



REBOOTING THE DIGITAL CITY

DIGITAL PLACEMAKING AT THE EDGE

STEPHEN HILTON, DIGITAL PLACEMAKING FELLOW
AND DIRECTOR, CITY GLOBAL FUTURES LTD



FUNDED BY THE CREATIVE INDUSTRIES CLUSTERS
PROGRAMME MANAGED BY THE ARTS & HUMANITIES
RESEARCH COUNCIL AS PART OF THE INDUSTRIAL STRATEGY

SEPTEMBER 2020

TELEPHONE AVENUE

URE CITY

FESTIVAL OF THE

FESTIVAL OF THE
FUTURE CITY

FUTURE C

ERSTONES

REDIFFUSION

television by
REDIFFUSION

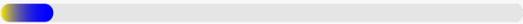
WATERSHED

WATERSHED

CONTENTS



SECTION	HEADING	PAGE
	Executive Summary	
	Contents	
1	Introduction	5
2	About the Fellowship	6
3.1	The Research Approach	7
3.2	List of Interviewees	7
3.3	List of Digital Placemaking Fellows	7
4	Section A: Stories of Bristol as a Digital City	8
4.1	Capturing the Stories	8
4.2	An Evolving Digital Bristol Timeline	9-10
4.3	The Digital City Beneath our Feet: re-purposing infrastructure for innovation	11
4.4	We started with the Copper Wire but then we Found the Electricity	14
5	Section B: Connecting Bristol	17
5.1	Scattering my own Breadcrumbs	17
5.2	Extract of our Connecting Bristol Vision (2004)	17
5.3	From the Local to the Global	18
5.4	Visions of the Digital City	19
6	Section C: Re-localising the Internet	24
6.1	Thoughts on Re-localising	24
6.2	Hey Siri, Hey Bristol! Hey Knowle West! Hey Filwood! Hey World!	25
7	Conclusion: Digital Placemaking at the Edge	28
7.1	Framing the Conclusion	28
7.2	Powering up the Edges	29
7.2 (i)	Edge Computing, the Community Cloud with a silver lining	29
7.2 (ii)	Communities with an Edge	30
7.2 (iii)	Keeping it Edgy	30
8	A Final Word	30



REBOOTING THE DIGITAL CITY

DIGITAL PLACEMAKING AT THE EDGE

EXECUTIVE SUMMARY

Stephen Hilton is a Digital Placemaking Industry Fellow on the Bristol+Bath Creative R+D Pathfinder. He has researched and authored this study as the final output of his Fellowship, which has taken place during 2019/20.

It has been a period of considerable global crises, the pandemic, Black Lives Matter, and the climate emergency, as well as a period of unprecedented rapid Digital transformation. The author has taken a flexible and iterative approach to his Fellowship; realigning focus and direction to respond to the opportunities and challenges that have arisen.

The Internet has provided a lifeline to society during the pandemic, keeping many people working, talking and connected. The Digital City has arguably stepped in as the physical city retreated. Work, school, family, leisure, shopping, culture, health, social care, love, politics, money and crime – all delivered to and from the home through copper, fibre and wireless networks and experienced through a Zoom/Teams/Skype enabled window.

Conversely, it has felt at times like we are prisoners of the Internet, locked into a digitally enabled panopticon of our own choosing. Perhaps worse, the pandemic has made visible again the abhorrence of Digital poverty, where people do not even have a choice about whether to connect.

This study considers the views and experiences of a number of digital leaders from Bristol; noting that few would use this term to describe themselves. The focus of the interviews was the past and the future of the Digital City and Digital Placemaking in Bristol. The study also draws on the author's collaboration with a diverse and dynamic cohort of Digital Placemaking Fellows and his active involvement in numerous Digital City initiatives in Bristol over a period of 20 years.

The first section of the study captures stories of how Bristol has developed as a Digital City. It would be easy to measure a city's progress against global technology milestones, such as pre-or post-Facebook or the iPhone. However, the study positions Digital History as an important subset of Local History, which should be captured and written down, lest it is deleted or over written and so that the common threads can be identified.

Some of these stories highlight the importance of local Digital infrastructure. We are reminded of the Digital City beneath our feet, which is hidden from view but has longevity and convening power.

It inspires ideas and ways of working that have been important to Bristol's development as the infrastructure is rediscovered and re-purposed to support new experimentation. Other stories are quite personal, highlighting that whilst the infrastructure is important, so is the spark of electricity and excitement it can ignite.

Through the research, the author has assembled a trail of Bristol Digital Breadcrumbs that have been scattered over decades. The journey starts in 1900 with the opening of the first battery powered telephone exchange on Telephone Avenue, a landmark that still exists in the centre of Bristol.

The story heads through the Bristol Channel, an early experiment in local cable TV broadcasting; the development of pirate then community radio and the Rediffusion network, a web of pipes, ducts and cables that has been re-purposed multiple times, to support touch screen kiosks, open wireless mesh networks and super connected city test-beds.

After passing through a wide variety of creative Digital projects, which became increasingly embedded in

the physical city environment, the story ends with the Bristol Arts Channel, launched during the pandemic and bringing up to date echoes of previous collaborative Digital experiments.

The second section of the study starts with Connecting Bristol, a Vision for the future Digital City that was developed in 2004 but seems powerfully relevant in the context of the pandemic. Through the interviews the author explores how and why some aspects of this Vision were taken forward more than others. It is particularly notable that there is clear evidence of the economic impact of Bristol as a Digital City whereas, with a few notable exceptions, community value has been less clearly captured, measured, and consistently articulated at a citywide level.

The study identifies a complex set of reasons for this, including the priorities of Funders and a wider global context, which has taken away control from the local community and replaced it with a global narrative of the Smart City. The final section asks whether it is time to re-localise

the Internet, bringing greater agency over it and more explicitly creating local value. It's a question that divides the interviewees; would we be building a wall around Bristol or empowering communities? Perhaps the choice is not either-or but is not local or global but both.

The author also invites interviewees to think tangibly about what a really localised Digital City could entail, for example, if we were to say, 'Hey Bristol' instead of 'Hey Siri'. This provocation elicits an interesting set of responses ranging from, connecting local people to local spending; incentivising sustainable models of behaviour; connecting people through new hyper local maps and time-sensitive way finding; making it easy to find purposeful ways to use time and allowing both more joined up conversations between a city and its neighbourhoods and as a way to always connect with a local person, wherever in the world you are.

The conclusion of the report is that as a consequence of the pandemic, the machine has paused, rather than stopped, creating the opportunity to take a new focus once it reboots. The overall proposition is that

now is the time to decentralise, shifting power, focus and attention from the centre to the margins. Ideas for the future are presented under three headings, Edge Computing, Communities with an Edge and Keeping it Edgy.

The aim is to sketch a possible future direction for Bristol but also to highlight ways in which other cities and places might start to build their own Digital Placemaking approach.

INTRODUCTION

No one confessed the machine was out of hand.

Year by year it was served with increased efficiency and decreased intelligence. The better a man knew his own duties upon it, the less he understood the duties of his neighbour, and in all the world there was not one who understood the monster as a whole.

Those master brains had perished. They had left full directions, it is true, and their successors had each of them mastered a portion of those directions.

But Humanity, in its desire for comfort, had over-reached itself. It had exploited the riches of nature too far. Quietly and complacently, it was sinking into decadence, and progress had come to mean the progress of the Machine."

**The Machine Stops,
E.M. Forster, (1909)¹**

E.M. Forster's short story, *The Machine Stops*, imagines a future where over successive generations, humanity has grown dependent on a single, global technology platform to meet all of its needs and wants. Cities around the world all look the same so no one visits anymore, except via video conference. Software and systems, not dissimilar to Amazon and Uber, have evolved so that **"things are brought to people rather than people being taken to things."**

Inevitably, people stop leaving their homes, which are deep underground; human-to-human contact is shunned. Still, most are happy with the machine and the comforts and convenience it provides. Of course, the machine eventually malfunctions and too late, people realise knowledge of how to repair it has long since been lost. When it stops completely, an inflection point opens up and change can happen. In Forster's story, there is a dramatic outpouring and the main protagonist abandons the failed machine, reconnecting with other people and the planet. It's certainly a tempting idea!

Forster's dizzyingly prescient Vision of the future, written over a hundred years ago, gives us pause for thought - anyone here know how to fix Google, Facebook, Amazon... the Wi-Fi? Still, the Internet has arguably been society's lifeline during lockdown, keeping many people working and connected. The machines that Covid-19 have stopped are predominantly cars and

planes rather than computers, servers and networks. After years of promise, the Digital City has stepped-in and filled the gap left as the physical city retreated. To quote one interviewee in this study, **"Imagine if we didn't have this, imagine if Netflix didn't exist or iPlayer; imagine if Zoom didn't exist and the Wi-Fi didn't exist; the economy would be in a terrible mess right now, at least some work has been able to go on..."**

However, this has not been everyone's experience. Digital exclusion or "Digital Poverty" remains an abhorrent issue despite previous Visions that sought to eradicate it. Conversely, hyper-visibility is also a growing challenge, leaving some feeling exhausted by the expectation of always being digitally present.

I deliberately do not offer a definition of the Digital City within this study. I would rather it was defined through the stories and examples that are explored. What is clear is that the Digital City, however it is defined, is not the product of one Vision, strategy or plan, nor is it the idea of one leader or organisation. This complexity is both a strength and a weakness, making it slippery to pin down specific indicators and outcomes. However, the strength is that if the Digital City is owned by anyone, then it is by the eco-system of collaborators who are drawn to the idea, repurpose it and make it their own.

¹"The Machine Stops", E.M. Forster, (Penguins Modern classics), (2011)

ABOUT THE FELLOWSHIP

“I prefer the definition of a Smart City that learns from its citizens and visitors and responds to their needs.

In this way Smart Cities have to be creative, inclusive, open, democratic and more!

In fact, I push back against the idea of efficiency – when we talk to citizens we hear words like comfort, convenient, inviting and joyful. We rarely hear the word efficient unless we are talking to tech companies about their solutions.”

Jeff Risom, Gehl Architects, (2020)²

In 2019, I successfully applied to become a Digital Placemaking Fellow on the Bristol+Bath Creative Clusters R+D Pathfinder. Digital Placemaking is a new concept and maybe unfamiliar to many. Calvium, the leading Industry proponent, define it as, **“the augmentation of physical places with location-specific digital services, products or experiences to create more attractive destinations for all.”³**

The Creative Clusters programme used a slightly expanded definition, **“Digital Placemaking aims to enhance and deepen the relationship between people and places. We believe the best examples of digital Placemaking are co-designed by different kinds of communities, using digital technology and creative solutions to improve or enhance the public experience of place.”**

I intended to use my Fellowship to focus on the type of human connections the Smart City often overlooks. As Jeff Risom from Gehl Architects observes (above) the language of the Smart City is not one that people naturally use to describe their local places. Did anyone ever fall in love with Bristol, or anywhere else, because it was hyper-efficient? I doubt it very much.

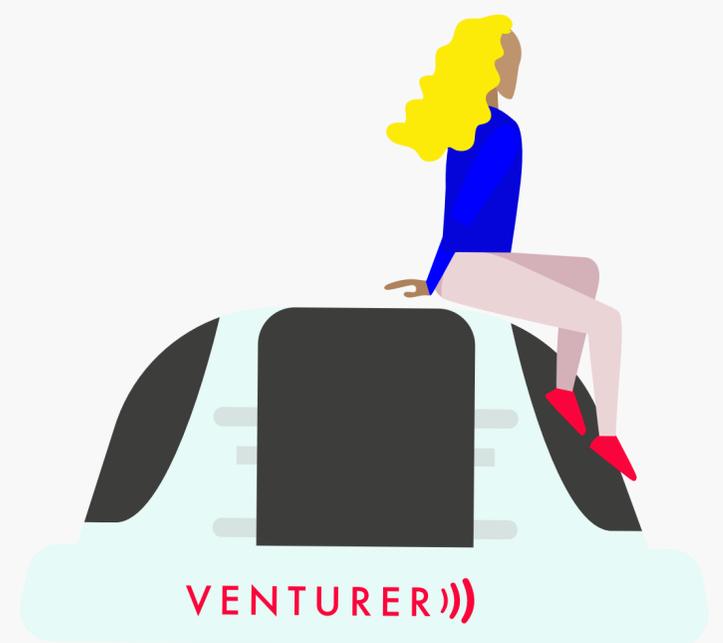
My aim was to work with the professional communities that revolve around The Architecture Centre⁴, where I am a Trustee and Watershed⁵, my long-term

spiritual home. My plan was to follow an action research approach with the aim of creating new insights and opportunities for collaboration between architects and urbanists and creative technologists.

We made a good start. The **“Designing Digital Cities”** event⁶ held at Arnolfini in February 2020, sold out the 200+ tickets. It attracted diverse input and support from: Copenhagen’s Gehl Architects; the University of Bristol’s Digital Futures Institute; Bristol’s Stride Treglown; and both the Institut Francais and the UK Taipei Representative’s Office who jointly supported the participation of leading French-Brazilian Architect and Urbanist, Elizabeth de Portzamparc. We didn’t know then that just a couple of weeks later, COVID-19 would render further intermingling impossible.

