

## New chapter launched in Spain

Chapter defines BIM programme as country emerges from downturn

A new chapter of buildingSMART was launched in Spain in November, making it the 16th chapter within the BuildingSMART network, which spans four continents. The chapter will benefit from the improving prospects in the construction industry in Spain and takes the promotion of BIM as its chief priority in its first stages of activity.

The Spanish chapter was officially launched on 18 November 2014. 'Over the last five years, knowledge of BIM has grown and the use of BIM is now being seen in relation to cost reduction and quality improvement,' says Sergio Muñoz, president of the new chapter. 'This is the right time for us to join the buildingSMART family.'

### Industry background

Economic downturn has hit Spain badly. As Sergio puts it, 'we must continue working hard to come out of recession'. But unemployment is coming down and a rise of 1.4% in GDP is expected for 2014, once the full figures are available. The green shoots of recovery are appearing at last.

Against this tough economic background, the construction industry has struggled. Growth in the country's construction industry has been negative – the current figure stands at -2.4% – and many small and medium-sized companies have gone under. The prospects for the next few years, however, are better:



growth of 1.8% is forecast for 2015 and 3.6% for 2016. And a small increase in the public-sector construction budget has been announced for 2015.

### The new chapter

The immediate trigger for the formation of a chapter in Spain was the creation of an in-country committee on standardisation, known as the committee on buildings and civil engineering works: organisation of information about construction works. This Spanish committee is the local counterpart to ISO Technical Committee 59, Sub-Committee 13. 'Several professionals with knowledge of BIM are members of that committee and saw the value of creating a Spanish chapter of buildingSMART,' explains Sergio. 'Some weeks later we decided that we were ready to set up a Spanish chapter.'

The chapter is confident of its direction, setting up a busy programme, with involvement in training, dissemination, certification and standards. Working groups are being created covering some of these areas. 'Our main priority is the promotion and dissemination of BIM,' adds Sergio. 'Among our activities, we are working to define a BIM certification system for professionals.'

### Rolling out BIM

Spain has an excellent tradition of design and construction and there is no lack of technical expertise. The acquisition of BIM skills is not seen as a problem in itself, but the industry is unaccustomed to working in a collaborative way, and collaboration skills are in need of improvement.



Below left and above: Madrid tower exterior and interior; top: Visualisation of the Andalusian Department of Justice to be built in Cordoba  
Source: Madrid tower images courtesy of BOD

One barrier to BIM uptake is the absence of knowledgeable clients in the public sector. By and large, local government authorities in the regions have no clear strategy on BIM. Happily, there are pockets of enlightenment, and the regional governments of Catalonia and Andalusia have identified the value of using BIM in public-sector projects.

### Building bridges to the Spanish-speaking world

The new chapter has an important link with other countries: the Spanish language itself. 'We can serve as buildingSMART ambassadors to countries in South and Central America,' says Sergio.

This significance of the Spanish link is emphasised by Chris Groome, bSI business manager, who runs the chapter programme. 'We see Spain as the key to developing buildingSMART in South America where most of the countries use the Spanish language and have cultural and business ties with Spain,' he says. 'The weak demand for construction in southern Europe has led their industries to seek business elsewhere, reinforcing the need for international standards.'

Visit <http://www.buildingsmart.es> (in Spanish)

## New director of operations

Richard Kelly joins bSI as operations director on 9 March 2015. He trained as a mechanical engineer and spent his early career with Alstom. After a spell with an off-site buildings manufacturer, he joined BAA, now known as Heathrow Airports Ltd. His most recent contribution to the company was the creation of an asset management system. As he prepares to take up his position with bSI, he found time to answer questions from editor Betzy Dinesen.

*What parts of your career experience will you be drawing on most in your new role?*

My experience is creating strategies to provide airport facilities quicker, better and cheaper – and of course make them safer. As well as my technical leadership of lean six sigma, programme management and asset management systems, I will be calling on my relationship management abilities to ensure the broad range of specialists have a voice in the creation of the international open BIM standards.

