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On why heritage matters

Rugby Radio tuning coil in the Information Age gallery at the Science Museum.

CONNECTED EARTH
OUR TELECOMMUNICATIONS HERITAGE

In today's mobile, digital world, telecommunications impacts virtually every aspect of our daily lives. Such is the pace of change that we constantly seek news of the latest technological development that will transform smart phones into even smarter phones, high definition televisions into ultra high definition ones, 4G networks into 5G networks and the Internet into the Internet of Things. The companies that provide all of these products and services have to keep innovating for commercial survival in a regulated and competitive market place.

In a world that is increasingly driven by what is coming tomorrow, why should we care about what happened yesterday, a year ago or last century?

The answer is very simple. Heritage matters. It can be a force of good for education, social wellbeing, marketing and even commercial advantage. The Government[1] believes that, "the historic environment is an asset of enormous cultural, social, economic and environmental value. It makes a very real contribution to our quality of life and the quality of our places. We recognise that while some of today's achievements may become tomorrow's heritage our existing heritage assets are also simply irreplaceable. We believe in encouraging a wider involvement in our heritage, in order to ensure that everyone, both today and in the future, has an opportunity to discover their connection to those who have come before."

Similarly, English Heritage[2] recognises that, "the invention of telecommunications, from the telegraph to the Internet, has revolutionised society and has produced not only its own heritage of structures and artefacts but also new patterns of workplace and work styles. The pace of many of these developments has been so rapid that much of the evidence for those developments is extremely vulnerable".

Our identity is very often reflected in our heritage too. Consider the merchandising that accompanied the London 2012 Olympics; the red telephone kiosk could be found everywhere yet these icons of telecommunications heritage are rarely used today. When making telephone calls we still talk about 'dialling' people even though the rotary dial phone disappeared long ago but its image continues to live on in the icons found on our computers, websites and smart phones. Companies that have a rich history of innovation often exploit that when promoting new products, believing that an association with a past success gives the customer confidence in their latest offerings. Children visiting museums and galleries can be inspired to consider telecommunications as a future career and hence, become the engineers of tomorrow. Indeed it is often easier to explain the basic principles of telecommunications when demonstrating or explaining heritage equipment.

Heritage however, is fragile for it can be easily destroyed through neglect or apathy and once gone it is very difficult, if not impossible, to recover.

BT's unique position

Within the telecommunications industry, BT has a unique position not only as the world's oldest national telecommunications company and former publicly owned corporation but also because it has a statutory obligation to preserve and make available as public records its archives from 1846, when the Electric Telegraph Company was formed, to 1984, when it became a privatised company. Indeed those documents, which now form part of a larger BT Archives, have been awarded Designated Status by the Arts Council England and included within the UNESCO Memory of the World Register in recognition of both their national and international significance and importance[3]. This commitment to heritage is ongoing within the privatised BT and is realised through their heritage policy[4] which is approved by the BT Board and partnership projects that

Figure 1: BT Museum, Baynard House, London (1982 -1997) *Reproduced with kind permission of BT Archives*

Figure 3: The Telephone Museum at Milton Keynes Museum (top) and Connecting Manchester Gallery at the Museum of Science and Industry *Reproduced with kind permission of the Museum of Science and Industry*

have, for example, recently resulted in the digitisation of a large part of their archives[5]. The transition from public corporation to privatised company did however, have an impact on how BT managed and preserved its heritage. Prior to privatisation, BT had established a number of permanent and temporary displays and small museums at various exchanges throughout the country, most notably in Norwich, Taunton, Oxford and Leith (Edinburgh). These were ad-hoc in nature and were often created through the efforts of a few enthusiastic engineers and Institution of British Telecom Engineers (forerunner to the ITP) members. In 1982 BT opened its own national museum located at Baynard House in London (Figure 1) into which was amalgamated many of the collections and artefacts that had been on display at its smaller and regionally dispersed outlets. Whilst this museum proved popular with school groups, the site offered limited future potential and ultimately, from a commercial point of view, BT decided that a visitor attraction was not a practical option in which the company could confidently invest and deliver shareholder value. Consequently, BT Museum closed in 1997 and the collection was mothballed. In the same year, BT Archives, which was always separate from the museum, moved to their new and current headquarters at the Holborn Telephone Exchange in London.

The formation of Connected Earth

As a privatised company, BT had acquired a London-based museum, an artefact collection of some 40,000 objects and tens of thousands of items of ephemera [1]. If it was no longer viable for a privatised BT to sustain its own museum then a different and potentially innovative approach was needed.

