buildingSMART®

International home of openBIM

Annual Report 2016

Contents

Welcome to our 2016 Annual Report

Chairman's welcome

As I write this introduction in May 2017 I am filled with pride at the progress we are making. This year we celebrated the 21st anniversary of buildingSMART. With 17 chapters representing 24 nations and our growing body of organisational members, we are already transforming the built environment with the introduction of open data sharing mechanisms.

These were our founding goals and ideas and now we see that many governments have established programs to truly make these new ideas everyday practices available to all. Our core standards remain at the heart of these initiatives; our summits and chapters are in growing demand. These are great signs of success.

Of course, there is much more to be done and the demands are increasing all the time. We have already addressed this change in buildingSMART International with the introduction of professional full-time leadership. Many of our chapters now face the same pressures to adapt and change their role to grow with the times.

Our work has, and always will, depend deeply on the volunteer professionals and work-in-kind contribution, so I am delighted that in our 21st year we have also found a way to recognise and honour our outstanding volunteers as buildingSMART Fellows. The future looks every bit as challenging as the past but the goal even more worthy and important now that it becomes more tangible. I encourage all of you to continue your efforts and to draw others into our work so the momentum and strength of our activities continue to grow.

Patrick MacLeamy
Chairman, buildingSMART International

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2016 was an important year of consolidation, building on the strategies that we had been developing in 2014 and 2015. It was also an extremely busy year, as was demonstrated in my 2016 December overview.

In terms of governance and leadership, the new board had its first year in operation, providing important business leadership to our activities. We also focused on achieving greater alignment between buildingSMART International and the chapters. This is vital in generating confidence externally and increasing our credibility. We introduced a new shared membership scheme which aims to ensure we have mutually aligned incentives. This is expected to deliver growing membership and involvement in our activities.

Membership continues to grow steadily, and I wish to thank all those who have shown confidence in our plans, joined us and continue to work with us. Our work has also been supported by important sponsors and I am also very grateful for that support.
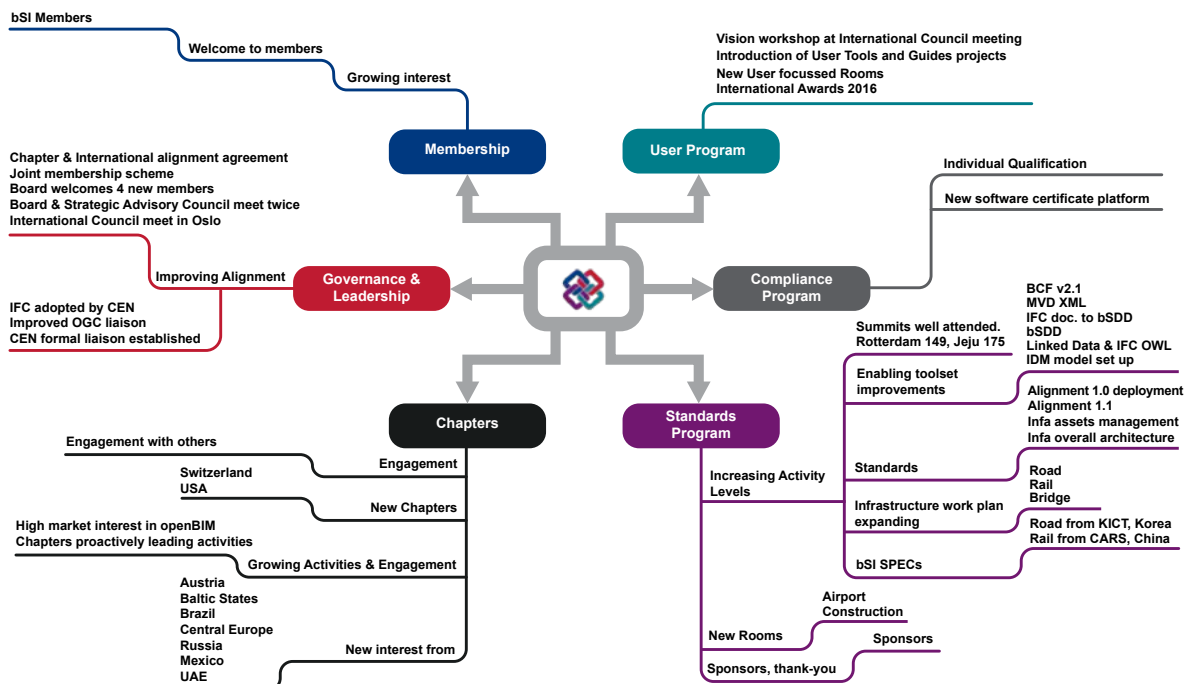
The Standards program has had a busy year in defining activities and building support for initiating new ones. The Compliance program has important work in very specific and highly important areas. The User program strategy was the subject of our Chapter Conference in May and it is hoped that this will lead to a strengthened set of shared activities, as in-country user demands become clearer.

