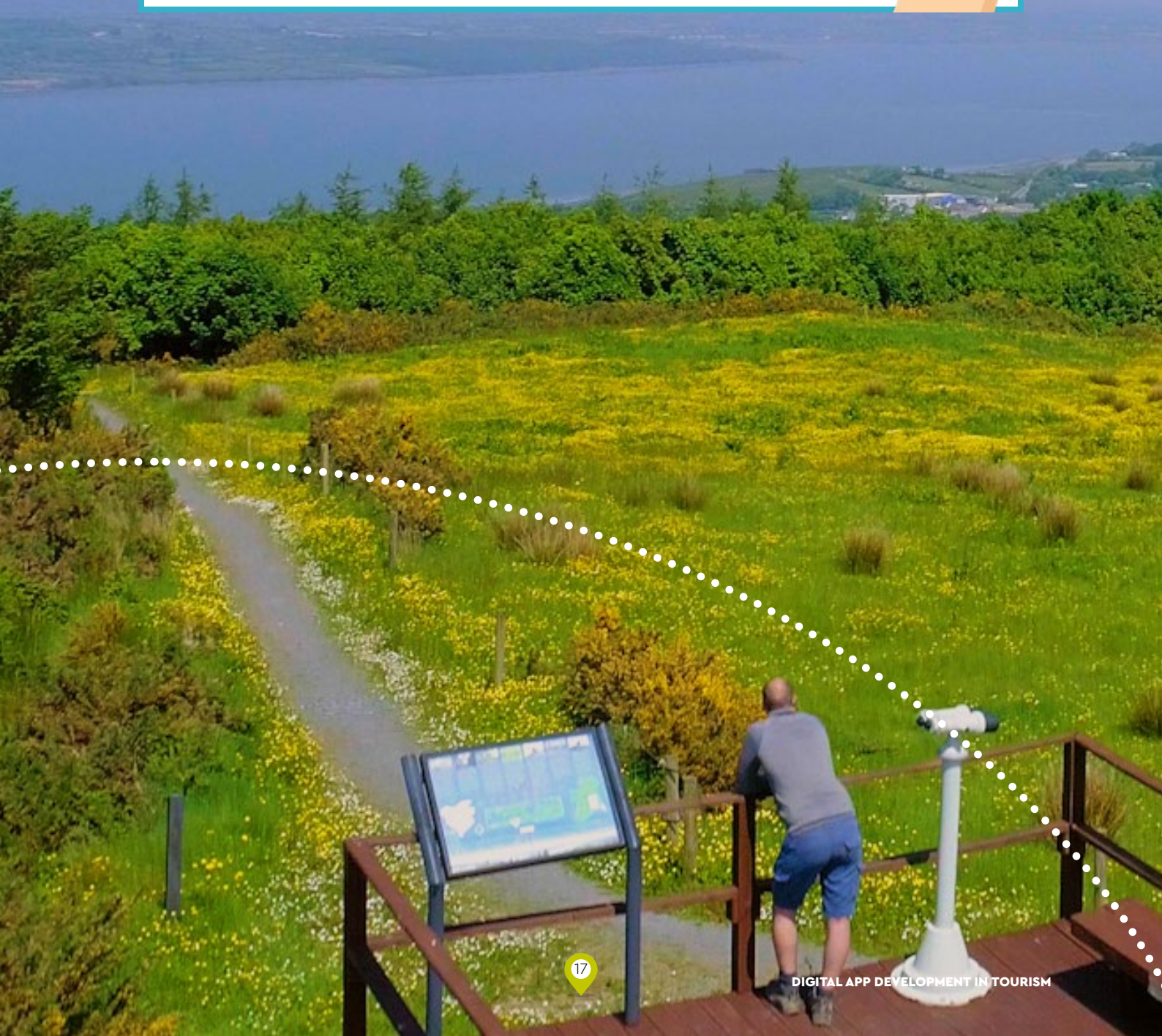
technology options for your digital trail

Introduction

There are two main routes to development for digital trails: platform-based development and bespoke app development.

These are two very different approaches in terms of scale and budget but have similar core requirements. Platforms that host digital trails are becoming more popular. It's likely they will be able to innovate, change more quickly and at a larger scale in the future. This is an important factor when considering the lifecycle of your digital trail. Technology moves on and becomes outdated over time. The cost and time implications of updating your digital trail are important considerations when deciding on your technology approach.

Platform-based development

HOW IT WORKS

A platform-based approach allows you to develop your digital trail without needing to know how to code or design an app infrastructure. This model will allow you to design your own trail and populate each point of interest with your own content, audio and copy text.

Historically, if you wanted to develop a digital trail, you built one or hired a developer to build one. The digital trail app would be bespoke and live on the native app which your user would download from an app store. Platform-based developments are usually web-based. The key difference for a platform-based approach is that you are buying into an existing framework which will support your digital trail.

