

Bangor

Digital Place Plan

July 2022



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1 What is a Smart Town?

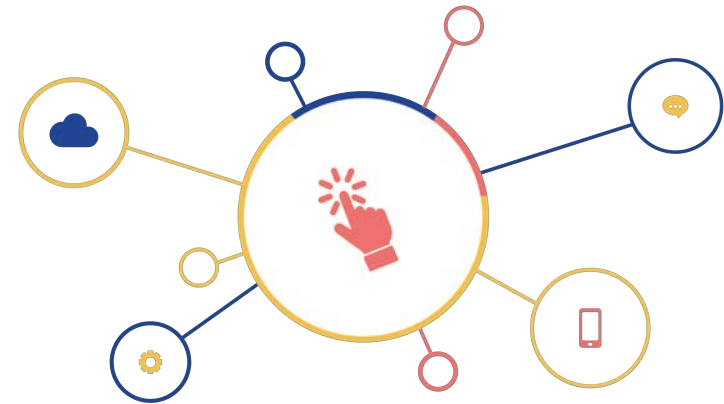
Smart Towns actively embrace new technologies to achieve economic, social and environmental benefits such as increased footfall and growth in spending, improved traffic management, energy saving, cleaner safer streets, and increased public involvement.

Smart Towns adopt the same technology and data that national brands have been using for decades to enable small businesses and town centres to compete on an equal footing. Smart Towns also help with 'levelling -up' so that every business and organisation within a town has access to the same information they need to grow their businesses and the town centre as a whole.

And it is not necessary to be an expert or enthusiast for technology to take advantage of smart technology and data. People and places just need to be open to using new methods alongside digital skills training and business support to enable people to get the most out of digital.

A glossary can be found at the back of the Plan which explains the technical terms used in this document.

Recent research shows that around 70% of consumers spend up to 3-hours a day scrolling on social media. When you couple this with the fact more and more people are keen to support their local high street businesses, it stands to reason that connecting local people from the digital world to the physical world is the solution to increasing high street footfall and sales.¹

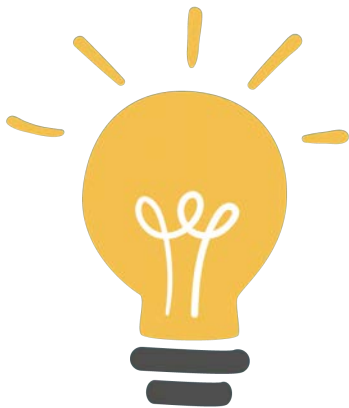


¹ Polly Barnfield OBE, CEO of Maybe* Tech.

1.0 Why have a Digital Place Plan?

The idea of town centres having their own Digital Place Plan (the Plan) is a recent idea which is being delivered through 'The Year of SMART Towns'. For most towns it is likely to be something new and unfamiliar. However, for towns that wish to become smarter and more digitally confident, there are potential resources available including from Local Authorities and the Welsh Government's Transforming Towns programme.

Preparing a Plan will help to boost interest, understanding and support for digital technologies and the use of sensors to improve the performance of a town centre. The process of preparing a Plan will also encourage new action in support of existing town centre regeneration plans.



1.1 A Plan is based on 5 key stages:

- 1 Strategic digital review**

This identifies the digital priorities being set at county, regional and national levels through programmes, planned infrastructure and investments. The purpose is to ensure the Plan is in line with these priorities to maximise the level of support.
- 2 Plans and partnerships**

By researching existing plans and reviewing examples of partnership working within the town, this stage identifies the vision for the town centre, along with the level of ambition required and how digital might help to achieve it.
- 3 Digital place assessment**

The place assessment identifies how advanced a town is along their Smart Town journey. This is done by identifying the current infrastructure and how it is being used. The assessment is crucial for understanding what the town is already doing well and where it has the opportunity to digitally improve.
- 4 Business and stakeholder views**

Once the Plan has developed a comprehensive understanding of where the town is along its digital journey, businesses and other stakeholders meet to identify the direction and actions recommended in the Action Plan.
- 5 Action plan**

The final step of the process is to draft an Action Plan that identifies the most impactful (and feasible) actions that can be taken to become a digitally smarter town in the near-term (e.g. next 2 years).

2 City centre characteristics

Bangor is a small cathedral city in Gwynedd, with a population of 18,000, located by the North Wales coast and north of Snowdonia National Park. Bangor University located adjacent to the city centre is a defining feature of the city, with university students comprising around half of Bangor's population. As the largest settlement in Gwynedd, Bangor also serves an extensive retail catchment covering both Gwynedd and Anglesey alongside the student and resident population.

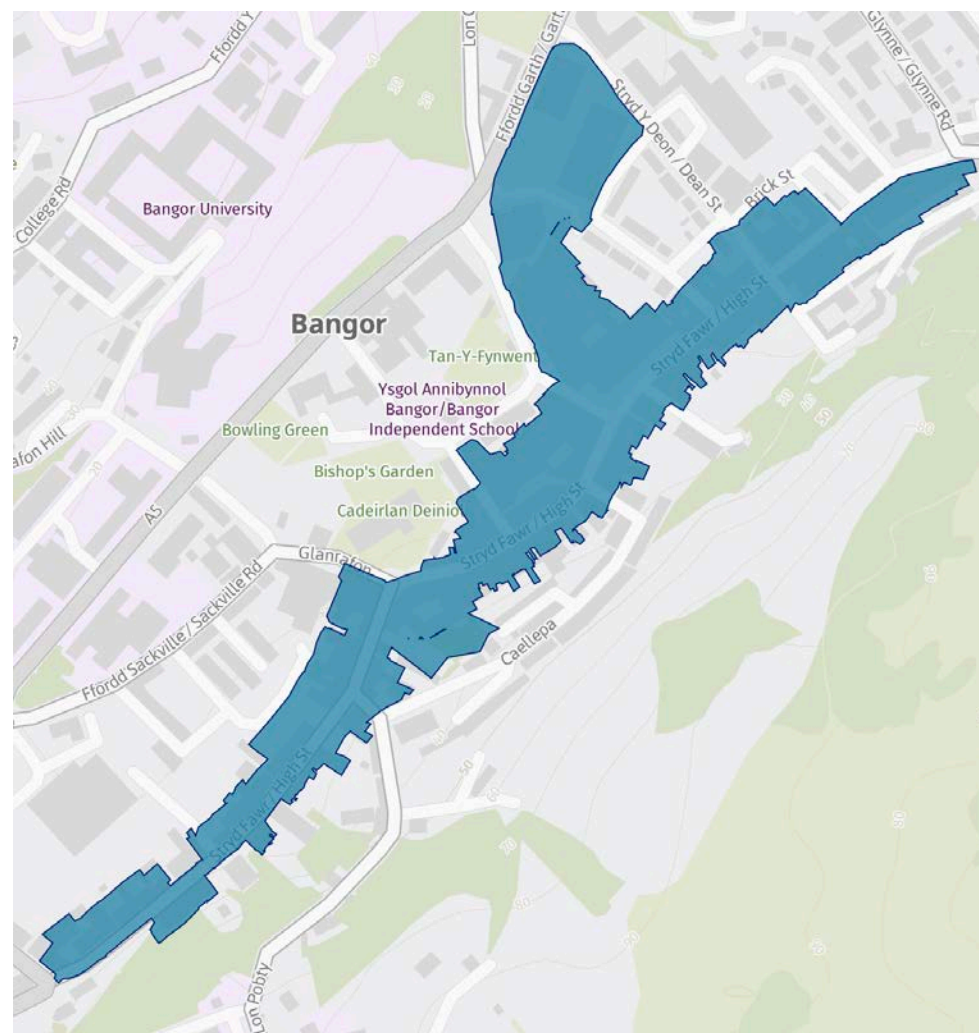
Bangor is identified as a 'sub-regional centre' in Gwynedd in the Local Development Plan (LDP), indicating that it provides a broad range of facilities and services associated with a traditional centre as well as catering to the large young person and student population. The city centre is largely linear, with the longest high street in Wales at around 1 mile in length. The city centre also contains the Deiniol Shopping Centre.

Bangor First, a business improvement district (BID), was formed in 2016 following a successful ballot of city centre businesses and began its second term in 2021 after a re-ballot of businesses. The BID collects an annual levy from businesses which it invests back into the city centre, to address the local businesses' priorities, such as safety and events.

Bangor is in a rural location and is a hub for tourism in the region due to its proximity to the National Park, location on the North Wales coast, Garth Pier north of the city centre) and its substantial heritage as Wales' oldest city. Outdoor leisure is a feature of the visitor economy with a number of swimming, cycling and walking facilities located in and around the city.