Our resources have been constrained in the year. It is clear that with an expanded leadership team, significantly more could be achieved. Key areas for the future are technical leadership and marketing and communications.

From a financial perspective we were helped by the GBP:euro exchange rate changes, which allowed us to end the year with small net surplus and a balance sheet which is just positive. I feel that we made good operational progress and that we should be positive about all that we have achieved and is going on. But we must also recognise that if we are to fulfil our vision, we must continue to grow and develop to meet the exponentially increasing demands for openBIM.

Richard Petrie
Chief Executive, buildingSMART International

2016 Overview

bSI Members
Welcome to members
Growing interest

Vision workshop at International Council meeting
Introduction of User Tools and Guides projects
New User focussed Rooms
International Awards 2016

Chapter & International alignment agreement
Joint membership scheme
Board welcomes 4 new members
Board & Strategic Advisory Council meet twice
International Council meet in Oslo

Improving Alignment

IFC adopted by CEN
Improved OGC liaison
CEN formal liaison established

Membership

User Program

Individual Qualification
New software certificate platform

Governance & Leadership

Compliance Program

BCF v2.1
MVD XML
IFC doc. to bSDD
bSDD
Linked Data & IFC OWL
IDM model set up

Summits well attended.
Rotterdam 149, Jeju 175

Enabling toolset improvements

Alignment 1.0 deployment
Alignment 1.1
Infa assets management
Infa overall architecture

Standards

Road
Rail
Bridge

Infrastructure work plan expanding

Road from KICT, Korea
Rail from CARS, China

bSI SPECs

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Standards Program

Engagement with others
Engagement

Switzerland
USA
New Chapters

High market interest in openBIM
Chapters proactively leading activities

Growing Activities & Engagement

Austria
Baltic States
Brazil
Central Europe
Russia
Mexico
UAE

New interest from

Increasing Activity Levels

Airport Construction
Sponsors

New Rooms
Sponsors, thank-you

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Standards

The process for developing and approving buildingSMART standards was overhauled three years ago, and a more formal and rigorous process put in place. In 2016, bSI continued to embed and improve the process.

One technical report and two publicly available specifications were published during the year. The new technical report is LandXML v1.1, a model view definition (MVD) forming part of the LandXML family. LandXML is an open XML file format for civil engineering design and survey measurement data, allowing users to transfer engineering design data and complete tasks in long-term data archiving and electronic design submission. The buildingSMART standard introduces several new use cases.

The buildingSMART specifications, or bSI SPECs, are a new initiative for the organisation. The bSI SPEC system allows valuable work done in individual countries to be published by bSI, in order to share knowledge and provide input for the future standards. The first two SPECs were published in September to coincide with the Korea summit. These were the Korea Institute for Construction Technology specification for IFC Roads, and the China Railway BIM Alliance's IFC

Rail specification. The two bSI SPECs will now inform the development of standards in road and rail.

Standards being developed in our Standards process for international harmonisation include: IFC Alignment 4.1, which extends the earlier alignment standard for infrastructure and supports its deployment; asset management for infrastructure; overall architecture for infrastructure, providing a common framework for modelling roads, railways, bridges and tunnels; the IDM model set-up; IFC Bridge; a standard to integrate IFC.doc and bSDD; and ifcOWL.

New standards about to enter the process include IFC linear extensions and IFC Road and Rail.

A crucial feature of standards development are the buildingSMART Standards Summits. Two summits are held every year in different parts of the world. In 2016, summits were held in

The buildingSMART specifications, or bSI SPECs, are a new initiative for the organisation.

Rotterdam, Netherlands (April) and Jeju, Korea (September). The meetings last four days, with further time allocated for an industry conference run by the host country and joint meetings with ISO representatives.