*How do you see the future of buildingSMART?*

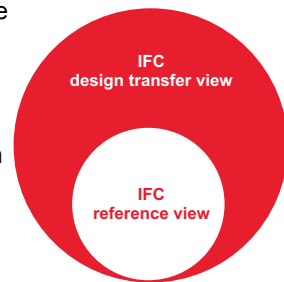
I think the industry is now on the cusp of an exciting new way of providing the built environment and bSI is an essential contributor to this by being at the centre of the BIM governance.



## Model coordination view reaches last lap

The IFC4 reference view and design transfer view, which together make up the model coordination view, are now bS candidate standards.

Following the penultimate public review late last year, they are going out for a final public review before they are presented to the bSI summit in March. 'In the past, the single IFC2x3 model co-ordination view had to suit everyone and every purpose,' says Thomas Liebich, AEC3, who leads the bS Model Support Group and is managing the work. 'Now, with the two views, we can accommodate the specific needs of users more precisely.' The fast-track project to provide additional model views, funded by the Norwegian government, is also starting.



## IFC for infrastructure becoming a reality

A buildingSMART standard for alignment is around the corner. This will be the first standard to extend the IFC format to infrastructure and is the result of 12 months' hard work by the IFC alignment project group.

Referred to at this point as the IFC Alignment bS candidate standard, the draft went out for public review on 26 January 2015, with the review period ending on 6 March. Once comment has been evaluated and taken on board, the way is clear for the work to become a full buildingSMART standard.

'Alignment' is the route of the road or rail track defined as a series of lines and curves. The construction of roads, tunnels, rail tracks, waterways, bridges and power lines all depend on the alignment. 'The IFC Alignment project provides a data model for 2D and 3D alignment information for the spatial location of infrastructure assets,' explains Henk Schaap, who represents the steering group.

What has been lacking up till now is the ability to exchange alignment information throughout the life-cycle of an infrastructure asset in open non-proprietary workflows. With IFC Alignment, information can be exchanged from planning to design and on to construction and asset management, in a compatible workflow. Importantly, the standard will also offer the ability to link alignment information to other elements of infrastructure design and construction, such as cross-sections and the full 3D geometry of infrastructure elements.

These functionalities will be offered by two other projects in progress, IFC Bridge and IFC Roads.

'We have reached a significant milestone in augmenting the coverage of the bS data model,' says Henk. 'And we have made real progress towards buildingSMART's goal of developing the means of achieving the lasting archiving of infrastructure information models.'

Thomas Liebich, leader of the Model Support Group, acted as project manager for the technical work. The draft standard comprises exchange scenarios and the conceptual model, together with an IFC extension summary and an IFC model view definition. It is available as IFC schemas defined in EXPRESS and XML and comes with the first test cases that are the results of early software prototypes. 'The alignment standard will enhance the current IFC4 data standard, and once the candidate standard is finalised, we plan to submit it to ISO for it to be incorporated in the next edition of ISO 16739, the bS data model standard,' he says.

The alignment project was funded by the Dutch and Swedish governments and by the EU through the V-Con project. This is one of the first standards to go through the new bS process for standards.

## Heroes of Interoperability – the Østfold story

*In October 2014, BuildingSMART International announced the first-ever winners of the bSI Business Gain through Open Technology awards. The overall winner was the New Østfold Hospital Project in Norway. Dag Bøhler, project director, from the South-Eastern Norway Regional Health Authority, takes questions from newsletter editor Betzy Dinesen.*

**Betzy Dinesen:** *How and why was an open BIM strategy adopted for the new Østfold Hospital?*

**Dag Bøhler:** The open BIM strategy was adopted because we were sure that it would improve quality and efficiency and wanted to use the project as a pilot for developing open BIM in the design and construction of hospitals in Norway.

*Was this ambitious BIM-based project a first in Norway?*

We have other large projects using BIM, but I think we were the first large project using BIM at scale with an explicit strategy, and covering all parts and phases of the project. The 'Nye Ahus' [Akershus] hospital pilot, carried out during 2004–2009, gave us some useful information, but overall there was little experience from predecessor projects.