If you want to develop a digital trail and have limited resources, you can use existing platform-based digital trail creators. These platforms follow a subscription-based model which allows you to build, populate and maintain a digital trail for a monthly fee. Platforms like this allow you to build your own digital trail adding your own content but you don't own the platform or have control over the governance of the app itself.

PROS OF PLATFORM-BASED APPROACH

••• Can suit a limited budget

••• Does not require technical knowledge

••• Easy to maintain and quick to develop

••• Easily hosted, adapted and shared

••• Easy to wind down or disband

••• Likely to innovate faster and easier

CONS OF PLATFORM-BASED APPROACH

••• You do not own the platform

••• Difficult to influence branding, colour or design

••• Locked into the platform structure and product

••• You may not have copywrite protection over uploaded content.

••• Access to the platform is via an ongoing subscription-based payment model

PLATFORMS THAT HOST DIGITAL TRAILS ARE BECOMING MORE POPULAR IT'S LIKELY THEY WILL BE ABLE TO INNOVATE, CHANGE MORE QUICKLY AND AT A LARGER SCALE IN THE FUTURE. THIS IS AN IMPORTANT FACTOR WHEN CONSIDERING THE LIFECYCLE OF YOUR DIGITAL TRAIL. TECHNOLOGY MOVES ON AND BECOMES OUTDATED OVER TIME.

Bespoke app development

HOW IT WORKS

Bespoke apps are built and designed by developers and development agencies. The app is also usually downloaded from an app store and installed on the device as the primary method of activation.

Building a bespoke app requires a technical set of skills. For most destinations or organisations, this means engaging with a developer through a contract of procurement. As digital trail development requires a lot of work on content development, you will need to consider whether your developer will also need to have content development skills or be able to partner with another agency to build your app.

PROS OF BESPOKE APP APPROACH

••• More flexibility regarding your design, approach, brand and functionality

••• Increased likelihood to be able to incorporate more advanced functionality

••• You can decide how your trail changes and innovates into the future

CONS OF BESPOKE APP APPROACH

••• Increased cost

••• Dependence on one supplier or developer

••• Bespoke technology can become outdated quickly and be costly to upgrade and maintain.

PROCUREMENT PROCESS

If you are contracting a developer or agency to build your digital trail, it is important to consider the procurement process to undertake to appoint the best supplier. The appendix to this document contains more information about single and multiple party procurement frameworks as well as direct to supplier digital trail procurement.

Web & Hybrid based Digital Trails

When we think of an 'App', we usually imagine something that we download from the Appstore and store locally on our device, these types of apps are known as native apps. As we have already seen, many bespoke apps have traditionally taken this approach. It's important to remember that 'App' just means 'Application' and includes any means of delivering a digital trail or experience including Native, Web & Hybrid. When we talk about web based apps we mean those that are simply delivered via a website or browser. Web apps are more commonly referred to as PWAs or Progressive Web Apps.

Similarly Hybrid apps are those that can host a certain amount of the digital trails experience on a browser, but will prompt a download of a native app for the full experience. Hybrid apps are popular with platform based providers as they allow the visitor to easily launch and experience a digital trail and if the user is interested they can simply install the app for the full experience. As mobile technology, connectivity and free WIFI infrastructure in cities and towns improves, it is likely we will see Hybrid apps and PWAs become a bigger component of the digital trails space.

KEY POINTS ABOUT WEB AND HYBRID BASED DIGITAL TRAILS

- They should be kept simple and light in design.

- You should state your intention to develop a PWA or Hybrid App in your tender document or early in conversations with your developers.

- If you intend to use AR or complex features in your trail you may not be able to use a PWA.

PROS OF WEB AND HYBRID APPS

- Hybrid Apps and PWAs can be very cost effective to develop.

- They are easy to edit or refresh and do not require updates.

- The user does not need to download an App from the app store.

- There are fewer barriers to your visitor activating the digital trail.

- The digital trail does not use any local phone memory or storage.

- When users are finished they simply close the browser to deactivate the App.

CONS OF WEB AND HYBRID APPS:

- PWAs are completely dependent on active network connection such as internet connection via WIFI or cellular. This can be an issue if visitors have expensive roaming agreements or your destination has connectivity blackspots.

- PWAs can have limitations in delivering digital trail aspects such as augmented reality and more extensive content.

- PWAs tend to run slightly slower than native apps. This is because they are internet and browser depended. The bigger a web app is the slower it will run, the best web apps are used to light and quick information.

