



Welsh links

A mix of a-v and IT technology are making the Welsh Assembly not just an exciting building, but a great place to take decisions in. We look at the development of technology vital to business and government

EVERYONE AGREES that the most 'iconic' view of the National Assembly for Wales' new building, the Senedd, is from the waterside on Cardiff Bay. Designed by the Richard Rogers Partnership, with engineering consultancy from Arup and built by Taylor Woodrow Construction, the roof canopy draws the eye (and the visitor) into a building designed from the outset to emphasise the principles of open government and accessibility, both at the core of the new assembly's thinking.

But although the skin of glass, slate, steel and Welsh oak is beautiful in its own right, it is the mix of a-v and IT systems within the Senedd that makes the process of Welsh government open, accessible and efficient.

On the one hand, the higher than expected level of public visitors – more than 250,000 in the first six months – have many levels of access to the government processes. There are viewing screens around the Assembly and committee room areas that allow visitors to follow proceedings, access documents and background information, and call up and watch video archives. There are more information screens in the reception and other public areas on which visitors can call up more information about the building and the government. And as well as watching Assembly Members at work through the glass walls of the main chamber and the committee rooms, members of the public can watch video screens showing the debates while taking refreshment in the cafeteria. They can also access

live and archived video and audio captured by the assembly's host broadcaster, Barcud Derwen.

However, that's just the public space. The assembly business is even more vital, so the Assembly Members and the officials running the debates and voting processes are linked to a-v systems and the IT backbone. Every seat in the main debating chamber has a screen linked to voting and information systems, servers providing background information and documentation, and access to members' own files from servers in the adjacent government offices. It's a unique form of joined-up government.

It's also a highly unusual marriage of IT and a-v. The IT systems carry both content and data to and from the mass of a-v devices, and control is managed over the same network, using software that checks with a central database so that the right content and control options are delivered to touch screens, the public display screens, and to assembly members' seating positions. To do all that, the Welsh Assembly Government – which will hand over the new building to the Assembly next year – used systems integrator IVC to develop the communications ideas and had IVC work with overall IT supplier Siemens to put the installation in, manage the software and configure the networks. In itself that was no easy task – everything has to work over secure and non-secure networks, multiple domains, dns and web servers, seven different firewalls within the complex, and the video multicast system has to



be able to reach out to assembly members' offices across Wales. In its turn, IVC brought in French content and control software specialist Medialon (whose network centric control systems are better known for their use in visitor centres and museums) and set about developing not just standardised control software but interfaces to highly specific sub-systems such as the Televic voting system, which is key to the Senedd's processes.

AIMS AND OBJECTIVES

'We have achieved the aim that the Finance Minister and the Presiding Officer of the assembly set us', says Richard Wilson, Director of Capital and Property for the Welsh Assembly Government and the man responsible for delivering the whole construction and fit out. 'We wanted cutting edge technology that was open, flexible, accessible to the general public and intuitive to use.'

The building, he adds, meets the Presiding Officer's 'vision of the way that modern government should work. We can stream media content around the building, have different content on differing streams, and allow visitors to access and read documents, to "get behind" the agenda.'

'It's not just a PR stunt. If you want greater involvement by the general public in the democratic process, in the business of government, this is the way to do it. Lord Dafydd Elis Thomas, the Presiding Officer of the Assembly [the equivalent of the Westminster Parliament's speaker] uses a glass-walled office to work and hold meetings in. In Westminster there are long corridors with solid doors. Here, you can see what is happening and walk into the galleries.'

The open and transparent concept was at the heart of the project and, at the very beginning, a decision had to be taken about what kind of building would be used to house the assembly – a 'looking back' building such as Cardiff's City Hall or Coal Exchange, or a modern building that's also key to the Cardiff Bay urban regeneration project.

But it was almost harder to figure out what a-v and IT systems should be deployed.

'Back in 2001-2002 we had to try and define what we wanted', says Wilson. 'We wanted openness and transparency for the members to work better in a paperless environment, and for the general public to have access. We didn't need arcade games here, but we did need a system which the politicians felt would deliver open government and transparency.'

That process started when Wilson and his colleagues used IVC – who they had met when the company did a-v and IT installations at Portcullis House in London – to start scoping out the possibilities.

'The Assembly Members expressed their requirements through us and IVC was able to give us ideas about things that which were frankly outside the range of our experience', Wilson admits. And IVC was eventually contracted, via Siemens, which was part of the consortium bidding to handle the Welsh Assembly's overall IT requirements (which go far beyond the Senedd), to deliver the concepts.