The summits bring together the working groups of the different rooms and enable projects to be discussed and progressed. Presentations are also made by individual countries showcasing pioneering projects. The 2016 summits proved highly popular, with attendance greater than the previous year and gradually increasing; 149 people attended Rotterdam and 175 were registered at Jeju.

Compliance

Our compliance activities cover both software and people. We are set to launch software certification to IFC4, while Phase 1 of our professional certification has been developed by our international program committee.

Software certification

Our software certification program allows software vendors to submit their products to ensure that they comply with our IFC standard. The service began in 2005 and was significantly improved in 2010 with Certification 2.0, which offers, among other things, quality checks and import/export testing. It uses a web-based management platform. In 2016, six software applications from vendors were certified to IFC 2x3: ACCA Software SpA, CadLine Ltd, Kymdata Oy, Progman, Bricsys Services.

During the year, the certification team prepared for the launch of certification to IFC4. The service will include improved quality checks, full use of mvdXML and the ability to scale for multiple MVDs. It will use a cloud-based management platform.

Certification will be both to IFC4's reference view and to the design transfer view. It will also cover change requests via BCF, to reflect the growing importance of BCF.

The buildingSMART certification scheme benefits all the parties, allowing vendors to bring to market software that has been stringently tested and ensuring that end-users have software that meets buildingSMART standards. The improved offering of certification of IFC4 will strengthen these benefits.

During the year, the certification team prepared for the launch of certification to IFC4.

Professional certification

A buildingSMART Professional Certification program, providing accreditation to individuals, is in development. The scheme will allow in-country training organisations to provide training that meets the standards of buildingSMART and to certify course delegates as competent in the theory and practice of BIM according to bSI requirements.

In 2016 a program committee was formed, representing eight chapters. The committee defined its strategic goals and operational structure, and carried out a small market survey to clarify industry needs. The survey found that 81% of respondents thought that a BIM competence certification program was necessary and 68% felt that buildingSMART should be involved in the initiative.

In order to accelerate time to market, buildingSMART decided to launch an entry-level program as a first-phase roll-out. This initial program is called Individual Qualification. It entails knowledge-based training, centred on specific learning outcome frameworks, or LOFs. This is a content structure, rather than a curriculum, that training organisations can adopt to develop their courses. There are eight LOFs planned for the complete Individual Qualification phase. By mid-2017 the 'basic' – or foundation – module will be finalised, and it will be followed by seven specialist modules. The LOFs will be produced in English, and chapters who adopt the Professional Certification scheme will be required to translate the LOFs for their own countries, adding additional content to meet national requirements as necessary.

In order to accelerate time to market, buildingSMART decided to launch an entry-level program as a first-phase roll-out.

Phase 1 of the program, Individual Qualification, will be launched internally to chapters in 2017. The chapters can then make the framework available to training organisations in their own countries. Course approval will be undertaken by the local chapter in accordance with bSI guidelines. As the Professional Certification program matures, the accreditation process for training organisations will be developed further.

Once Individual Qualification has been launched, a more comprehensive second phase will be developed. This is termed Professional Certification and will cover BIM competency in specific fields and roles where BIM is in use. The development for full Professional Certification, which is known as Phase 2, will commence towards the end of 2017.

Significant groundwork was done on the program during the year in preparation for launch. The development work done by the committee – including the basic LOF from which training providers can develop their course curriculum, additional guidance material and an online competency assessment tool – is expected to benefit training organisations. In offering this program, bSI will enable training organisations to align themselves with the buildingSMART brand.

05 The buildingSMART programs:

User

The User program is our front-end engagement with users and is delivered through our chapters.

Centrally, bSI provides leadership and coordination through the International User Group. A key tool for this program is a knowledge-sharing platform where users of buildingSMART standards can ask questions, detail their experiences and indicate areas in need of further standards development.

The International User Group (IUG) holds regular online meetings, open to any user of buildingSMART-compliant products. Participants are invited to make presentations and share their experiences. Case studies are welcomed. In 2016, IUG launched a Q&A facility on the bSI website. Taking the form of Frequently Asked Questions, this useful web page answers user questions with candour and transparency, and invites users to make contact.