Figure 1: Boundary of Bangor City Centre as defined in the Adopted LDP

Source: Gwynedd and Anglesey Adopted Joint Local Development Plan



The city has been recognised as a retail destination. However, retail performance has lagged in recent years and a number of large national retailers have closed or moved outside the city centre, most notably Debenhams. Smaller retail units in the city centre are being occupied by growing a number of independent businesses but there remain challenges finding occupiers for larger units.

The largest retail unit in the city centre is the former Debenhams in the Deiniol Shopping Centre, which is being considered as the location for a health hub which would bring together a number of healthcare services in the city centre. Plans are in place for a North Wales Medical School from 2024 that would be run by the University and be located in the city centre. Plans are also in place for improvements to the railway station and linkages between the station and the city centre.

Place Activation

Events are an increasingly important part of the city centre and an area of focus for the BID who are working to develop and better promote the city's cultural offer. The Pontio Arts Centre (part of the University), is one of the largest venues in the centre and hosts regular live comedy, music and art exhibitions. Pontio also features a cinema which screens both independent and studio-backed films.

Frân Wen, a Welsh language youth theatre company, organise a diverse range of events in the town and are in the process of renovating a former church in the city centre into an arts, culture and community hub for Bangor and North West Wales.

A range of one-off and recurring events are held in the city centre, many with ties to the University and its students, such as academic conferences. Recent events include Chinese New Year celebrations (February), Bangor's first Pride Parade (June 2022), and a series of events held at Christmas.

2.0 Where could digital support the city centre?



Measure footfall and mobility within the city centre



Enable existing businesses to grow and expand into larger or vacant units



Expand the town's event programme, growing the number of events and other cultural activities in the city centre



Facilitate closer, partnership working between key stakeholders and organisations



Public and community service delivery in the town



Support new businesses and the growing independent business sector

3 Strategic digital review

This section reviews digital programmes, planned infrastructure and investments at both the local authority and regional level. The purpose is to ensure that the Plan aligns with strategic priorities and to facilitate dialogue around the SMART agenda on a local and regional level.

3.0 What are the strategies and plans?

- Welsh Government's **Digital Strategy for Wales**
- Ambition North Wales' **Digital Connectivity Programme**
- Gwynedd Council's **Council Plan 2018-2023**

There is strong support for the use of digital technology and data from the national to the county level, with the need for high-quality digital infrastructure across the region written into the Growth Deal itself. All of the strategies and plans contain an emphasis on digital and enabling digital change at all levels of governance, recognising its transformative potential for small businesses.

This is reflected in the leading role that Gwynedd and the wider North West Wales region has played in the investment and exploitation of digital infrastructure and data. Investments have been made into the research, installation and exploitation of a wide range of digital technology such as public Wi-Fi, Internet of Things (IoT) and 5G, by a range of public and private sector organisations.

In particular, Welsh Government, Gwynedd Council, Menter Môn (a North West Wales enterprise agency) and Bangor University.

With the national, regional and county level strategies in place and a track record of investing in digital on the regional and local level, there is a defined, supportive framework in place for a Digital Place Plan for Bangor.

3.1 What new funding and investment is there?

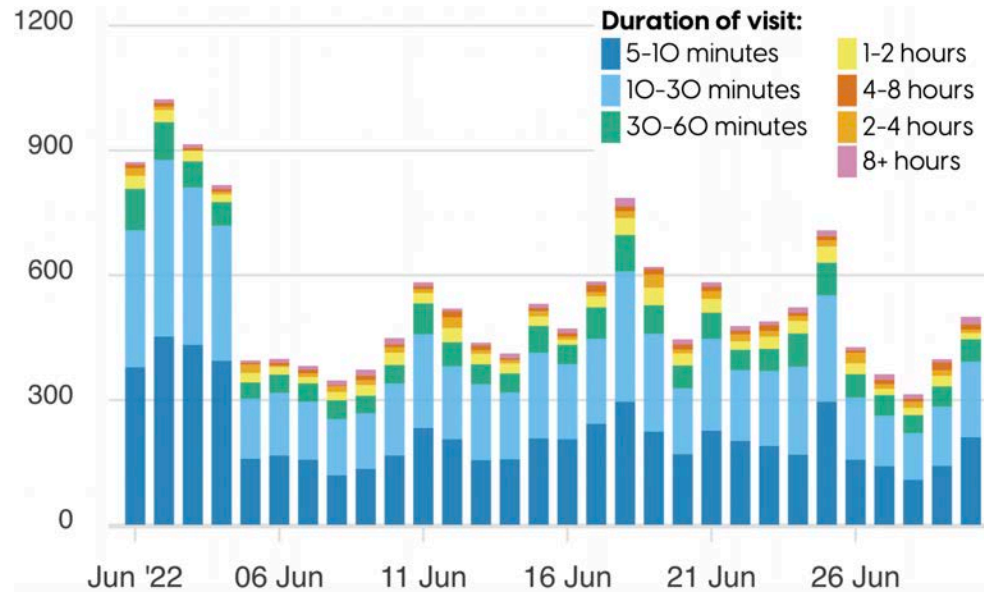
Through Smart Gwynedd, a Menter Môn programme, Gwynedd Council and Anglesey Council have made significant investments into the digital infrastructure of towns and villages across the region. This includes the installation of public Wi-Fi and smart footfall systems in more than 10 towns in Anglesey and Gwynedd, ranging from villages like Aberdaron to major centres like Caernarfon.

As part of this programme, there are plans in place for the installation of Wi-Fi access units in Bangor. The units provide public Wi-Fi as well as mobility and location analytics, such as visitor numbers, dwell time and busyness within different areas of the city centre.

The platform, Patrwm.io, has also been developed to host and visualise smart footfall data from access points and data from sensors. The data is publicly available via the platform's website and a mail list management feature is currently under development, which will enable local organisations to run marketing campaigns to users who opt-in. The platform will be used to visualise smart footfall data from future access points in Bangor. An example of smart footfall data visualisation on Patrwm.io can be seen below, in Figure 2.

Figure 2: Number of visits to Aberdaron town centre (per day) as visualised on the Patrwm.io platform

Source: Patrwm.io



Most premises in the city centre are covered by Openreach’s fibre broadband network which provides superfast broadband with speeds of up to 80 Mbps using through fibre to the cabinet (FTTC). The superfast broadband network is due to be upgraded by Openreach by the end of 2026 to an **ultrafast fibre broadband** network, providing fibre to the premises (FTTP). This will provide speeds of up to 900 Mbps by using a fibre optic cable from the exchange to the property.

Figure 3: Map of ultrafast broadband rollout in the region

Source: Openreach



Key:

■ To be built between April 2021 and December 2026

Bangor University’s **Digital Signal Processing (DSP) Centre of Excellence** represents a £6 million investment and is undertaking highly specialised research into digital communication systems such as 5G networks and ecosystems. The research centre is backed by the Welsh Government. The University aims to develop the DSP Centre of Excellence into an international research centre with strong links to industrial partners that has a significant impact on the local economy.

Significant investments have been made in **LoRaWAN**, a technology which enables the use of low-cost sensors for a wide range of purposes, such as monitoring and managing parking, air quality or bin fill levels.

Adra Housing is utilising LoRaWAN technology in Bangor to provide vulnerable people help to live independently in their homes for longer. As part of the organisation’s Smart Homes scheme, sensors are being used to help identify whether vulnerable residents are at risk of suffering unnecessarily from the cold, have fallen or have left home.

3.2 What business support is there?

Business Wales provides business support which covers a wide range of areas (such as marketing) alongside digital-specific support for businesses through **Superfast Business Wales**. Both services include general resources covering a wide range of topics as well as personalised 1-to-1 training. A key part of the services are to signpost businesses to other relevant Welsh Government resources and services, such as **Superfast Cymru** and **Social Business Wales**.

There may be scope to develop this further to support businesses to exploit both planned and existing infrastructure in the city, in particular the LoRa gateways and smart footfall data.

3.3 What are the strategic opportunities for the city centre?

There is a clear strategic framework which can support a Digital Place Plan and local digital initiatives in Bangor. The work of Gwynedd Council in and Menter Môn has created a platform for further digital investment. On the regional level there have been significant investments into digital.

However, in Bangor there is scope for further investment. The strategic opportunities for the city centre are centred around installing the missing building blocks and developing a plan to exploit its digital infrastructure. As a regional centre, ensuring that the quality of its digital infrastructure matches that of the surrounding towns and villages. is a strategic priority.