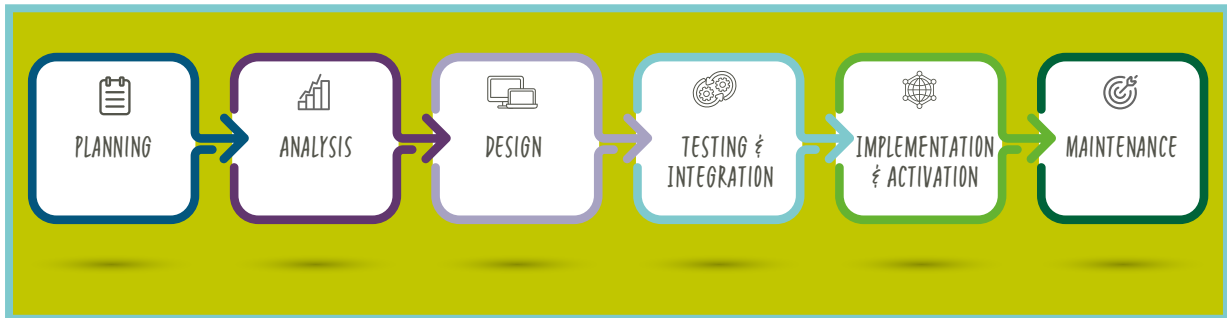- Its suggested that web apps can be less secure than native apps.

The National Gallery of London

Challenge: Utilise the opportunity of PWAs to create immersive tours for traditional experiences, which can be easily activated via QR codes.

Solution: The National Gallery in London in collaboration with Smartify created two simple gallery tours called The History of British Art and The Forgotten Renaissance Master. The PWA allows visitors to the museum to simply launch an accompanying multimedia audio guide via their smart phone. The web app element of the tour means that there is no need for visitors to download an app, the tours can be activated simply via QR code or web link.
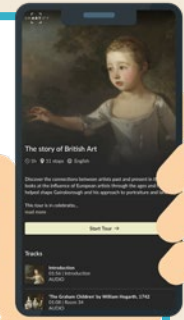
Digital trail app lifecycle

PLANNING → ANALYSIS → DESIGN → TESTING & INTEGRATION → IMPLEMENTATION & ACTIVATION → MAINTENANCE

Planning

One of the best ways to plan your digital trail is to complete a Digital Trail Brief.

This will help you answer questions such: Who is your audience? What is your budget? How much time do you have for this project? This document will also help communicate your digital trail concept to other partners and stakeholders. A template of the Digital Trail Brief is in the appendix on page 25.

With a little practice, one of the best aspects of building a digital trail, as opposed to a physical trail, is how straightforward it is to augment, change, refresh and upgrade the content or the technical aspects of the trail. As part of your planning, it is important that you approach your digital trail in a phased approach. This means that when you develop a digital trail, you are already thinking about ways to keep it up to date and interesting for your visitors.

To build a bespoke trail app, it is likely that you will be partnering with a development agency. If using a developer, it is important that you involve them at the early planning and development stages of the trail. To engage with a developer, you will need to choose your procurement approach and articulate your trail concept with your developer.

You can find details on procurement approaches in the appendix on page 27.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

Your budget will likely be the biggest constraint on your project size and scope.
You will need a clear app brief and plan before engaging a developer.

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT

••• It's necessary to research available platform-based models to find the best one for you and your requirements.

••• Digital trail platforms will have customer services and tutorial videos you can use to help you plan how your Big Idea will fit in with each platform.

Analysis

Now that you have identified the who, why, what and how of your digital trail, you can start to evaluate the type of technology approach you want to use to host your digital trail.

The type of technology you choose will depend on the story you want to tell. Choosing your technology will largely depend on the budget of your trail development.

The developer you work with will be able to outline the options available to you and your trail. The most basic digital trail will have functionality such as: native app design (installed via the app store), geo locating and orientation, audio, video and text content functionality which will all be built on a custom wireframe. More elaborate digital trails can have functionality such as Augmented Reality, social sharing, image recognition activation and gamification.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

- Many developers will re-use existing infrastructure to build your bespoke trail app. The more unique your requirements, the more expensive and time consuming they could be to produce.
- Look for an existing portfolio of work when choosing a developer.
  This will let you examine costs and output related to your trail.

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT

- Platform-based models use a pre-existing infrastructure to create your trail.
- Research platforms which best fit the infrastructure for your trail.
- Many platforms operate on a subscription-based model as well as offering opportunities for custom partnership development.

Design

A developer will be able to guide you through the design process of your trail and demonstrate to you how your idea and story will be converted into your trail.

Using a platform means you will build your trail using an existing infrastructure and wireframe. You'll have control over the theme, stories and content of your trail. Aspects of design you will have control over include: the number of points of interest on your trail and its geographic design. Many platform services allow you to create multiple trails for your destination as part of their fee structure.

