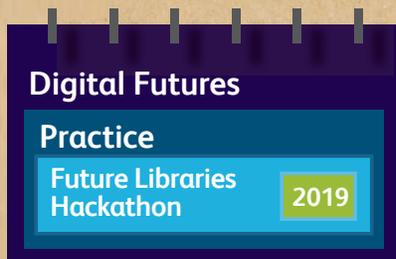




The Value of Hackathons in Public Libraries



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1. Introduction

In the UK, public services are provided for society on the principle that particular services should be accessible to all peoples, irrespective of age, gender, geography or wealth. The provision of these services from health to justice, safety or education are essential to the social and economic wellbeing of individuals, communities and the nation as a whole.

However, these services are tasked with balancing often competing aspects of provision: the stable delivery of core services, the ever-changing needs of current users and developing new approaches to reaching non-users and future users (Brotchie, 2017). To achieve these ambitions, services need to continually review their role and function, learn from users, respond to needs and drive innovation. However, these services also sit within a challenging context of increasing financial and personnel constraints despite increasing growth in demand, and create an environment of constant need to prove value (Wallace, et al., 2013).

Furthermore, the digitisation of many public services has brought significant benefits for citizens and providers, both in terms of the convenience, speed and control that digital services can offer, and also the quantity and quality of data that these services generate, which provide a rich evidence base for ongoing service refinement and improvement. We are seeing many services using small-scale alternative digital approaches to address challenges and inform work by enabling organisations to engage with and learn from their local communities, better responding to needs and ultimately evolving their ways of working. But, as with any intervention, these developments require ongoing support and resource for staff and institutions to be able to harness these opportunities effectively.

Libraries epitomise many of these tensions, trusted institutions at the heart of the community and providers of many crucial services, but consistently needing to demonstrate innovation, relevance and responsiveness to the needs of their local communities. Despite these many challenges libraries remain highly popular, with over half of the people in the UK and Ireland visiting a library (Peachy, 2017), and their importance is not restricted to the individual. Community value is a strong asset for libraries with around 75% of people in all UK jurisdictions reporting libraries as being important to their local community. Importantly, libraries are also spaces of significant innovation and diversity. Across the UK between 20-30% of library users rarely or have never read books: instead they use the wider library's offer of classes, desks, audio books, computers and other digital offers, including 3D printing and maker spaces. Crucially, libraries are also one of the few remaining 'free' public, safe-spaces where anyone is welcome just to be present.

Libraries as public service providers need to continue this good practice, to engage with users, respond to needs and innovate to ensure long-term sustainability. There are a number of important strategic initiatives through which the UK library sector is responding to these challenges, including the Libraries Blueprint, which sets out a shared vision for structural support to

public libraries in England; the body of work exploring a 'single digital presence' for public libraries in the UK; the recently refreshed National Strategy for public libraries in Scotland; or the increasing debate around collection, sharing and use of library data and calls for library data standards.

Hackathons present an exciting, yet low risk opportunity to start to meet these ambitions, to engage with the public, respond to evolving needs and innovate services.

What Are We Trying to Achieve?

Three years ago, the Carnegie UK Trust sponsored the Future Libraries Product Forge, a public hackathon in collaboration with the Scottish Library and Information Council delivered by Product Forge. It was the first hackathon focused specifically on the topic of public libraries in Scotland. Over four days, seven multi-disciplinary teams were tasked with 'reimagining the role and function of the public library'. Throughout the event, teams made up of members of the public (predominantly students from the local universities in Edinburgh) engaged with public library staff, public library users, and technology, design and business experts. Outputs from the Future Libraries Product

Forge included a variety of products – from a hotdesk booking tool to a gamified app to encourage young adults to become library users through a rewards-based system. A full write up of the Future Libraries Product Forge was published in 2017 (Grant, 2017).

A second phase of work was initiated by the Trust in 2017 to further explore the value that hackathons could have for the public library sector more broadly. This work built on the success and learning from the initial Future Libraries Product Forge through piloting support for further public library services to deliver their own hackathons and examining how hackathons have previously been used within public library settings both nationally and internationally.

This Report

This report seeks to demonstrate how hackathons can be a valuable approach for public libraries and provide guidance on how libraries can begin exploring delivering their own, or support other organisations' hackathons.

Ultimately, this work was intended to provide **inspiration** for alternative ways of working, share **experience** of similar library services, develop **confidence** of library staff and deliver practical **guidance** on how to develop and deliver a hackathon.

How Will This Resource Help?

We hope this report will be a useful and accessible resource for public library staff and services across the UK to promote using different approaches to improving services and, ultimately, outcomes for the public. To achieve this aim, this report:

- **Introduces the concept of a hackathon** by outlining the basic principles, terminology and common variants that library staff may see in practice.
- **Breaks down benefits** and value of hackathons through summarising the existing research, particularly around why hackathons are valuable tools for engaging the public and in addressing service problems.
- **Highlights limitations** because the hackathon approach is not without critique for services to consider, particularly around accessibility and sustainability.
- **Presents different roles** that public library services can undertake in relation to hackathons, which vary in resource intensity and the respective value that they deliver, utilising both national and international public library examples.
- **Shares good practice** through presenting case studies including from two UK library services, who have adapted the hackathon methodology to deliver their own events, and includes their process, learning and challenges.
- **Provides practical support** by summarising the key learnings from across the programme and signposting a range of useful resources and guidance for how to get started with a hackathon event.



Key Takeaways for Public Libraries

- ✓ Hackathons can deliver inherent value for participants, including opportunities to develop skill sets, networking and socialising.
- ✓ Hackathons can create an opportunity to engage individuals, communities and the general public who use, underuse, or do not currently use the public library service.
- ✓ Hackathons can enable time, space and resource to explore challenges and produce solutions for the public library service and wider community.
- ✓ Hackathons can offer an 'attractive format' through being low risk, with manageable resource requirements and intensity with a clear focus on outputs.
- ✓ Hackathons are not a 'silver bullet' for library innovation and there are a number potential limitations that services need to consider.
- ✓ Public libraries and public library staff can be involved in hackathons in a variety of ways, including as Innovators, Connectors, Hosts or Service Advocates.
- ✓ Hackathons can provide an opportunity to upskill and engage staff, particularly around digital platforms.
- ✓ Hackathons can present an opportunity to open, better utilise or gather data.
- ✓ Hackathons can offer an opportunity to develop stronger relationships with partner organisations.

2. What is a Hackathon?

“[A hackathon involves] creating tech solutions with enthusiasm and a spirit of exploration, and not being too bothered if it doesn’t work out.”

(Libraries Hacked, 2016, p1)

Principles of a Hackathon

A hackathon is a process that brings together a group of individuals with a cross-section of skills or knowledge to focus on a particular theme or challenge and produce solutions within a concentrated period of time.

“Hackathons are sometimes undertaken to achieve a specific goal, but often they are an opportunity for organisations/groups to explore open ended citizen/public led, innovative ideas.”

(Involve, 2019)

Progression of the Hack

Hackathons gained traction in the early 2000s and have been a much-explored methodology over the past decade. Hackathons have their roots in the technology sector with a focus on developing new technical product solutions (often through utilising new or previously unexplored large data sources). However, a growing number of hackathons are being run in the UK on social or policy issues such as health service, housing, future of cities and the future of work. This expansion in their breadth of use also follows a move away from a focus on producing technical products to include outputs around service offerings and engagement (Lodato and DiSalvo, 2016).

Iterations and Variations

It is worth noting that the word 'hackathon' is only one version of a wider genre of similar methodologies, including jams, wiki-a-thons and code-fests. Table 1 provides an overview of the general characteristics of the two most common event types: hackathons and jams. While there are distinct characteristics between the two approaches, for the purposes of this report the general term 'hackathon' will be used.¹

¹ For a full description of what a hackathon is please see our previous publication 'Hackathons: a Practical Guide' (Grant, 2017).

Table 1: Key Characteristics

	Hackathon	Jam
Description	A hackathon involves bringing together a group of individuals with a cross-section of skills or knowledge to focus on a particular theme or challenge and produce solutions within a concentrated period of time.	A jam follows a similar format to a hackathon, but if the outcome of the hackathon is a series of ideas rather than a working prototype, it may also be referred to as a 'jam'.
Participants	Mixed – generally with a greater focus on technical skills	Mixed
Time period	Short to mid – typically between 1 to 3 days	Shorter – intensive (<24 hours)
Tech involvement	Yes, generally	Not often
Outputs	Prototype product or service	Ideas (possibly paper prototypes)

3. Hackathon Objectives: Problem Solving and Engaging the Public

“Importantly, hackathons can harness the spirit of libraries. Community, innovation, and outreach lie at the heart of library work.”

(Davies, 2016, p4)

Why Would You Run a Hackathon?