Summary of strategic review

Strategic plans supporting digital	Strong support for digital across all sectors and at all levels of governance, as reflected in the plans, strategies and previous investments of Gwynedd Council, Menter Môn and the Welsh Government.	✓
Funding available	The Welsh Government’s Transforming Towns fund is available to support local digital infrastructure initiatives and digital can be integrated into bids for UK Government Levelling Up funds.	✓
Investment in infrastructure	Significant investment in digital infrastructure across the region, although, there is scope for further investment in Bangor itself.	✓
Business support	Superfast Business Wales provides digital support alongside digital marketing support from Business Wales.	✓

4 Plans and partnerships

4.0 Are there plans or a vision for Bangor that a Digital Place Plan can support?

Bangor City Masterplan (August 2020)

The **Bangor City Masterplan** was commissioned by Gwynedd Council to provide a 20-year strategy and an ambitious vision for the city, building on the **Bangor Strategy and Vision** (December 2016). The vision set out in the Masterplan is focused on Bangor's outsized role as a centre for heritage, culture and learning relative to its small population (for a city).

Within the plan, Bangor is defined as a "Small World City" that can have a disproportionate reach and impact relative to its size and a "City of Learning and Culture". These are both themes which can (and will) be used in the Digital Place Plan.

There is a need for high quality digital infrastructure to support the ambitious vision for the city set out in the Masterplan. The vision and strategy set out within the plan also highlight the multifaceted role that digital can play in safeguarding and developing the city's heritage, culture and visitor offer.

The Masterplan identifies the need for bespoke, outdoor totems to improve wayfinding in the city centre. Digital signage can be used to address this, providing an interactive display for visitors to engage with as well as a dynamic way to promote local businesses and events. The BID is planning on installing three digital outdoor totems along the high street,

dependent on the granting of planning permission. The exploitation of digital signage is detailed further in Sections 6 and 7 of this Plan.

The Masterplan also identifies the need for a single digital hub for visitors and residents, in the form of the 'Bangor App'. A digital hub of this kind can bring together key stakeholders in a complimentary manner to create a platform which can promote Bangor and change perceptions of the city centre. This is a significant opportunity that this Plan explores and details further in Sections 6 and 7.

The **Bangor City Masterplan** provides a clear and ambitious vision which the Digital Place Plan can support alongside a number of specific recommendations that can be supported directly by digital.

Bangor Smart Town Action Plan (August 2021)

Smart Towns Wales worked with the BID, University, City Council and Gwynedd Council to produce a concise Action Plan outlining a series of steps that could be taken to advance the use of digital in the city centre. The **Smart Town Action Plan** provides a robust foundation for a Digital Place Plan as it identifies some of the areas where digital can have the greatest impact.

These include place management with the action plan identifying a series of sensor-driven solutions for improving the monitoring and management of waste, green infrastructure and air quality. As noted below, in Section 5, the LoRa gateways needed to support a network of low-cost sensors is already in place in the city. This represents a significant opportunity to improve the efficiency of place management, which has the potential to free up officers time and reduce costs.

The Action Plan also emphasises the importance the value of smart footfall data for the city centre economy. Specifically, the ability to see and understand pedestrian flows into and within the city centre enables businesses and stakeholders to make data-driven decisions to capture more local spend. This a theme which is central to the Digital Place Plan and detailed further in the following sections.

The **Smart Town Action Plan** provides a detailed foundation which can be supported and developed further through the Digital Place Plan's place-based approach.

Bangor First (Business Improvement District) – Vision

Following a successful re-ballot in 2021, the BID is in its second 5-year term and has set a vision for the city to guide the actions it takes during this term. The four core themes of the BID's vision are:

1. **Greening**
2. **Business services**
3. **Safety and security**
4. **Culture**

There is scope for a digital to play a role in supporting a range of actions across the theme, which has been reflected in discussions with the BID. Under the theme of **Greening** a sensor-driven approach to the management of green spaces and features (such as planters) is possible, as noted in the **Smart Town Action Plan**, in particular the monitoring of soil moisture to target watering. This has the potential to reduce the time and water required to maintain the city's green infrastructure which has associated environmental and economic benefits.

The BID is working closely with the City Council on the theme of **Greening** and therefore it may represent a collaborative opportunity for exploiting digital.

The BID has already made digital investment into **Safety and security** with the installation of Schemelink, a communication, networking and information sharing system for running safety and security initiatives in the city centre. There may also be scope for installing low-cost sound sensors which measure noise levels and can inform the City Centre Rangers (employed by the BID) where there may be potential disturbances.

Culture is a central theme of the BID's vision and an area where there is substantial potential for the application of digital to support the work of the BID and its partners. The Masterplan emphasises the importance of the city's cultural offer to Bangor's identity, vitality and economy and this is reflected in discussions with the BID and individual businesses.

Digital can support the city's cultural offer through providing detailed information to organisers around the impact of their events on footfall, visitors and dwell time. This can be used in turn to secure funding, manage ongoing and plan future events. Digital signage can provide a dynamic platform for promoting local events and activities in the city centre, improving awareness of the city's cultural offer.

As such, a Digital Place Plan can support the BID's work by detailing a range of digital interventions that can be made in the city centre that support the vision and actions outlined by the BID.

4.1 Is there a city centre partnership or forum?

The capacity for digital to help drive forward city centre regeneration and place management is influenced by the level of cross organisation partnership working and how a centre already involves a range of stakeholders.

Who are the main groups and city centre organisations?

- Gwynedd Council
- Bangor First (BID)
- Bangor City Council
- Bangor University
- Menter Môn
- Bangor Strategic Partnership



Are there any meetings, partnerships or forums that are focused on the high street/city centre?

Bangor Strategic Partnership is a formal partnership between the City Council, BID, Gwynedd Council, Welsh Government, Betsi Cadwaladr Health Board and the University. The Partnership was established to coordinate strategic work and investments into the city centre and deliver on the **Bangor City Masterplan**.

4.2 Findings

There are a complimentary set of plans and visions for Bangor that identify the city as a centre for culture, learning and commerce. There is also a clear need for this role to be safeguard and futureproof by future investments into the city. This a central theme which will underly the priorities and steps identified in later section of the Digital Place Plan.

Within all the plans are a series of actions and recommendations which a Digital Place Plan can support and develop further. In particular, supporting and strengthening the city's cultural offer and independent businesses.

The plans and Strategic Partnership also reflect the necessity of a collaborative approach between stakeholder groups to deliver sustainable and long-lasting change.

5 Digital place assessment

The digital place assessment identifies where a town is located on the Smart Town journey based on what infrastructure is already in place, how it is currently being used and identifies the next steps it should take to move forward. At the beginning of this process, towns should be aiming for a minimum basic level of physical infrastructure and online presence; Stage 1 (Getting Started).

5.0 Basics building blocks

1 - Physical infrastructure:

- **Superfast or ultrafast broadband**
Faster and more reliable broadband, for homes and businesses is key for accessing the opportunities presented by the internet, such as selling products online to a global audience.
- **4G coverage**
Reliable and fast mobile data is key for enabling businesses and other stakeholders to get the most out of tech solutions, particularly when they are on the go.
- **Smart footfall sensors**
Smart footfall counting units provide clear and usable information about how many people visit the town, how frequently and how long they stay. These pieces of information are vital for understanding how the town is currently functioning as well as the impact of any events and other changes on how people use the town.

- **LoRa gateway (Internet of Things)**
LoRa gateways are critical piece of equipment which enable low-cost sensors to send information to a cloud, where it can be accessed remotely. Gateways enable towns to set up an Internet of Things network which can record a range of information that helps to manage the town. This information can range from the number of parking spaces available to remotely identifying when a bin needs emptying.

2 - Online presence:

- **Unified website**
A unified website provides a platform for promoting businesses, launching local campaigns, promoting events and activities as well as functioning as an online visitor destination.
- **Social media**
An active use of social media for marketing and communication in relation to the city centre. This could include using Facebook, Instagram or Twitter.

3 - Business support and skills development:

1. Opportunities for businesses to receive digital skills training to better utilise digital data and tools to acquire and retain more customers

5.1 The journey

There are three key milestones on the Smart Town journey shown in Figure 4. For most towns the journey will begin somewhere between Stages 0 and 1 with the need to get started on putting in place some or all the essential components of a Smart Town.

As a town progresses across its journey, it is able to take on larger initiatives unique to the town, its infrastructure, plans, and partnerships. Smart Towns that have been working with digital technology for some time have often only reached Stage 2 ("Using").

