

# BEYOND THE RED B

THE BBC IS responsible for a myriad of innovations ranging from FM stereo radio and teletext to interactive television services that are accessible via the red button.

The British Broadcasting Corporation has been a front runner of communications development since its creation in the early 1920s. The captains of the radio industry, led by Marconi, Radio Communication Company, Metropolitan-Vickers, General Electric, Western Electric and British

Thomson-Houston, met at the London-based headquarters of the Institution of Electrical Engineers (IEE) to discuss how to market radio sets to the general public.

“It’s the old chestnut that is still problematic for consumer electronic companies today: ‘We’ve created the technology, now we have to ensure that the content is available,’” says Paul Gray, European director of research firm Displaysearch.

The answer was simple, under the auspices of these companies – and with a little help from The IEE – the BBC was created as an experiment in November 1922 and it was to be funded in a ‘unique’ way. Unlike American commercial radio stations, which ran paid-for advertising, the new service was to be financed by a license fee payable annually by radio set owners.

The BBC has since been at the vanguard of broadcast and consumer technologies in

PAGE 66 FRIDAY MAY 30 2014 | 15:36/35

# WTTON

WE HAVE THE BBC TO THANK FOR MANY  
TECH ADVANCES FROM THE LAST TWO  
CENTURIES, BUT CAN THE WORLD-FAMOUS  
PUBLIC SERVICE SUSTAIN ITS R&D  
ACTIVITIES?

BY KRIS SANGANI

television, radio and the Internet. In fact, research and development is enshrined in the BBC's Royal Charter between the BBC and the government.

The charter states: "The Executive Board must ensure that the BBC conducts research and development activities geared to the promotion of the BBC's Public Purposes and which aim to maintain the BBC's position as a centre of excellence for research and development in broadcasting and other

means for the electronic distribution of audio, visual and audiovisual material, and in related technologies."

Yet the BBC is probably facing its biggest battle for its existence since the coalition government came into power four years ago. In 2010, the then newly formed government capped the licence fee at £145.50 for six years – in real terms a 16 per cent cut by 2016.

Additionally, the BBC has signed up to fund extra commitments including the World

Service. This deal also means that it is funding the rollout of superfast broadband to rural areas to the tune of £150m.

In total, the BBC will be spending an extra £340m of licence-fee money before the end of next year.

Although some of the cuts are to come from rolling back the content the BBC provides – such as the planned axing of the BBC Three digital television service, others will inevitably fall on the R&D projects. >

**1930**

BBC forms research department to develop short-wave radio and studio and broadcast equipment

**1953**

Telerecording equipment is developed for the Queen's Coronation, which is broadcast live and recorded for future posterity

**1955**

First stereo FM broadcasts in the UK

### Significant cuts

< Director general of the BBC, Tony Hall, announced last year that a flagship IT project by the BBC, the Digital Media Initiative (DMI), would be abandoned after five years and spending of approximately £98m. This led to an apology to the Parliamentary Public Accounts Select Committee in May 2013 by the current management and a subsequent apology by Mark Thompson, the former director general.

John Linwood, BBC chief technology officer at the time of DMI's demise, was sacked and is now pursuing a legal case against the company for wrongful dismissal.

The DMI project was to provide the BBC with digital asset management, video ingest and software-based encoding, broadcast automation and playout, production tools, and archive storage and retrieval – all integrated into one seamless database-driven production workflow. It would also incorporate an online storyboarding system as well as metadata storage and sharing.

The overarching plan was to make archived content available on the desktop of all BBC staff anywhere in the world. This would have allowed them to develop, create, share and manage video and audio as well as access content.

The project was initiated by the director of BBC Technology at the time, Ashley Highfield, with £81m of funding outsourced to Siemens in 2008. Siemens' contract, however, was terminated in a £27.5m settlement only a year later.

Despite being subsequently rejected by the BBC finance committee and criticised by the National Audit Office, the project was partly outsourced to a consortium of three IT companies – Computacenter, Mediasmiths & Vidispine – in 2011. Two years later, the BBC's newly anointed director general threw in the towel and canned the whole project.

The BBC says it will now use off-the-shelf technology to support its production processes, but it is not ready to provide details of its plans. The broadcaster could face a bill of many more millions of pounds for purchasing off-the-shelf technology, with some industry experts pointing to solutions such as Adobe Anywhere.

### Outsourcing and collaboration

The BBC, like many media organisations are following the general trend to outsource a great deal of its technology development.

"The impact though, if it goes wrong, can be publicly visible with an immediacy and scale unlike that of any other business," says Mike Cronk, partner at Marquis Media Partners, a firm that specialises in advising broadcast organisations on technology development.