The principles of a hackathon outline the high-level characteristics and ‘*how*’ of a hackathon. The following chapters explore the ‘*why*’ and ‘*so what*’ to demonstrate how hackathons can be valuable tools for library services across the UK.

Given the flexible nature of hackathons, the approach lends itself well to achieving a broad range of objectives that libraries (and broader cultural or public service organisations) may wish to fulfil. Existing analysis of hackathons have produced a variety of frameworks outlining objectives and outcomes that hackathons are designed to achieve (Jansen-Dings et al, 2017). Naturally many of these aspects are heavily interlinked, but each provide distinguishable benefits to a library service, three of the most pertinent include:

- ✓ Delivers inherent value for participants.
- ✓ Provides a different way to engage with the public, both users and non-users.
- ✓ Explores challenges to produce solutions.

Importantly, while there are a number of methods that may achieve these desired objectives, a hackathon enables them to happen through an **attractive format**.

“To run hack[athon] events you need community spaces with a suitable working environment, Wi-Fi, experts on hand to give guidance on data, and a balanced and wide-ranging audience. In other words, they should be run in libraries, which have space, infrastructure, expertise, and are safe and trusted community spaces with widespread appeal.”

(Libraries Hacked, 2019, p1)

Delivers Inherent Value for Participants

Primarily, a library aims to deliver services and events that benefit citizens, and hackathons have proven themselves as valuable for individuals to participate in, regardless of aim or outcome for the library services itself.

The value of hackathon events to individual participants and reasons why people chose to participate are well explored in much of the existing hackathon literature and include:

- Opportunity for socialising – informally working with different types of people or individuals that you would not usually come into contact with.
- Developing networks – more formally, hackathons provide an opportunity to meet professionals (mentors or speakers) in different sectors and create contacts.
- Developing skills and experience – across a range of fields, which could include technical or entrepreneurial skills.
- Interest in the topic or theme – participants simply wish to participate in an activity relating to a subject that interests them.
- Trying something new – despite their growth, hackathons still remain relatively unheard of for much of the general public, so offer individuals a novel experience to try something different.

“Participants are able to strengthen their skill sets in coding and technology, and more importantly in leadership, team work, creative problem solving and civic engagement, all critical skills for success in high school, college, and beyond.”

(Cupertino Library, 2017, p1)

Engages the Public

Libraries across the UK are constantly trying to better respond to needs of their services users and the broader public. Achieving this aim often involves engaging with the public in a variety of ways and through a number of different methods to receive feedback on current services, understand gaps in provision and explore future developments.

Hackathons have been positioned as a way of engaging the public in two ways (Johnson and Robinson, 2014):

1. Primarily, a hackathon is an innately participatory event that the public can get involved with and join in;
2. But also, a hackathon focuses on creating an output (usually a product or service) that is generally intended to be used by citizens or for citizens benefit, which can enable new ways for the public to engage with the library service (see Case Study 1: Storing Stories for a detailed example).

In these ways, hackathons can provide a “*form of public consultation where members of the public—both with and without technical skills—could be brought into an organisation to provide feedback and new ideas*” (Taylor & Clarke, 2018 p4).

It can also be argued that hackathons are another example of an approach to support the shift in public services “*away from ‘doing to’ people and towards ‘doing with’ them*” (Brotchie, 2017 p4) because the hackathon process enables organisations and participants to work together through an iterative process to develop or refine products or services. Hackathons can also act as a useful tool for organisers to “*signal their commitment to more transparent and open ways of governing*” (Johnson & Robinson, 2014 p1), by taking challenges and the development process out into the open, explicitly for the public.

“They [hackathons] represent a type of participatory design activity that is succeeding in engaging the public in thinking about the application of technology to a variety of issues.”

(Taylor & Clarke, 2018, p1)

As previously touched on, a core element of the hackathon approach is engaging a wide range of differently skilled individuals to participate. The 'mainstreaming' of hackathons (ie the move away from the explicit technology focus to explore broader civic of social themes) means that hackathons now attract a very different range of attendees and activities than they once did (Taylor & Clarke, 2018). Therefore, if marketed effectively, hackathons can often engage individuals to participate outside an organisation's regular user base.

Overall, the engagement of the public can be both an inherent part of the process and an outcome in itself.

“The participants gained so much knowledge and understanding of libraries and what challenges we face – it was amazing to hear them talk about it. This alone means the event was worth doing: it created library advocates in a slice of a generation that may not use public libraries or may not have known much about us previously.”

Aude Charillon, Information Officer, Newcastle Libraries. Future Libraries Product Forge Mentor

Explores Challenges to Produce Solutions

Beyond the direct value for participants, a significant reason why hackathons have been successfully adopted across a number of sectors is that they deliver against aims that are core to many organisations' wider delivery objectives.

Importantly, this includes a focus on unpicking relevant issues and a clear emphasis on producing a tangible solution (whether as a paper or digital prototype or simply idea form). The format enables this experimentation and exploration through a variety of ways, and although not an exhaustive list, those that may be most pertinent to the library sector include the following:

Time and space

Fundamentally, hackathons allow for time and space, both physical and mental, to focus on a specific topic. Participants are given a specific time frame to examine only one issue and take a fresh look at a problem, outwith general day-to-day working constraints. This enables increased creativity and imagination to be utilised in the solution design process.

Hackathons can also be a means of exploring wider service changes that may be not be prioritised.

Engaging multiple perspectives

A core principle of the hackathon approach is that it brings together a mixture of individuals with different skills, experiences and insights, including potentially those with lived experience of the issues in question and/or specific technical skills. The intention is that participants are able to examine the task differently and bring a different perspective to engaging with the challenge and designing a solution.

Beyond this, hackathons can also offer opportunities to support participants with 'cognitive diversity', those with differences in perspective or information processing styles, and also those who think about and engage with ideas or situations in a different way, which enables more effective outcomes to be achieved (Reynolds & Lewis, 2017).

Cost effective

Hackathons can be a relatively cheap and efficient way to create innovative solutions or ideas that, for example, ensure services or products better suit the needs of their communities, appeal to new users or optimise existing processes.

It is argued that hackathons are cost effective because they allow these solutions to be developed far more quickly and iteratively than standard product development processes. Even if the products themselves are not finalised during the events, the process can still stimulate ideas or alternative approaches to problems that can be developed by organisations outside the event.

Small steps to big change

Despite these advantages, hackathons can be small in scale or scope, and so are not designed to revolutionise service provision overnight. What hackathons can do is to provide small ways in which to influence change within the wider organisation. Hackathons can, when delivered effectively, enable a route to achieve long-term change by opening conversations, forging new links across communities, stimulating novel ideas and developing organisational confidence to try different approaches.

'Attractive' Format

Underlying these positives, the hackathon format also benefits from generally being considered as an 'attractive format', particularly for public and civil society organisations because they are:

- ✓ **Low risk** – the theme, mentors and other inputs such as data can be managed by the hackathon organiser and provide a safe space for participants to explore issues.
- ✓ **Clear outputs** – everyone is working towards having a result at the end of the event, whether a physical or digital prototype or an idea.
- ✓ **Manageable resource requirements and intensity** – it is a type of event that can be scaled up or down. However, the staff input required naturally depends on the intended size and scope, and the level of experience of the service, so may still become time intensive activities for services. These challenges can be somewhat overcome with the support of an experienced facilitator as explored in *Hackathons: A Practical Guide* (Grant, 2017), though this is impacted by level of budget available.

In isolation, 'the format' itself is not a reason to deliver a hackathon, but given the different ways in which the previous three aims can be met, a hackathon can deliver against them in a realistic and practical way.

Considerations and Limitations with the Hackathon Approach

Despite the variety of positive outcomes that hackathons can achieve, they cannot be considered a 'silver bullet' for library innovation. It is important that services delivering hackathons are aware of the potential limitations and give due consideration to these during the planning and delivery stages.

For the more traditional types of hackathons focused on creating a new app or tool, the most recurring critique levied at the format is that they reinforce the idea that a piece of technology alone can solve every organisational problem, an issue termed 'technological solutionism' (To, 2016). In other words "*[hackathon outputs] often they are based on technology push, instead of societal or market pull*" (Kresin, 2015 p1). Hackathons have also been deemed 'reductionist', favouring simple solutions to complex problems and often not incorporating the voices of those with lived experience of the topic being addressed. Although an important asset of the approach is the space it provides for a high degree of creativity, which distances participants from being inhibited by existing barriers, it can mean that hackathon outputs may lack real world applicability and are not further developed once the event is over (Swift, 2013). Hackathons have also been accused of being 'stunts' (Johnson & Robinson, 2014) delivered by organisations to be *seen to engage* with a topic, rather than a *genuine attempt to engage*, create solutions or change organisational processes. Given the challenge of 'what do hackathons achieve', there are differing interpretations around the effectiveness of the use of incentives within hackathons. Some events focus on trying to achieve certain outcomes can be specifically incentivised through having a specific prize attached, alternatively, many hackathons may have more general prizes for 'best idea', 'most finished product' or 'best

use of data', to allow organisers to be clear about the intended purpose of the event, while keeping the process relatively open and flexible to interpretation of the participants. Other hackathons deliberately choose to have no prizes or incentives attached to the event to build on the collaborative rather than competitive nature of the hackathons. Even when effective products and services are created through hackathons, there are internal process questions to be aware of because hackathons have been accused of 'circumventing' procurement procedures (Johnson & Robinson, 2014) with ideas implemented within organisations without due diligence or proper process that externally developed products or services would be required to go through.