Figure 4: Journey tracker

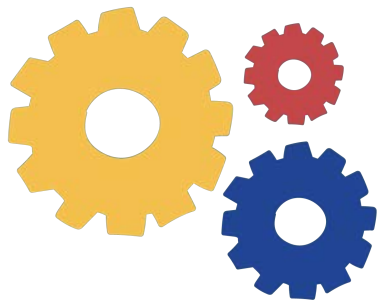
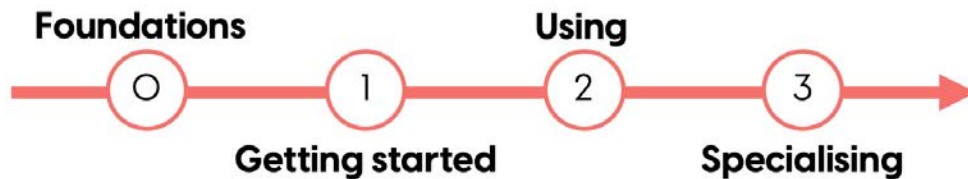
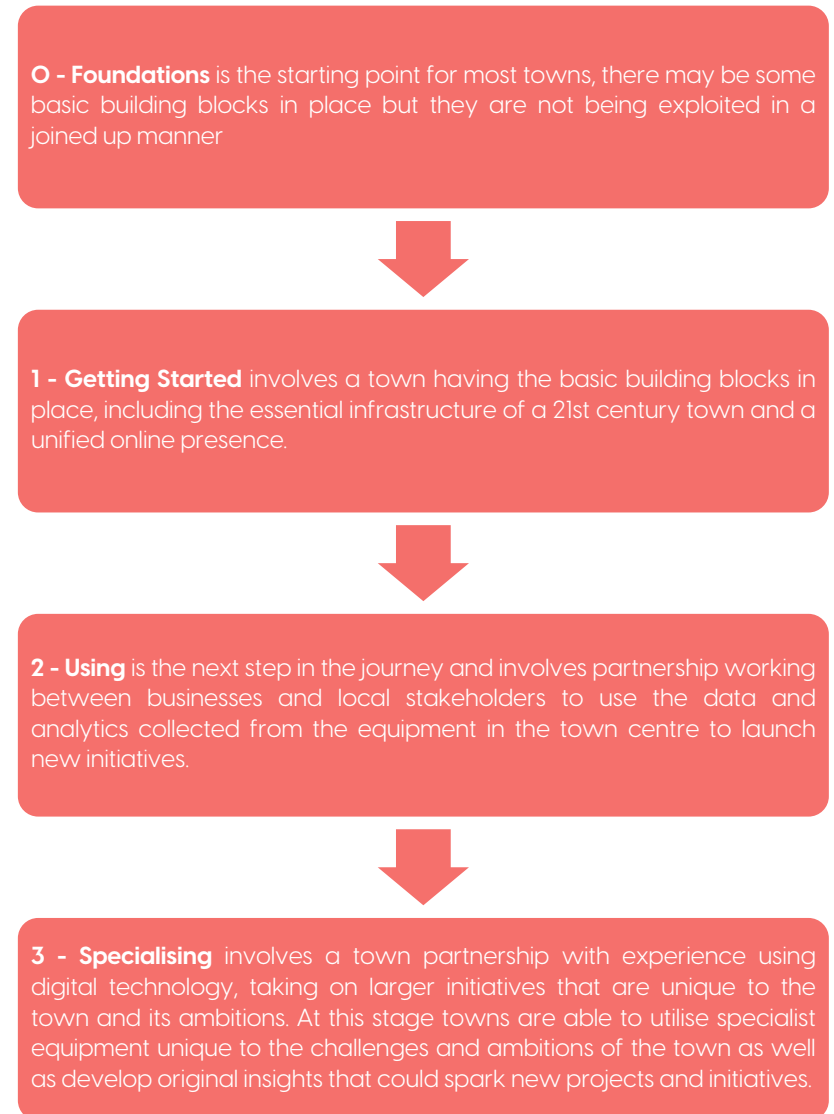


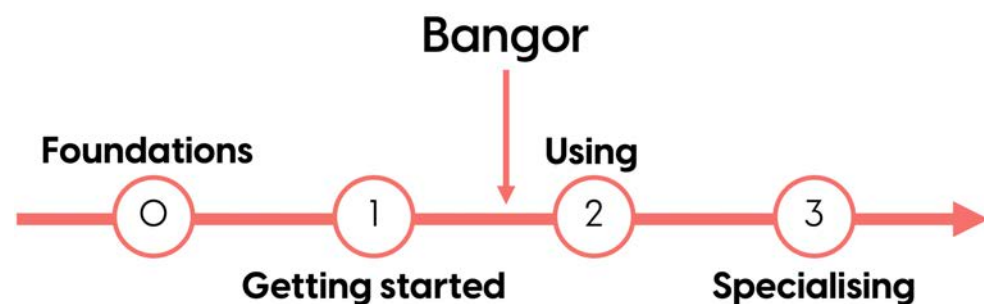
Figure 5: Smart Town journey



5.2 How Smart is Bangor?

The assessment suggests that Bangor is positioned between Stages 1 and 2 of its Smart Town journey, as it has the basic building blocks in place but has not begun fully exploiting them.

Figure 6: Bangor's position in its journey



5.3 Digital infrastructure and technology in Bangor

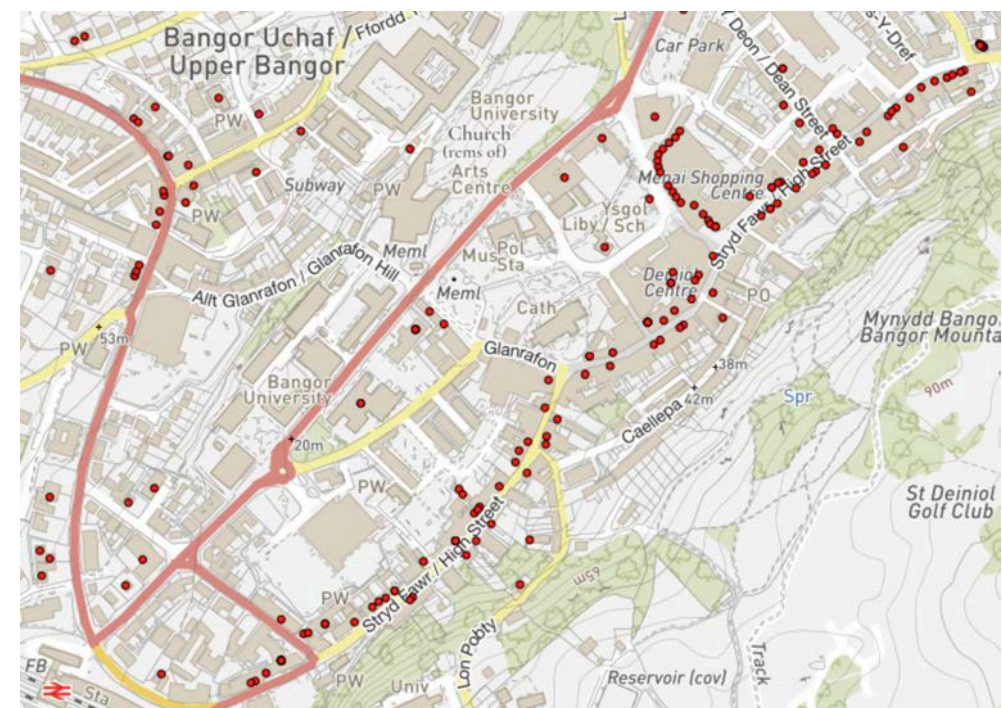
Bangor has significant digital potential with a number of the basic building blocks of a Smart Town already in place. However, there is scope for further improvement and a need to ensure that the city's digital infrastructure is on par with the smaller towns and villages in the region. In particular as Bangor a multifaceted regional hub, serving as one of North West Wales' primary destinations for culture, learning and tourism.

Welsh Government's Open Market Review (OMR) indicates that broadband quality varies in the city centre with the majority of premises able to access superfast fibre broadband (FTTC).

A number of premises do not have access to broadband with an average download speed of at least 30 Mbps (i.e. superfast broadband). These premises are distributed along the high street and in the Deiniol Shopping Centre, as can be seen in the map of 'white premises' (Figure 7).

Figure 7: Map of 'white premises' in the city centre (30 Mbps broadband speeds not planned or available)

Source: Welsh Government Open Market Review



The plans to upgrade most premises in the city centre to an ultrafast fibre broadband network have been categorised as 'Under review' by the OMR. This means that the plans in place to improve the network have been

judged through the OMR as potentially being at risk of not being completed. There is also a substantial minority of premises where there are no plans for an upgrade.

Across all the major networks there is 'Good' 4G coverage, although Ofcom mapping indicates that the quality of the coverage reduces to 'Ok' at the north of the city centre on the EE and Three networks.

At present, there is no smart footfall system or public Wi-Fi in Bangor. Through the Smart Gwynedd a Môn programme, Gwynedd Council and Menter Môn, are planning to install access units in the city centre to address the issue. The timeline for this installation is not currently set but is likely to be towards the end of 2022.

As noted in **Smart Action Plan**, no public footfall data is currently available for the city centre with the Deiniol Shopping Centre measuring footfall within the Centre using internal footfall counting software for internal purposes. This is an area addressed in greater detail in Section 6 of this Plan.