During the year, IUG held a 'speed-dating' event, where users were invited to meet others and hear about their BIM experiences and lessons learnt. Conducted virtually, the event featured interviews with high-profile industry professionals. The interviews were posted on the IUG web pages, on our LinkedIn group and on other social media.

IUG maintains close contact with all the buildingSMART rooms, as well as sitting on the Standards Committee Executive and providing input into the prospective IFC4 certification scheme. The IUG Committee also reviewed the Arup BIM Maturity Measure tool – an online tool to measure BIM implementation in projects – which it makes available on the bSI website.

The bSI International Award winners were announced at the Korea summit in September 2016. Formerly organised by the Building Room, the Awards now fall within the remit of IUG and showcase projects that demonstrate the benefits realised by using buildingSMART standards. Awards were made in four categories , design, construction, operation & maintenance and student, with three further honourable mentions. The spread and quality of the entries showed the positive effect that openBIM is having on the full life-cycle of building assets.

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The buildingSMART rooms

At the heart of Standards program are the rooms: centres of activity, or forums, where projects are developed.
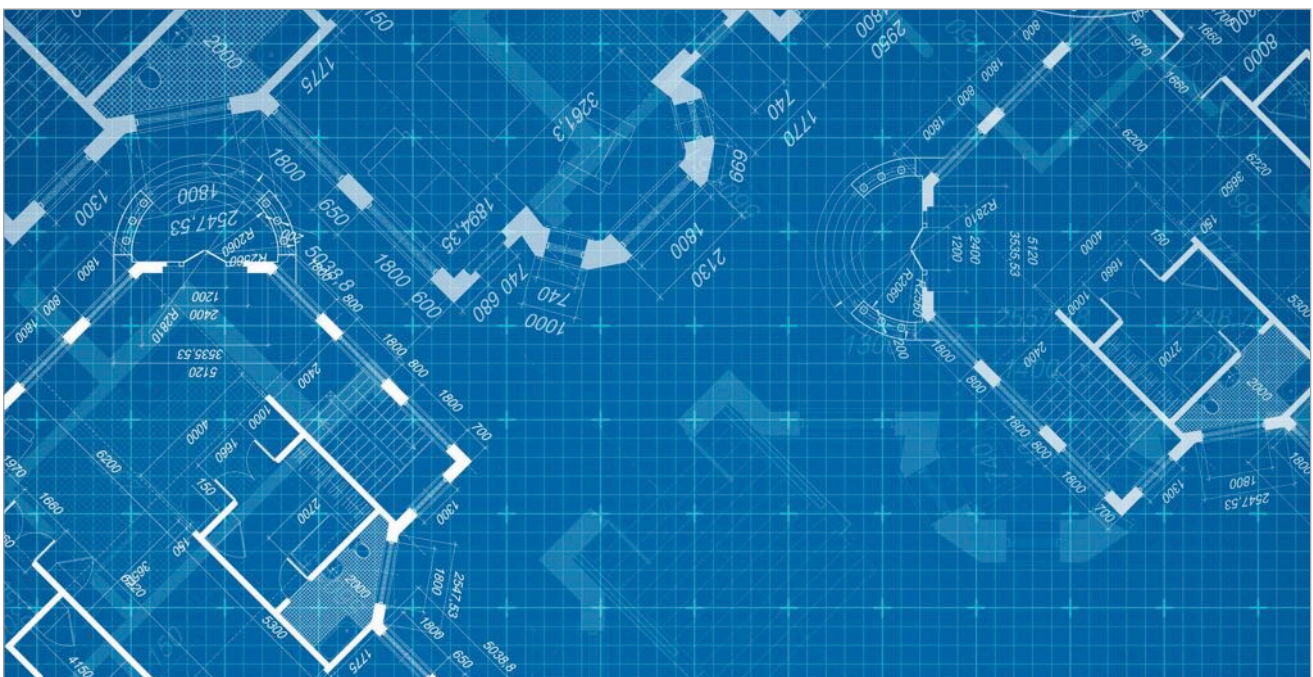
Each room creates its own program of work, with working groups responsible for individual projects. In addition to regular meetings, virtually and in person, members of the rooms meet up twice a year at the standards summits to review their work, set new milestones and identify new needs in the industry.

There are seven rooms in all. The most recently formed rooms, the Airport Room and the Construction Room, were launched at the standards summit in Korea in September 2016.