Hackathons have also garnered criticism with respect to intellectual property (IP) and there is a query about who owns the products that have been created: is it the participants or the organisers? A more extreme form of criticism is related to workers' rights, particularly in more commercial hackathons because they mostly require participants to work with little financial incentive. This effectively enables organisations to outsource their innovation at a fraction of the cost and leaves participants with very little power in the relationship to not engage with the process. "*Hackathons reflect an asymmetry of power between the hackathons' corporate sponsors and their participants*" (Griffith, 2018 p1).

The final, and perhaps most pervasive, challenge with many hackathons concerns the diversity of participants who are involved (Richard *et al*, 2015). The traditional focus on the technical nature of hackathons has required participants to have specific skill sets that are often not representative of wider communities. There has been an "*obvious mismatch between the goals of supporting participation and the frequently excluding nature of hackathons, not least the risks of marginalising those without technical*

skills and the privileged position of those capable of participating in hackathons” (Taylor & Clarke, 2018 p3). The format itself can be challenging to ensure a variety of participants attend as “the openness of the schedule appeared to intimidate some participants” (Carruthers, 2014 p10). Some of these challenges can be mitigated or conversely further exacerbated by the naming and framing the hackathon. Utilising language effectively will inevitably require time investment for staff to engage with communities and experiment with the best

phrasing to use to attract and engage a diverse audience who may not be familiar with the concept. This will also impact on how the event and its outputs should be publicised both internally and externally.

The most effective approaches to addressing these shortcomings should be given careful consideration at the planning stages. A number of these challenges are explored further in the Case Studies in Chapters 4 and 5.

Considerations

Hackathons are not a ‘silver bullet’ for library innovation and there are a number of potential limitations that services need to consider:

- Is there a genuine appetite within the service to deliver change on the particular theme or challenge of the hackathon?
- Have you ensured a diversity of participants are included?
- Have you supported participants to consider the wider societal context?
- Have you supported participants to ensure the outputs have real world applicability?
- Have you considered how to support teams once the hackathon is over?
- Do you have a clear and transparent process for integrating the ideas into the organisation?
- Have you clearly defined who will own the IP from the outset of the event?



4. Value of Hackathons for Public Libraries

“A hackathon may be an unexpected function for a library to some... but organising a social event around an interesting challenge is an engaging form of community outreach.”

(Davies, 2016, p4)

Public libraries have been involved with various hackathons for many years across many parts of the world from the UK to Australia to Ethiopia².

As the previous chapter outlined, there are a variety of ways in which hackathons can deliver value for an organisation, including public libraries. However, the value that can be derived for participants and the public library service from each hackathon can vary significantly depending on the aims, focus and style of the event, but importantly also the role that the library itself plays within the hackathon.

² See Appendix 1 and 2 for the non-exhaustive long list of UK and International Public Library hackathons.

Multiple Hackathon ‘Hats’

It is important to note that a library service does not need to be sole leader or driver of a hackathon; there are many ways in which library services and staff can be involved.

Desk research analysis of national and international examples of hackathons involving public libraries reveals four broad roles that public libraries can fulfil in relation to hackathons: *Libraries as Innovators*, *Libraries as Connectors*, *Libraries as Hosts* and *Libraries as Service Advocates*. These roles are not mutually exclusive and a library may be delivering all four roles simultaneously for one hackathon. Each role incurs a different level of resourcing as outlined in Table 2.

The ‘hackathon-library’ history is not constrained only to public libraries. University, health and government libraries, to name just a few, have also been involved with many hackathon events both nationally and internationally. However, given the focus of this report for the public library sector, the following analysis relates primarily to public libraries, but also includes a selection of national and digital library examples.

Table 2

Role	Input	Value	Relative resource commitment*
Innovator	Using library assets or library data	Develop or refine the library offer and/ or create new products or services	High
Connector	Work with their networks or new partners	Tackle shared social issue or priorities	Mid/high
Host	Using library space and physical resources including computers, Wi-Fi, printing and other technology devices.	Demonstrate critical role of providing safe, neutral space and showcase wide variety of library resources	Low
Service advocate	Library staff act as participant or expert	Demonstrate skills and knowledge of library staff and/or signpost to library services and/or demonstrate value of library service to others	Low/mid

* This is a general measure to indicate the level of staff time, financial commitment and physical resources required. The resource required will inevitably vary significantly across different events and therefore a relative estimate has been given.

Libraries as Innovators

Role:

Using library data or assets

Value:

Create new or build on products or services

Generating New Ideas

Within this typology of library hackathon roles the most recurrent role we see public libraries undertaking is as 'Innovators', delivering their own hackathons and focusing on a library-specific theme or challenge. Here hackathons have the potential to develop or refine the library offer and/or create new products or services, in many cases drawing on library service data.

Newcastle Libraries have been a key player in the hackathon space within the UK. In 2016 they ran 'Wuthering Hacks' which encouraged participants to draw on recently released library data (released under an Open Government Licence) and included current libraries location data, monthly issue figures by branch library (2008-2016) and 31 digitised historical maps of the Newcastle area (pre-1918). A dozen participants participated in the day-long hackathon to work in collaboration to explore questions including, *who are our active library members? How has this changed over the years? And where in the city are libraries most used?* The hackathon enabled Newcastle Libraries to gain a variety of insights about their services, including making formats more user-friendly, exploring library usage through an innovative data

visualisation dashboard highlighting and a new projection method to predict future library energy use. The hackathon also encouraged the library team to want to run further hackathons in the future and to see the potential of the approach across a variety of topics (Charillon, 2016).

The American public library sector has also been very active in utilising hackathons with Chattahoochee Valley Libraries, Georgia Public Library and Denver Public libraries all delivering some of the earliest recorded library-focused hackathons. The Chattahoochee Valley Libraries hackathon 'Hack the Library' was designed with the goal of applying technology to improve the library's community engagement and it drew on existing data sets to create better products and services for the library.

In 2015 and 2016, the New York Public Library for the Performing Arts also ran hackathons providing access to Broadway-related data from the archives of the library (Viagas, 2015). The hackathon had a very explicit product development focus with one of the aims to make the library's collections more usable and allow the public to have fun with library. The 2016 'Broadway Hackathon' invited a range of participants and speakers and culminated in four teams each producing a very different final resource, from a theatre history database to a selective algorithm to find ideal advisers for aspiring theatre professionals (Bonazzo, 2016).

"They [hackathons] don't need to be serious policy-forming analysis. Simply engaging with data and creating 'mashups' with other data sources is often enough to see where more sophisticated solutions could be created, and where better data is required."

(Libraries Hacked, 2016, p1)

In France, a project called BiblioRemix is not overtly framed as a hackathon but delivers on many of the core principles, in which the team developed a 'recipe' for citizens to think about their ideal library and propose ideas (BiblioRemix, 2013). Similarly in the UK, Plymouth Council have run various 'DataPlay' events which were not specifically branded as Hackathons, but had many similar elements, in which participants are encouraged, over a day, to use city related data to explore how data and technology can help the city's challenges. Participants are able to present to a selected panel for the opportunity to receive small amount of further funding for developing the project. In late 2018, DataPlay9 focused on Libraries to "explore how open data and technology can be used to help us deliver services in new ways" (*Data Plymouth, 2018 p1*) and was supported by the local library service. (The work was also supported by Department for Communities and Local Government through Delivering Differently in Neighbourhoods funding and Local Planning Reform funding) DataPlay9 included challenges around: *How can we combine existing data with library data to become more responsive to communities and deliver services according to local needs? Can we use data to tell interesting stories about libraries that will engage local people and communities? Is there a way of using technology that will help us to understand how people are using the library space?*

Achieving Broader Library Aims

In addition to libraries delivering hackathons to utilise data about the use of libraries directly, libraries have also used the approach to contribute to their broader objectives, whether as learning hubs, economic enablers or cultural centres (Peachy, 2017).

Finland exemplifies the range of ways in which libraries can use hackathons to engage participants across a variety of subjects, each contributing to the overall library purpose. With notable examples of public libraries using library data within a hackathon to create better 'open source technology' (Helsinki Think Company, 2018), Finnish public libraries have also reinforced their role as arbiters of better news in 'Hacking the News' hackathon (National Library of Finland, 2018) and their role as archivists to deliver an 'Ancestors Genealogy' hackathon (National Library of Finland, 2016).