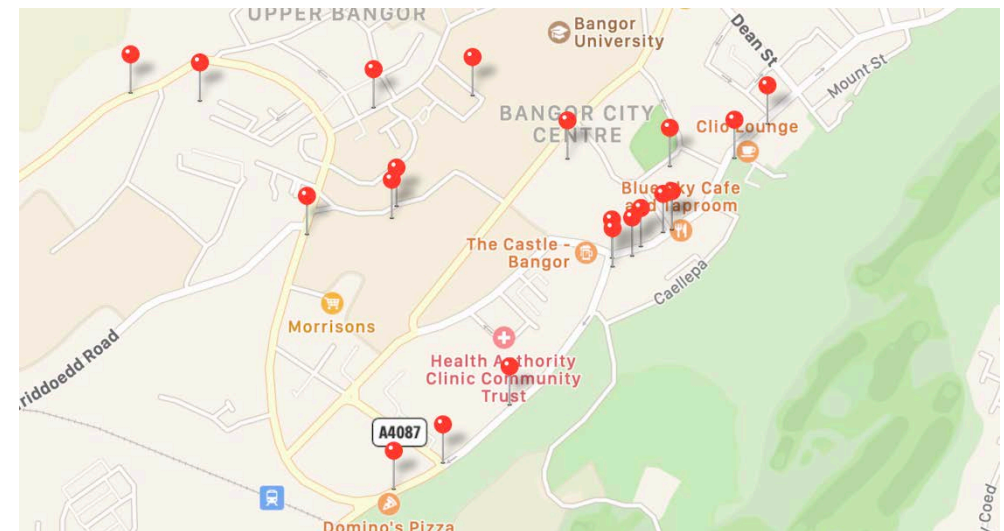
The BID has invested into Schemelink to provide a digital platform for coordinating and running crime reduction and public safety initiatives in the city centre.

The BID is planning to invest in digital signage to promote local businesses and generate revenue. Pending on the granting of planning permission, the BID plans on installing three outdoor totems in the city centre. The signs will be used to free advertising space for small businesses (funded through the BID levy) and generate revenue through commercial advertising. BT have also submitted planning applications to convert a number of old phone boxes in the city centre to Street Hubs which feature digital signage.

There are four LoRa gateways in the city centre in addition to a further three in close proximity to the city centre. Two of the gateways in the city centre are used by Adra Housing as part of its Smart Home scheme. Through the gateways there is comprehensive LoRaWAN coverage of the city centre which enables the use of a significant number of low-cost LoRa sensors.

There are also a number of digital heritage and culture initiatives in Bangor, many of which are connected to the University. An example of this is the Walking Jewish History app and website developed by academics at the University which feature a guide to the city's Jewish history, an interactive map and digital trail (Figure 8). Similarly, the University developed a website for Journey to the Past, a research project into the depictions of Wales in historic travel writing from France and Germany. The website feature an interactive map (Figure 9), gallery and a virtual reality experience of Tintern Abbey produced by the Royal Commission on the Ancient and Historical Monuments of Wales.

Figure 8: Screenshot of trail map from the Walking Jewish History app



Projects of this nature can form part of a digital hub for the city which brings together the academic and business communities on a single platform to promote the city's heritage, culture and economy. A hub of this kind has the potential to drive footfall and increase trade whilst amplifying the reach and impact of the work of the University.

HistoryPoints have been installed at the throughout historic sites in the city, such as the War Memorial, Garth Pier and Prichard-Jones Hall. HistoryPoints are a Wales-wide initiative to place QR codes at historical sites which provide concise historical information on a web page, when the QR code is scanned.

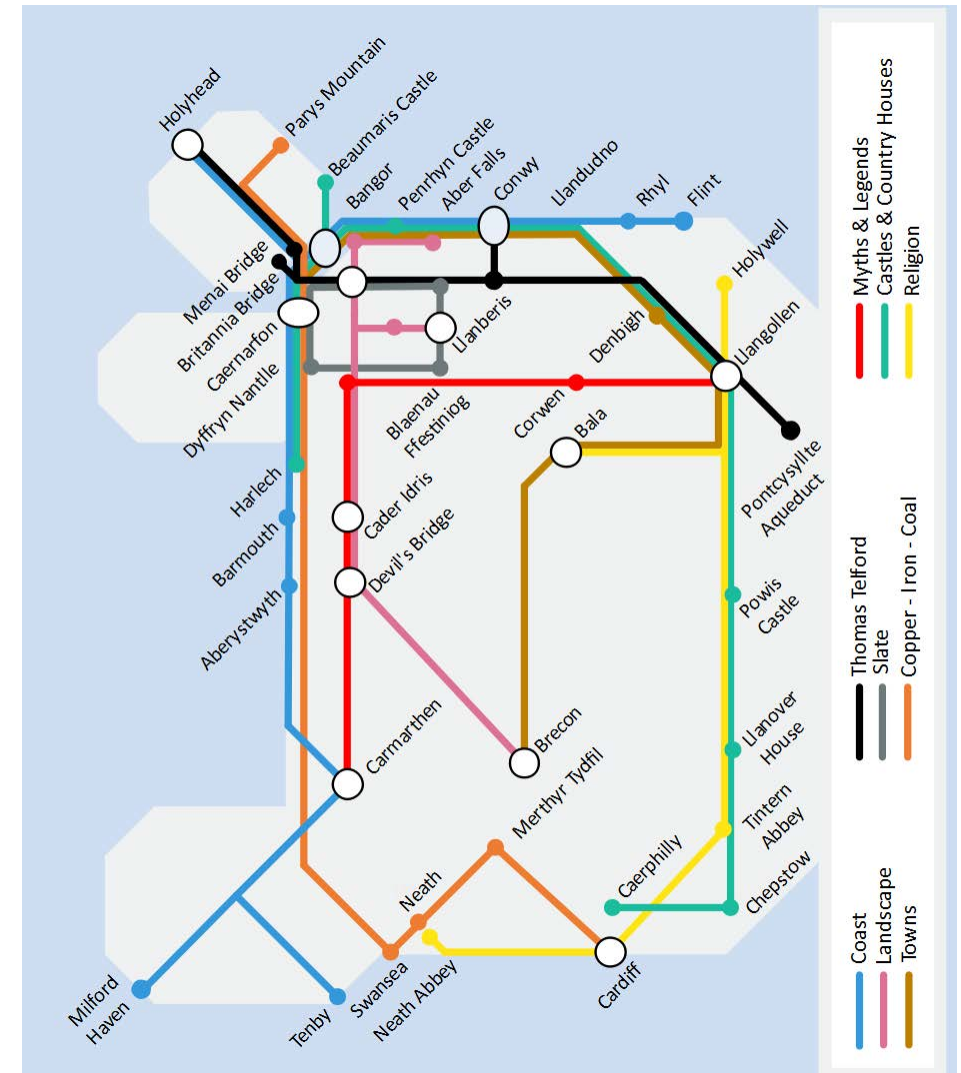
5.4 Online presence

Of the 289 businesses in the city centre, 158 or 55% had some form of social media profile with a combined audience of 202 million as of July 2022. Of those which have some form of social media profile, 42% are active on social media.

Local businesses with a social media presence are primarily active on Facebook followed by Twitter and Instagram. Top ranking local businesses include a number of food and drink establishments such as **Bwyd Da Bangor** (1,500 likes on Facebook) and **Blue Sky Cafe and Taproom** (7,300 likes on Facebook). In addition to shops, such as **Enchantment** (800 likes on Facebook) and **Hobby Shop** (combined audience of 2,400), and hair and beauty businesses like **Urban M Salon** which has a combined audience of nearly 4,000 across Facebook, Twitter and Instagram.

Figure 9: Map of themed digital trails based on historic travel writing

Source: Journey to the Past – Bangor University



The top results when searching for Bangor online are the University and visitor experience, with a number of 3rd party websites marketing the city, such as Trip Advisor, Visit Snowdonia and Transport For Wales. The websites of the BID and City Council do not appear in the top search results, although both contain relevant information about city centre businesses and events.

There is scope for redesigning the BID's website to function as a 1st party city-centric website that effectively communicates the attractions and businesses on offer, whilst providing a place to check local news and events. The BID website does not list or profile any local businesses to promote the town's growing independent food, drink and retail offer, this may be an effective use of the BID's online presence.



5.5 Where is Bangor now?

There is a clear vision for the city set across a number of plans and linked to the Strategic Partnership. The Digital Place Plan will look to build on the plans and partnership through the projects and actions identified in the Action Plan.

Bangor has most of the basic building blocks of a Smart Town but there may be scope to improve some of basic building blocks further. A number of premises not able to access superfast fibre broadband and plans for an upgrade to an ultrafast fibre broadband network categorised as 'Under review' by the OMR.

Notably, there is no smart footfall system in place. There are plans to install a network of smart footfall sensors in the city centre and this should be considered a priority for the city. Smart footfall data can be a highly accessible and impactful tool for businesses and event organisers, helping to safeguard the city's leading role as a centre for culture, learning and shopping.