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The buildingSMART rooms:
Airport Room

The Airport Room was launched at the Korea summit in September 2016 to tackle the unique asset management problems of airports.

Border control, baggage handling and security are distinctive features of airports not yet covered by IFC and its associated standards. There are also airport-specific assets such as passenger boarding bridges that connect the terminal to aircraft. Most of these objects still have to be defined in IFC, through model view definitions.

The room launched with five participants, representing airport authorities in Turkey, Seoul (Incheon), Oslo, Paris and Amsterdam (Schiphol). The leadership is drawn from Schiphol. A high priority is to increase membership, among smaller as well as larger airports.

The overall aim of the Airport Room is to produce guidelines for the use of openBIM during the whole life-cycle of airport assets. It will also work on projects to define technical specifications for an information delivery framework and for specific airport assets and airport security.

At the end of the year, the room was developing its workplan.

The overall aim of the Airport Room is to produce guidelines for the use of openBIM during the whole life-cycle of airport assets.

The buildingSMART rooms:
Building Room

The Building Room is concerned with the processes involved in design and construction.

As part of its early work, the Building Room developed the Information Delivery Manual, a standard which defines a digital communication process – specifying when and how information is delivered – and now adopted by ISO.

In 2016, the Building Room developed proposals for three model view definitions (MVDs), covering model set-up, energy simulation and quantity take-off. A 'view' or MVD is a workflow application and is a subset of our data model (the IFC schema) and translates processes into technical requirements. Once defined and approved, the proposed MVDs will enable software developers to provide products that designers can use in their everyday work.

The model set-up project made good progress during the year. It is tackling the crucial area of geo-referencing and how IFC can deal with it. The new MVD will ensure that a building project designed in IFC relates to real-world coordinates and it will provide a template for setting up models in a multidisciplinary project. This will avoid discrepancies between the individual discipline models.

A proposal for an energy simulation MVD has been accepted by the Building Room. This MVD will allow the indoor environment and energy consumption be visualised in the model, so that design professionals can explore the benefits of different design solutions. The proposal for a quantity take-off MVD, also accepted by the Building Room, will allow data on quantities to be used for a variety of purposes, such as costs, life-cycle analysis and environmental impact. It will be based on the IFC4 standard and be compatible with buildingSMART's reference model view and design transfer view.

Around the world, a proliferation of schemes on 'level of development' are emerging, often contributing to over-specification and wasted time. Level of development (and the linked concepts of level of detail and level of information, often referred to broadly as LoX) is a key part of any digital contract.

With its IFC information framework and its information delivery manual (IDM), buildingSMART is well placed to provide tools and guidance on LoX in collaboration with the wider industry, and during 2016 the UK and US chapters did the groundwork for setting up a working group within the Building Room. The group will try to find common ground among the multiple definitions that are springing up.

Work on the three MVDs and progress on LoX have been identified as priorities for 2017. Proposals for further MVDs are not far behind, with an MVD on scheduling likely to be next.

The BIM Collaboration Format, a buildingSMART standard known as BCF, has been welcomed by the industry as a useful tool for workflow communication on a construction project. BuildingSMART member companies have tested the functionality of BCF and their findings have been sent to the Implementation Support Group. The BCF Support Group also created a useful two-minute video to explain the benefits.

The buildingSMART rooms:
Construction Room

The Construction Room was launched at the Korea summit in September 2016 in response to industry demand for a room dedicated to the needs of construction projects.

The overall aim of the Construction Room is to accelerate the uptake of building information technology on construction sites. Newer technologies such as the Internet of Things (IoT) are emerging, and the Construction Room plans to explore opportunities for interoperability between BIM, IoT and manufacturing.

Education is a high priority for the Construction Room, as many contractors are unaware of the benefits that BIM can bring, especially the clarity that visualisation can bring to the workforce on-site. The room is also planning to develop use cases for the application of BIM.

Kajima Corporation, one of bSI's Strategic Advisory Council members, was the prime force in setting up

the Construction Room. The room has attracted a small but influential participation, based largely in Asia, with four organisations in Japan and four in Korea, plus one organisation in Switzerland. The opportunities for extending the practical use of openBIM to construction sites offer savings and quality improvements, and the minority of on-site projects already doing so are seeing significant benefits. The Construction Room has a crucial role in increasing uptake among construction companies. As it develops its work program in 2017, it will seek to increase membership, both locally and globally.