During the following months of lockdown, the public realm became a distant memory – public in name but not publicly available. The extent of most people’s interaction with the built environment reduced to the space within the four walls of their home and if they were lucky, a garden. It was clear that I needed to think again about the Fellowship and find a way to set my initial ideas in the context of our new lived reality.

At the same time, I couldn’t help but think - what a time to be a Digital Placemaking Fellow! We were collectively experiencing decades of Digital



transformation in a matter of weeks as through necessity, everyday life gravitated online. Work, school, family, leisure, shopping, culture, health, social care, love, politics, money and crime – all facets of human life delivered to and from the home via copper, fibre and wireless networks and experienced through a Zoom/Teams/Skype enabled window.

Unless, of course, you were **“digitally excluded”** – just hearing this phrase spoken again was astounding as I had been working on Bristol as an inclusive Digital City for 20 years. The terminology and technology morphed over time, but the core idea remained broadly the same - creating smart, sustainable, resilient cities and places where everyone can thrive.

The pandemic kicked the world firmly in its ribs and appeared to be threatening its very existence. From my perspective, the jolt also roused the Digital City from its slumber and it was time to reconsider what we had been dreaming of for many years: Digital was no longer simply nice to have, it was core to our existence.

In July, five months into the pandemic, the Fellowship came back into focus for me. It became an opportunity to set current events in the context of a longer term Digital City journey, which through the research, has grown to span many decades, and to think about what lessons we might take with us into the future.

²Jeff Risom, Gehl Architects in conversation with Stephen Hilton, (Feb 2020), <https://www.architecturecentre.org.uk/2020/02/smart-cities-jeff-risom-gehl>
³A definition of Digital Placemaking for urban regeneration”, Calvium, (2018), <https://calvium.com/a-definition-of-digital-placemaking-for-urban-regeneration/>
⁴The Architecture Centre, Bristol, <https://www.architecturecentre.org.uk>
⁵Watershed, Bristol, <https://www.watershed.co.uk>

⁶“Designing Digital Cities”, held at Arnolfini, Bristol (Feb, 2020), <https://www.architecturecentre.org.uk/whats-on/designing-digital-cities/>

THE RESEARCH APPROACH

This research is based on insights gained from 12 in-depth interviews undertaken in July and August 2020 with a range of Digital Leaders, although few would use this term to describe themselves.

The interviews were conducted over Zoom, recorded, and transcribed. The interviewees represent a mix of gender, age and ethnicity as well as perspectives from industry, academia and the community. There are many more people that I would have loved to interview if time allowed.

The interviews covered three broad topics – significant milestones or “breadcrumbs” marking the development of Bristol as a Digital City; the Vision for Digital Cities in light of the COVID-19 pandemic, using my own work on Connecting Bristol in 2004 as a reference point and finally, an exploration of the idea of **“re-localising the Internet”**.

I started to develop the latter as a provocation earlier in my Fellowship, using it to frame my opening remarks at the Designing Digital Cities event in February⁷. As many people’s worlds became hyper local as a consequence of the lockdown, the idea that the Internet can be re-organised to primarily support local value is one that I felt warranted even more urgent exploration.

I have also drawn on insights gained from active collaboration with the cohort of Digital Placemaking Fellows (my “Fellow Fellows” as I like to call them) and the support of the wider programme team at Watershed, University of the West of England, Bristol University and Bath Spa and Bath Universities. Working with this brilliant and diverse group has been one of the most valuable parts of the Fellowship.

Finally, I have unashamedly drawn on my own experience of working in and near to many ground-breaking Digital initiatives in Bristol over 20 years. I have tried to remain objective and impartial in preparing this study, but in reality I recognise that I have been a participant in the Digital City far longer than I have been its observer.

It is important to note that the research took place during a period of growing global crises, the COVID-19 pandemic; a renewed focus on social justice as a result of the Black Lives Matter outcry and increasing recognition of the looming climate emergency.

Whilst not the primary focus of the research, it is impossible to think about the history or future of cities without taking these crises into account.

3.2 LIST OF INTERVIEWEES

FIRST NAME	LAST NAME	TITLE
Makala	Cheung	Creative Director, Filwood Community Centre.
Roseanna	Dias	Creative Producer, Independent and with Rising Arts Agency
Paul	Hassan	Development Manager, Locality.
Carolyn	Hassan	Director, Knowle West Media Centre and Bristol Living Lab.
Ben	Heald	Founder, SIFT.
Andrew	Kelly	Director, Bristol Cultural Development Partnership.
Dick	Penny	Independent Consultant and Former Director of Watershed.
Richard	Potter	Chief Technology Officer, Microsoft Consulting Services.
Mike	Rawlinson	Design Director and Founding Director, City ID.
Claire	Reddington	CEO, Watershed. Founder, Pervasive Media Studios.
Dr Shawn	Sobers	Associate Professor at UWE, Film and Journalism Department.

3.3 LIST OF DIGITAL PLACEMAKING FELLOWS

FIRST NAME	LAST NAME	TITLE
Paul	Clarke	Academic Fellow
Roseanna	Dias	Inclusion Fellow
Stephen	Hilton	Industry Fellow
Tim	Lo	New Talent Fellow
Jim	Morrison	Industry Fellow
Grace	Quantock	Inclusion Fellow
Dr Shawn	Sobers	Academic Fellow

⁷A transcript of my opening remarks at the Designing Digital Cities event (Feb 2020) is available here, <https://www.bristol-futures-global/blog/re-localising-the-smart-city-by-putting-place-back-into-digital>

SECTION A: STORIES OF BRISTOL AS A DIGITAL CITY

4.1 CAPTURING THE LOCAL STORIES

If there was a homepage for the Digital City⁸ it might be straightforward to capture the Digital story of a place but there isn't, which is perhaps why it is uncommon for people to try – but before we consider the Digital future, it's important to explore where things have come from.

The following accounts are a reminder that the development of the Digital City is not simply defined through global technological milestones. It is easy to measure progress post Facebook, the i-Phone or Twitter. These are important markers but cities like Bristol do not simply move forward through the next software upgrade. Stories of Bristol as a Digital City form part of the city's Local History and by writing them down, we can make sure history is not deleted or over-written.

Some stories are also personal. They describe how it feels to have been involved in a particular digital initiative at a particular moment in time. It is the spark of excitement and creativity that Digital can ignite, which is at the heart of Digital Placemaking.

“I really like the idea of breadcrumbs. This Hansel and Gretel style trail in History.

I think it feels more tangible than milestones. I guess I'm interested in asking, where are the breadcrumbs from a community perspective around digital and not necessarily led by the organisations who hold a lot of power in that space.”

Roseanna Dias, Creative Producer & Digital Placemaking Fellow

))) [Roseanna Dias on Digital Breadcrumbs](#)

⁸In the late 1990s, Bristol's HP Labs initiated Digital City Bristol (DCB). Working in partnership with the University of the West of England (UWE), Bristol Evening Post and City NetGates Ltd, the pilot site was launched in March 1997. According to de Bruine A's case study, "Users of DCB can access public information about the city of Bristol, its organisations and its inhabitants. The web site is based around a graphical interface of piers in a harbour, each of which represents a different theme such as leisure, business, education or community groups." de Bruine A. (2000) Digital City Bristol: A Case Study. In: Ishida T., Isbister K. (eds) Digital Cities. Digital Cities 1999. Lecture Notes in Computer Science, vol 1765. Springer, Berlin,

4.2 AN EVOLVING LIST OF DIGITAL BRISTOL

The following is not intended to be a list of every digital project that has taken place in Bristol. I am aware of many brilliant and impactful projects, including several of my own that do not appear.

I started with about ten entries but through the interviews, the number has grown to more than 50 and I am certain that it would easily double in size again if I were to conduct more⁹.

At first, I asked interviewees for three "milestones" they felt were significant in the development of Bristol as a Digital City. It soon struck me that what I was picking up were "breadcrumbs"¹⁰.

Interviewees did not see their significant events as markers counting down to Bristol Digital City Central, they were more like clues that had been scattered throughout the decades. Writing these down in one place is surprisingly, not something I had seen before.

⁹A live, updatable, interactive version of the timeline is something that I am keen to explore - but that is for the future!
¹⁰It was only later that I considered the meaning of the term breadcrumbs in the context of web design, which refers to a way of navigating content, recognising that most browsing journeys don't start at the homepage.



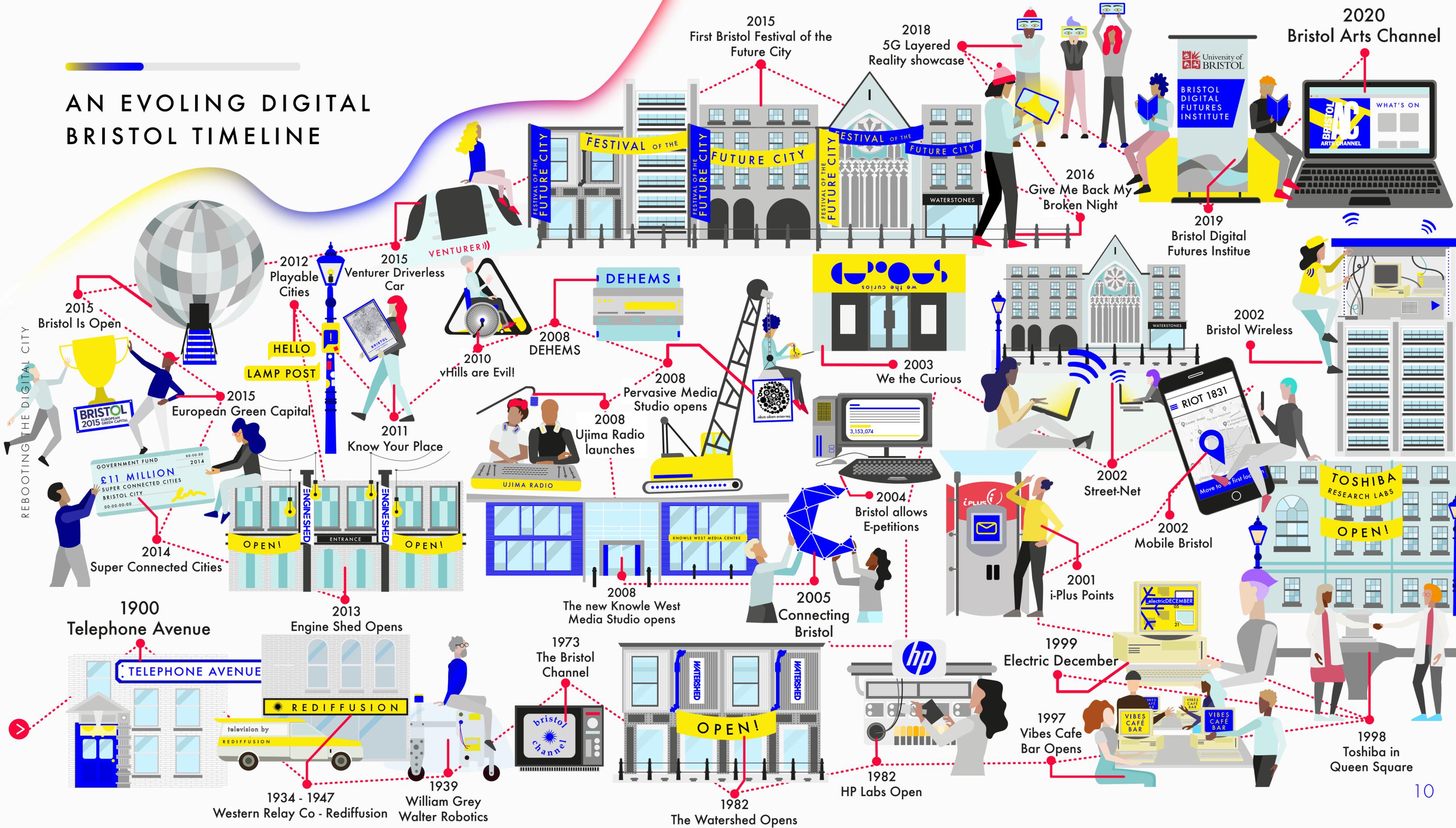
It is also surprisingly difficult. In some instances, particularly for projects before the early 2000s, online sources are scant. It can even be hard to verify the date. I am, however, pleased with the list that has been generated. The act of writing down starts to preserve the story and allows reflection on the interconnections and common threads.