Using a platform-based model means that you will be responsible for your own content development. You can choose to develop content yourself or partner with a content development agency. This will depend on your budget and scale of your trail. Unless you intend to engage in a 'white label' agreement with a platform provider you can treat the platform as a third-party entity in your digital trail development process.

Once you have chosen the design approach you would like to use for your digital trail, you can start to think about the structure and content of the trail itself. Your story, content and script will dictate the functionality of the digital trail. You may choose to work with a content development agency to explore the best ways to bring your stories to life for your targeted audience.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

••• Wireframes are a great way for your developer to communicate the design options for your digital trail.

••• Download and use digital trails or applications designed by your developer to get a sense of their work.

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT

••• You will need to think about which design principals you would like for your digital trail such as branding, content and in-destination design.

••• Test a platform-based trail before you commit to it. This will allow you to see if the design approach is right for you.

Testing and Integrating

Testing the digital trail before it goes live is a crucial step in its development. Regardless of technological approach, making sure your digital trail is working correctly before launch is key to its success during the early stage of its lifecycle.

It is very important to test your digital trail thoroughly and frequently throughout its life cycle whenever any changes or additions are made to the trail or platform.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

••• Your developer will guide the testing process. Remember that the testing process does not stop when the trail is launched, it is the beginning of a process involving the ongoing evaluation, monitoring and refreshing of the app throughout its lifecycle.

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT?

••• You will need to structure your own testing process, both before and following, the trail's launch.

Implementation and activation

Implementation is how you put your trail into the hands of the visitor, while activation is about how they access and activate the trail itself.

There are two main ways people will discover your trail: fortuitously and through pre-trip planning. It's important to think about both options. Making your trail known and easily accessible to visitors when they are planning their visit is also important. You can do this by promoting your trail on your website, via social media and by actively promoting the trail through your marketing channels. Active promotion is really recommended to make visitors aware of your trail. It is vital to allocate a marketing budget for both the launch and ongoing awareness of your digital trail. Within your marketing material it is advisable to give visitors key information about your app, such as:

HOW LONG WILL THE TRAIL TAKE?

WHAT IS THE TRAIL EXPERIENCE LIKE?

WHAT WILL THEY SEE ON THE TRAIL?

One of the most common ways of encouraging visitors to use your trail is to place an activating Quick Response (QR) code on available signage, walls, murals, or points of interest to enable visitors to download the app. QR codes are a very helpful and quick way for visitors to find your app and download it from app stores to their phone. It is recommended to use the QR code in all marketing as well as site signage.

The Walls Project – Implementation inspiration

Challenge: How do you inspire people to activate your app while in destination?

Solution: The Walls Project is an immersive experience based around large murals in Waterford city. Visitors are invited to activate the app by scanning codes placed throughout the city at each mural location. The app then animates each mural through Augmented Reality and encourages visitors to explore more murals throughout the city.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

••• Bespoke apps are downloaded via an app store.

••• Your developer will need to be aware of app store terms and conditions and onboarding process.

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT

••• Although platform-based apps are usually web-based, some platforms can be downloaded from the app store. Your trail may appear in the platform's trail library.

••• The platform will handle updates, bug reports and any technical issues. You will be responsible for any administrator technical changes.

Maintenance

You will need to ensure that your digital trail is kept up to date so that it can continue to work effectively. You will also need to maintain the QR codes if you have used these to activate the trail. Maintenance of digital trails can be approached across two main categories, physical and technical.

Physical elements of your trail that may require maintenance will include any marketing or signage that is installed along the route. Technical maintenance can be considered a continuation of your testing process. This will involve reading bug reports, user feedback, practical testing and updating your software. If you are partnering with a developer, you will need to ensure that day to day maintenance is part of your service level agreement.

Using a platform-based model means that you will be responsible for your own content development. You can choose to develop content yourself or partner with a content development agency. This will depend on your budget and the scale of your trail. Choosing this method means that you will need to account for content updating and refreshing as a core part of your digital trail maintenance plan.