Figure 2: Connected Earth partner museums

This came in the form of the Connected Earth project. At the heart of Connected Earth was a virtual, online museum[6]. This was then supported by a network of partnership museums through which BT's collection of artefacts would be dispersed for public display as part of existing or new telecommunications galleries. Those artefacts that would ultimately be deemed surplus for these requirements were subsequently offered to any registered museum or sold off through a public auction held in February 2003.

Officially launched at BT Tower in April 2002, Connected Earth thus became a national, but distributed collection, endowed by BT and funded with a budget of £6 million over two years, managed in partnership with museum and archives professionals. The online virtual museum was pioneering at this time and today acts as a repository of historical, technical and social information, educational content, oral histories and links to the partner museums.

The partner museums were chosen on the basis that they already had an established interest in telecommunications, were prepared to enter into a formal agreement with BT for the development of their interpretation brief and transfer of artefacts, offered a geographic spread and represented a mix of large, small, independent and public body organisations. The funding from BT provided support to these partners to establish new galleries or refurbish existing ones and to fund curatorial staff posts to assist with the development of their respect telecommunications collections [2].

Formal partnership agreements were signed with the Amberley Museum and Heritage Centre in West Sussex, Avoncroft Museum of Historic Buildings in Worcestershire, Milton Keynes Museum, Museum of Science and Industry in Manchester, Museum of London, National Museums of Scotland in Edinburgh, the Science Museum in London and the Telegraph Museum Porthcurno in Cornwall, as summarised and shown in Table 1 (see next page) and Figure 2. These were complemented by BT Archives and the Institute of Telecommunications

Professionals whose members have over the years played a critical role in the Connected Earth project, particularly the dispersal process.

During its 10 years, Connected Earth proved extremely successful. All partner museums opened new or refurbished galleries promoting and celebrating telecommunications. These include as examples, the telephone museum at Milton Keynes, the Connecting Manchester gallery at the Museum of Science and Industry (Figure 3), the telegraph galleries at the Telegraph Museum Porthcurno and establishment of the national telephone kiosk collection at Avoncroft Museum of Historic Buildings which grew from an initial three to 32 kiosks.

Working in partnership has enabled a unique sharing of expertise, provided a much closer inter-working between BT and the museum sector and greatly improved the ability to identify and secure the preservation of key telecommunications artefacts that were scheduled for decommissioning or disposal. One of the largest such items secured for preservation by BT through Connected Earth is the aerial tuning inductor from Rugby Radio Station transmitter GBR which now takes centre stage at the newest gallery opened by a Connected Earth partner, namely Information Age at the Science Museum. Indeed BT continues to assist in identifying and securing key objects for partner collections and is highly regarded within the museum sector not only for its heritage policy but also for the very thorough process it went through for the disposal and dispersal of its major artefact collection. By engaging with the telecommunications industry, museums have been able to tap into specialist technical knowledge, to capture and record oral and written histories

Partner museum	Location	Focus and gallery
Amberley Museum and Heritage Centre	Arundel	An open air museum site dedicated to the industrial heritage of the south-east. The Connected Earth Hall focuses on the "public face" of telecommunications using rare exhibits and hands-on displays. **http://www.amberleymuseum.co.uk/**
Avoncroft Museum of Historic Buildings	Bromsgrove	England's first open-air museum that preserves buildings and structures. It is home to the National Telephone Kiosk Collection, featuring an example of every type of GPO/BT kiosk from 1921 to the present day. **http://www.avoncroft.org.uk/**
Milton Keynes Museum	Wolverton	The museum follows the history of the Milton Keynes area, including North Buckinghamshire and South Northamptonshire, from 1800 to the present day. The Telephone Museum explains the significance of "switching" (how calls and data finds its way through the telecommunications network), engineering and transmission (how information is physically moved through the network) using artefacts collected from the Milton Keynes area and further afield. **http://www.mkmuseum.org.uk/**
Museum of Science and Industry	Manchester	Exploring Manchester's role as the first industrial city, where science met industry and the modern world began. The Connecting Manchester Gallery tells the story of the development of communications in the Manchester region. **http://www.mosi.org.uk/**
Museum of London	London	The Museum of London is one of the world's largest urban history museums and tells the story of London and its people from prehistoric times to the present day. The role of telecommunications is told through artefacts located within the Galleries of Modern London. **http://www.museumoflondon.org.uk/london-wall/**
National Museums of Scotland	Edinburgh	The National Museum of Scotland covers science and art to nature and outer space, examining the role and influence of Scotland. The Communicate gallery tells the story of human communication – from the drums of Papua New Guinea to Scottish pioneer Alexander Graham Bell, right up to mobile technology and beyond. Communicate Gallery is currently closed for refurbishment and will re-open in 2016. **http://www.nms.ac.uk/**
Science Museum	London	The Science Museum Group is one of the world's leading museums of science, technology, industry and medicine. The new Information Age gallery celebrates 200 years of innovation in communication and information technologies through six networks covering: The Cable, The Telephone Exchange, Broadcast, The Constellation, The Cell and The Web. **http://www.sciencemuseum.org.uk/**
Telegraph Museum	Porthcurno	Porthcurno was the largest cable station in the world and is now a museum that tells the story of how undersea cables and wireless technology connected the planet. **http://www.porthcurno.org.uk/**

Table 1: Connected Earth partner museums

of key events and technology innovations, and to gain the support of professionals for the running of events, projects and conferences.