The BBC has outsourced much of its technology infrastructure in the last few decades. Responsibility for its transmitter assets used to lie solely within the Corporation until 1997 when the assets were then split into a separate company, prior to being sold. The terrestrial signal that the BBC now relies on is run by Arqiva, which also inherited many of the

It is now possible to catch-up on BBC TV and radio shows via the iPlayer, which is available on numerous platforms



One of the BBC's biggest development, the iPlayer app available on mobile handsets

engineers that developed DAB (digital audio broadcast) radio and the original digital video broadcasting (DVB) standard, which eventually became Freeview.

Collaboration with other broadcasters is also an important factor in how the BBC's R&D operations work. Super Hi-Vision, for example, a large-screen television system, is primarily being developed by Japanese national broadcaster NHK in their Science and Technical Research Laboratories.

It has a picture resolution 16 times greater than HD and includes 22.2-channel surround sound, including some speakers at ceiling height to provide a 3D audio experience.

The BBC has been collaborating with NHK under the Broadcast Technology Futures (BTF) group – an association of NHK, The

European Broadcast Union, the broadcasters RAI and IRT, and the BBC, with the aim to carry out research on a wide range of technologies.

Another example of such a collaboration is DAB radio, which was developed as a research project for the European Union and started in 1987 on initiative by a consortium formed in 1986. The first public demonstrations were made in 1993 by the BBC after the protocol specification was finalised. This was adopted by the ITU-R standardisation body in 1994, the European community in 1995 and by ETSI in 1997. Pilot broadcasts were launched in several countries in 1995.

Thus, the UK was the first country to receive a wide range of radio stations via DAB. Commercial DAB receivers began to be sold in 1999 and over 50 commercial and BBC services were available in London by 2001.

It is now an international standard which is coordinated by the World DMB Forum since 1997 (formerly the World DAB Forum), which represents more than 30 countries.

Another UK-specific example would be Project Canvas, a video-on-demand platform which is a collaboration between the BBC, BT, ITV, Channel 4, Channel Five and TalkTalk. It is fairly unique in that it is a collaboration between competitors, and it now exists as the television and set-top box platform Youview.

### Open standards

Is it the BBC's corporate structure and culture which makes it more difficult to encourage the left-field thinking that often leads to tangible innovation?

In the 1990s, for example, the director general John Birt introduced an internal

**1973**

The first test transmission of Ceefax on the BBC which became the international teletext

**1986**

The BBC broadcasts programmes using their NICAM stereo service in the UK, the first stereo TV service in the world, which quickly becomes an international standard

**1990**

The Eureka radio standard is adopted in the UK as DAB Radio – all local and national BBC radio stations adopt the new standard

**2001**

BBC Red button interactive services replace Ceefax



In the 1990s, for example, the director general John Birt introduced an internal market at the company called Producer Choice, which also extended to the supply of research effort. The R&D department became an in-house supplier of research facilities, with the projects purchased by separate units within the BBC.

There will always be problems in applying market forces to research and development functions within an organisation such as the BBC. This often results from a unified department attempting to deal with multiple customers, each with different priorities. The BBC 'sinternal market was slowly dismantled by Birt's successors until it was non-existent by 2006.

Today, the BBC works and shares best practice with many in-house R&D labs with other state and commercial broadcasters. This is in tune with the BBC's current charter, which makes it clear that it is the organisation's responsibility to maintain open standards.

"Even though it may not take a lead in the creation of many of these future technologies, such as 4K and 16K standards, the only way for [the BBC] to influence them is to gain a deep understanding through contributing to the technologies even if it may seem token," says Displaysearch's Gray.



**The BBC is responsible for many studio innovations that are now commonplace**

The R&D department's future depends on working closely with its R&D counterparts in other broadcasting associations. It's no longer the vehicle of a British consumer technology industry, which has since moved on to Japan and Korea whose broadcasters have the stronger motivation to develop and promote future broadcasting innovations. \*

**The BBC press office was approached for comment on this feature.**

**IET** Events  
The Institution of  
Engineering and Technology

36  
CPD HOURS



## The 29<sup>th</sup> IET Satellite Communication Systems Course

21 - 26 September 2014 | The Oxford Hotel, Oxford, UK

Are you new to specialising in satellite communications? Or with more experience but in need of a refresher? Help is at hand - join one of the world's most respected satellite training courses to get you ahead in the industry!

### Top 5 reasons to attend

1. The course focuses on real, practical knowledge that you can put into practice straight away
2. Back up the theory with industry project work
3. Experienced tutors from Airbus Defence & Space, Avanti, BT, Cobham, Inmarsat and Satellite Applications Catapult
4. A residential option means there are no hidden costs to your attendance
5. Attend secure in the knowledge of tried and tested success.

Supported by

**CATAPULT**  
Satellite Applications

Knowledge  
Transfer  
Network

SPACECAREERS

Media partners

**E&T** **IET.tv**

The Institution of Engineering and Technology is registered as a Charity in England and Wales (No. 211014) and Scotland (No. SC038698).

Places are limited - book yours at [www.theiet.org/satcoms](http://www.theiet.org/satcoms)

#IETsatcoms