AN EVOLVING DIGITAL BRISTOL TIMELINE

MILESTONE	YEAR	EXTERNAL LINK
Europe's first battery-powered Exchange opens on Telephone Avenue	1900	Telephone Avenue
The Western Relay Company (later became Rediffusion) started delivering services in Bristol	1934	Rediffusion
William Grey Walter Robotics	1939	William Grey Walter Robotics
The Bristol Channel – community cable TV pilot using Rediffusion network	1973	Andrew Kelly talks about The Bristol Channel
Watershed opens	1982	Watershed
Immos Develops Transputer	1984	Inmos
HP Research Labs Open	1986	HP Labs
Savage But Tender Radio	1988	Savage but Tender Radio
Spec (pirate) Radio	1989	SPEC Radio
Vibes Café Bar	1997	Dr Shawn Sobers on the Early Internet
Bristol Creative Technology Network (BCTN)	1998	Dick Penny talks about BCTN
Toshiba Research Labs open in Queen Square	1998	Toshiba Research Labs
Watershed Launches Electric December	1999	Electric December
Digital City Bristol (HP Labs)	1999	Digital Bristol
Underscore	2000	Disappeared without trace
Bristol Interactive Cluster (BRIC)	2000	BRIC
I+ touch screen info points appear on Bristol's streets	2001	Mike Rawlinson talks about iPlus points
Bristol Wireless community coop gives away the internet for free	2002	Bristol Wireless
Mobile Bristol, HP Labs recreates Bristol riots in Queen Square	2002	Mobile Bristol
Streetnet, council laches open wi-fi mesh network	2002	StreetNet
We the Curious	2003	@Bristol
Bristol City Council becomes first to accept online 'e-petitions'	2004	EPetitions
Connecting Bristol – Digital Challenge bid	2005	Carolyn Hassan talks about Connecting Bristol
Bristol Media launched	2005	Bristol Media

MILESTONE	YEAR	EXTERNAL LINK
The (new) Knowle West Media Centre Opens	2008	Makala Cheung talks about her work at KWMC
Pervasive Media Studio opens	2008	Pervasive Media Studio
Ujima Radio launches	2008	Paul Hassan talks about Ujima Radio
Digital Environment Homes Energy Monitoring System	2008	Caroline Hassan talks about DEHEMS
Centre for Quantum opens at UoB	2009	Centre for Quantum Computing
Bristol 24/7 launched	2009	Bristol 24/7
Hills are Evil!, Media Sandbox open data prototype	2010	Hills are Evil!
Creative Citizens Project	2011	Creative Citizens
Know Your Place	2011	Know Your Place
Playable City launches	2012	Playable City
React	2012	REACT
Engine Shed opens	2013	Engine Shed
Bristol secures £11 m Super Connected Cities funding	2014	Super Connected Cities
Bristol European Green Capital – Green Digital Challenge	2015	The Green Digital Challenge
Bristol is Open created	2015	Paul Wilson talks about Bristol is Open
First Bristol Festival of the Future City	2015	Festival of the Future City
Venturer driverless car is born at UWE	2015	Venturer Driverless Car
Give Me Back my Broken Night	2016	Roseanna Dias talks about Give me back my Broken Night
Inaugural Oracle Cloud start-up accelerator	2017	Oracle Cloud Accelerator
Whose Culture?	2017	Whose Culture
5G Layered Realities showcase – a UK first	2018	5G Layered Realities
South West Creative Technology Network (SWCTN)	2018	SWCTN
Bristol Digital Futures Institute focuses on socio-tech	2019	BDFI
Bristol Arts Channel	2020	Clare Reddington talks about the Bristol Arts Channel

AN EVOLVING DIGITAL BRISTOL TIMELINE



REBOOTING THE DIGITAL CITY

4.3 THE DIGITAL CITY BENEATH OUR FEET; REPURPOSING INFRASTRUCTURE FOR EXPERIMENTATION

Rediffusion > the Bristol Channel > Ujima Radio > iPlus Points > Mobile Bristol > B-Net > StreetNet > Connecting Bristol > Super Connected Cities > Engine Shed > Bristol is Open > 5G Layered Realities > Smart Tourism...

The Timeline hints at the way Digital Placemaking in Bristol is entwined with a broader narrative about infrastructure. Digital infrastructure has longevity but so do the ways of working and the ideas that it inspires.

Armada House on Telephone Avenue in central Bristol was originally home to the National Telephone Co. An entity so important that they named the street after it! When it opened in 1900, it was celebrated as the first battery powered telephone exchange in Europe: a turn of the century innovation hub lying at the centre of a newly built underground network of 14 miles of ducts and cables. BT is still located next door.

We don't know how much of the original one hundred and twenty year old underground network has been re-purposed to support today's ultrafast broadband (probably quite a lot) but the location has continued to play a prominent role in the city's civic landscape, ever since the Mayor and 'Corporation' officials first paid a visit in 1901¹¹.

))) [Dr Shawn Sobers on the Bristol Channel](#)

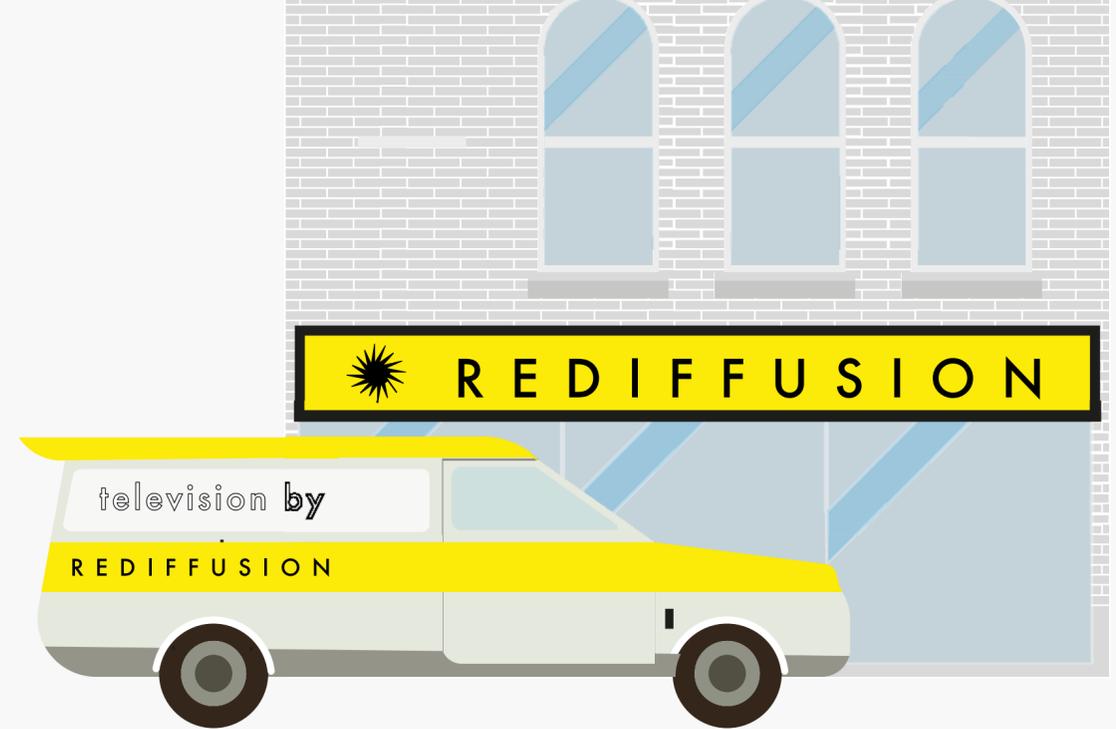
The Western Relay Company > Rediffusion > The Bristol Channel

The earliest breadcrumb, which several interviewees identified, was a little later than Telephone Avenue. It was from the 1970s. The project reused an older physical infrastructure and borrowed a local place name – “the Bristol Channel”. 50 years later, the project's impact is still tangible,

“1973 with the Bristol Channel that was the year after I was born.

At the time I was doing my Phd I made a connection with Peter Lewis who founded and was leading that Bristol Channel Pilot and they did a whole piece a work around Knowle West so I linked it up with KWMC [Knowle West Media Centre] and I'm now good friends with Peter Lewis... So even though that's before my time as a professional researcher I got to know Peter really well we did some research with him when I was heavily involved in the community media scene... it's really good to see it there on your timeline”

Dr Shawn Sobers, Associate Professor, University of the West of England & Digital Placemaking Fellow



The Bristol Channel was a local TV broadcaster, which reached 23,000 homes across the city between 1973 and 1975. The channel included Knowle West TV¹² and teams of local volunteers were recruited and trained to use a portapack - an early portable TV unit that recorded footage, which could be transferred to video for broadcast.

The Bristol Channel operated under an experimental community cable TV license, allowing the operator to re-purpose an existing cable TV network. The Western Relay Company, later called Rediffusion, had started to build-out this cable network as early as the 1930s to pipe radio into Bristol homes.

Reputedly, the need was to overcome the problem of poor reception caused by the city's hilly topography. A more recent local Bristol TV Channel still exists, although it appears less physically or emotionally grounded in the local community,

“The Bristol Channel had an impact beyond the city actually...

I mean I remember there was much talk in the early '90s surrounding community television,

community radio, and how the licenses were being liberalised; and how you could set up your own city TV studio. And that has happened to a certain extent, although I look with incredulity at the Bristol Channel that is on my Sky Box [now] which seems to show mostly programmes from Birmingham or Cardiff or repeats of Judge Judy and things like that. I very rarely see things about Bristol on it to be honest.”

Andrew Kelly, Director of Bristol Cultural Development Partnership

Ujima Radio

The Rediffusion network along with different forms of experimental broadcasting licenses crop up regularly in relation to further breadcrumbs. For example, Paul Hassan, former Director of Ujima Radio and now Development Manager at Locality, describes the impact of broadcasting licenses on another important Bristol Digital Breadcrumb – community radio.

“My starting point would be the unlicensed pirate scene in the late 80s...

¹¹From the “History of the Telephone Service in Bristol”, BT Archives, (accessed Aug, 2020), https://stowger-net.telefoniemuseum.nl/te_hist_bristol.html

¹²Peter Lewis, KWTV station manager, donated records to the Bristol Records Office archives, <http://archives.bristol.gov.uk/Record.aspx?src=CalmView.Catalog&id=44659>

There was a whole range of us working in that space primarily because Black music just wasn't being played apart from on the John Peel show... and I got to know all of the other pirate radio operators.

We would unilaterally share transmitters... using the first prototype microwave links... basically, as a way of trying to stop ourselves getting closed down by the radio investigation service... So by the 1990s because of the broadcasting act criminalising a lot of stuff... we ran a restricted service license in 1995 called Ujima, which was the Swahili thing about collective responsibility. It was primarily a youth station. We run it for 28 days in the middle of St Pauls, probably broke all the health and safety rules. We had literally hundreds of young people all day and all night, coming in and making programmes... and making music as well and taking part in discussions and debates 24hrs/day...

The radio authority was starting to recognise that the incremental licenses that they were offering... just weren't right or scaleable for community stations, so many of them, apart from the big London ones, simply went to the wall...

We were still burning the fire for community radio and that led to the radio authority finally releasing licenses for genuine community

Paul Hassan, Locality & formerly Ujima Radio

Rediffusion > Rediffusion > B-Net > Mobile Bristol > iPlus Points > StreetNet

The Rediffusion network came into the Council's ownership in the mid 1990's¹³ and was rechristened "B-Net". This enabled Bristol City Council to work with a company called CitySpace on the deployment of a network of connected iPlus Points; on-street digital information kiosks, which first appeared in Bristol around 2001.

Mike Rawlinson, Design Director and Founder of City ID was developing Bristol's acclaimed Legible City programme at the time and was closely involved with the roll out of the iPlus Points. Mike recalls,

"We were the first people really to bring the idea of i-Plus points into cities.



Bristol was the first in the UK to have touchscreen technology in its public realm." Mike notes, "they were never a perfect product... as with many digital products they were prototypes, precursors for better things and the better levels of connectivity that were to follow."

The iPlus Points had a relatively short life, most disappeared from Bristol's streets by the mid 2000s. For Mike, their real impact was as **"very early drivers for locational products in the city."** This idea is reinforced by a Guardian Technology feature at the time with the headline, Mail me from the Mall. It suggests,

"The introduction of devices such as i-plus points - internet terminals which sit in streets and provide access to local travel news, council websites, job information and send-only email - may provide clues as to how pervasive computing business models may develop."¹⁴

The Council, HP Labs, who had been based in Bristol since 1986 and were working on the Mobile Bristol initiative, and CitySpace built upon the iPlus Points (using the same Rediffusion or "B-Net" ducts and cables) to create StreetNet¹⁵, the UK's largest wireless mesh network. Phil Stenton, then of HP Labs¹⁶ noted,

"Cityspace put forward the proposal to do StreetNet, and the Council was thinking about it, and we thought it would be a good way of extending our network. So, we went halves with them - with Cityspace - and co-funded a pilot scheme turning half their proposed kiosks to run using 802.11 [Wi-Fi], to create one big hotspot in the centre of Bristol. And the Council has gone for it."

StreetNet also caught the interest of the Guardian newspaper who, in the same piece as above, extolled Bristol's visionary leadership in creating "Wi-Fi West",

"Wouldn't it be nice if you could wander down the high street, sit on a park bench, or pop into any cafe and know that you would always have wireless broadband available to your notebook computer or handheld? It is the sort of dream being sold by Intel's Centrino advertising. The city of Bristol is turning it into reality. Bristol has just opened the first stage in the development of the UK's largest public wireless network, which is being assembled from a number of Wi-Fi hotspots, knitted into a single system called StreetNet. Anyone can use it, and it's free..."¹⁷

The Guardian, 2004¹⁷

¹²Peter Lewis, KWTv station manager, donated records to the Bristol Records Office archives, <http://archives.bristol.gov.uk/Record.aspx?src=CalmView.Catalog&id=44659>

¹³The Council's cabinet agreed the purchase of the duct network from Rediffusion, for a fairly modest capital outlay, in the mid 1990s.