Investment in a smart footfall system needs to be accompanied by an appropriate distribution mode to enable businesses and stakeholders to make data-driven decisions about how to improve business performance and manage the city centre. In Bangor this can be achieved through the Patwrm.io platform, which is supported by Gwynedd Council and Menter Môn.

The next steps around digital also need to focus on ensuring that both the public and private sector are utilising and taking full advantage of these investments into the town.

Summary of Bangor's assessment

Plan	The Masterplan sets a clear vision for the city which is complimented by the actions and goals set out in the Action Plan and BID's campaigns.	✓
Partnership	A Strategic Partnership between the key actors involved in the city centre has been established and meets regularly.	✓
Physical infrastructure	Most of the key pieces of infrastructure are in place, with the notable exception of a smart footfall system. There is scope for greater exploitation of existing infrastructure.	—

Online presence	A number of businesses perform well on social media but there is scope to develop the city's online presence further with a 1 st party website that actively markets local businesses and events.	—
Business support and skills	Business Wales provides a wide range of support for businesses looking to utilise digital tools and platforms. There may be scope to expand this further through a tailored programme of business support	✓



6 Priorities for Bangor

The following sections outlines the key issues raised by businesses and stakeholders during the plan-making process as well as in other plans and strategies for Bangor, such as the **Masterplan**. The issues and opportunities are organised by theme, with four themes identified for Bangor.

6.0 Digital priorities for Bangor



Install smart footfall network – to collect a comprehensive set of mobility and location analytics that identify trends in footfall and usage of the centre



Integrate digital into partnership working – establish a Smart Towns working group formed of local stakeholders, to enable data to be widely distributed and to coordinate future investment in digital.



Safeguard and develop Bangor's role as a cultural centre – implement a package of digital measures (smart footfall data, digital signage and digital hub) alongside a partnership working approach to promote and manage the city's culture and heritage.



Support small business growth – exploit investments in digital to create a framework that supports new and existing small businesses to grow; helping to reduce the vacancy rate and increase vitality of the centre.

6.1 Install smart footfall network

Smart footfall sensors measure a wider range of metrics than traditional beam footfall counters, providing data which can be highly valuable for businesses. These metrics include the number of visitors, visits, dwell time, frequency people visit the centre and the busyness of different parts of the centre.

Businesses stated that they would look to use smart footfall data to inform their operations, in particular opening hours and staffing which can be adjusted dynamically to meet demand. There is also scope to use smart footfall data to support the growth of existing businesses and to attract new businesses into the city centre. By providing business owners with in-depth information that can inform their business planning, promotions and other activities. As such, an investment of this nature has the potential to increase the vitality of the city centre and support the city's growing independent business sector.

The foundations for installing a smart footfall network in Bangor are in place. Mapping, costings and engagement for smart footfall sensors (access units) in the city centre having already been undertaken through a Menter Môn and Gwynedd Council's digital project. A map (Figure 10) of potential unit locations has been produced and businesses which could host units have been engaged.

The proposed layout of units in Figure 10 covers the majority of the city centre including the inside of the Deiniol Shopping Centre, using around 20 units. Discussions with businesses and stakeholders as well as the **Smart Town Action** identify significant demand for smart footfall data covering Garth Pier. As a smart footfall network can be installed in phases, an

expansion of the network to cover the north of Garth Road and Pier at a later phase should be considered. Coverage of the Pier and nearby area does not necessarily have to mesh into a city centre network, reducing the number of units required to cover the Pier.

6.2 Integrate digital into partnership working model

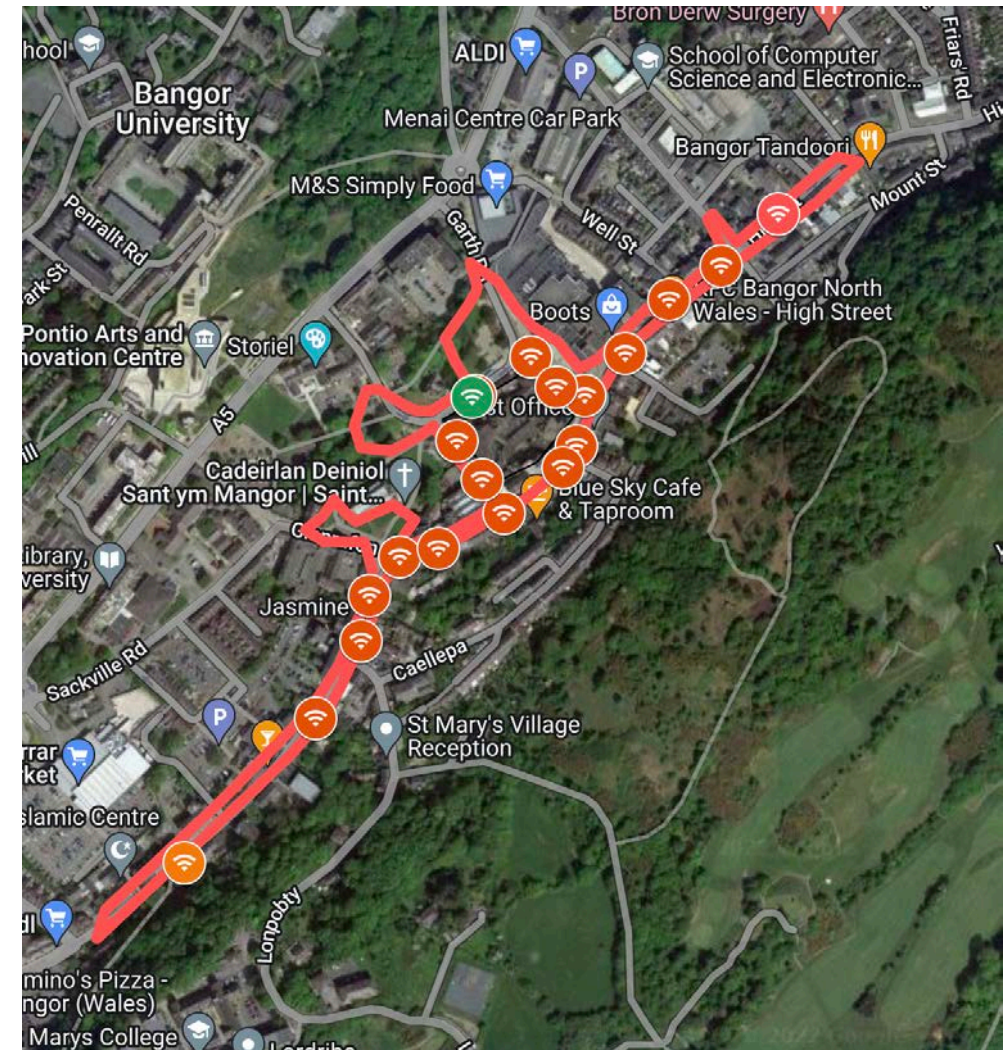
Partnership working across the key stakeholder groups is critical to the success of any digital investments into the city centre. The key stakeholder groups in relation to the exploitation of digital include the BID, University, City Council and Gwynedd Council.

A lean and dynamic group focused on the exploitation of digital infrastructure and data is key to exploiting digital to achieve place-based goals and aims. This includes those set out in the **Masterplan** and **Smart Action Plan** such as increasing footfall, attracting new businesses to the vacant units in the centre and growing the city's events programme.

A partnership approach of this nature can also enable the regular distribution of data to a wide range of stakeholders, which is at the core of a successful Smart Town. This can be achieved in part through the use of the Patwrm.io platform which distributes Smart Town data (e.g. smart footfall data) in real-time.

The widespread distribution of data helps to ensure that local decision-makers have access to hard data about visitors to Bangor and how the city centre is being used. This also enables businesses and stakeholders to make data-driven decisions about how to improve business performance and manage the city centre.

Figure 10: A proposed layout for smart footfall sensors (access units)



The Strategic Partnership between Welsh Government, Betsi Cadwaladr Health Board, Gwynedd Council, City Council, University and BID is an existing, formalised partnership.

There is scope to form a digital working group that meets more frequently than the Strategic Partnership formed of stakeholders active on the local level and focused on the exploitation of digital. A group of this kind could be organised as a working group within the Strategic Partnership or as an independent group.

A group focused on coordination and exploitation of digital on the local level could also compliment the Digital Gwynedd Project Group (primarily composed of Gwynedd Council and Menter Môn officers) which is focused on investment into digital on the regional level.

6.3 Digital hub for the city centre

There is a unique opportunity in Bangor to connect the work of an international University with an organised local business community on a single platform that can be used by both residents and visitors.