Education is a high priority for the Construction Room, as many contractors are unaware of the benefits that BIM can bring.

The buildingSMART rooms:
Infrastructure Room

The Infrastructure Room is the largest and most active of all the rooms, reporting progress in many aspects of infrastructure: road, rail, bridge, alignment, asset management and more.

One important area of infrastructure for bSI is bridges. An IFC extension to bridges would benefit transport authorities around the world, and at the Korea summit in 2016 an MOU between bSI and five other parties was signed. Partnering bSI are the French national project MINnD, the national transport authorities Trafikverket (Sweden) and Liikennevirasto (Finland), the Germany Federal Ministry of Transport and Digital Infrastructure (BMVI), and buildingSMART Japan. The partners are supplying funding and in-kind resources. Robust groundwork on IFC Bridge has been done in individual countries, and a working group of the Infra Room is defining the precise areas that need to be covered and will then present a proposal to the bSI Standards Committee.

Road and rail are further significant areas, and two buildingSMART SPECs were published in the year, covering IFC Road (developed by KICT in Korea) and IFC Rail (developed by the China Railway BIM Alliance). The two SPECs provide a strong starting point for developing full buildingSMART standards and will help in verifying the robustness of the IFC schema in these new areas.

The IFC Alignment standard was the first infrastructure standard to be published and was fast-tracked to completion in 2015. The follow-up standard, Alignment 1.1, which covers new areas, was developed during the year, in preparation for being submitted as a candidate standard (the final stage in the process) in 2017. It is likely to attract immediate implementation from software vendors and can be used with BIM execution plans.

Also assisting the process of user adoption is the Alignment Deployment project, set up in 2016. The major international software vendors, including Autodesk and Bentley, have signed up to this project to develop pilots. The project will allow them to understand the impact of IFC Alignment (both 1.0 and 1.1) on their own conceptual models.

The Overall Architecture team made good progress on their technical report. 'Overall architecture' will provide a common basis for the different parts of infrastructure – such as road, rail, bridge and tunnel – and the report provides guidelines for future expansion of the IFC model in these areas.

An Infra Asset Management Group was created in 2016 and carried out a large survey of international stakeholders (both clients and suppliers), together with interviews. The aim of this first stage is to clarify how asset owners, such as transport authorities, want asset information to be delivered on completion of a project and how their asset managers use BIM information, and a report was drafted, ready for release in mid-2017.

The Infra Room's Integrated Digital Built Environment Working Group joined forces with the Open Geospatial Consortium (OGC) and a joint planning committee is looking at ways increase the interoperability between geospatial and built environment data.

There is also collaboration between the Infra Room and the Product Room on the role of the buildingSMART Data Dictionary and the forthcoming extensions of the IFC schema into IFC Bridge, Road and Rail.

The IFC Alignment standard was the first infrastructure standard to be published and was fast-tracked to completion in 2015.

Looking forward in the near term, an extension to the IFC schema with infrastructure standards could be ready by 2020. The Infra Room developed a roadmap to plan for these ambitious projects during 2016.

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The buildingSMART rooms:
Product Room

The aim of the Product Room is to develop the tools and templates that will allow the efficient use of product data in building projects and subsequent asset management.

It does so through the buildingSMART Data Dictionary (bSDD), an open library of object types and their properties that is providing an IFC terminology and unique identifiers.

Anyone may browse and search the Data Dictionary but users must register and pay a licence fee. As at December 2016, there were 12 licensed users, ranging from commercial software companies to trade associations developing national object libraries and individual projects. During the year, the users have developed content, which they have added to the Dictionary.

In 2016 the Product Room initiated work on a new standard on product data

templates. 'Initiation' is the first stage of the buildingSMART standards process. The templates are intended for the use of manufacturers who will complete them with information about their own products, providing – in a consistent IFC-compliant form – all the information that the immediate user and end-client need. In particular, the templates will make long-term facilities and asset management more efficient.

New licensing arrangements for the bSDD were explored and will be launched in 2017. Three types of rights will be made available: access, read and write.