The initial business case was predicated on lowering revenue costs by directly connecting Council HQ buildings.

¹⁴"Mail me from the Mall", Jonathan Wright, The Guardian, August, 2000 <https://www.theguardian.com/technology/2001/aug/23/internetnews.onlinesupplement1>

¹⁵StreetNet was later rechristened B-Open, which became the Wi-Fi network's SSID

¹⁶Phil Stenton played a varied role in the development of Bristol as a Digital City, at HP Labs, as co-founder of the Pervasive Media Studio, MD of Calvium and later, Research Scientist at BBC R&D

¹⁷"Wi-Fi West", Jack Schofield, The Guardian, August, 2004, <https://www.theguardian.com/technology/2004/aug/12/onlinesupplement1>



Super Connected Cities > Engine Shed > Bristol is Open > 5G Layered Realities > 5G Smart Tourism > The Bristol Digital Futures Institute

In 2012, the Rediffusion network was yet again repurposed. This time using major grant funding¹⁸ secured from the Government's Super Connected Cities programme.

"The UK's first Super-Connected Cities have been revealed..."

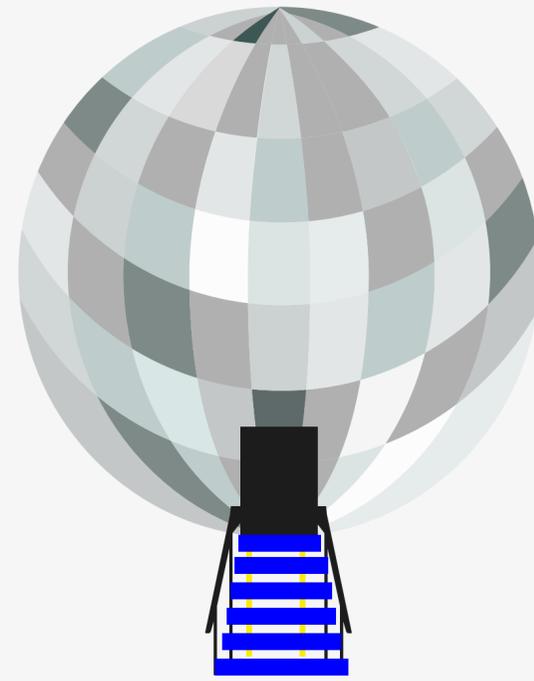
Birmingham, Bristol, Leeds & Bradford, Newcastle and Manchester along with the four UK capital cities have all successfully bid to become Super Connected Cities with ultrafast fixed broadband access, and large areas of public wireless connectivity.

We define ultrafast broadband as having a minimum download speed of at least 80Mbps. The 10 cities will share £100 million to help deliver ambitious plans to use super-connected status to drive growth, attract new businesses and transform the way services are provided and accessed."

Gov.UK media release, 2012¹⁹

In Bristol, the Super Connected Cities grant funded a variety of new projects, including Digital infrastructure for Engine Shed, the high-tech business incubator that was being developed in Bristol's embryonic Temple Quarter Enterprise Zone. The grant also pump-primed one of the city's most internationally high-profile initiatives, Bristol is Open (BiO).

Paul Wilson is now an independent consultant, prior to this he went from being the Chief Executive of the West of England Local Enterprise Partnership (the LEP) to



being the first MD of BiO. However, when defining his breadcrumbs, Paul suggests, **"Bristol is Open would probably be my number three."**

For Paul, the story also goes back to the 1970s, when **"three things happened at about the same time. They were Vision On, which was made in Bristol and went into every child's BBC programming, it was a very creative programme and... that's when Morph arrived and it was at the same time Knowle West television kicked off using cable that had gone around the city. So, something happened in the 70s to do with creativity and digital in Bristol that got everyone excited."**

In terms of BiO itself, Paul describes how, **"It was fraught with challenges and almost everybody brought a lot of passion towards it... I'm not sure we necessarily got everyone working together quite as well as we could have."**

He goes on to say, **"the secret sauce was having a tech story that was exciting to a tech industry and we used language that was recognisable to that industry... we called it an open programmable city and that talked to the tech people but we also said that cities are the future... we marketed**

))) [Clare Reddington on Bristol's Digital Physical Mesh](#)

it to sound like a solution for world problems but located in a specific city. We didn't make it just sound like a Bristol thing for Bristol, we made it look like we in Bristol were working on something which could be used all over the planet."

Although not available for interview, the story continues beyond Bristol is Open with Professor Dimitra Simeonidou's development of the University of Bristol Smart Internet Lab's Layered Realities 5G showcase (2018) and the Bristol and Bath 5G Smart Tourism Testbed (2019) and the recent launch of the Bristol Digital Futures Institute.

It is clear that this long-term investment in and connection with the city's Digital layer has been an important and perhaps, unique part of the Digital Bristol story. As Clare Reddington, Watershed, puts it,

"that 'digital physical mesh' or the 'rolling of a digital carpet over a city' or any of the other ways we've talked about it does really characterise Bristol. It's really different to what other people have done."

Clare Reddington, CEO, Watershed

4.4 WE STARTED WITH THE COPPER WIRE BUT THEN WE FOUND THE ELECTRICITY

Bristol Creative Technology Network > Vibes Café Bar > BRIC > Knowle West Media Centre > Electric December > Connecting Bristol > Playable Cities > Give me back my Broken Night...

The focus on infrastructure in the previous section shouldn't detract from the thing that really brings Digital Cities and Digital Placemaking to life, which is the creative spark it can ignite.

Paraphrasing Professor Stephen Coleman, a leading thinker on political communication and technology, and early collaborator with Bristol City Council on its Local eDemocracy programme, **'what we should be searching for is the electricity rather than the copper wire'**.

Bristol Creative Technologies Network

Dick Penny, Independent Consultant and former MD of Watershed, described how Watershed had been involved in Digital since 1992 when it installed a Digital darkroom, **"which of course wasn't a darkroom. It was a light room with some very big Apple screens for photographers, who made images chemically, to scan them in to use photoshop and change them, edit them, tint them, whatever, and print them out digitally"**. It wasn't until the Bristol Creative Technologies Network (BCTN), seven years later, that Dick and Watershed dived-in deeply,

"BCTN was seminal. It was my first introduction to what the Internet might be.

The university were really interested in how people would use high bandwidth connectivity, so they were just looking at how you built the systems in the background that allowed you to do what you wanted to do.

But it completely transformed my sense of what Digital might mean. And certainly, gave me an opportunity to see this as a whole new medium with all sorts of new affordances and potentials, alongside all sorts of pitfalls. But that's what got me and

Dick Penny, independent Consultant and former MD of Watershed

SIFT Virtual Communities > CompuServe

Ben Heald, Founder of the pioneering online platform for professional communities – SIFT²⁰ describes how, **"if you remember back in the 90's, pretty much the only way to get online as a consumer was through AOL or CompuServe...**

Bristol was supporting organisations like CompuServe, they had the top two floors of

))) [Dr Shawn Sobers on the Early Internet](#)

One Redcliffe Street, the building that TLT is now in. So then, we were pretty early on for connecting people in what we termed in those days as virtual communities, which is also a term which has come back again recently.

Vibes Café Bar

Similarly, Dr Shawn Sobers, Associate Professor at University of the West of England and Digital Placemaking Fellow, describes how in 1997, when he was working at Bristol's HTV Studio, he found himself for the first time with "access to the Internet that I wasn't paying for... in my downtime, I just started to surf the Internet and figure it out, more than I could do at home with my dial-up."

Shawn described how he went on to create a web space called, "Vibes Café Bar". He says, **"It was a bit like a Reggae, Rasta sort of vibe, and people would come to it, to listen to music. It was very early days. I didn't really know what I was doing with it. I was just experimenting really"**.

He soon also found himself acting as a mentor, **"I remember once one of my colleagues came in from one of the other departments at HTV and said 'Ooh what's that on the computer?' and I was explaining to him this concept of the Vibes Café bar on the internet and I was pretty much explaining the internet to him!"**

BRIC – Bristol Interactive Cluster

Echoing Shawn's experience at HTV, the shift from "old" to "new" media was something that BRIC – the Bristol Interactive Cluster, was championing but at the citywide level in the early 2000's. Paul Hassan is now Development Manager for Locality. At the time, Paul and his colleague, Anne Scorer, were leading the charge, via BRIC and their Broadband Show. Their aim was for businesses and media companies to make use of the headroom for experimentation provided by new, fast broadband. As Paul recalls, the transition was, at times, confusing,

"Bristol Interactive Cluster as it was called. I have a copy of the interactive cluster DVD that we put together.

That was just after the year 2000. We did an event at Watershed and then we pulled together a sort of montage of the work that people in that space were doing including Aardman and others... And I remember there were jokes about the acronym ITV, depending on where you were from, in the old media it meant television if you were from the new media it meant interactive TV. We had a whole list of acronyms that meant different things and we had a lot of fun translating."

Paul Hassan, Locality and formerly, BRIC.

Knowle West Media Centre > DEHEMS

In Knowle West, Makala Cheung's first breadcrumb was scattered when she was working for Knowle West Media Centre, a unique community Digital Media and Arts centre, housed in a purpose built eco building since 2008. Knowle West is an area known for being one of Bristol's most disadvantaged communities. Like Shawn, Makala described how she accidentally became a Digital mentor, teaching older people how to use Facebook,

"there was this moment where Digital inclusion became really important, or should I say it got recognised for being essential... I had to teach Facebook but I was never actually using it. So, I spent a week on Facebook to delve into it and then I felt very confident with it after that. Facebook was quite new at the time. People were asking me, what is it? what is it for?"

Carolyn Hassan, Director of Knowle West Media Centre recalls how they were also becoming involved in other new agendas,

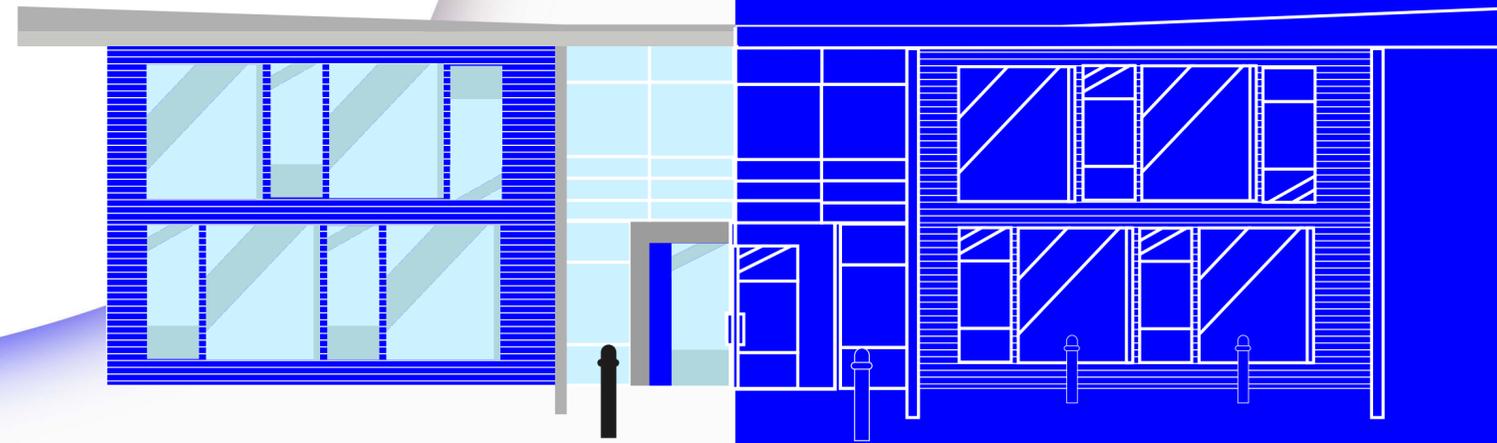
"DHEMS [Domestic Environment Home Energy Management System] ...

...for me that wasn't the usual project you would imagine a community-based arts centre, even if we were dealing with technology, to get involved with. It sounds quite dry, but I think that was a major driver for me, or an eye opener about data, and the value of data, and the misinformation there is about data, and questions it raised for us in communities.

We moved from talking about digital, and getting everyone online, to data literacy. So, for me, that was very important, we did a big project about whose data was it and how do you make data understandable and relevant in people's lives and is it, should it be?"

Electric December

"I wouldn't be surprised whether Electric December resonates through so many more people's Digital journeys than what we know about. I certainly know that for Aardman it was kind of the first Digital thing that they did."



Electric December was a tenacious Watershed programme that borrowed the form of a Digital advent calendar to open a window everyday during the countdown to Christmas to reveal a creative, Digital present.