The National Library of Wales have also utilised their extensive set of historic resources to host a 'history hack'. The hackathon reused existing historical data about the people of Wales using biographical records, portrait images, shipping records, geographic data and OCR text from the collections (tocyn.cymru, 2019).

Public libraries in both Germany and France have created cultural innovations through their 'Cultural hackathons', discussed in further detail on Page 17.

In addition, to library services being directly involved, they are also able to engage with hackathons just by making open data available for others to use.

Innovator Consideration:

What are the key challenges or questions your library would like explored? What library data do you, or could you make available? What else other than data can you make available: materials, information, expertise? It doesn't have to be about data. The library may make available materials, information, expertise...

Libraries as Connectors

Role:

Bring together wider networks outside the Library sector

Value:

To tackle shared social issue and priorities

In addition to being the sole delivery mechanism for a hackathon, public libraries can also act as hubs or connectors that bring diverse external organisations together to deliver events as part of a broader partnership to focus on a shared social issue or goal. Libraries' established networks and their reputation as trusted and engaging organisations mean that they are particularly well suited to this task.

Bastions of Social Progress

In Toronto, Canada, the Toronto Public Library service has been an anchor partner for the 'TOProsperity' hackathons, which aim to develop innovative solutions to tackle poverty and engage the broader public in the city's Poverty Reduction Strategy. As a connector, the Toronto Public Library worked with a range of organisations with an interest in social progress, including the City of Toronto Social Development, Finance and Administration Division and Social Planning Toronto.

In 2015, 14 teams were posed a series of challenges to select to work on. This included access to library data to answer the question: 'How can the library make our communities more resilient, more knowledgeable, more connected and more successful?' Similarly, the 'TOProsperity' hackathon set ten challenges the following year, each linked to an area of

the Poverty Reduction Strategy and drawing on library data sets and data sets from the City of Toronto. A number of the challenges were led by the Toronto Public Library, including: Bridging the Digital Divide and Automating Digital Innovation Hub Bookings. Others were owned by the other partners and included analysing access to Toronto Parks and Recreation Program, and how to utilise annual tax records to better understand patterns of income across neighbourhoods in Toronto. Fifty citizens, supported by a range of mentors, work in 12 teams to produce different solutions, "the common thread among all the ideas was that everyone has a role to play in supporting the City's Poverty Reduction Strategy and poverty-related issues.." (Toronto Public Library, 2016, p1) .

"Poverty in Toronto is a complex problem and a shared responsibility issue – which is why this hackathon will expand civic literacy about poverty and engage citizens in learning and working together... The challenges for the hackathon are real problems facing three organizations doing work to support poverty reduction: Toronto Public Library; the City of Toronto Social Development, Finance and Administration Division; and Social Planning Toronto."

(Toronto Public Library, 2016 p1)

Open Data movement

Elsewhere in Canada in 2014, Edmonton Public Library reached out to the City of Edmonton IT department to propose collaborating on an Open Data Hackathon. "We reached out to the City of Edmonton IT department in early November 2013 to propose that we collaborate on the event. Their response was very positive, particularly as community outreach was one of their departmental goal." (Carruthers, 2014 p3). Working in partnership, also allowed both organisations to divide up the

responsibilities in the planning and delivery of the hackathon – Edmonton Public Library took responsibility for hosting the event, while the City of Edmonton promoted the event and organised representatives for particular activities, including specific speakers. Twenty-nine participants worked ‘enthusiastically’ to produce a number of ideas from visualisations of city data tracking the energy production of city-run solar panels to a project mapping all of the city-maintained trees (Carruthers, 2014).

“By hosting a hackathon for International Open Data Day, EPL [Edmonton Public Library] gained both the information and the relationships necessary to release meaningful datasets and put itself in an excellent position to understand and respond to the interests and needs of the open data community.”

(Carruthers, 2014 p1)

Newcastle Libraries also took the opportunity to use the hackathon to develop their data offer and worked in partnership with Newcastle Council to open up as much data as possible.

“If it was an experiment for Newcastle Libraries, it has also been one for the Council as no other department had so far systematically looked at releasing such a large and varied set of data. Libraries are now leading the way with open data at the Council!”

(Charillon, 2016 p1)

Cultural Development

A core partnership group that libraries have historically had strong collaboration with is GLAM (galleries, libraries, arts and museums) organisations. Examples of hackathons in both France and Germany demonstrate the role the library can play as a cultural hub to enable hackathons in collaboration with other civic organisations outside the library sector.

In France the Bibliothèque nationale de France (National Library of France) has delivered a series of hackathons as part of the ‘Public Innovation Week’, which has involved the National Library working with a variety of partners to deliver the events. In 2018, for example, their hackathon was delivered in partnership with Arte, Radio France, the National Archives, Bayard Jeunesse, Ina and the Ministry of Culture, and it explored access and understanding of collections by young people, parents and teachers.

‘Coding da Vinci’ was Germany’s first open cultural data hackathon. The hackathon series was founded in Berlin in 2014 and is delivered by the German Digital Library (DDB) working with a series of organisations including the Open Knowledge Foundation Germany e.V. (OKF DE), Research and Competence Center for Digitalisation Berlin (digiS) and Wikimedia Deutschland e.V. (WMDE). Coding da Vinci brings cultural heritage institutions together with the technology sector and public to develop ideas and prototypes for the cultural sector and for the public.

“You can host your own library hackathon for a small-scale local project, either for the library itself or as a community service project.”

(Willingham, 2017 p146)

Partnership Development

In addition to formal partnerships, acting as a 'connector' to deliver a collaborative hackathon can also support development of relationships more informally. A 'Smart-City' hackathon delivered in the USA in partnership between Cupertino Library, Cupertino Library Foundation and creative tech organisation – TechLab, highlighted the advantages of collaborating with their local university. Rather than formally partnering, Carnegie Mellon University Silicon Valley was able to provide ten students from across a range of departments to act as mentors for the hackathon and provide guidance on areas including team collaboration, quick research skills and the final pitch. In addition to providing mutual benefit to the student mentors and participants, the university also highlighted the benefits of the community gaining a better understanding about the university and the programmes it runs.

“This collaboration with the Cupertino Library allowed Carnegie Mellon University Silicon Valley to spread its resources to the teenagers and to the local community as a whole, the university and its students also gained much from the experience.”

(Durham & Fang, 2017, p1)

Connector Consideration:

Who are the other organisations that may be interested in the same challenges or themes as your library?



Libraries as Hosts

Role:

Using/demonstrating library space and physical resources

Value:

Demonstrate critical role of providing safe, neutral space

“More recently, libraries have evolved to support more non-traditional learning experiences by providing services related to makerspaces, 3D printing, hack spaces, and generally supporting the DIY (do-it-yourself) movement. As spaces evolve, so must library services. Libraries are thus primed to support the informal learning inherent in hackathons, and also have the required event infrastructure (e.g., wireless internet).”

(Nandi & Mandernach, 2016 p2)³

Many public library services have access to large open indoor spaces that can be utilised for public events and many libraries also offer access to digital and specialised technical equipment from Wi-Fi to 3D printers and Fab Labs. These assets make them valuable spaces to host a hackathon. In many of the hackathon examples already outlined, the library also provided the premises and acted as a ‘host’ for the event. However, there are also many examples in which a public library will act as a ‘host-only’ for hackathons that they are not directly involved with delivering, on themes generally unrelated to the library service.

3 Speaking in the broader context of libraries including university libraries.

Safe-Spaces

In terms of utilising public spaces, ‘GovHack’ is the largest open government and open data hackathon in the southern hemisphere and has run numerous events across Australia since 2009, often making use of public libraries as spaces to hold hackathons, including public libraries in the City of Albany, Mount Gambier and Campbeltown. In their 2016 response to Australia’s first Open Government National Action Plan, the Australian Library and Information Association (ALIA) highlighted public libraries as “favoured venues for GovHack events.” (McKerracher, 2016, p2). The purpose of the GovHacks are to encourage creative solutions to local issues in the form of new products and services, using the wealth of public data sets available (GovHack, 2019).

‘Techfugees’ and was another Australian hackathon hosted in 2015 within a public library in Liverpool, Western Sydney, Australia. Participants worked together with former refugees to co-design 11 solutions for refugee settlement in under 24 hours (Techfugees, 2019).

Both hackathons utilised the safe-spaces that public libraries offer, but the events were not specifically led by the public libraries because the libraries did not have an explicit role in terms of recruiting participants and were not billed as the organisers.

“A hackathon can be an ideal event for libraries. Modular spaces that are designed for group activities are best for hackathon work areas, and a large space for final presentations is necessary as well. Patrons have requested power outlets and strong WI-FI for years – libraries with these in place have the physical set-up to host a hackathon.”

(Davis, 2014 p4)

Access to Kit

In addition to the physical space, libraries offer unparalleled public access to technology. This infrastructure makes public libraries ideal venues for hackathon events.