KEY POINTS ABOUT BESPOKE APP DEVELOPMENT

••• Factor maintenance day rates into your budget

••• Think about planned and unplanned maintenance

KEY POINTS ABOUT PLATFORM-BASED DEVELOPMENT

••• The platform provider will handle technical maintenance

••• You will be able to augment the trail's location and content if desired

••• You may be responsible for the physical maintenance of your trail
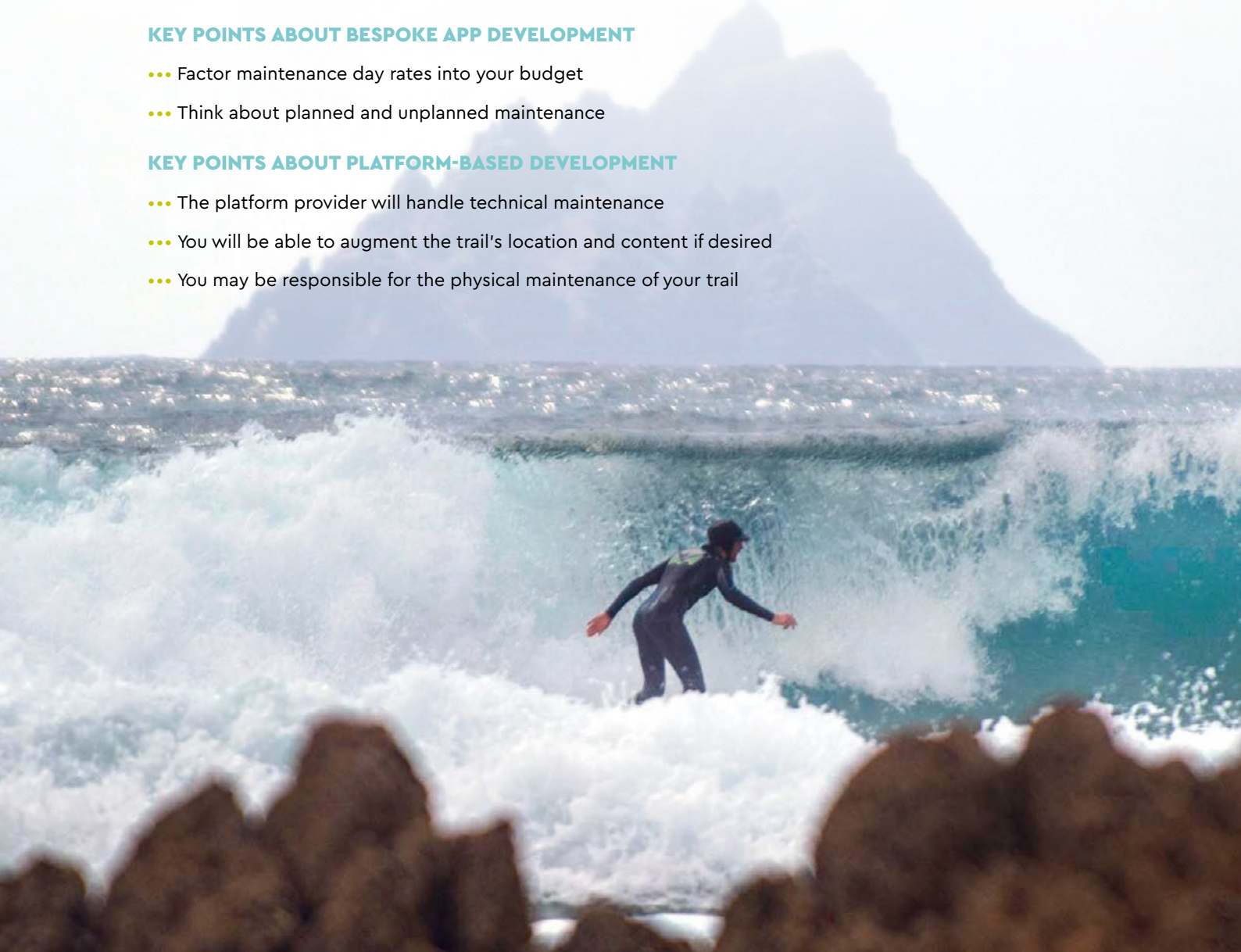
measuring success

Planning for success

Think about what success looks like and how you will measure it before you develop your trail. You'll also need the support or buy in from your organisation. They will provide expert technical advice on the type of app to develop, how visitors will download the app and the scale of IT resources required to ensure its long-term success.

REASONS WHY SOME APPS DON'T STICK!

Problem: Visitors do not find the app intuitive to use

Solution: Use simple and effective user design, make your wireframe simple and easy to navigate.

Problem: Visitors don't have enough space on their device for the app

Solution: Don't develop digital trails that require large amounts of downloadable information.

Problem: The content wasn't developed for a specific audience

Solution: Put your core audience at the center of your digital trail design process.

Problem: The app requests personal data or location data

Solution: Be strategic about what user information you want your app to be able to give you.

Problem: The app freezes or crashes frequently

Solution: Ensure you have tested your digital trail thoroughly before launching.

Monitoring and Key Performance Indicators (KPIs)

Monitoring the use of your digital trail is crucial for making it a success in the long term. Before you launch your trail, set out key KPIs over the first year of your digital trail to benchmark its success. These KPIs can be both quantitative and qualitative.

Quantitative monitoring

Quantitative monitoring is any measurable metric associated with your digital trail. This includes hits, dwell time, downloads, post-visit interaction and marketing interaction. If you are working with a developer, it is important to consider building data and insights capability into your digital trail at the design stage. It's important not to focus solely on results such as downloads. Often at the launch stage of an app there will be a spike in downloads but then users fall off or deactivate the app. Instead, it is good practice to establish multiple KPIs across the lifespan of the app to help measure its overall success.