Electric December ran throughout the 1990s. As Dick Penny, former Watershed MD recalls, **"we actually cheated and used an advent calendar that went all the way to the end of 2009. And the final window actually opened on the dawn of the millennium, so we were sort of cheating a bit by using a physical world form and wrapper to say that we're entering a new century and a new medium."**

The programme attracted diverse participation, from creatives, technologists, businesses and the community but as Dick says, that was the intention, **"really it was just an engine to get people to play, so we got Aardman's working with schools, we got independent games makers working with community groups to just mix it up.**

And, what we were trying to do with all of this... was this open space where you made up your own rules and that was fascinating and led to all sorts of crazy ideas and innovations and masses of skills and confidence development."

Clare Reddington, who took over from Dick Penny in 2019 as Watershed CEO, also cites the importance of Electric December and its relevance to very current city initiatives, **"if I go back to 1999... I wasn't at Watershed although I was a punter of Electric December. But... I have just finished the first iteration of Bristol Arts Channel... that project was about asking how do we create an audience-facing cultural programme for a city online.**

If all the cultural organisations are throwing stuff out, how are we a bit more thoughtful about it. How do we programme across the city? And it really felt like Electric December in many ways...

But Electric December was created because there was this new thing called The Internet and it was all about pairing companies, community organisations, and cultural programmes around engaging with new Digital skills to make a present for the audience. It just really struck me how we were essentially doing the same thing, and this time what was great was that Digital connectivity is better..."

Clare Reddington, CEO, Watershed

Playable Cities

Playable Cities was developed by Watershed and a range of collaborators in 2012 as a counterpoint to Industry narratives about Smart Cities and efficiency.

Playable Cities sought to develop creative Digital experiences that were embedded within the built environment. Dick Penny describes how Playable Cities built on the energy of Electric December by making Digital more physically present in the city's public realm,

“Playable cities was, for Watershed, a decade or more on from Electric December, a sense that this stuff can have an impact on the physical space, that was quite a seminal moment for me. I think it was that we’d gone through a decade of trying to get people to play in the virtual space and begin to understand the language of the virtual space, which was okay. But it’s about virtual and physical and how they combine.

And what Playable City was about was a way of saying we are now post-Digital and how do

we roll this out into our physical environment and the one we occupy is a city, so how do we actually use this in a city space for the benefit, for the enjoyment, whatever, of citizens. So it was that shift back into the physical world with that knowledge of what’s in your Digital toolbox.”

Give me back my Broken Night

Roseanna Dias, Creative Producer & Digital Placemaking Fellow describes how her involvement with the Digital City is more recent,

“My engagement with Bristol as a Digital city doesn’t go back that far, I moved here for university in 2008 and graduated 2012. It was after that when I sought out the creative industries and tried to understand them.

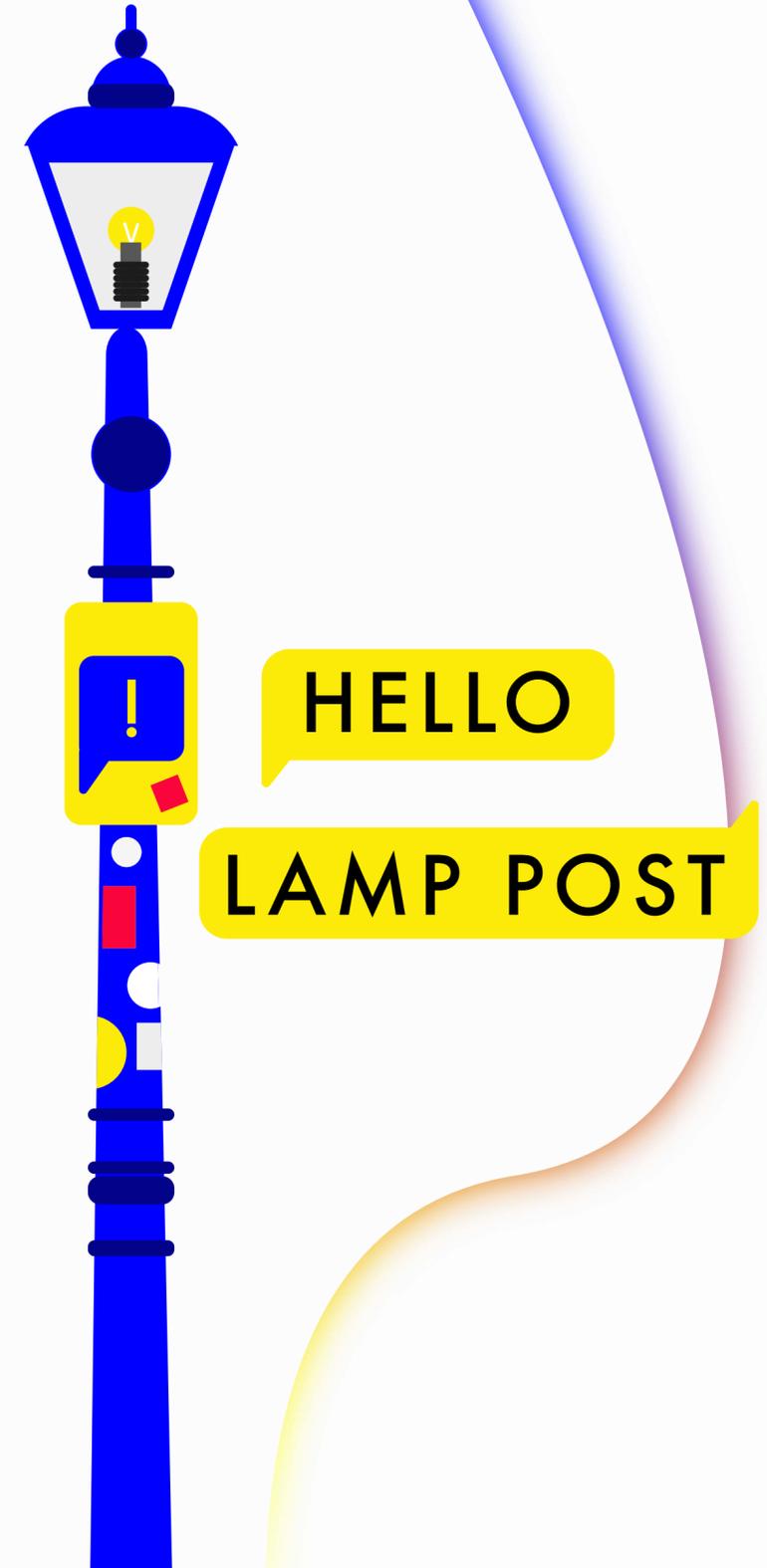
Certainly, Watershed was a place that I found out about quite quickly, as a media studio and being a spot for exploring Digital and creativity.... I used to actually usher at Watershed, I was originally in the box office; I was moonlighting, I had about five different jobs at that time.

One of the things I ushered was called Give Me Back My Broken Night... I was ushering so, seeing behind the scenes. But it really blew my mind as to what was possible using digital technology like projection mapping and live illustration that would then be mapped onto actual places around the Temple Meads area and the potential for Digital overlay and unlocking conversations about place and using that technology to imagine what it could be and what it could look like.

It felt really powerful.”

These accounts remind us that the Digital City is as much a personal creation as it is the product of a strategy or overarching plan. Interviews’ engagement started in a multitude of different places and followed entirely bespoke routes.

Whilst I have presented it as a timeline, it is more like a web and the haphazardness of the journeys and connections build the overall strength.



SECTION B: CONNECTING BRISTOL



Connecting Bristol

“Connecting Bristol was very important and I still remember the first meeting I went to around that, which was the first time we felt we’d been included in the rest of the city.”

Carolyn Hassan, Knowle West Media Centre

5.1 SCATTERING MY OWN BREADCRUMBS

One drizzly evening in 2004 an eclectic group of people gathered in the café bar of Bristol’s Watershed. We were interested in culture, the arts, politics, democracy, the environment, open source technologies and the Web. We’d heard that Government would be launching The Digital Challenge,

a competition to identify the country’s leading Digital City. All agreed that such a competition was overly simplistic but if there was to be a Digital leader then it should, of course, be Bristol.

The bid we went on to make was called “Connecting Bristol” – a nod to both the ambition to roll-out ubiquitous Digital infrastructure and to use it to build links between the city’s diverse communities. We envisaged a rapid 5-year shift to 2010, after which the Digital City would enable everyone to work from home, or closer to home, benefiting the city’s neighbourhood high streets and the environment by promoting sustainable transport and cutting traffic congestion.

The bid suggested ‘the corner shop keepers will be amongst the first to notice that a Digital transformation had taken place’ because people will be spending more time in their local areas. We also envisaged an escalating focus on Digital skills, inclusion and Digital literacy – ‘all schoolchildren will be Digitally connected at home as well as at school’ and ‘attainment levels will be soaring as a result.’ We imagined a model of connectivity where

businesses could easily access very high speed, “symmetrical” connectivity – providing ‘more bandwidth for upload and download than they knew what to do with. This would be a ‘catalyst for experimentation and innovation’. Finally, we also understood the importance of reaching outwards – **‘Bristol’s creativity will drive success, underpinning new local to global connections.’**

Connecting Bristol attracted wide support but the bid was ultimately unsuccessful in securing the big funding prize²¹, Government instead opted to crown Sunderland as its Digital Champion. Many would come to believe that Bristol both lost and won. The city ploughed ahead anyway, creating its own Digital then Smart City programmes – the ecosystem of partners bolstered more by the experience of losing together than if they had won on someone else’s terms.

5.2 EXTRACT OF OUR CONNECTING BRISTOL VISION (2004)²²

- A city recognised as the UK exemplar Digital community
- Fast, affordable wireless connectivity is widely available and well used
- All school students provided with portable handheld devices and attainment is improving across the board
- High levels of digital literacy with families feeling competent and safe online
- Mentors to help people in the community and in their homes who need extra support to get online
- Digital business is flourishing with small businesses driving innovation across the city region
- People regularly working from home, or in local community hubs, avoiding commuting to work, flattening peak-time congestion
- Environment is benefiting and local shops are thriving. Digital technology is making carbon use visible
- “Then there are the solutions that the community generated - we created the space but that’s where the real innovation came from and the ideas kept coming from people and places that only a decade ago everyone discounted as deprived”

²¹Government was eventually persuaded of the benefits of providing funding to the 10 regional Digital Challenge finalists, who went on to collaborate via the Digital Challenge “DC10” network
²²The Connecting Bristol bid only exists as a beautifully designed and boxed hard copy, so no url is provided

5.3 FROM THE LOCAL TO THE GLOBAL

The Connecting Bristol Vision was developed before the phenomenal rise of the Tech Giants, Facebook, Apple, Google and Amazon, collectively valued at £3.7 Trillion in July 2020²³. It was the product of a moment in time when Councils could be technology pioneers and Bristol City Council (where I worked) felt it had a powerful leadership role, perhaps even a moral responsibility, to shape technologies so they were accessible to everyone and used for the civic good.

When writing Connecting Bristol, we naively believed that the Internet was ours, it was a local resource and should be used for the benefit of local people.

During the intervening decades, the agenda slipped away from the local towards the global. Smart City narratives often cite 2014 as a tipping point – the year the world became more urban than rural, but in reality the financial crash in the late 2000s and the long period of public sector austerity that followed are equally significant. The Connected City became the Smart City, adopting the language of efficiency, financial savings, big

data, predictive analytics, and many would say, surveillance and control. The goalposts had moved and the referee, along with the rest of the world became augmented with an autonomous system.

“Quite rapidly there seem to be this Corporate footprint, stamp takeover kinda thing that happened quickly when they cottoned onto it. I think that was around 1997.

Yes, it definitely opened my eyes – it felt like a shift in the Internet becoming more commercial, more professionalised and becoming populated by these different entities.”

Dr Shawn Sobers, University of the West of England

Now, as we look around the world, global companies such as Sidewalk Labs in Toronto²⁴ and Toyota in Japan²⁵ are partnering with national and local governments, investing billions in bringing together cutting edge technologies with cutting edge urban design - creating new Smart and digitally enabled waterfronts, districts and even new-build cities.

If these are ever built, and there are currently doubts²⁶ it will fundamentally change how citizens interact with cities. It is hard to see where local accountability will fit in or if it fits in at all.

The Smart City has also become to be seen by many as a wider existential threat. At worst, it is a colossal user of electricity and resources, which makes it an accelerator for the climate emergency; through its 5G masts and millimetre wavelengths, it represents a threat to public health and it has nurtured an unbalanced and exploitative economic model based on surveillance capitalism and zero hours contracts. This is, of course, just one side of the argument. The debate is complex and fact and misinformation are regularly and possibly deliberately entwined as Smart City assets and ideas are weaponised in the context of geo-politics. However, it is certainly true that the Internet has become a place of global consumption, as much as a place of production. As Roseanna Dias, Creative Producer and Digital Placemaking Fellow notes,

the more we damage each other as a global community.

So, I think... it's also about understanding how currently these things are set up, they often don't benefit the local community and actually negatively impact the global community which we are apparently even more connected to. We know that the more we consume the more we damage our planet...