A Women's Health hackathon in the USA was designed to reimagine how technology intersects with women's health. It made significant use of libraries space and specifically Denver Public Library's bespoke digital and public maker spaces to host their event (Balaam & Hansen, 2018).

"We made use of the excellent public maker spaces in Denver's Central Public library to build exemplary digital interactions that demonstrate the kinds of innovations we consider necessary to improve women's health on a global scale."

(Balaam & Hansen, 2018 p6)

The US Embassy in Addis Ababa is also delivering a series of 12 hackathons under its 'Ethiopia Hacks!' programme, hosted within the National Archives and Library Agency (NALA) of Ethiopia and features a MakerSpace, computer lab, reading area, and programme room with video conferencing capability. Their latest hackathon focused on developing 'a digital solution for individuals to electronically verify their voter registration information'. It was delivered in partnership with the Google Developers Group (GDG-Addis) and the Centre for Accelerated Women's Economic Empowerment (CAWEE) included 50 participants, with the winning team developing a phone-based system to avoid the use of physical registration cards (Addis Standard, 2019).

Demonstrating the Wider Service Offer

In acting as a host, providing event space, access to computers and other technologies, public libraries also have the opportunity to demonstrate the incredibly diverse range of services they have on offer in terms of the space and physical resources, as well as supporting different types of users to come through the door.

"The majority of hackathon participants labelled themselves beginner programmers, were not regular library users."

(Davies, 2014 p1)

Host Consideration:

Does your library have space to host a hackathon either delivered by the library or that could be promoted to and used by other organisations to host their own hackathons?

Library Staff as Service Advocates

Role:

Staff as participant or expert

Value:

Demonstrate skills and knowledge of library staff and/or signpost to library services and/or demonstrate value of library service to others

Public library staff are the most significant asset for the library sector and these staff can play a leading role in hackathons, bringing an impressive range of skills, knowledge and experience to the approach. However, hackathons can also be fantastic learning and development opportunities for library staff as facilitators, project managers, participants or mentors.

Skills, Knowledge and Expertise

While 'GovHack' in Australia was not led or organised by the public library, staff members did participate in the event and it was noted that the research skills of library staff were invaluable to the successful delivery of a number of projects, because they acted as key conduits to other participants accessing relevant, specific and timely information (Koekoe, 2015).

'CodetheCity' in Aberdeen, a History Jam was focused on bringing Aberdeen's history to life and creating a 3D virtual reality map of a square mile of Aberdeen's city centre. While this was a Jam funded by the library it also specifically engaged librarians and archivists to participate in the Jam

to support the research and transcription element of the event.

"These attendees [referring to Librarians and other expert staff more generally] with very personal experiences, especially around topics where public awareness might be low, played important roles in the events."

(Taylor & Clarke, 2018 p6)

In the 'TOProsperity' hackathons held in Canada in 2016, a number of library staff acted as mentors to the event to share their expertise and interests. This included a Librarian, an individual from the Policy, Planning and Performance Management Team at the library and a Project Leader on the library's Innovation Team. Each of these individuals offered different knowledge and experience to share with the participants, from technical programming skills, planning techniques to previous experience of hackathons.

However, it is important to note that while no specific requirements are necessary for library staff to participate or mentor at hackathons, staff may need further support or training (McAlpine & McIntosh, 2015). In addition, as hackathons are generally run over weekends this may also impact working patterns, staff availability and ability to participate.

Advocate Consideration:

Are library staff supported to participate in hackathons both within and outside the library service?

Case Study 1: Storing Stories 3 Years On from the Future Libraries Hackathon

While the outputs of many hackathons or Jams are ideas or concepts, they can also produce working prototypes that can create real value. This case study follows the development of a product from conception to pilot in real libraries in Scotland.

Background

In October 2016, project team 'Storing Stories' came runner up in the Future Libraries Product Forge (see more page 3). The team comprised of three students from the University of Edinburgh.

As part of this hackathon, representatives from library services, including Stirling Libraries, were also invited to attend to work with the students, developers and industry experts to identify and address a need within library services that could potentially be met by digital technology.

Working with Stirling Libraries staff, and informed by their experience and needs of the service, the Storing Stories team designed an outline of a website tool to capture qualitative data on the impact of the public library from individual users.

Despite not winning, the project continued to be developed after the hackathon.

What was the problem being addressed?

Stirling Libraries were aware of the constant struggle to measure, record and evidence impact of library use. While they did manage to record the difference their service made, this was mainly in anecdotal form. Although authentic and valuable, this was hard to categorise, search and cross-reference.

The Stirling Libraries team wanted a tool to be developed which would allow library customers to provide feedback (evidence of impact) in an easy, accessible way and record how libraries had made a tangible difference to them.

What is Storing Stories?

Storing Stories is a web-based impact measurement tool designed to gather user experience feedback and to attempt to answer the 'so what?' question by collecting anecdotal evidence of impact from service user, using PCs, tablets and smart devices.

The ultimate aim was to develop Storing Stories into a standard, yet customisable tool that can be used nationally to provide this evidence.

Project Team:

John 'Kofi' Kufuor (Storing Stories Developer, Student at the University of Edinburgh)
 Louise Graham (previously Stirling Libraries Digital Services Librarian), Lindsay Mckrell (Team Leader for Stirling Council Libraries and Archives)

Project Developments – what happened post-hackathon?

- The initial pilot ran in Stirling Libraries in 2018 to establish effectiveness of the product in several different branches and produced significant results both in terms of volume and quality of responses. The first month of the pilot secured over 200 responses, including in areas where staff had struggled to secure feedback on the service.
- In June 2018, Stirling Libraries received £10,000 of Public Library Improvement Funding (PLIF) from SLIC to expand the trial outside of Stirling to include Inverclyde, Falkirk, East Dunbartonshire and Live Argyll. The funding enabled each service to buy tablets and furniture such as tablet stands to encourage self-use as well as the purchase of banners etc to promote the project. The aim was to trial the tool in each area and to produce local and global reports for evaluation.
- Individualised Storing Stories modules were created in partnership with the library service partners involved. These services tested a pilot of the tailored tool across their service and collected, monitored and analysed the data gathered to evaluate the effectiveness and viability of Storing Stories becoming a national tool for impact measurement.
- The Storing Stories system has to-date captured 2,000+ responses from 38 libraries.
- Storing Stories has also trialled an event specific version of the tool used for the “Off the Page” book festival in Stirling and for Book Week Scotland in other services taking part in the pilot in order to demonstrate the impact of the event.
- IP and copyright of Storing Stories for the developer was achieved successfully with the help of SLIC’s Business Adviser.

Learnings and Challenges

Capturing unheard voices

Members of the pilot group commented that Storing Stories allowed them to capture valuable comments made to staff that would never normally be written down, offering unique insight and evidence of impact. Insights captured by the Storing Stories include:

- “The staff are very patient and good with my questions on the computer as I easily forget.” **Live Argyll feedback**
- “Being able to access books on mental health has helped me a lot and being able to come here to a quiet, warm safe space is a saviour at times.” **Stirling Feedback**
- “Recently widowed and the staff listen and help me get through the day.” **Stirling Feedback**

These comments were noted as offering something entirely new, as genuine and accessible feedback, freely given. Therefore this data is potentially very helpful for management reports, policy makers, service review and for service design going forward. A number of the services also highlighted that the insights could be invaluable for staff training, allowing staff to see the difference their work makes and how valued their library service is.

Establishing demand

The Scottish Library & Information Council (SLIC)-funded pilot set out to rigorously test the proof of concept, effectiveness and potential of the Storing Stories tool beyond the initial pilot by Stirling Libraries. This extended trial confirmed there was unanimous desire to use Storing Stories more and but acknowledged that significant improvements and re-design would be needed for a successful roll-out at national level.

- ✓ **Robust piloting of products post-hackathon can ensure they will be successful outside the hackathon setting**

Sustainability

One of the first and most significant challenges the project had to overcome was the resource and time capacity of the Storing Stories development team. The original team of three university students had quickly disbanded and just one member worked on a voluntary basis to take on responsibility and ownership of developing the project. The Storing Stories developer continued to give time to work on tailored versions of the tool with questions and logos, to suit the different participating authorities. The developer met regularly with the steering group for the pilot and adapted the tool in response to comments after each meeting, which was a significant amount of work.

This voluntary nature of the Storing Stories developer proved challenging for the library staff as it meant that they had to ensure that they were not asking too much of this individual, while also being conscious of the impact on the timeline for piloting and then implementing the product.

Stirling Libraries staff reflected that it would have been useful to have had seed funding for the developer and to have fully cost the roll-out of potential projects at an earlier stage.