'My job was to take the Minister, the Cabinet and the Assembly Members on that journey', says Wilson. 'We did that through meetings, briefings and demonstrations. The whole building is designed to be elegant but not extravagant and to give people a "wow factor" when they walk in. We now get the same response to the electronic media and what we can deliver.'

WALKING IN THE DOOR

The first examples of a-v usage the visitor encounters are the most straightforward. Entering the reception area on the central floor, visitors find dual screen information pods, consisting of pairs of column mounted 19in LCD screens, available for them to interact with; and pairs of 46in LCD displays on either side of the main reception desk provide more dynamic information about what's going on. The paired screens use an interactive touch screen for content choice and a second screen for video relay – but even that relative simple part of the installation illustrates the complexity to follow.

Landmark building, landmark applications: The Senedd is a dramatic structure, but the use of a-v and IT in the public and assembly areas is evidence of the way that technology can aid and make visible both governmental and business decision making





'Visitors can select different languages, view the agenda of the current meeting, find members' information, the history of the assembly or retrieve archived video meetings via playback on demand'

Like all the other a-v devices in the building, the information pod screens are moveable and can be fitted onto floor boxes around the building. And it's here where IVC has used the benefit of being attached to a network and used intelligent web pages to display location specific text and video content directly from the SQL database.

It's a principle applied in all the other areas as well – users don't have to programme material, the SQL database knows where a screen (such as a control panel or mobile a-v system) has been plugged in and 'finds' the allocated content and control screens for it.

Used for meetings and events, the three trolley-based mobile a-v systems in use provide built in PCs, laptop connections, wireless signage players, source switching, DVD, Video and multicast playback, sound reinforcement and control using IVC-built hand sets. They can be linked into the main a-v systems using the Medialon backbone – so can come under centralised control and replay other sources such as videoconferencing streams.

The content provision mechanism is also shared across the many streams of information delivery. Material is automatically formatted from the original files into web templates and the relevant web pages are allocated to the display and control devices by the Medialon system – making updating easy (which is vital when there is a lot of assembly business being conducted) without burdening the Assembly with the need for masses of content management manpower. The process is also key to making sure that everything – from archive content to control 'pages' – is available in both English and Welsh.

LIVE AND VISIBLE

Moving on from the information screens, the public can walk in off the street to viewing areas around the circular

main assembly chamber and at the back of the three committee rooms, watching their representatives in action both live and on 8in diagonal LCD gallery screens. The gallery screens are based on Amino set top boxes (STBs), modified by Breeze Technologies to become part of an IVC-specified IPTV system. Working to IVC's brief, Breeze built a bespoke box around the STB, linked it to the LCD screen and designed a Medialon interface that allows television signals from the chamber and any of the three committee rooms to be displayed on any screen, and also allows storage and retrieval for video and TV footage so that historical events, debates and background material can be accessed on demand.

The system captures and compresses the video from the host broadcaster and allows server-housed material to be downloaded, so they are capable of showing all types of web pages while streaming MPEG video. The user may select between languages, view the agenda of the current meeting, find members' information, the history of the assembly or retrieve archived video meetings via playback on demand.

But, once again, there is resource sharing going on. Just as the mobile a-v devices and information screens are routed back to the SQL/Medialon backbone, so the gallery screens and the ones on assembly members' desks share video resources.

'Up to 40 MPEG simultaneous video streams are available on the network', says IVC a-v systems design engineer Jim Maynard. 'They can be viewed from the 70 chamber desks, offices, and the information displays, so a software decoder was not going to be practical. They are processor hungry and require several seconds of buffered traffic before reliable playback, so we commissioned a hardware MPEG decoder solution that is capable of decoding MPEG1, 2 and 4 and many audio levels including AC3 and PCM. They take just 0.4 seconds to decode a stream, and will continue to decode for days and not just long enough to play a DVD movie.'

THE MAIN CHAMBER

The main assembly chamber, the Siambr, is a drum-shaped room which is at the heart of the government process, and which is the most fully served by IVC's mix of a-v and IT innovation.

Large screen signage is in evidence – 46in NEC Displays LCD screens are fitted around the walls in cabinets which also house Tannoy speakers and LED displays showing vote and agenda status – but it is the Assembly Members' seating positions that are vital. 70 desks provide seating flexibility to the 60 members, who normally sit in the same places but who can effectively 'roam', because once they insert their voting identification card into a reader on the desk the equipment identifies them and sets their workstation up accordingly. Siambr officials such as the Presiding Officer (PO) have slightly more functionality built into their stations – the PO, for example, receives on screen requests to speak from members and can broadcast messages to the whole Assembly when it is in session – but all members can not just follow the debate on hand, but link out of their chamber to personal or work files outside, using a Citrix applications server and Outlook to communicate with the outside world while in session.