Roseanna Dias, Creative Producer & Digital Placemaking Fellow

²³Markets Insider, (accessed Aug 2020), <https://markets.businessinsider.com/news/stocks/facebook-apple-amazon-alphabet-stock-price-add-market-value-earnings-2020-7-1029455838#>

²⁴Sidewalk Labs Toronto, (accessed Aug 2020), <https://www.sidewalktoronto.ca>

²⁵Toyota Woven City, (accessed Aug 2020), <https://www.woven-city.global>

²⁶In “Death of a Smart City”, Brian J Bath, (Aug 20) it is reported that Sidewalk Labs have withdrawn from the Toronto project, <https://onezero.medium.com/how-a-band-of-activists-and-one-tech-billionaire-beat-alphabets-smart-city-de19afb5d69e>

Then in 2020 the pandemic hit us and we woke up to the reality of living in the Digital City. The Connecting Bristol Vision, drafted more than 15 years before, seemed as if it could have been intended as a manual for living with the impacts of the pandemic. How could we survive without ubiquitous digital connectivity or the skills to make use of it?

Working and studying from home, for many, became the norm. Local shopkeepers got to know residents better than ever before and we started to appreciate them for the asset they are. And Digital culture kept us entertained and sane. In the interviews for this study, Andrew Kelly, Director of Bristol Cultural Development Partnership and Founder of the Bristol Festival of the Future City even joked that we should just change the dates and resubmit the bid to Government.

“If you look at all those things that are listed there [in the Connecting Bristol Vision] imagine the value if all of them were achieved.

If you’re planning now for a future pandemic, which I guess must be really at the heart of what Government is thinking about, you would almost have to see those things be implemented. So, if I were you Stephen, I would just change the dates of that to 2020-2030”

Andrew Kelly, Bristol Cultural Development Partnership

The questions it raised for me are, why did it take a global pandemic to deliver in 15 or so weeks what might have been delivered over 15 years and what can we learn to help frame future Digital City visions?

5.4 VISIONS OF THE DIGITAL CITY

Reflecting on the Connecting Bristol Vision, it is clear that its core agenda of Digital Inclusion still has massive relevance today. The pandemic has not created the Digital Divide but it has thrown new light on the terrible disadvantage it creates.

“Digital exclusion is another facet of the deep inequalities which run through the social fabric of the UK and is more widespread than many people are aware of.

One thing is clear: the public health crisis currently gripping the UK stands to make the impacts of digital exclusion worse for the millions of people affected, and the poorest will be hit the hardest.”

Hannah Holmes & Gemma Burgess, University of Cambridge, (2020)²⁷

“I just want to say this sentence...

When you start talking about the High St I did start to think about access and who and about affordability and that idea that the internet café was once a big thing and maybe libraries and

Community centres - but actually when you go to those spaces they are still being used & there is still a digital divide or digital poverty as its now

Dr Shawn Sobers, University of the West of England

Roseanna Dias also reminds us that Visions are only as good as the actions they enable and deliver.

‘... we’re really good at speaking aspirationally and I think Bristol is a place you can move and make moves, but it isn’t the case for everybody.

And then, you know, you see people uprising and taking matters into their own hands, so I know that’s not exactly a digital example but that really encapsulates for me some of the misgiving of some of the processes that underpin these city-wide visions that involve communities in an extended consultation, but where’s the action?

Roseanna Dias, Creative Producer & Digital Placemaking Fellow

²⁷“Pay the Wi-Fi or Feed the Children”, Hannah Holmes & Gemma Burgess, University of Cambridge (accessed Aug 2020), <https://www.cam.ac.uk/stories/digitaldivide>

Looking more deeply at the Vision and what it hoped to achieve, it is clear that some aspects moved forward far more than others.

Over the last decade, Bristol and the wider West of England region have developed a strong narrative as a place for High Tech and Creative Digital business. The Smart City and the Smart Region form part of the Local Industrial Strategy²⁸ aimed at inward investors and encouraging clean, inclusive local business growth. In some ways, this mainstream economic focus may not have been what was intended.

As Clare Reddington, Watershed, notes **“A lot of the reason these ideas keep coming around is that the technology isn’t ready when we’re having them. And that’s what the investment community really misunderstand about Bristol, we’re prototyping user experiences and ideas far before they’re ready to scale. Which is why we talk a lot about invention not innovation, because innovation is a system of scaling and stabilisation and don’t necessarily think that in this context that’s what we’re doing.”**

However, as multiple studies make clear, such as the Tech Nation annual Digital Economy reports, Bristol’s headline has become the prodigious contribution the region makes to the UK value added gross domestic product (GVA)²⁹

The Digital Economy is clearly a very significant part of what has been achieved. It attracts bright people and new investment to the region. The likelihood is that it will continue to be important post-pandemic as Digital businesses prove themselves to be amongst the most resilient to the current economic disruption.

However, the Connecting Bristol Vision was also focused on the community. It hoped to ensure that the Digital City tackled exclusion and the wealth and health divides that still frame the city’s inequalities.

These aspects appear to have moved forward less quickly, or at least less visibly. For Roseanna Dias, this is no surprise,

“It takes time to build those relationships and create change.”

And that’s not often factored into our strategic plans. I found it really interesting that within this Digital City Vision again it is the communities that have lost out or been missed from the narrative. It doesn’t surprise me.”

Roseanna Dias, Creative Producer & Digital Placemaking Fellow

Mike Rawlinson notes that the city’s neighbourhoods have certainly developed since this Vision was drafted but Mike wonders if their digital stories will form part of the next phase of development.

“I think Bristol is one of the most open cities you could imagine to find yourself in...

in many senses, & I like to think it is increasingly a more tolerant & open city... if you look at the diversity of neighbourhoods that we now have: many of those neighbourhoods now centre around local high streets, local activity networks... for instance... Easton and even Stokes Croft. It was not a classic regeneration

model, but we’ve seen quite significant transformation in those environments... how that relates to the digital story of the city I’m not yet sure, but I think that’s part of its next chapter...”

Mike Rawlinson, City ID

For Clare Reddington, a major challenge of implementation over the last decade was that Funders were reluctant to support the community elements of Bristol’s Digital City aspiration. This meant Bristol had to “smuggle-in” its ambition, rather than be more up-front and explicit.

“... everything that we are engaged in, this is ambitious, and it blends social impact with financial impact.

It’s a triple-bottom-line vision and in the end nobody gives a shit about those bits do they. I don’t suppose they funded us for that bit. They funded us for other reasons and we’re always smuggling this stuff into government...”

Clare Reddington, CEO, Watershed

²⁸West of England Local Industrial Strategy, West of England Combined Authority, (2019), <https://www.westofengland-ca.gov.uk/ourstrategy/>

²⁹The Tech Nation Report 2017 reports that Bristol digital businesses generate £2.9Billion per year to the UK economy, <https://technation.io/insights/report-2018/bristol/>

Smuggling was a strategy that worked well in some ways, many of the breadcrumbs described in the previous section of this study would not have happened otherwise – but in other ways, it was far from satisfying,

“We kind of became poster children for a system that we didn’t really believe in.

I don’t know and I think it’s hard to tell because I think our way of smuggling meant that the impact that we undoubtedly made is difficult to track.

Like those breadcrumbs, they become very disparate and small. And really, change is intimate, change is really is person to person and nudging people along. Like, active scary change wouldn’t have happened at all back then. But it’s difficult to track isn’t it, the efficacy of smuggling is a difficult impact study.”

The extent to which the COVID-19 pandemic will create an inflection point for new thinking and new hybrid business models to emerge is something that Clare is actively thinking about.

“I just wonder whether... right now and post-COVID, that money and growth are really bad measures of what it is we need...

and so there will be more of this kind of thinking allowed... one of the things I’m really excited about... going forward is the need for hybrid business models, so we’ve all done digital for four months, and now we’re going back into the real world.

We need a much more hybridised thing... We’ve successfully engaged a lot more people, especially disabled people who couldn’t leave their houses, with culture. We can’t really turn that off again. So, how do we do both going forward?”

Clare Reddington, CEO, Watershed

Richard Potter, Chief Technology Officer at Microsoft Consultancy Services (and a long-term Bristol resident) is complimentary about the Vision but like Clare, he questions whether the breadcrumbs add up to more than the sum of their parts.

))) [Richard Potter on Enterprise and Digital Cities](#)

“It’s strikingly prescient isn’t it?

You wrote that in 2005 when the world was technologically at least a different era, the iPhone hadn’t been released then. So, all of these things would characterise a Digital City.

From my editorialised view of what I think a smart city really is, there are ones where there is sufficient capability and empowerment in all aspects of the city that people can innovate using technology to solve their problems. That’s an incredibly simplistic way of saying that, but the key point behind it is that this not some top down big architecturally determined plan but that there are enabling capabilities that are disperses and augmented by support facilities that enable those entrepreneurial enterprising communities to build solutions for their city.”

Richard Potter, Microsoft

Several of the interviewees provided a perspective from the community that considers how the Third Sector (voluntary and community organisations) have responded to the Digital City recently and over the last decade. Paul Hassan, Development Manager at Locality, notes the cultural issues that have slowed progress but Carolyn Hassan, Director of Knowle West Media Centre (no relation) also senses a new shift.

“... it’s just that people haven’t been immersed in that world. People who come into the third sector tend not to have been in the digital space at all they tend to be in a sort of DIY space and tend to be mistrustful of digital and IT.

I think a lot of that is ultimately due to the way that groups, the 2000 bubble sort of companies, are not trusted and are seen as antipathetic to community interest.”

Paul Hassan, Locality

“I think it’s too early to say whether people have been receptive to the benefits of technology. I think everybody now recognises that it’s going to be a part of our lives, so I hope it opens up doors. I think it will.

A lot of the challenges we faced as a community-based organization using technology was that a lot of the voluntary sector in the past had said to us, ‘well, this isn’t our priority’ but the pandemic has made it relevant because it is now the main way of communicating.”

Carolyn Hassan, Knowle West Media Centre

Makala Cheung, Creative Director at Filwood Community Centre, reflects on how, even when working with the community on the design of technology projects, it is difficult to compete with mainstream technology solutions, which have substantially more investment and deliver better functionality than can be easily created locally.

“We were doing a project and it ended up basically being before we knew it a local version of Instagram.

It’s almost like ideas live in the air and we were a local community and it became reality and translated through the work that we were doing very local but also a big tech giant had the idea.

They started up and grew Instagram in the background, it was underground and then it became really popular. And by the time we’d finished our project, it takes longer to develop things in communities because you’re working with people and responding to people, and then we were like oh, we have Instagram.

So, then we said well maybe we should just use Instagram but do all the tagging [we were doing] but just use Instagram instead.”

Makala Cheung, Filwood Community Centre.

Generally, interviewees appear reconciled to the fact that communities have benefited during the pandemic from using existing mainstream platforms, particularly Facebook and WhatsApp. These may be top-down in their design but have been ground-up in their use and application.

“... The landscape we’re in now it’s difficult to unpick...

On Facebook people have come together to set things up. So, you do have these neighbourhood Facebook groups that talk to particular postcodes, WhatsApp groups & those sorts of things. I think they can be quite hard to spot but I think there is a vernacular ground up use of the tools that we’ve got access to that are on neighbourhood levels, that aren’t the top down big initiatives, civic kind of uses that we were thinking about back then... I think different neighbourhoods found ways to connect and communicate just using the tools they’d got...”

Dr Shawn Sobers, University of the West of England

“Bristol was very focussed on the idea of digital & place 15 years ago, back to 2005.

At that point, you know the internet became global; It didn’t become this local harbourer of distinctive stories and richness locally actually, it was taken over by your Googles and subsequently a whole host of different ubiquitous global providers of information... your Facebook, right through to AirB’n’B & all the rest of it.

So I think... out of necessity people have fallen back on new types of networks & have had to develop networks, albeit using channels that currently exist – your Facebook, your WhatsApps, whatever, but the use of those, the content within them is carrying a different message to what it ever did and I think creating, - what hyper-local messaging is about - content generation coming from new authors, new micro-curators within the city who want to set up groups, want to promote independent businesses, that want to promote walkability & all these other things and factors that we’re now having to address.”

Mike Rawlinson, CityID.

Interviewees described how, during the pandemic, the Third Sector has played a central role in supporting Digital inclusion. There is a broader question as to whether this is the right focus for the sector to take and indeed, why the responsibility for it falls here, rather than to the State, Local Government and/or Business.

Carolyn Hassan, Director of Knowle West Media Centre suggests that, whilst Digital inclusion is important, so is ensuring that citizens have the skills to become content producers and Digital makers. She is hopeful that one positive outcome of the pandemic might be a loosening of bureaucracy, greater freedom and shared purpose,

“I think there are some things we need to think more deeply about now.

So, this high level of digital literacy within families, feeling competent and safe online, all still very relevant. But how do we create makers and producers of content rather than just consumers?... that’s something, through the recent pandemic, that we’ve been thinking about, how is all this tech, how does this connectivity help people create the solutions they want?... I think we went through a period where we weren’t that interested in everybody else—I don’t mean we as in you and I but society. I think that the pandemic has created focus and maybe a loosening up of the bureaucracy... so there’s a lot of concern around privacy and security but some of these things got in the way of being more agile... focus and purpose got lost, I think.”