- ✓ **Ensure there is a clear plan for support post-hackathon, including both potential time and resource requirements**

Beyond Piloting

During the piloting phase, uptake for Storing Stories was very positive and it was well received by staff and public. However, a number of suggestions for amendments and improvements were provided by both users and staff, including comments on the structure of the tool, offline functionality and reporting capabilities. A particular challenge was around autonomy of use, as the library service were not able to make any changes to the tool themselves and were reliant on the external Storing Stories team for any customisation and to make results available, which was an issue in expanding the roll out.

The team felt that these improvements were achievable, but not with current software. The prototype was built from basic off-the-shelf software and wasn't appropriate to be scaled in its current form. So a 'back to the drawing' board approach with more flexibility built into the tool from the outset was proposed.

However, there was overall agreement that a 'proof of concept' had been established and huge interest and demand for Storing Stories had grown not only from the immediate group but also from the wider profession.

- ✓ **A hackathon may provide an initial idea that can be developed as a proof of concept, but that may need to be reconsidered for a large-scale roll-out**

Next steps

- The pilot group would like to continue testing the Storing Stories product and contribute to the development process to help shape the design of a Storing Stories 2.0, with the hope that the enhanced tool can be rolled out for the benefit of all library services in Scotland.
- SLIC is planning to meet with the Storing Stories developer in early 2020 and will continue to work with Stirling Libraries and others on the project.

5. Adapting the Methodology for UK Public Libraries

In 2018 the Carnegie UK Trust supported a second phase of work to further explore the value that hackathons could have for the public library sector. This work built on the success and learning from the initial Future Libraries Product Forge by piloting support for further public library services to deliver their own hackathons.

The intention was to enable public library staff to feel empowered, with strengthened understanding, interest and support in using new and innovative methodologies to tackle challenges to enable more responsive and appropriate product and service development.

However, as outlined in previous chapters, there are many variants within the hackathon format. Decisions were therefore made around the design and delivery of a hackathon to best suit the aims of the event, the participants and the library service itself.

In order to do this, the Carnegie UK Trust provided £5,000 funding to Manchester Library Service and Libraries Unlimited to examine the hackathon methodology and run their own hackathons.

About the Case Studies

The experiences of Manchester and Libraries Unlimited are described in the following pages. These case studies are based on information taken from the services' initial applications, observations from the events and a short interview between the Carnegie UK Trust and project teams on completion of the hackathons.



Case Study 2: Manchester Libraries 'Our MCR Hack'

Role: Innovator, Host and Advocate

About Manchester Libraries

Manchester Libraries operates a 'hub and spoke' model for service delivery, with the Central Library underpinning the library offer across the city. This is combined with a network of 14 neighbourhood libraries, Moss Side Powerhouse Library (a youth-focused library) and six smaller community partnership libraries. The Central library offers a Business and Intellectual Property Centre, dedicated exhibition space and Archives+ (a project bringing together materials from a variety of organisations to provide a holistic range of archive and heritage services in Manchester Central Library).

Background

What was the challenge you were addressing through your hackathon?

The aim of the hackathon was threefold: to better understand library users; to gain insight into how Manchester city is viewed by residents, visitors and commuters/workers; and to highlight gaps in provision or demonstrate areas of low engagement with the library service. The hackathon sought to approach these issues through a strong community focus, using a variety of data sources to create a snapshot of the city of Manchester on one given day. The hackathon drew on the role, services and resources of the Archives+ team and engaged the public in order to use and create pictures, photographs, stories, visualisations, RSS feeds and maps to create a social/cultural picture of the city: 'Manchester in a Day'.

What do you hope your library staff will get out of the hackathon project?

Library staff will receive exposure to the concepts and ideas behind a hackathon, particularly in regard to involvement with their local community. They will gain understanding of how data can relate to user's lives and gain confidence in exploring new ideas.

How will the hackathon help contribute to the library service's long-term outcomes or wider strategic plan as an organisation?

Manchester City Council is committed to listening to its residents and businesses. A new initiative has recently been launched called 'Our Manchester' which has strategic aims including:

- ensuring all citizens have equal opportunities and life chances;
- improving residents health;
- supporting people into work so all can enjoy the opportunities of economic growth; and
- creating and sustaining resilient and vibrant communities.

This hackathon has strong alignment to these aims and the 'Our Manchester' approach⁴ to doing things, using the hackathon and its results to have conversations with residents, and library communities, which in turn will feed into future strategic plans.

⁴ "The Our Manchester approach puts people at the centre of everything we do – people are more important than processes or procedures." For further information on the Our Manchester approach see [Our Manchester Framework: Narrative, Principles and Behaviours](#).

Delivery

Hackathon project team	Paul Wright, Citywide Services Manager – Growth Jonathan Ebbs, Service Development Specialist, Information & Digital
Was a facilitator used?	Yes – an external organisation was used who had previously delivered other high-quality digital workshops for Manchester Libraries.
Budget	£5,000
Who – <i>Who were the participants and how many people were involved?</i>	Staff, members of the public and related community groups were all invited to attend the hackathon. Approximately 60 people participated throughout the day.
When – <i>When did you host the hackathon?</i>	Saturday 28 April 2018. There was an effort to avoid clashing with Easter and school holidays to ensure maximum possible participation.
Where – <i>Which location and venue did you use and was there a particular reason for the location choice?</i>	Manchester Central Library’s Performance Space. This is a multifunctional space, and can be one large room, or divided into three rooms. There is a high-spec digital projector with cinema screen, AV facilities and plenty of plugs.
What – <i>What was the structure of the hackathon?</i>	<p>One day facilitated event, with technical support sessions throughout the day.</p> <p>During the whole of April leading up to the event, Manchester Libraries, asked the public to send in their photos, videos, stories, sounds and audio about life in Manchester. This data would create the basis of the dataset used during the hackathon – #OurMCRHack. Twitter: – for images, text, pictures and short videos; SoundCloud– for audio and text; and YouTube– for videos and text and email was utilised more generally.</p> <p>For the hackathon event itself, groups were tasked with making visualisations of the data to create different interpretations of ‘Manchester in a Month’.</p> <p>The participants were challenged to ask questions of the data, find common themes and see if they could uncover any insights about the city.</p> <p>At the end of the session the participants shared their final results online.</p>

Reflections on Engagement

Engagement with Staff

Staff are a key element of hackathons, and hackathons can be designed and delivered both with and for staff. The Manchester Libraries Hackathon project team noted early on that there was an increase in engagement with the staff involved with the event: “there is real enthusiasm to do more... Staff feel empowered to deliver the session”.

The hackathon provided staff with the opportunity to upskill themselves in certain areas through participation in training on different digital platforms before the event. This training enabled staff to collect data for the hackathon and to market the hackathon effectively.

The training allowed staff to engage with Twitter – a platform that had previously caused anxiety and tension for staff. “We delivered training with staff on Twitter... Some staff have continued to tweet and tweet about other library events. Staff really enjoyed it and have already done groundwork to build upon it.” Hackathon project staff. Among other things, the training enabled staff to better understand the platform, how it is used and works so they were more comfortable to proactively utilise it. One of the Hackathon project team reflected that “the training really demystified it [Twitter] and felt much easier to engage when they had a specific project in mind. They are very transferrable skills”.

- ✓ **Hackathons provide an opportunity to upskill and engage staff on digital platforms**

Engagement with the Community

“Focusing on the ‘community’ brings together all things that libraries do that is important. It [the hackathon] was something quite special to be involved [in/with]... a brilliant engagement tool” Hackathon project staff.

A priority outcome for the hackathon was better engagement with the local community and improved links with organisations that do not often partner with libraries/utilise the library service. With this in mind, the project team made a point of going to each branch library within their remit in order to promote the hackathon and to collect and generate data for it. This meant that rather than relying on engagement within the biggest library or library that was geographically closest to the central library, the team were able to use the event as an opportunity to engage with a variety of groups and communities that do not readily engage with their local libraries. Staff noted that the hackathon was a “real reminder to us to make time to visit groups in the community... we visited really deprived communities which was a bit of an eye opener... and [we] made new connections”. However, this process meant the team had to take a significant amount of time to develop how to explain and advertise the hackathon and refine the messages throughout the process of community engagement. The community engagement process was deemed to be successful because a number of the groups that were engaged with participated in the hackathon itself.

- ✓ **Hackathons provide an opportunity to engage people and communities who underuse - or do not currently use the library.**

“We visited and met with really interesting groups and people whilst promoting the Hackathon. The Power-rangers an older people’s group based in MossSide agreed to their weekly get together being filmed by a young digital volunteer, discussing photography, struggling Marathon runners and Windrush. The Place on Platt Lane’s Talk English group embraced the opportunity of a walk, armed with iPads in sunny Platt Fields Park on the hottest day of the year...so far. Asylum Seekers and Refugees from a community allotment project treated us to a peek of the beautiful haven that they have created and some indoor/outdoor cooking. Market traders from Harpurhey posed in front of their stalls and local children showed us their building a city out of boxes in Newton Heath Library. The children and young people of Moss Side Powerhouse getting in on the act produced great creations of their favourite Manchester people, places and events.”