Qualitative monitoring

Qualitative feedback is also very important in understanding how your digital trail is being used and experienced. You can gather qualitative information by asking your visitors about the trail and their experiences, publishing post-visit surveys and reading reviews on the app store.

Stadtgeist Karlsruhe App

Challenge: To create an app that will animate the city of Stadtgeist for visitors

Solution: This heritage app uses audio and video material from the city archive to help make the city more animated. The app generates a fascinating sense of time travel to allow visitors to be transported from today's environment into the historical scenarios that once took place in the city.
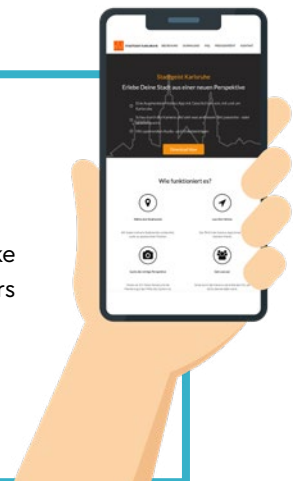
Appendices

digital trail brief template

1. How does the development of a digital app fit with our interpretation and business strategies?

2. Who is the trail's target audience?

3. What is the Big Idea for our digital trail?

4. What content do I need for our trail?

5. Which platforms and devices do we need to develop our app?

6. Who will provide the technical support for our app?

7. What is our project budget?

8. How much time do we have for planning, evaluation and maintenance?

Digital Trail Wireframe template

You can choose to sketch your wireframe by printing and designing your own trail design. If you wish to use a more advanced wireframe model, there are many free online platforms which will allow you to do this.
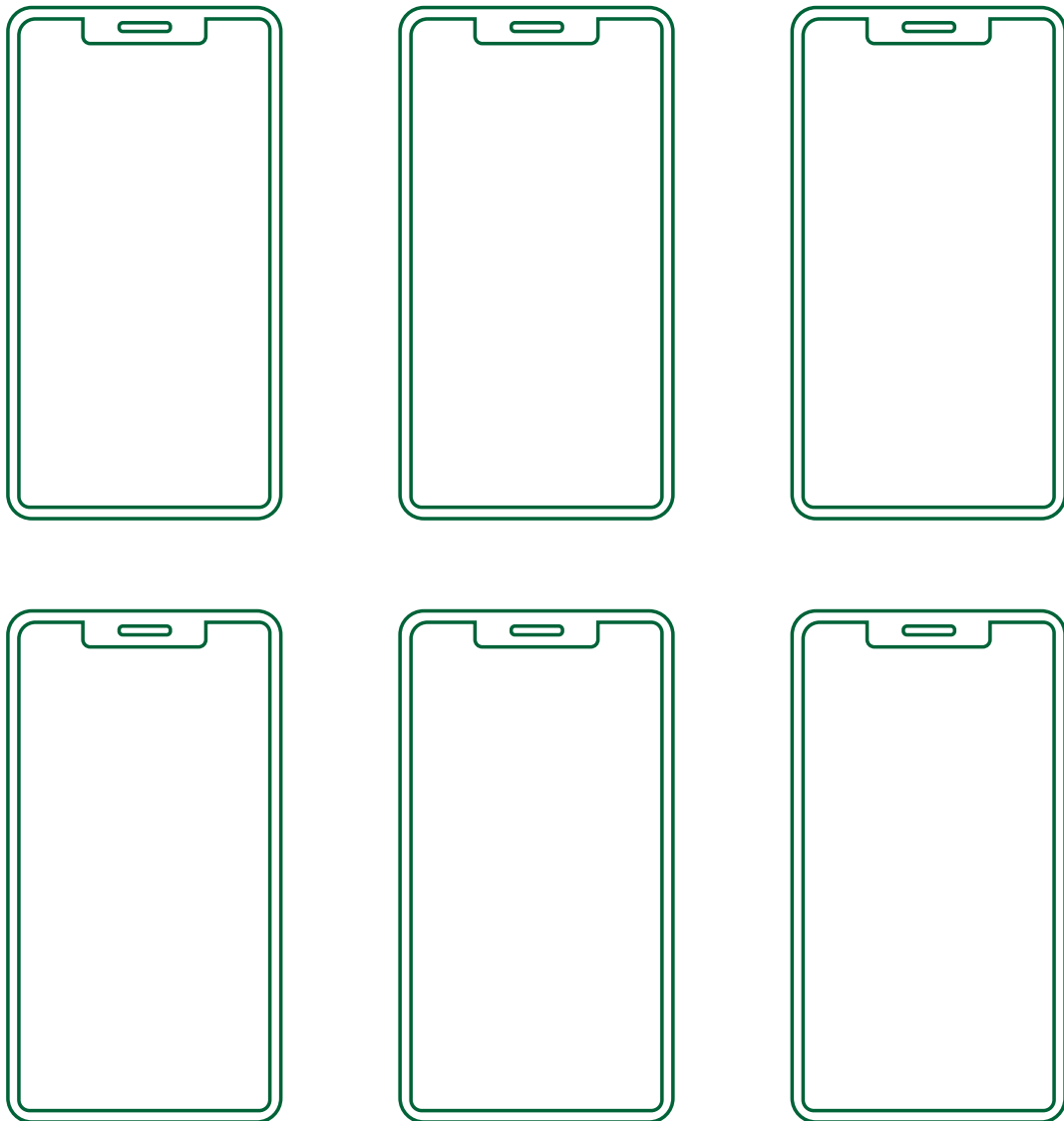
Procurement approach