Carolyn Hassan, Knowle West Media Centre

Paul Hassan is similarly positive about the future. He sees potential for the Third Sector to become more tech and data savvy with organisations joining forces to provide data-rich insights directly to the local community and the neighbourhoods they're working with. Like Carolyn, he also sees the opportunity for a new, more agile and responsive form of activism and support, based on lighter ways of working and new methods of digitally enabled collaboration.

"It has already started really with the emergence of the mutual aid groups.

They've been led by Facebook and have been very smart phone driven... it's about immediacy it's about not needing an over complicated bureaucracy... it could meet the need and then disperse or dissolve...

... the opportunity as part of this next really localising phase is how you throw the energy of the digital space and mutual aid groups and WhatsApp groups with the longevity of the community organisations that have been there. I think there is probably some meeting of minds and some iteration between those two things to make sure we get the best of the technology...

... one of the unique selling points of community organisations that will be big over the next 10-20 years is that what we've got is trust. This is something that those big tech companies

haven't got, most of them, and trust and data ownership will become really interesting as we work out how to navigate it as people become more conscious of the way that their data is used with or without their permission..

And then also see the benefit of starting to collate that data to do things and to talk about the neighbourhoods that they are in, to highlight issues and to do things directly that is very customised to a particular need... it is starting to come at the edges around the city..."

Paul Hassan, Locality

Roseanna Dias, Creative Producer & Digital Placemaking Fellow also warns of the human cost associated with feeding mainstream Digital platforms, such as Instagram. Black Lives Matter and the toppling of the Edward Colston statue in Bristol were significant events that took place during the period of the research.

They created a global outcry with a particular local focus. Roseanna describes the exhaustion felt by her contemporaries as they face pressure to "perform" on these platforms; a lack of presence creating perceptions of a lack of interest or activism.

"... a platform like Instagram, which is so visually led, which is trying to get us to increasingly create dynamic and sexy content for the platform. So it filters constantly through new feature and that kind of stuff...

I think there often feels like there's a lot of pressure, not just from the platform itself but from peers, from ourselves that if we as activist from wherever you come from are not being seen to perform in that space are you even doing anything...

...thinking about how it [Instagram] has been used this year, in the context of the BLM uprisings that have really ignited a huge debate amongst my peers and colleagues and how it has been performed, I use that word quite deliberately.

How that has been performed online and the nuances of having that debate on a space like Instagram and what that means for my Black friends and colleagues.

What that means to be overloaded in that space and what it means to other people of colour allies who support but also feel exhausted by that space; and then what it means for white friends and family members and other people who are engaging with this but in a very different way or who haven't engaged with this and how there's a power in what's happening in that space and this hyper visibility of being a person of colour in those conversations and the hyper visibility of how these issues are affecting us, so they can also feel quite detrimental to mental health...

...they're performing free labour essentially and gifting their cultural capital to corporate entities and providing a lot of big data that we know from lots of instances that it's often used against the people who create it."

Roseanna goes on to talk about the type of support that might be needed by people who are dealing with the expectations of hyper-visibility. She is thinking of this in terms of "Digital spaces of care",

"I'm starting to think a lot about how we might create digital spaces of care. I'm still defining what a digital and potentially physical space of care might look like and developing that in conversation with the young creatives that I work with and the other people working in this kind of space; artists who are thinking about rest as a political action, and what it means to have spaces where you can just be, instead of performing, and get some nourishment."

Roseanna Dias, Creative Producer & Digital Placemaking Fellow

In summary, these accounts draw attention to the tensions that lie at the heart of the Digital City, the abhorrent impacts of Digital Poverty versus the pressure to feed Digital platforms by being Hyper Visible and always present; the question of who builds and owns the city's Digital Platforms and how value is distributed; and the cultural reasons that help to explain why community uptake has, in many ways been slow, making it easy for the economic narrative to become the one that has dominated.

Perhaps the biggest tension is to what extent, we might challenge ourselves, has our collective Digital Leadership over the last decade been challenging enough? There is always the nagging doubt that we should have done more.

SECTION C: RE-LOCALISING THE INTERNET

“When you say the local internet, for me, I can see how people are part of the infrastructure in that much more quickly than a globalised one, it’s very anonymous isn’t it. The word local feels very personal.”

Clare Reddington, CEO, Watershed

To finish, I was keen to explore whether interviewees felt the trend towards globalisation needed to be, or indeed could be rebalanced. The provocation I developed was to ask whether we should “re-localise the Internet.”

I chose the term “re-localise” as I had a strong sense that we had lost something that was once there. The first section of this study recognises the convening power of local Digital infrastructure. I recall images of Bristol Wireless, the local community coop, strapping Routers, which they had made or refurbished, to Council Tower blocks; installing webcasting equipment into the historic Council Chamber for the

first time; being able to email from a touch screen kiosk in the shopping Centre, and via Playable City, being able to say “Hello” to a lamppost³⁰ that would talk back, and contemplating just how “evil” Bristol’s hills can be³¹ if you are in a wheelchair: this sense of physicality has been lost as B-Net swapped the “B” for Bristol with a “C” for Cloud.

6.1 THOUGHTS ON RE-LOCALISING

It was a question that split the interviewees. Paul Wilson, Independent Consultant, said clearly, no,

“I don’t think digital can equal local.

I think digital ends up becoming virtual and global very quickly... I am not bothered about the infrastructure, but more what it enables. So, the question is what applications do I want? And I think there could be many options.

Building your own infrastructure is in a sense putting up another barrier, as it wouldn’t necessarily connect to Birmingham’s for example. I think that approach could happen because of

the Huawei thing and it comes from Trump. I think it’s nationalism. So, I don’t want to put up a wall, I don’t want to create infrastructural walls I want to break them down, but I don’t mind having applications that do.

So, I don’t want to re-localise the internet, no.”

Paul Wilson

Richard Potter, Chief Technology Officer, Microsoft, also steers away from the notion of rebuilding or replicating Digital infrastructure at the local level, for reasons of efficiency, security and time.

I suppose the challenge here is, ultimately, the ownership of the intellectual property that is transforming the city and I can completely accept that there is some anxieties around “Big Tech” monopolising the data and the experiences of a city.

But there is an inevitable commoditisation of that service for the development of incredibly rich intellectual property on top of that and my view of that is I would love incredibly localised

innovation on a platform and that’s what Bristol can and should do.

I’ve clearly come from this world, so there is a preconception here, but I see little merit in trying to recreate the more commoditised aspects of connectivity, storage, and computing that sits inside the cloud and I think that’s not a space where we should be investing time.

There is incredible opportunity that sits in the landscape beyond that in a city in its own empowered way that can still have control of their data and the experiences that sit on that platform to still innovate and deliver value in the community.

My concern would be that if we struggle to recreate something that has already been created in a much more efficient, confident, and secure way by someone else then let’s not waste time by doing that, and there’s no commercial agenda here I just think we could waste time there which could detract from the bigger experiences we could be working on.

Richard Potter, Microsoft

³⁰Hello Lamppost, [2013], <https://www.playablecity.com/projects/hello-lamp-post/>

³¹Hills are Evil, [2011], <https://www.watershed.co.uk/ished/mediasandbox/projects/2010/hills-are-evil/>

Carolyn Hassan, Director, Knowle West Media Centre, expressed a different viewpoint. Over many years, Carolyn and the team have been working with an independent web developer to create a community-based platform called Made Open³².

According to Carolyn, **“it really needed the pandemic to suddenly encourage people to volunteer... there’s about 6000 people that volunteered...”**

The challenge that arose with how to direct volunteers from a citywide platform to the needs that existed at a local level. Carolyn describes how, **“some of my team developed To Fro, which is connecting the volunteers, who were all dealt with through the city council through their DBS checks... but we could then channel them to the relevant hubs...”**

For Carolyn, **“technology has relied on trust and people, and so I think that kind of returning to a systems or tools that are recognised to be about the place or the community or the people that you are trying to build relationships with is very important.”**

Interviewees also suggested that Local verses Global wasn’t an either/or choice; it was possible to aspire to both. Clare Reddington surmised that it was within our gift to act locally to bring about change but that this could also ripple outwards and have wider impact.

“I think I am more with the re-localising...”

it’s interesting that the activism we’re involved in now is... around inclusion, who is authoring what for whom. And, in a way that takes us back to the local because we can’t make structural changes in the international technology market, but we can go back to making really compelling, attractive, inventive solutions which are also inclusive...

I also don’t see it as a choice, and I’m very much about international connections and I know that I have a whole load of work that is based on international work. That has to change now and that will be very interesting, but I guess it’s ripples and resonances. A strong local internet can ripple out and find resonances with other strong local internets and networks.”

Clare Reddington, CEO, Watershed

6.2 HEY SIRI! HEY BRISTOL! HEY KNOWLE WEST! HEY FILWOOD! HEY WORLD!

It is difficult, conceptually and practically, to step outside of the global platforms that frame our daily interaction with the Digital World and imagine what a re-localised Digital City or place could be like.

Digital Assistants such as, Siri, Alexa, Cortana and Bixby, are becoming more sophisticated all the time yet when I raise my phone and say “Hey Bristol”, Siri asks me, “Which one?” highlighting that for these platforms, Bristol is just another data label. To counter this, I invited interviewees to consider what opportunities they felt could open up if we were to say “Hey Bristol”. The idea provoked an interesting and enthusiastic response.

“...replacing Google or Siri with “Hey Bristol!” that is an absolutely legitimate capability for you to have.

You’re saying you would like to create a new experience that would generate a more local sphere of knowledge that would have a user interface that was tuned to the experiences of a Bristol citizen, that would be absolutely up for grabs.

But don’t try and recreate the whole infrastructure that that sits upon, think of things like fuelling this experience with a digital currency like what the Bristol pound was trying to do for instance, how could we bring in a digital currency that is connected into the commerce of the city that has a feedback loop into local development and the prosperity of communities in the city.

It’s an enabling tool, so it’s still not at the forefront of everything that we do, but it’s still up for grabs in this space. And I would love to see Bristol pushing on with innovations like that... [creating] enabling tools that would allow Bristol to thrive.”

Richard Potter, Microsoft

³²Made Open, <https://madeopen.co.uk/our-team>

Ben Heald, SIFT, is similarly excited by the “Hey Bristol” idea. Ben Chairs Bristol £, the local currency³³ that Richard refers to above. He sees the “Hey Bristol” idea as core to a need for wider socio-economic and political shift,

“This is absolutely to the core of one of the things I’ve spent a lot of time thinking about.

if you look at the cities around the world that are absolutely wanting to challenge that Californian hegemony, it’s cities like Bristol, Barcelona, Bordeaux. I’m a huge believer in greater devolution to cities, that doesn’t happen in the UK.

You know, why shouldn’t we challenge that status quo and localize more of these services? For those global businesses, we are just a data point. We’re source data for their products, why should we put up with that? The sort of things we could build through services like, “Hey Bristol!” or Bristol Pay or a Bristol App, why should a percentage of money on every single transaction in Bristol go to California? Why don’t we keep it in the city for our own needs? The technology

to do that is now common, it doesn’t need to be redesigned it already exists.

Why don’t we have a system that encourages citizens to keep parks tidy, check in on people, do their shopping for them, etc? And, you could get some points or tokens for doing that, giving you deductions on your council tax. You could easily justify that from an economic perspective with the council.”

Ben Heald, SIFT.

Dr Shawn Sobers, University of the West of England, plays with the “Hey Bristol!” Idea, imagining a whole new Internet design based on an interface that presents only the hyper-local,

“I’m thinking, what would the internet look like with a re-designed earth that was basically populated with different websites that were geographically situated and what would the maps be like when you zoom in? A bike workshop might be next to a bakery website or whatever it might be. Yeah, one hell of a feat of design, but it would be really fascinating. It would pop up with all the weird and wonderful.”

Dr Shawn Sobers, University of the West of England

Mike Rawlinson, City ID, is actively building an interface a little similar to the one that Shawn describes. City ID, working with Calvium and the City Council, have been commissioned to develop a Digital Placemaking prototype called Pop Map³⁴.

This seeks to present the user with an intuitive map interface that shows the city in a distinctly local way, revealing hyper-local and time sensitive information and events and prioritising walking and cycling routes and the public realm over cars and highways.

Pop Map is currently focussed on the centre of Bristol but Mike points to the wider curatorial and convening roles that cities will need to take on in future if localised digital approaches are to scale,

“...there’s a fundamental role for cities to take ownership of the supply of data and content

...and provide that, and structure that in a way it can be developed in a way that were trying to develop with Pop Map- an idea of providing information that is... by the people and for the people themselves.

So it’s a more bottom up agile way of delivering your service and it’s done locally, done with a sense of authenticity, it’s about content generation coming from new authors, new micro-curators within the city who want to set up groups, want to promote independent businesses, that want to promote walkability & all these other things & factors that we’re now having to address.”

Mike goes on to suggest one possible solution, **“something like a Data Commons for a city, where it takes on the role of providing / updating information as part of its resilience strategy in real time and it does it in a bottom up way that is co-planned with different organisations, businesses, different agencies in the city and it tells them more accurate & representative stories of the city.”**

Mike Rawlinson, CityID.