Hackathon Project Manager

Learnings and Challenges

Finding the Right Facilitator

Due to limited experience in running hackathon style events, the Manchester team were clear from the outset that they were keen to engage a facilitator to support delivery of the hackathon. Staff at Manchester had previously delivered and facilitated one technical hackathon that had been targeted at a specific type of participant. The ‘Our MCR Hack’ was different as it needed to open up the hackathon to wider communities of interest. It was therefore critical that the facilitator of the hackathon was able to relate to and engage with a diverse range of participants. The team prioritised finding a facilitator who was “user-friendly, patient and not super techy”.

The team initially tendered for the facilitator, but were unsuccessful in finding a suitable candidate. This required the team to carefully consider how they were articulating their ‘ask’ for the hackathon and to be clearly aligned internally with what they wanted to achieve. The team went on to revisit the proposal and simplified ‘the ask’ for the event, which enabled them to re-engage with an organisation who had previously delivered digital (not hackathon) events.

On reflection the team emphasised the importance of selecting a facilitator with the right attitude for the event, not simply the digital or technical ability.

- ✓ **Attitude is as important a quality as digital or technical skills in identifying facilitators for a hackathon.**

Gathering New Data

For the 'Our MCR Hack', the team had to create a new dataset through collecting primary data from the public. "The images and videos (approximately 1000) tend to capture a mix of stunning skylines taken from some of the city's highest places, pet's (we're an animal-loving city), iconic buildings and streets, graffiti, nature in all of its spring glory, routes to work, shopping, litter, litter clean-ups, homelessness and of course reflected the weather" Hackathon project team.

The team experimented with a number of different platforms (including email and social media) to gather the data. This involved the team considering aspects of safety, security, ease of upload, ease of analysis and moderation. They were conscious that platforms had to be tested with the public to understand which were the most effective and given the limited staff capacity. The team were also clear in the need to make swift decisions and be bold in moving on from a platform if it was not working to enable focus on more effective routes.

In terms of the data quality, the team were also mindful that they wanted to gain a 'proper snapshot' of Manchester: "we wanted a true reflection, not filtered... including the positives and negatives", but that in opening the criteria for submission for the data so broadly, there may be an increased risk of 'mischievousness' data being collected, and so a moderation process was decided.

The team also had to assess the issue of consent and how to ensure that the public submitting material knew what the data was going to be used for, and so they focused on ensuring wording in marketing and communications concisely explained the process and capture consent (the hackathon was run pre-GDPR implementation).

- ✓ **Gathering new data can provide different insights into the chosen theme, but have additional logistical considerations.**

Case Study 3: Libraries Unlimited 'Barnstaple and Exeter Library Jams;

Role: Innovator, Host and Advocate

About Libraries Unlimited

Libraries Unlimited runs Devon's public library service on behalf of Devon County Council. This includes 50 libraries across the county and four mobile libraries. They also offer speciality services including a Business and Intellectual Property Centre and a FabLab⁵.

Background

Why were Libraries Unlimited interested in running a library hackathon?

Libraries Unlimited were interested in running a hackathon as a way to continue to embed innovative ways of working into the library service. Libraries Unlimited also wanted to take the opportunity to work more collaboratively with their partner organisations and local communities to begin to solve some of the key challenges and questions that they collectively face. A key attraction of the process was the opportunity it presented to participants, including staff, with a dedicated opportunity to focus on the topic.

After the planning process began, Libraries Unlimited decided to run several library jams rather than the more intensive hackathon events – their focus was on the creation of service ideas rather than building a specific technical product. They were keen to test the process before delivering a wider and more public event.

What was the challenge Libraries Unlimited were addressing?

The key focus was on the theme of accessibility and reaching new audiences. The theme addressed through the jam was how the library staff and Friends Groups could work together in innovative ways to think of new ideas, offers or ways of working, to engage groups and individuals who were not using the library service.

5 A FabLab is a small-scale workshop offering digital fabrication. It's an open access, not-for-profit, community resource where anybody can invent, make and share.

Project Delivery

Project team	<p>Daniel Clark (Creative Director), Holly Leathers (Project Assistant), Steve Turner (Head of Commercial and Innovation) and Emma McFarland (External Facilitator).</p> <p>Cultural Developers, Service Delivery Managers, Barnstaple Library and Exeter Library teams were all engaged with throughout the project.</p>
Facilitator?	<p>Yes – Emma McFarland. Emma is experienced in working in human-centred design in the arts and culture sector and was recommended to the library by a trusted partner organisation.</p>
Budget	<p>£5,000</p>
Where <i>– Which location and venue did you use and was there a particular reason for the location choice?</i>	<p>Exeter and Barnstaple</p> <p>To ensure that as many staff and Friends Group members had the opportunity to attend the jams as possible the Libraries Unlimited team decided to hold jams in both Barnstaple and Exeter. In Barnstaple the IT suite was used, which offered a more intimate space. In Exeter they enabled greater numbers to attend through using their higher capacity Rougemont Room.</p> <p>Each space included a small amount of tables and chairs, with refreshments available throughout the day.</p>
Who <i>– Who were the participants and how many people were involved?</i>	<p>The participants were members of Libraries Unlimited staff and library Friends Groups. The hackathon was spread over two days.</p> <p>At the Barnstaple Jam there were 20 attendees and at Exeter there were 25 attendees.</p>
When <i>– When did you host and was there a particular reason for this date?</i>	<p>The dates for the jams moved several times, primarily due to the shifting focus of the hackathon events themselves and the evolving organisational focus. This led to a change in timescales.</p> <p>Weekdays were chosen to ensure that the maximum number of participants could attend.</p>
What <i>– What was the structure of the event?</i>	<p>The events were facilitated and initially involved:</p> <ul style="list-style-type: none"> • participants getting into groups and completing some ‘warm up’ exercises to enable participants to become familiar with one another; • lightning talks from staff and cultural developers on subjects including gaming, libraries as places of connection in a digital world and examples of international work on similar topics; and • working through exercises to rethink how we can create ideas, and what it means to be a library in the 21 century. <p>Participants worked together in teams of four to five and each team was given a different ‘non-traditional’ library user group. Teams first worked through the barriers to participation of that user group and then worked together to develop products and services that could better respond to their needs and, in the long-term, attract their ‘target user’ to use the library service.</p>

Reflections on Engagement

Staff Engagement

The project team were pleased to reflect that throughout the process staff from across the library service demonstrated enthusiasm to take part in the jams. Staff involved in planning and delivering the jams were also actively engaged by agreeing to deliver lightning talks during the event.

Friends Group members are often on the periphery of Libraries Unlimited but are highly passionate about their individual library and the wider organisation. Therefore, a core objective of the jams was to engage these individuals. The team were pleased by the proportion of Friends Group members who attended both events. Overall, there was positive engagement and discussion between front-line library staff and Friends from different geographic areas, providing space for conversations that there is usually little opportunity for. Despite the level of positive engagement, a small amount of critical feedback was voiced in relation to the feasibility of implementing the ideas generated. (This is discussed further on Page 36). This feedback was taken on board by the team for future events.

- ✓ **Hackathons present an opportunity to engage groups and develop better relationships with partner organisations**

Reimagining the User

In one of the activities during the jams participants were tasked with creating 'pen portraits'. A pen portrait involves individuals producing an example persona from their target audience detailing their background and lifestyle, which would then go on to be used to understand the challenges and barriers they have to using the current library service. The intention is to use these personas to create better, more tailored services for users. Although a standard design tool for many organisations and a key starting point for many hackathons, this was a new process to many of the participants at the jam.

While libraries, in many senses, have a very thorough and nuanced understanding of their user base, the personas they were being asked to create were of individuals who were not regular users of the library service. As the jam was intended as a pilot of the format and run with mostly internal staff and Friends Groups there were no representatives of these users involved. As a result, the task proved uncomfortable for a number of participants because it was perceived to encourage teams to make generalisations and assumptions about these individuals. Participants reflected that the personas task re-affirmed the necessity of including a diversity of participants in these type of events to enable the understanding of nuanced individual experience and to avoid stereotyping by those without lived experience of the issues being explored. It also highlighted the need to engage with a wider set of community groups to act as trusted intermediaries to connect libraries to these individuals.

- ✓ **Ensure you have carefully considered how inclusive your hackathon actually is**

Learnings and Challenges

Selecting a Suitable Theme

The selection of the challenge or theme for a hackathon or jam can be more complicated than first anticipated. Choose too specific a challenge and there is a risk of stifling innovation or alienating potential participants who do not feel the topic is relevant or they have value to add: but propose too broad a theme and there is greater likelihood of ending up with an irrelevant or unsuitable output.