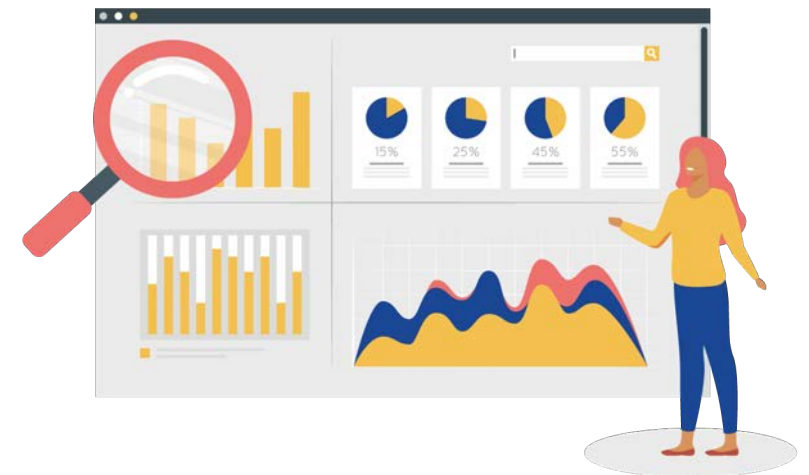
Discussions with stakeholders identified demand for a platform that brought together complimentary aspects of the University, event programme and business community on one platform. This is reflected in both the **Masterplan** and **Smart Action Plan** which recommend an app to function as a digital hub for the city.

A digital hub for the city needs to provide an effective and affordable platform for businesses to engage with digital whilst providing utility for other city centre organisations and users. The platform should bring

together the local business offer (including promotions), an up-to-date programme of events and activities as well as interactive resources about the town's heritage and culture.

To achieve this, there is scope for an app for the city, as is used in Cardigan, Ceredigion. However, depending on the administration of the app, it may not offer the ability for businesses and stakeholders to contribute in a dynamic manner.

Alternatively, an eco-system platform which has a wide range of uses for different types of users, may be used. The Vzta platform is an example of an eco-system platform that brings businesses, public sector bodies, residents and visitors together through a place's digital high street. Vzta is a bilingual platform currently being trialled in South Wales and utilises a single platform across multiple towns, villages and cities.



6.4 Safeguard and develop Bangor's role as a cultural centre

One of the defining characteristics of Bangor is its rich cultural offer – a central theme of the 2020 **Masterplan** and the **BID's vision**. The cultural offer is multifaceted composed of groups like Frân Wen (a youth theatre company), events like Bangor Pride and institutions like the Cathedral, Pontio Arts Centre and Storiol (a social history museum selling contemporary artisan goods).

Digital can play a strong role in supporting groups and events through the use of smart footfall data. Smart footfall networks can measure the impact that events have on city centre footfall and dwell time as well as the number of new visitors the event attracts. The ability to measure the impact of events can help organisers secure funding, attract new events to the town and support the planning of future events.

By comparing these metrics with a baseline, organisers are able to better understand the wider impact of their events, including on the city centre economy. Access to this information has the potential to help organisers, plan and manage their events going forward. Event organisers in other towns have also used this information to set key performance indicators (e.g. increasing visitors to the city centre by 10% during an event) as a way of attracting funding.

An example of this is Other Voices an annual music festival held in Ireland and Wales (alternating each year). Cardigan were successful in attracting the festival to the town as they were able to provide detailed feedback about the festival's impact on footfall and the town centre economy through data collected by a smart footfall system. The town was also successful in securing Welsh Government funding which was linked to a target of increasing footfall by 12% – the event increased footfall by nearly 20%.

This model has potential to grow the number and diversity of events in the city centre. A number of stakeholders felt that more could be made of Bangor's status as the city with highest proportion of Welsh speakers in the country, including growing the size and number of Welsh language events. There is scope for the BID to work with Menter Iaith Bangor (who organise a series of Welsh language events and activities, such as Gŵyl Dewi Bangor) to develop this further using the model outlined above. The BID is working with minority groups to organise a range of events in the city centre and a similar model could support these partnerships.

Beyond smart footfall data there is also scope for digital signage and digital hub to support the development of the city's events programme. The BID is planning to install three outdoor digital totems in the city centre which can be used to promote local events and festivals. As digital signage can be updated in real-time it can also be used to manage events and festivals, in particular with managing pedestrian flows. A digital hub can play a complimentary role in promoting events – helping to build up awareness of what is happening in the city and drive visitors to the events.

6.5 Support small business growth

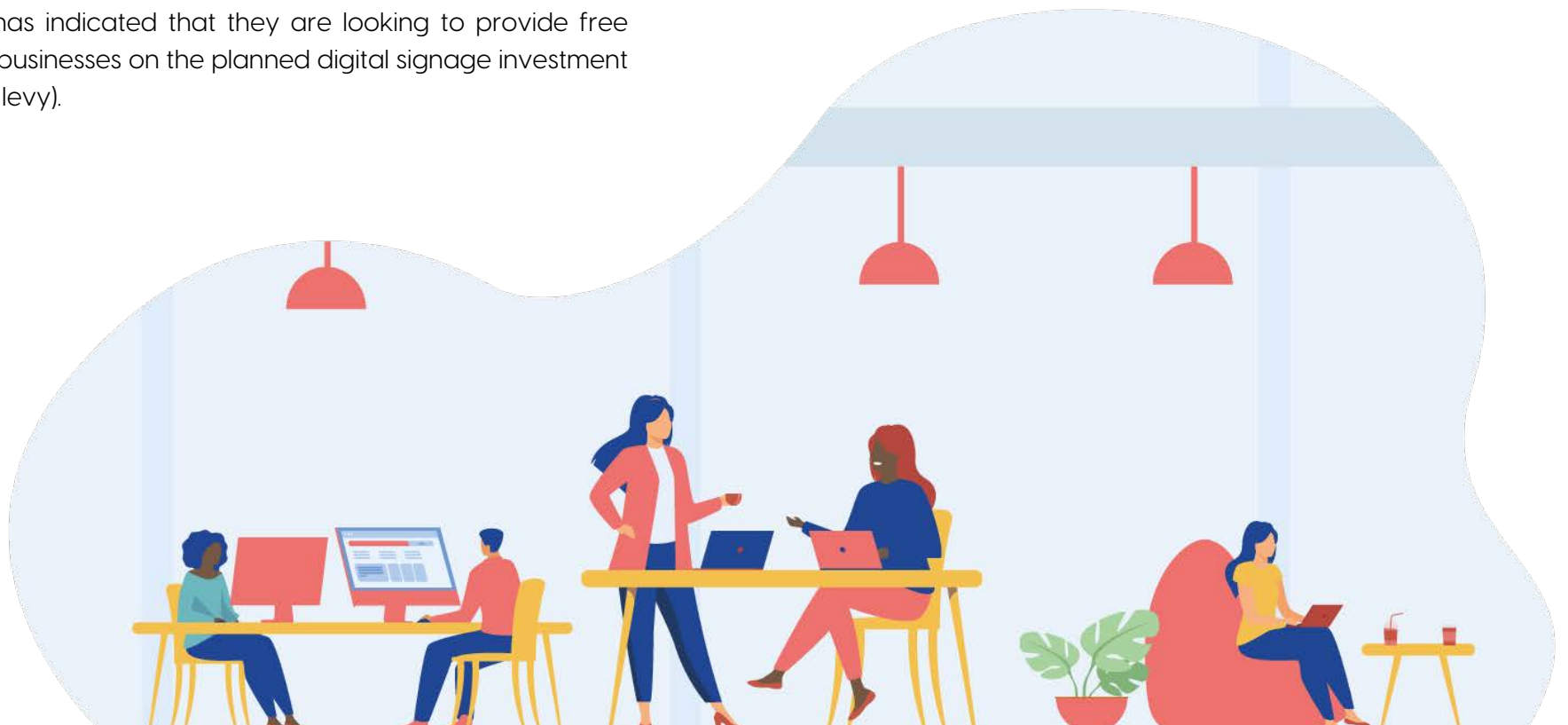
A significant number of national retailers have closed or moved from the city centre to locations on the outskirts of the city which has contributed to a negative perception of the health of the city centre and in particular its retail offer. However, there are a number of smaller, independent businesses which have opened or moved to the city since the beginning of the pandemic and there is scope to attract more to the centre.

The opening of more small, independent businesses has the potential to reduce the number of vacant units, diversify the business offer and increase the vitality of the city centre.

This can be supported through the exploitation of smart footfall data, digital signage and a digital hub. Digital signage provides a modern, dynamic advertising solution for small businesses, who can market directly to visitors. The BID has indicated that they are looking to provide free advertising to small businesses on the planned digital signage investment (funded with the BID levy).

Smart footfall data can be packaged and distributed in the form of a 'Business Information Pack' to attract new businesses to the city centre. A Business Information Pack can provide the key information about how the city centre is being used and by whom. Businesses often need to trade on the high street for a number of years to fully understand how it functions, such as when its busiest and which groups use it at different times. This information is critical for new businesses as it can inform how they trade (e.g. opening hours and targeting promotions).