³³The Bristol £, <https://bristolpound.org>

³⁴Digital Placemaking Prototypes, <https://bristolbathcreative.org/digital-placemaking-prototypes>

Carolyn Hassan, Knowle West Media Centre, has been a long-standing champion for the community's use of data, through projects like Whose Data³⁵ and the Bristol Approach³⁶. I asked Carolyn what might happen if we were to say, "Hey Knowle West!".

"It goes back to the original problem that communities don't even feel they're part of Bristol,

that's why we need a "Hey, Knowle West!" kind of thing, to build a sense of place and build community... What would happen if you said "Hey Knowle West"? You would want to come here, and I think the kind of questions you would want to ask it are, "what's the best use of my time today?" There's something about how we use our time, who we relate to, and what we do... build a safe environment... to meet and to do things."

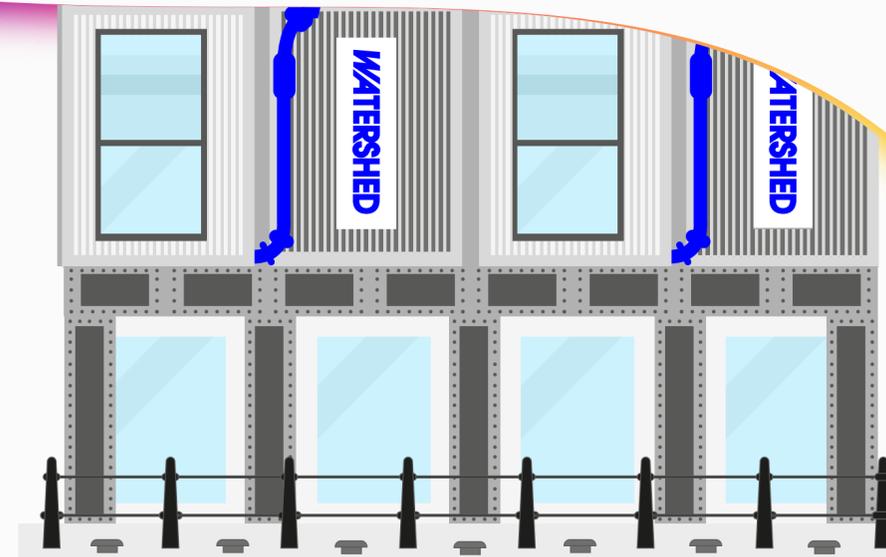
Carolyn Hassan, Knowle West Media Centre

In a similar vein, Makala Cheung from neighbouring Filwood Community Centre, would like "Hey Filwood" to better connect the local community, both internally and with the rest of the city.

"...there are all these networking events where you just bump into people and go, oh you're from Knowle West I've been meaning to talk to somebody... we've been thinking about doing a project down there..."

So, I'm thinking people who do community work or who are residents... have this app and it pings or just alert them. So, anyone can connect, and then meet you. You're connected to that person and Hey Filwood and it's like, hey were here!"

Makala Cheung, Filwood Community Centre.



Finally, Dick Penny, Consultant and former Watershed MD, brings us back to a hybrid space, which links both the physical and Digital realms but also the local and global, imagining a world where the Internet would always provide a conduit or channel to the voices and knowledge of local people,

"I think the challenge now is how do we find a hybrid space, which is a seamless interconnect between physical and digital..."

so if you're arriving somewhere completely foreign you'll have done some remote research first of all but when you get there it would be great if you could speak to someone local.

So, instead of a disembodied voice that you get just the same wherever you are in the world, you've got someone live talking to you who lived locally. And they're different people at different times of the day, completely randomised.

You know what it's like, say with your mobile phone, you call the helpline and they're in somewhere like Taiwan, if you felt you were talking to someone local I think that would make a massive difference to how you felt. If we want to localise it, it's got to be co-produced locally."

Dick Penny, independent Consultant and former MD of Watershed

³⁵Whose Data, Knowle West Media Centre, <https://kwmc.org.uk/projects/whosedata/>

³⁶The Bristol Approach, Knowle West Media Centre, <https://kwmc.org.uk/projects/bristolapproach/>

7. CONCLUSION

DIGITAL PLACEMAKING AT THE EDGE

))) [Ben Heald on Working From Home](#)

“People think edges are bad, but they are really there to keep us from falling to pieces. They don’t hold us back they hold us in. They hold us together.”

The Forgotten Lockett, Lisa Mangum³⁷

“They’re a global business...

for them to say they have no plans of even thinking about going into the office, and they’ve got a massive office in the centre... if that does play out, the consequences are absolutely incredible for high streets, the centre of the city, all hinterlands round the city where people live; connections, travel, the way people view Bristol and the way it connects with other cities...

You know, it’s kind of, everything’s up for grabs in really interesting way. And maybe it’s good for neighbourhoods as well, maybe the neighbourhoods won’t feel like everything interesting is going on in the centre. Maybe it gives more primacy to the neighbourhoods, maybe that’s what will happen.”

Ben Heald, SIFT

7.1

FRAMING THE CONCLUSION

As I sit to write this conclusion, the machine is sparking all around. Government is scrambling to reopen schools and office workers are being prised out of their homes and back to their desks. The extent to which we will resume our pre-COVID-19 patterns is unclear nor do we know how long the situation will last. Perhaps the only certainty is that uncertainty will become part of our new normal.

I can hear the machine rebooting. Outside, people are increasingly choosing to travel by car as public transport is just too public, whilst flying and international travel brings a different set of challenges. There is a building sense of inter-dependency as people grow used to the prospect that they might be locked-in or locked-out of their own country, city, town or place

depending on a fluctuating analysis of inter-connected risks. Pandemics are not eradicated until they are eradicated everywhere.

Where does this leave the Digital City? Are we destined to remain the prisoners of Zoom or like the character in E.M. Forster’s *The Machine Stops*, will we burst free of our confines and re-connect with the planet and each other? For many, the latter idea looks increasingly seductive, when considering the very real impacts of the climate emergency and the benefits to nature and pollution levels that the pandemic cleverly engineered.

The pandemic has also opened another important debate, which I keep returning too and have chosen to use to frame the study’s conclusion, to what extent does society now seek to ‘de-centralise’, shifting power away from the centre and towards “The Edge”.

³⁷“The Forgotten Lockett”, Lisa Mangum, Shadow Mountain Publishing, (2011)

7.2 POWERING UP THE EDGES

Decentralising is an old argument and debate that is frequently played out between Governments and regions and cities and communities, framed through policy instruments such as *Devolution Deals* and community asset transfers.

The pandemic has re-ignited the discussion as, success, failure and responsibility for our national test and trace system is pushed down to a local level; globalised just-in-time delivery systems, which are optimised to meet every day demands, somehow prove to be less resilient than our local corner shops and high streets; and the economic pressure to return from home to city centre offices, which often seems untenable if current social distancing requirements are to be maintained – but still there is pressure to regroup and centralise.

At the same time, I am also struck by how we have all become edge dwellers in recent months, perhaps experiencing our own places and communities for the first time through a hyper local lens. The pandemic has also made the edges of society, and different experiences, more visible, whether

it's the children of poor households who are living with Digital Poverty, unable to study on-line and so falling further behind, or the social injustices experienced by people of colour. The combination of global crises, the COVID-19 pandemic, Black Lives Matter and the Climate Emergency certainly feels like it is pushing the world closer to the edge, the question is can we avoid falling off?

It was Dick Penny, former Watershed MD, who reminded me in our interview that joining up the edges, or "the margins" as we called them, had been one of the most interesting themes to emerge when we were preparing the *Connecting Bristol Vision* 15 years ago. As Dick recalls,

"I think it was John Manley [former Director of HP Labs] who said this most vocally when we were developing our [Connecting Bristol] ideas, 'the network power is at the margins, not at the centre'... it is just that people want to control and centralise. When you look at the county's response to COVID, it's all been about control and centralisation.

What it tells us is that more localised action has far more buy-in it's more empowering, it delivers more..."

I have come to the conclusion that the time is now right to dust off this idea and apply it afresh to our current context in 3 ways, (i) via De-centralised networks and Edge Computing, (ii) by developing new Digital skills and capacities that will give our communities an Edge and (iii) by "Keeping it Edgy". Bristol's story is built on pushing the boundaries of the mainstream and perhaps, more than ever, there is an opportunity and need to do this.

(I) EDGE COMPUTING, THE COMMUNITY CLOUD (WITH A SILVER LINING)

Edge computing is an evolving technology architecture that points to a shift where, instead of data being processed in a single, all-encompassing Cloud, processing power is pushed closer to the source of the data and the end user; towards the edge.

The leading Technology research consultancy, Gartner, suggests **"The edge computing use case landscape is broad and its early deployments have been highly customised. Infrastructure and operations leaders will need to develop a multiyear edge**

computing strategy that addresses the challenges of diversity, location, protection and data."³⁸

Developing a new decentralised experimental Digital architecture that embeds processing power and storage - a "Community Cloud" - in networks that are managed by communities would potentially be game changing.

Bristol has a track record of appropriating new technological terminology to build Digital City advantage. As Paul Wilson described, Bristol is Open was the prototype "open, programmable city" and spoke to both the global tech companies and local stakeholders.

By becoming the first to apply a localised Community Cloud infrastructure to Joel Garraue's Edge City idea³⁹, Bristol could again capture the interest and attention of the global technology world - but this time, ensuring greater tangible benefits to corporate investors and the city's people and communities.

³⁸"Edge Computing Challenges", Gartner, (August 2020),

³⁹"Edge City: Life on the New Frontier", Joel Garraue, (Anchor Books), 1991

(II) COMMUNITIES WITH AN EDGE

This study identifies multiple instances where in recent months communities have benefited from mainstream Digital platforms, Facebook, WhatsApp, utilising them for self-help and mutual aid.

After years of soft resistance, organisations in the Third Sector have risen to the Digital Challenge but this study also flags the potential for a new style of community support infrastructure to emerge. This would blend the agile, real-time, tech-savvy, ultra-responsive and reciprocal nature of recent mutual aid initiatives with the accountability and stability that has been important to building confidence and trust over the longer term.

There is more than an echo of the 1990's struggle between old and new media here, and as Paul Hassan reminds us through his various accounts, the new ways have a tendency to win out.

This study also reminds us that hyper-local can equate to being hyper-visible. Roseanna Dias's powerful account of the impact of Instagram on people of colour in Bristol during the Black Lives Matter outcry describes how the pressure to perform – to be actors in the Digital

City rather than to be its producers - can be exhausting. Powering the edge also means finding new ways to care for and re-energise participation. In my view, much of this responsibility must fall to the platform owners for after all, without the free labour and content that we provide, these platforms would simply be dead air. Governments around the World are seeking to tax the enormous profits made by the global technology corporates, however, if this does ever succeed, little benefit is likely to trickle down to the local level.

Perhaps, a task force of local community Digital champions, activists or enablers, proudly sponsored by Facebook, Google, Apple, (or even Microsoft) would be a way to build capacity and to start to generate trust. I appreciate this may be a controversial idea – but something has to give!

(III) KEEPING IT EDGY

Some will worry that being on the edge means you are not in the centre and therefore, are peripheral. However, being on the edge has arguably, been one of Bristol's strengths, particularly when it is the cutting edge. Many of the breadcrumbs set out in this report were scattered ahead of their time. Bristol had touch screen kiosks providing geo-locative content before

such a thing was invented; the largest open wireless mesh network before people had mobile devices and developed a state of the art, eco-build, Digital media centre in one of the city's least well off "edge communities", an approach that is still fairly unique.

The city also thrives on edginess – from toppling statues, to Banksy to Extinction Rebellion. It is no coincidence that HP Labs' Mobile Bristol project chose to replicate the Bristol Riots of 1831 as an interactive soundscape in Queens Square. However, the city has, perhaps, at times been reluctant to champion its edginess as a core opportunity for new people and voices to be included, falling back instead on easy promises of GVA and economic returns.

As Clare Reddington, Watershed, observed, providing inclusive Digital access during lockdown has made it easier for disabled people to engage with cultural content. The digital tap cannot now simply be turned off and the new business models will need to be "hybrid" – bridging the physical and Digital worlds in ways that are deliberate, purposeful and explicit.

The days of smuggling-in Digital Inclusion to bids, in case Funders objected, need to be put behind us, and of course, the Funders themselves will need to rise to the challenge.

8 A FINAL WORLD

The Fellowship has been a remarkable opportunity, to create space to talk to different people and think different thoughts. It has also taken place at a remarkable time, which, of course, has worked its way into our thoughts and feelings.

In writing this study, I have taken comfort from realisation that the pandemic, whilst catastrophic, is not the end. It is, however, a once in a lifetime inflection point. What we choose to do next, individually and as a society, is up to us and in a small way, this study has provided a space to share some learning from the past, as well as ideas from the present, which might help shape thinking on what's important to take with us into the future.

I have greatly appreciated the opportunity and offer huge thanks to Sarah Addezio from Bath Spa University, Racheal Burton from Watershed and Professor Jon Dovey from University of the West of England who have doggedly kept the programme moving forward when it would have been easy to wallow.

And to my fellow Fellows, I remain in awe of your brilliance, bringing together our distinct but overlapping perspectives is really the only way to address this multi-faceted but incredibly powerful topic.

Thank you.