Ten years on, the Connected Earth project had achieved all of its core objectives and in every sense was a job well done. However, having established Connected Earth and provided significant funding to the venture, BT were now seeking a supportive but not leading role. Equally, whilst wishing to continue, the partnership did recognise that being perceived as a BT project, Connected Earth could not easily recruit new partners that would be able to address under-represented areas, such as developments within the mobile, cable and satellite industries for example. The challenge now was to determine how Connected Earth should and could evolve.

Evolving Connected Earth

The future of Connected Earth was debated at length within its partnership and external strategic Consulting Group. The outcome of this was a decision to evolve Connected Earth into a Communications Heritage Subject Specialist Network in which all existing members would become equal partners. Creating such a network would also allow Connected Earth to recruit new partners from industry, academia, the professional body and museum sectors. A new constitution was formally approved at a meeting held in May 2014 where it was established that Connected Earth's aim is to, "Promote care, access to, and enjoyment of communications collections and archives. Through research, stewardship and advocacy, the network will encourage wider enjoyment and knowledge of communications heritage across the UK".

Connected Earth is therefore now going through a transition phase as it builds on its significant legacy to ensure it is able to continue and thrive in the future. One of the first decisions of the newly constituted group was to accept the University of Salford as a formal partner. Salford had been working closely with Connected Earth over many years and was involved with the formation of the Connecting Manchester gallery at the Museum of Science and Industry which opened in October 2007. Other new partners are now being sought to ensure that Connected Earth is able to reach out and engage with those areas of telecommunications that are currently under-represented and hence, will broaden its appeal and relevance.

Connected Earth has pioneered the preservation of telecommunications heritage within the UK and, through its unique partnership and support from BT, established a network of excellent public galleries, contributed to the recording and formal dissemination of telecommunications heritage, promoted the national and international importance of telecommunications, highlighted the UK's contribution and showcased its social and economic impact. Now in a newly constituted form, Connected Earth is set fair to ensure that this success continues and grows thereby securing our important telecommunications heritage for future generations.

What can you do to help preserve our heritage?

Hopefully this article has raised your awareness and perhaps encouraged you to consider how you might be able to help preserve and promote our telecommunications heritage. There are several things you can do. Why not visit one of the Connected Earth museums? Maybe you would like to offer your services as a technical advisor, STEM Ambassador or volunteer? Perhaps you would like to record your own experiences of working within the telecommunications industry? You could become the eyes and ears of Connected Earth, raising awareness of important equipment that is about to be scrapped. Finally, within your own organisation you could become a heritage champion and encourage colleagues and senior management to embrace the importance of heritage and the opportunities it offers. Without an active engagement of the telecommunications profession, the ability to preserve our heritage will at best be very limited. Heritage needs you!

ABOUT THE AUTHOR

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Nigel is an electronic engineer by profession who specialises in computer networks and their applications, takes a keen interest in telecommunications heritage and is active in public engagement. In 2014 he became Chairman of Connected Earth having previously chaired the Connected Earth Consulting Group at the request of BT. Nigel is a member of the ITP.

FOOTNOTES

1 The Government's Statement on the Historic Environment for England 2010
2 English Heritage Thematic Research Strategies, A Thematic Research Strategy for the Historic Industrial Environment, July 2010
3 http://www.digitalarchives.bt.com/web/arena/about
4 http://www.btplc.com/Thegroup/BTsHistory/BTgrouparchives/OurHeritagePolicy/index.htm
5 http://www.digitalarchives.bt.com/web/arena
6 http://www.connected-earth.com/

REFERENCES

1 Hay, D., (2006) Connected Earth and BT's Heritage Policy – an Innovative Approach to Safeguarding the Nation's Telecommunications Legacy, The Journal of The Communications Network, Volume 5, Part 1, pp107-116
2 Taubman, A., (2004) One model for the care of corporate heritage: The BT Connected Earth partnership in practice since 2002, Conference of the European Communications Museums, 25 - 27 November 2004, Museum of Communication Bern