A digital hub represents a unique opportunity for businesses to market directly to the local community and visitors, enabling businesses to run dynamic promotions. Alongside smart footfall data and digital signage, these investments can be packaged to create a supportive environment for small businesses, which has transformative potential for the city centre.



6.6 Exploit LoRa network

The LoRa network in Bangor has significant potential to support the town's economic development and place management. The network is already being utilised extensively by Adra Housing through its Smart Home programme to support independent living. However, with a clear programme in place there is scope for the network to be utilised further by both private and public sector organisations.

A sensor programme could focus on the two main area where LoRa sensors can have the greatest impact and there is existing stakeholder interest: place management and green infrastructure.

In terms of place management, there is scope for installing parking sensors in loading bays, disabled parking spaces and on-street parking spaces to increase the accessibility of the centre and ensure deliveries can access the loading bays without issue. These sensors also provide the data for an evidence-based approach for dealing with both traffic and parking.

Air quality sensors can also be installed in the city centre to provide hyper-local measurements of temperature, humidity and pollution. These measurements can be used to inform place management decisions as well as in an educational context.

Green infrastructure is a focus of the City Council, BID and Gwynedd Council. Investments into planting and the maintenance of green spaces can be supported with soil moisture sensors that provide information around the health of plants and soils as well as when watering is necessary. A sensors programme is an area which a working group could implement (with technical support) and develop further.



7 Action plan

Bangor is a historic city and a centre for culture, learning and commerce. There are a unique set of opportunities in Bangor linked to the existence of an international university, organised business community and a county council with extensive experience in digital. The Action Plan is designed to reflect this and focuses on the critical role of partnership working to deliver positive transformative change in the city centre.

Whilst the city centre has suffered setback in recent years with the loss of national retailers, there is a vibrant and growing small business community and cultural offer which provide the foundation for community-driven growth.

Investments in the city need to safeguard Bangor's role as a centre for culture, learning and commerce. Specifically, investments need to support the growing range of small businesses as well as the organisations active in organising events and activities in the city centre.

Delivery and exploitation of investments requires a partnership working approach between key stakeholders and the framework for this has already been established in the form of the Strategic Partnership. A working group which brings together key stakeholders in a lean and dynamic group has the potential to both deliver on the actions identified within the Plan and a long-term vision for digital in Bangor.

7.0 Key projects and actions

The assessment has identified that Bangor is beginning at Stage 1 of its Smart Town journey with the aim to progress to Stage 2. This is possible through a small number of investments and a clear approach to exploiting new and existing digital infrastructure. The key actions and projects required to achieve this are set out in the following section:

Install smart footfall network and exploit LoRa network

1. Prioritise the installation of a smart footfall network which covers the city centre and key gateways to Bangor
 - o Utilise existing planning, mapping and engagement to inform the layout of the network, including the locations of access units
 - o Extend network to cover Garth Pier when funding becomes available
2. Investigate the feasibility of purchasing 3rd party smart footfall data which does not require hardware (e.g. Huq Mobility) as an interim measure, ahead of the installation of a smart footfall network in the city centre
3. Develop a sensor programme to plan roll out of LoRa sensors in and around the city. Focus on areas with existing stakeholder interest:
 - o Place management (e.g. parking and traffic)
 - o Green infrastructure (e.g. air quality, temperature, humidity and soil moisture)
4. Integrate both the smart footfall and sensor networks with the Patrwm.io platform to publish and distribute data generated from smart footfall and LoRa sensors in an accessible visual format

Integrate digital into partnership working model

1. Establish a Smart Towns working group composed of key local stakeholders from Gwynedd Council, Bangor University, BID and City Council to coordinate digital investment and plan for the exploitation of new technology
2. Embed a 'what does the data say' approach in local decision-making that uses Smart Towns data and analytics as an evidence base:
 - o Establish channels of communications to frequently distributes Smart Towns analytics directly to businesses and local organisations (such as a newsletter and digital hub)
 - o Circulate analytics, key trends and upcoming events to businesses and local organisations once a month, as a minimum, as frequency is key for exploitation

Digital hub for the city centre

1. Establish a digital hub for the city centre which integrates the businesses, promotions, event programme and work of the University on a single platform
 - o Investigate the feasibility of building a city app compared with purchasing an ecosystem platform
2. Incorporate relevant research and other projects from the University (e.g. Walking Jewish History) into a digital hub to enhance the visitor experience and increase awareness and accessibility of the city's heritage and culture

Develop Bangor as a cultural centre and support small business growth

1. BID to install outdoor digital signage in the city centre pending the granting of planning permission
 - o Explore the feasibility of installing additional signage at gateways to the city centre, in particular at the train station, in alignment with the Signage Strategy
 - o Use digital signage as a platform for dynamically promoting city centre businesses and local events
2. BID to produce business information packs that feature key trends and insights from Smart Towns analytics to attract new businesses and support existing businesses
3. Following the installation of a smart footfall network, provide event organisers with smart footfall data
 - o Measure the impact of events and other cultural activities in the city centre and apply the data collected to inform the planning of future events as well as to support funding applications
 - o Support event organisers to use the data to secure funding, plan future events and manage ongoing events

7.1 Delivery

Working with key stakeholders, the projects identified above are considered deliverable in an 18-month window. Projects will typically follow a process of funding, procurement, design, installation and exploitation – this can vary depending on the nature of the project. The following section sets out a route map for delivery based on these steps:

1) Funding (3 month)

Projects involving the purchase and installation of new infrastructure or the purchase of third-party data or solutions are likely to require new funding. At the present time, there are a number of potential sources:

Transforming Towns Placemaking Grant – Welsh Government

Local Authorities, BIDs and Town Councils are eligible to apply for the Placemaking Grant under the ‘Digital Towns’ which supports investments in digital infrastructure and data providing there is a clear plan for its exploitation. A key consideration for funding is whether proposed schemes “demonstrate the value of data and embedding a ‘what does the data say’ approach, ensuring it is always used as an evidence base in making strategic decisions that benefits the high street and further afield.”

Shared Prosperity Fund – UK Government

Local Authorities will be able to support projects from their allocated funds that meet the following investment priorities: communities and place, supporting local businesses and people and skills. The projects featured in the Action Plan are cross-cutting with the majority addressing all three investment priorities. Specific interventions eligible for funding include

those which support local digital skills or invest in digital infrastructure for local community facilities.

2) Design, procure and install (3 - 6 months)

It is likely that a specialist supplier will be required to advise on the design, installation and use of the chosen new technology. Projects involving physical infrastructure will require key stakeholders to work with specialist companies to design the necessary technical schemes and specifications, e.g. the location of sensors or digital signage. In addition, specialists are able to advise on securing the relevant permissions needed (e.g. permission from property owner), planning permission, location of utilities/connections and identify specific project risks.

3) Exploitation

Exploitation involves ensuring that all relevant stakeholders have access to the data and are aware of how it can be used. This will involve the establishment of a distribution model (e.g. newsletter or digital hub) and support to interpret and take action from the data. This is a critical step for taking full advantage of digital infrastructure and enabling businesses, organisations and stakeholders to realise the benefits from newly installed technology.

i. Glossary

Augmented reality – Interactive experience with a real-world environment using a smart device. Augmented reality experiences often include visual elements overlaid on the surrounding environment.

Access points – Wi-Fi access points that can be used to provide public Wi-Fi and location and mobility analytics

Broadband – An always on high-speed internet connection.

Cisco Meraki unit – A brand of access points used across Wales.

Digital champion – Someone who is digitally experienced and can help and support others to improve their digital skills set.

Digital strategy – A plan of action that focuses on digital technology as a way of achieving a set of goals.

Internet of Things (IoT) – A network of devices and sensors.

LoRa – A way of sending small pieces of information frequently from sensors to a cloud where people can access it. A long-range and low-power wireless communication systems.

LoRaWAN – A set of rules that determine how information is sent across the LoRa network (the network protocol).

LoRa gateway – A device that collects the information sent from a sensor and sends it on to the cloud, where it can be accessed.

Superfast broadband – Broadband which provides download speeds of 30 Mbps or more. The connection is typically provided by a fibre cable to the street cabinet and then a copper cable to the premises.

Third-party data – Datasets (that can be bought) which are produced by organisations that do not directly interact with the source of the data, such as the customer or a business.

Town Wi-Fi – Public Wi-Fi which covers a town or town centre.

Ultrafast broadband – Broadband which provides download speeds of around 300 Mbps or more. The connection is typically provided by a fibre cable the entire way from the local exchange to the premise.



Contact Owen Davies Consulting @ 43A&B Frogmore Street Abergavenny NP7 5AN. Owen Davies - owen@owendaviesconsulting.co.uk and leuan Best - leuan@owendaviesconsulting.co.uk

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