*Did all your suppliers have experience of BIM?*

No. We knew that experience among suppliers in Norway was limited. Our goal was to set the standards for the project and thereby contribute to the development of competence in engineering. We chose the group that had the best score overall in the tendering, but actually there was no big difference in competence between the suppliers as regards BIM. All the suppliers responded positively to the open BIM requirements for engineering in the tendering – this was new to us in Norway.

*Hospital projects are about as complex as it gets! What have been the biggest obstacles?*

The biggest obstacle in large projects is to ensure that all processes are proceeding according to plan, so that the main milestones are reached and decisions made at the right time. All interfaces have to be taken care of, and our experience was that open BIM helps us to solve problems at the interfaces. During the detailed design phase, we were involved in the interdisciplinary co-ordination and control processes, which gave us, as client, an unprecedented insight into progress.

We also involved the users in the development of the concept. Using BIM in this process helped us to visualise and verify the solutions.

*Can you tell me more about the involvement of user groups?*

Approximately 50 user groups were set up, covering different functions in the hospital. They helped work out the layout for functional areas and rooms during spring 2011, in a process that involved doctors, nurses, technical staff and so on. Their input was solicited through specific meetings and we also used BIM to document input from the users.

*Did the building contractors already have experience of BIM in a major project?*

Most of them did not have any experience. All contractors were given access to the model from the

tender process and throughout construction. They used it in order to understand the project, as a basis for shop drawings and for quantity take-offs. In the construction phase we started to use the Rendra tool to stream the model and all documentation to mobile devices on the construction site. It was developed too late to be implemented as a main tool from the start, but some of the contractors started to use it to solve issues and make RFIs [requests for information] on-site.

*What is the value of open BIM to you as a client?*

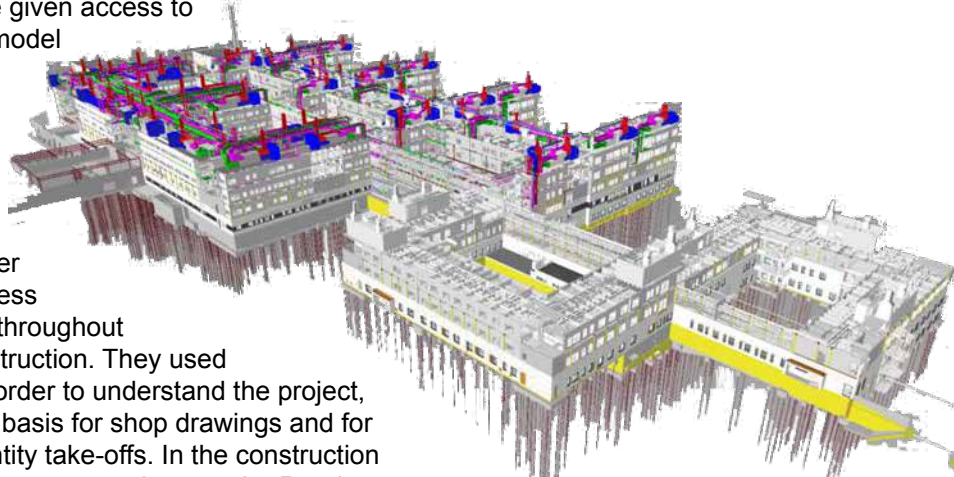
It is essential for us to be independent of specific software or software suppliers. In the project phase we want to give consultants the freedom to use the best software for their purpose and, even more importantly, we need it in the

operations phase, as software will come and go many times during the service life of the hospital. The IFC standard and open BIM are part of our BIM strategy and from 2016 open BIM will be a supplier requirement.

*What was your response at the Østfold project to winning the award?*

The project has been lots of hard work, and I was glad that our work had been noticed by the BIM organisation. Winning has been a big inspiration for all that have contributed to BIM in this project.

*Dag Bøhler acknowledges the contribution of colleagues in answering these questions.*



*Above: Model of the New Østfold Hospital; Using Rendra O software, streaming 3D model to a tablet*

# BuildingSMART spring summit



BuildingSMART week takes place in London, starting on 23 March 2015. The summit meetings will take place over the first three days, and will include sessions of the bS rooms together with technical and user meetings and plenaries. The venue is BRE in Watford, north-west London, which is home to the UKI chapter.