SINGLE PARTY FRAMEWORK

A single party framework can be used to appoint one supplier to a project. This is useful for digital trail development as it allows for one agency to take ownership over the development journey of your trail. You can also use a Prior Indication Notice or PIN to scope prior interest in your digital trail tender. As digital trails require considerable content development, it is likely that you will need to find a supplier who specialises in this area of work or is willing to partner with a content agency.

MULTI-PARTY FRAMEWORK

A multi-party framework allows you to establish multiple suppliers on a framework for your project. This means that that you can choose to use each supplier as required. It has the added benefit of not encouraging over dependence on one supplier alone for your project.

DIRECT TO SUPPLIER AGREEMENT

If you are not obliged to use a procurement framework then you may choose to go directly to a supplier to help build your digital trail. You can research potential suppliers by asking other destinations for references or suggestions. Using your Digital Trail App brief in appendix A will be important step in communicating your initial digital trail concept to your supplier.

KEY POINTS ABOUT PROCUREMENT

Do you have the following points in your Service Level Agreement (SLA)?

- Date of agreement and names and addresses of supplier and client
- Scope of contract
- Purpose of document
- Contract Management – both parties' contract manager names and frequency of review meetings
- If the supplier is going to process any personal data this needs to be done in a manner compliant with Data Protection legislation.
- The App Service, details of the supplier's service agreement, for example:
  ▶ Ensuring applications are compatible with changes in iOS or Android (native app)
  ▶ QR codes or URL updates (web app)
  ▶ Monitor and maintain Content Management System
  ▶ Frequency of live link testing (native apps)
- Performance Reporting: analytics, fault logs
- Fault response
- Fault escalation plan with timeframes for response
- Emergency contact details
- Dated signatures of parties
- If there is personal data involved, the contract will need to include a Data Processing Agreement. For more information, please see **Guidance: A Practical Guide to Data Controller to Data Processor Contracts under GDPR.**
- The Data Protection Commission's **Guidance Note: Cookies & Other Tracking Technologies** must be taken into account and be built into the overall design plan.

DO YOU KNOW WHAT IS EXCLUDED FROM YOUR SLA?

- This is usually content and functionality updates and these will need to be budgeted for in future phases of the project.
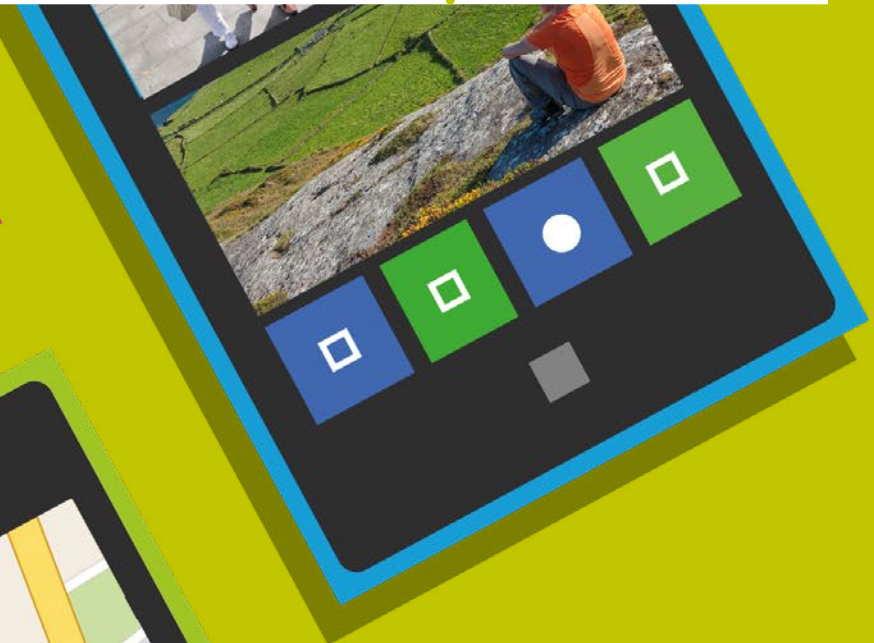
Digital Trail Development tiers and budget

Each digital trail will have different requirements and budgets. This section aims to give you an idea of what can be achieved within certain budgets. It is only an indication and does not include ongoing hosting and maintenance costs.