'A member can log in at any desk to a custom screen that sets up their console with Welsh or English language, left or right handed options and full access to supporting documentation, agenda, vote results, currently logged in members, internet, simple messaging, email, word, excel, PowerPoint, etc', Maynard explains. A messaging function

COMMAND AND CONTROL

AS WELLAS the Televic links in the Siambr, IVC and Medialon developed resources management systems based on Medialon Manager and Manager on Network devices that convey vote results to the SQL database and display them in graphical form on the digital signage systems; set up the panel displays in the committee rooms that recognise the room operation mode required (which will have been set up using centralised resource management and room booking software) and allocate a-v resources accordingly; and organise digital signage systems capable of playing back any type of digital media.

When IVC embarked on the design, Maynard admits, 'many of the technologies and concepts did not have products to support them, or had not even been used together before', so they needed to be specially developed.

'Medialon's products could be tailored to suit the environment rather than designing software solutions from the ground up', says Maynard. Much less development time was required and the end product could fully integrate with XP platforms.

'At the heart of all of these systems is a central resource booking system in which every event, video conference, meeting, plenary is booked along with supporting documentation and content. From there all of the other systems are aware of the requirements and communicate, cross platform, to ensure that the requirements are met', Maynard adds.





CONTACTS

www.wales.gov.uk/assemblybuilding/index.htm
www.ivic.uk.com
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'Dylid cymryd mai datganiadau neu sylwadau personol yw'r uchod, ac nid o reidrwydd datganiadau neu sylwadau a wneir gan Llywodraeth Cynulliad Cymru, gan unrhyw ran ohono neu gan unrhyw gorff sy'n gysylltiedig ag ef.'

allows members to communicate with other members and officials on an individual or party basis, and multicast IP streams are used to display the information carried on the main displays – including documents, video and computer sources, speech timing clocks and vote results – in windows on the members' screens.

The computers doing that were a design project in themselves – every desk required a small powerful pc with dual LAN ports and a pci slot for the hardware decoder card which was just not available. So IVC developed its own fanless computers using Pentium M processors and equipped the members with silent keyboards so that noise didn't prejudice the broadcast environment – but so is the control system, which integrates a Televis-based audio conferencing system with voting.

If everything else fails, the system is designed to make sure that the essential chamber business of speaking and being heard, voting and being counted, can continue.

'The Televis system is fail safe', says Maynard. 'It has its own cable network and a duplicate server and can be back up in minutes if there is a failure.'

But configuring a system like this couldn't be achieved using standard a-v practices and products, says Maynard. 'The concept drove the need for an IT-based approach. Medialon already had the software backbone that we felt could be developed, so we worked with them to configure it and develop the new features that were required.'

ALL READY FOR THE QUEEN

The goals were not only met, but met on time. So when Her Majesty The Queen opened the building (on St David's Day) the systems had not just been tested, but had been used for live debates and votes. It helped that IVC pre-built

its systems in a warehouse in Yeovil to test them before installation, but it still had to make it all work on the live networks.

'That's where we squeezed the risk and gave us the confidence that it would all work', Wilson admits.

However, the a-v installation's potentially greatest achievement is that it doesn't look over sophisticated or forbidding to the user.

'I wanted my granny to be able to come and press the screen and see something come up', says Wilson. 'We would have failed if it hadn't been intuitive and people had to go on courses to learn to get information, but we haven't had any negative feedback from the public.'

'Members have seen that they can access huge amounts of information and that the system is very flexible, so have embraced new ways of working. The presiding officer is the building's biggest fan, and the whole building comes alive on plenary days, when people are using the interactive screens on all three floors.'

Much of that success is down to the way the project was carried out.

'The project team, Siemens and IVC had a realistic and professional approach to what we could have', says Wilson. 'I don't think there is another legislature in the world that has a system as sophisticated as this.'

Next year, changes in the way that Wales is governed means that the current National Assembly for Wales (which, unusually, combines both executive and legislative arms) will hand the building over to a new legislative assembly run by its elected members. So the Finance Minister, Sue Essex AM, will hand the building over to 'the new owners' on behalf of the Welsh Assembly Government. They should be absolutely delighted. □