On 26 and 27 March, an international conference, 'BIM Prospects: the Future of BIM and Big Data' takes place at RIBA in central London. The first day covers strategy, the second will look at BIM in operation. There will be an emphasis on how the UK is implementing the government's BIM programme and its requirements for 'level 2' working.

Visit the bSI website and the conference website to find out more and register:

<http://www.buildingsmart.org/>

<http://www.bimprospects.com/index.jsp>



## Danish research confirms value of IFC

A white paper, published by Danish construction company MT Højgaard in December 2014, shows that projects covered by the latest national ICT regulations score more highly on the design quality than projects covered by the previous ICT regulations. One of the primary differences in the latest ICT regulations is the mandated use of IFC in all digital collaboration. Over time, Denmark's statutory provisions on the use of information and communication technology (ICT) have become more stringent and the latest ICT regulations (numbers 118 and 119) specify that building models must be available in IFC from concept to building operation in public sector projects.

MT Højgaard took a number of projects where it had acted as contractor. Some of the projects were subject to earlier ICT regulations with no formal requirements for IFC; others had been required to use IFC as a result of the latest ICT regulations. The company scored each project on a scale of 0–5, comparing what had actually occurred against the BIM execution plan. Added value involved elements such as better constructability, co-ordination and fewer errors.

The study revealed the positive power of an amplified framework where the use of ICT is mandated. Projects covered by the current ICT regulations, with mandatory use of IFC, showed a 44% increase in value compared to the earlier, more lenient ICT regulation (number 1381). And when compared with the first national ICT regulation (number 1365), the improvement was even greater, with an increase of 205%. Areas of work to gain were quantity take-off, better project understanding thanks to the digital model, and improved constructability resulting from clash detection.

The white paper offers immediate lessons for the Danish construction industry but has broader implications for the global community to ponder. Well-conceived regulation and the compulsory use of IFC appear, from this research, to generate value for a construction project.

MT Højgaard's earlier white paper, 'IFC – A driver for design quality in the AEC industry', gained a special mention in bSI's 2014 Heroes of Interoperability awards. This follow-up research makes useful reading. Visit <http://mth.com/> or <http://mth.com/Methods/Building-Information-Modeling/Downloads-bim.aspx> to find the two white papers, 'Value drivers in the Danish national ICT regulations' and 'IFC – A driver for design quality in the AEC industry'.



Top right: Novo Nordisk's new HQ in Bagsværd, north Copenhagen (Image: Henning Larsen Architects); below left: Aerial view of the new psychiatric hospital, Vejle, Denmark (Image: Arkitema)

## Chapter news

### New appointments at bS UKI

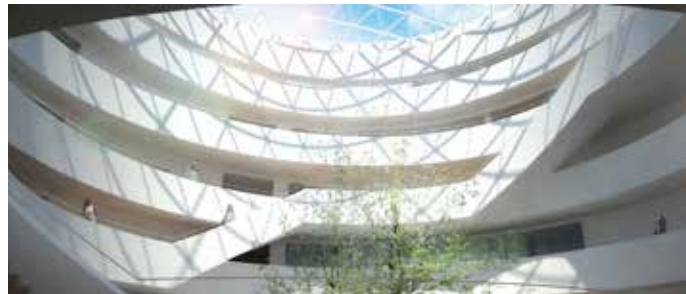
In the UK, Jeremy Watson has been appointed chairman of the local chapter as Mark Bew steps down. Jeremy led the development of the UK government BIM Level 3 plan in 2014. He is vice-dean and professor of Engineering Systems at University College London and also chief scientist & engineer at BRE. Anne Kemp, director of BIM at Atkins, takes over from Tim Broyd as vice chair.

## Global news

### International terminology project – call for participation

An international group is being set up to look at objects that have been defined at a national level but lack a standard international terminology. The work links in with the Data Dictionary, and several bSDD supporters are involved.

If you would like to get involved, contact Paul Oakley at bS UKI ([oakleyp@bre.co.uk](mailto:oakleyp@bre.co.uk)).



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