For Libraries Unlimited, while the overall challenge was clear from early in the development process: “how do we better engage with currently ‘non-engaged users’ through our library service”, it was less clear to the team which specific areas to focus on given the breadth of direction this topic could take. Therefore, the team spent a significant amount of time in the early stages of the process refining how to narrow the scope of the project. However, once they had determined their focus on engaging individuals with additional accessibility needs and begun to engage with the relevant community groups, the team realised that the time needed to build relationships with groups and to take account of the additional considerations in running the event, would prove unfeasible to deliver within the timescale for this particular project. The team therefore altered the event format away from a traditional service hackathon to deliver multiple jams instead to first test the concept with staff and build engagement with potential partners. The team would then go on to deliver the full hackathon with a wider range of participants with refinements and insights from the jam.

The process of narrowing the theme for the jams emphasised the importance of being clear and concise with the desired outcomes of the event both internally within the organisation and externally with potential participants.

Structure vs Space

A key challenge with hackathon events is to balance the time spent on prescribed activities with the unstructured time for teams to work together on the ideas. The project team reflected that the jams were predominantly made up of specific task-based activities that built upon each other, with the later part of the jam then being opened up to work freely on ideas.

“Whilst some structure is good for the hackathon – especially when working with participants who aren’t familiar with this way of working – leave the majority of the time for prototypes and ideas to be created, as this is the really exciting part.”

Hackathon project team

- ✓ **Consider the balance of time in the agenda between activities and ‘open time’**

Imagination vs Feasibility

The project team reflected around the importance of considering the tension that can occur between the creations of creative, innovative or even radical ideas about products, services or processes with the feasibility of being able to implement those ideas. The jams involved presenting examples of innovations from international settings in order to provide inspiration and encourage the 'art of the possible'. However, these examples have the potential to demotivate participants if the context of those innovations (library service, resources, participants, etc.) are not set out explicitly and sensitively because it can make participants feel like they are failing if they do not deliver to a similar standard.

The other related challenge the team highlighted was the difficulty in being able to support participants to step outside known barriers and challenges in the first instance.

These tensions highlighted to the team the importance of careful consideration and being mindful of the reality of service provision and factoring this into the set-up and explanation of activities.

- ✓ **Consider how you take account of context if providing external examples for inspiration**

Next Steps

The Libraries Unlimited team assessed the value of the events for participants. They found that the jams opened a new way for staff and Friends Groups to suggest ideas so that these can be looked at more closely.

Libraries Unlimited went on to independently deliver a full hackathon 'My Library' in February 2019. This hackathon was targeted towards the disabled and D/deaf community and artists and technologists who identify as disabled or non-disabled, to explore how to make the libraries a more accessible place for all users.

6. Conclusion

Learnings from across the Trust's programme of work on hackathons, including the three hackathon case studies covered in this report, have been summarised into key takeaways. It would be helpful to bear these in mind as you plan and develop your hackathon.

Learning from Library Hackathons

Stick to the basic hackathon principles:

- Specific theme or challenge
- Cross-section of skills
- Short period of time

Hackathons can offer an 'attractive format' through being low risk, with manageable resource requirements and intensity and a clear focus on outputs.

Hackathons can deliver inherent value for participants, including opportunities to develop skill sets, networking and socialising.

Hackathons are not a 'silver bullet' for library innovation and there are a number of potential limitations that services need to consider:

Hackathons can create an opportunity to engage individuals, communities and the general public who use, underuse or do not currently use the public library service.

- Have you ensured a diversity of participants are included?
- Do the outputs consider the wider societal context?
- Do they have real world applicability?
- Have you considered how to support teams once the hack is over?
- Do you have a clear and transparent process for integrating the ideas into the organisation?
- Have you clearly defined who will own the IP?

Hackathons can enable time, space and resource to explore challenges and produce solutions.

Public libraries and public library staff can be involved in hackathons in a variety of ways, including as Innovators, Connectors, Hosts or Service Advocates.

Hackathons can provide an opportunity to upskill and engage staff, particularly around digital platforms.

Hackathons can present an opportunity to open, better utilise or gather data.

Gathering new data can provide different insights into the chosen theme, but have additional logistical considerations.

Hackathons can offer an opportunity to develop stronger relationships with partner organisations.

Attitude is as important a quality as digital or technical skills in identifying facilitators for a hackathon.

Consider the balance of time in the agenda between activities and 'open time'.

Consider how you take account of context if providing external examples for inspiration.

Robust piloting of products post-hackathon can ensure they will be successful outside the hackathon setting.

Ensure there is a clear plan for support post-hackathon, including both potential time and resource requirements.

A hackathon may provide an initial idea that can be developed as a proof of concept, but that may need to be reconsidered for a large-scale roll-out.

7. Getting Started

Useful Resources

There are a number of practical guides about developing and delivering hackathons available:

Public Library Specific

- The Carnegie UK Trust has produced a guide and a roadmap of questions to consider when developing a hackathon: <https://www.carnegieuktrust.org.uk/publications/hackathons-practical-guide/>
- The Digital Public Library of America produced a report to support delivering a hackathon for community representatives': <https://dp.la/news/dpla-community-reps-produce-hackathon-planning-guide-now-available>
- New Jersey State Library have a short blog which gives the headlines on how to host a hackathon at your library: <https://www.njstatelib.org/host-hackathon-library/>

Further Reading on Hackathons

- **First Time Guide:** Some guides are specifically based on first time hackathon organisers such as this paper by WeWork: <https://www.wework.com/creator/how-to-guides/how-to-run-your-first-hackathon/>
- **Comprehensive Guide:** One of the most comprehensive and continually updated guides is published by Joshua Tauberer: <https://hackathon.guide/>
- **Cultural Sector:** For specific insights into developing a cultural or heritage hackathon see this guide by the Europeana Space project: www.europeana-space.eu/wp-content/uploads/2014/04/es-hacking-culture-spreads.pdf

A full list of sources referenced in this report can be found from page 42.

Appendix 1

UK Library Examples

Hackathon	Organisations	Location	Date	Library Role
Future Libraries Product Forge Hackathon	Scottish Library and Information Council, Product Forge, Carnegie UK Trust	UK (Scotland)	2016	Innovator
Wuthering Hacks	Newcastle Libraries	UK (England)	2016	Innovator / Advocate
History Hack	Aberdeen City Libraries, Code the City	UK (Scotland)	2016	Innovator / Connector / Advocate
'MCR' Hack	Manchester Library	UK (England)	2018	Innovator / Host / Advocate
Library Jam	Exeter and Barnstaple Libraries	UK (England)	2018	Innovator / Host / Advocate
DATA Play 9 - Libraries and city challenges	Data Play (Plymouth City Council)	UK (England)	2018	Innovator
My Library	Exeter and Barnstaple Libraries	UK (England)	2019	Innovator / Connector / Host / Advocate
History Hack	National Library of Wales	UK (Wales)	2019	Innovator / Connector / Advocate

Appendix 2

International Library Examples

Hackathon	Organisations	Location	Date	Library Role
Biblio Remix	Various	France	2013-18	Innovator / Host / Advocate
Open Data Day Hackathon	Edmonton Public Library, City of Edmonton	Canada	2014	Innovator / Connector / Host / Advocate
Hack the Library	Chattahoochee Valley Libraries	USA	2015	Innovator / Connector / Advocate
Hacking, Making, and Coding at the Library	Denver Public library	USA	2015	Innovator / Connector / Advocate
TOProsperity	Toronto Public Library, City of Toronto Social Development, Finance and Administration Division, Social Planning Toronto	Canada	2015	Innovator / Connector / Host / Advocate
Techfugees	Techfugees, Liverpool Public Library	Australia	2015	Host
Broadway Hackathon	New York Public Library for the Performing Arts, Masie Productions	USA	2015-2016	Innovator / Connector / Host
Hacking the News	National Library of Finland	Finland	2016	Innovator / Host
GovHack	GovHack, various public libraries	Australia	2016	Host / Advocate
Coding da Vinci	German Digital Library (DDB), Open Knowledge Foundation Germany e.V. (OKF DE), Research and Competence Center for Digitalisation Berlin (digiS), Wikimedia Deutschland e.V. (WMDE)	Germany	2017	Connector
Smart-City Hackathon	Cupertino Library, Cupertino Library Foundation, TechLab	USA	2017	Connector / Advocate
Women's Health hack	CHI, Denver Public library	USA	2017	Host
Open Source Technology	Helsinki Think Company	Finland	2018	Innovator / Host
Ancestors Genealogy	National Library of Finland	Finland	2018	Innovator / Host
Public Innovation Week Hackathon	National Library of France, Arte, Radio France, the National Archives, Bayard Jeunesse, Ina, the Ministry of Culture	France	2018	Innovator / Connector / Host
Ethiopia Hacks!	National Archives and Library Agency (NALA) of Ethiopia, Google Developers Group (GDG- Addis), the Centre for Accelerated Women's Economic Empowerment (CAWEE)	Ethiopia	2019	Host

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