BESPOKE APP DEVELOPMENT

OPTIONS	WHAT TO EXPECT	COST
A	Basic trail wireframe and navigation One digital trail Between 10-15 points of interest Custom content limited to text, audio and video. Basic in-app navigation Basic branding and UX design Up to four languages Native app downloadable from webstore Basic QR code activation	€10,000 – €25,000
B	Well-developed trail wireframe and navigation. Up to 3 digital trails. Between 10–15 points of interest per trail. Custom content limited to text, audio and video, and limited AR Intuitive in-app navigation Well-developed branding and UX design More than five languages Native or web app downloadable from webstore. Social sharing functionality Geofencing activation Limited data reporting	€25,000 – €100,000
C	Highly developed trail wireframe and navigation. Up to 5 digital trails. Between 10–15 points of interest per trail. Custom content limited to text, audio, video, AR, gamification, reward systems. Intuitive in-app navigation. Well-developed branding and UX design. More than five languages. Native or web app downloadable from webstore. Social sharing functionality. Push notification and cross selling functionality. Builtin data reporting. Geofencing activation.	€100,000 – €250,000

PLATFORM BASED

OPTIONS	WHAT TO EXPECT	COST PER YEAR
A	1 digital trail Multiple trail interest points 1 site or location Online support No content curation Native or web app downloadable from webstore.	€1,000 – €2,500
B	2 -5 digital trails Multiple sites Multiple trail interest points Online support & web support No content curation Geofencing and beacon technology GPS location AR and 360 Content	€2,500 – €4,500
C	5 + digital trails Multiple sites Multiple trail interest points Online support & web support No content curation Geofencing and beacon technology GPS location AR and 360 Content Custom relationships and partnerships	€4,500 – €10,000

DIGITAL APP DEVELOPMENT IN TOURISM

	CASE STUDY	REFERENCE
1	Sightrun App	www.sightrun.com
2	Signly App	https://signly.co/
3	Linz App	www.linztourismus.at/en/leisure/plan-a-trip/app/
4	Sensing Ecologies App	https://play.google.com/store/apps/details?id=xyz.echoes.anurgentenquiry&hl=en_IE&gl=US
5	Old Tintern Station App	https://www.monlife.co.uk/heritage/old-station-tintern/
6	Dark Hedges App	www.touristwise.com/journey-tracking-now-available/
7	Mindfulness Trail for Luxury Hotel	https://www.adaremanor.com/the-spa-wellness-treatment-launch/
8	Walls Alive App	https://apps.apple.com/ie/app/walls-alive-ar/id1483235175
9	Lumin App	www.dia.org/lumin
10	Lasi VR App	https://apkpure.com/de/iasi-vr/com.Sprocket.IasiVR
11	Geo Fencing App Klagenfurt	https://play.google.com/store/apps/details?id=com.xamoom.klagenfurt_tourism&hl=de
12	Stonehenge App	www.imagineear.com/imagineear-creates-innovative-mobile-app-and-new-content-for-stonehenge/
13	Mantyharju Trails App	https://fentec.fi/nature-trail-with-nfc-technology/
14	The Walls Project- Implementation inspiration	thewallsproject.ie/digital-app/
15	Stadtgeist Karlsruhe App	www.stadtgeist-karlsruhe.de/

We hope you find this Digital Trails Toolkit useful.

If you have any questions, please contact us at
smarttourism@dublincitycouncilculturecompany.ie

Here is a short summary of the key messages:

••• **Is a digital trail the right choice for you and your visitors?**

••• **What are the advantages of developing a digital trail?**

••• **Content creation and the importance of the narrative structure**

••• **Working with your developer on the storyboard and wireframes**

••• **Technology options**

••• **Monitoring app use and feedback**

This Toolkit was produced by Fáilte Ireland and Dublin City Council as part of the Smart Tourism Programme for Dublin using current international best practice, hands on experience and guidance from the Digital Trails Toolkit working group as follows;

Alex Gibson Technological University Dublin

Heather Dowling Wade Fáilte Ireland

Vivienne Storan Fáilte Ireland

Manish Kheterpal Fáilte Ireland

Jane Baxter Fáilte Ireland

Ralph McGarry South Dublin County Council

David Lawless Dún Laoghaire Rathdown County Council

Deirdre Sinclair Fingal County Council

Anthony Mc Guinness Dublin City Council

John Kerr Derry Strabane District Council

www.failteireland.ie