A free tool, ifcDoc, has been made available by bSI to users wanting to

New licensing arrangements for the bSDD were explored and will be launched in 2017.

create their own IFC documentation (such as model view definitions, subsets and supporting material). During the year, the Product Room began work to integrate the ifcDoc tool with the Data Dictionary. Many entities and property classes still have to be defined in the Data Dictionary, and work will continue in 2017 to expand coverage, progress the product data templates project and complete the integration of ifcDoc.
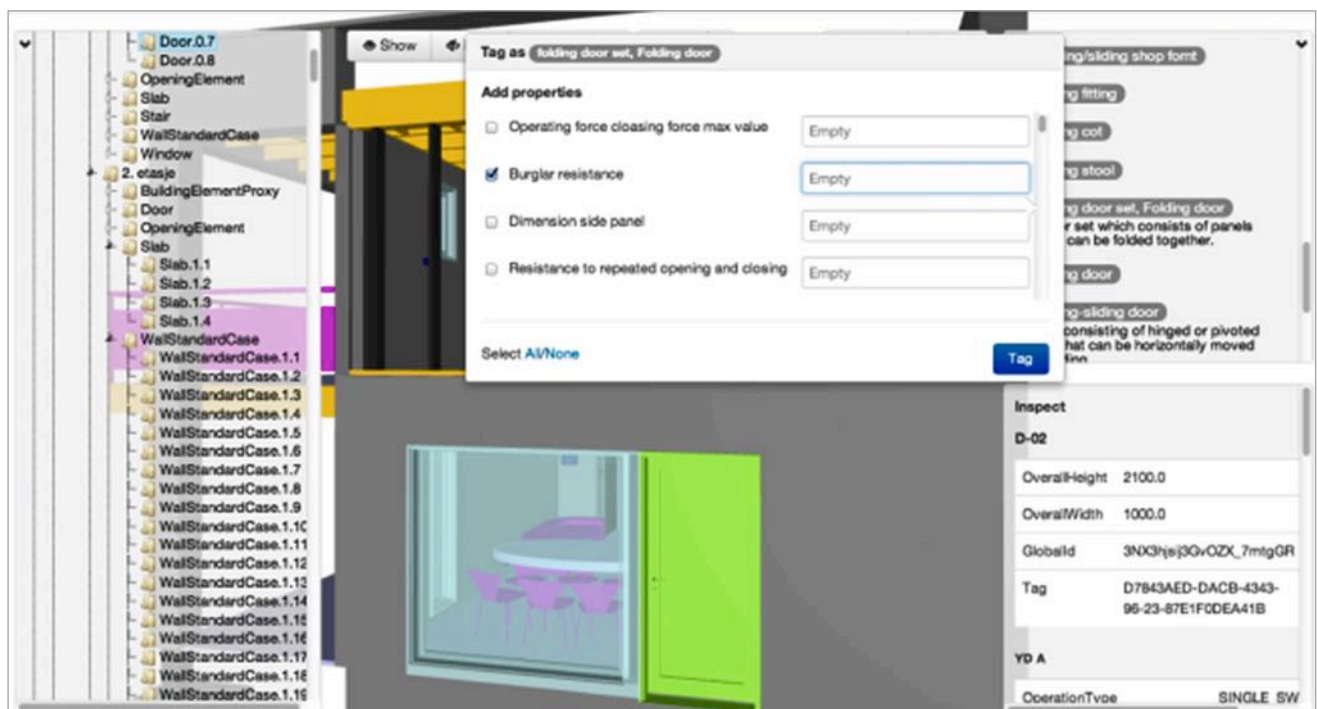
The buildingSMART rooms:
Regulatory Room

The Regulatory Room has the overall aim of helping building project owners and regulatory authorities to benefit from the use of openBIM.

The Regulatory Room has two projects at an early stage. The first is the electronic submissions (eSubmissions) project, which recognises that the time taken by regulatory authorities to issue planning permissions is highly disruptive to the industry. An eSubmissions process, once developed, would harness the use of openBIM, providing a seamless and speedy way of submitting requests for planning permission and getting a response from local authorities.

The second project is automated code checking, which would reduce the time taken to check that projects comply with building codes (regulations). Current waiting times are also disruptive and automated code checking, based on the IFC standard, would expedite the process. Progress in both projects was slow in 2016.

The room is led by chapter members in Norway and Korea but has had difficulty in getting a significant number of other chapters firmly on board. The specific need is to get regulatory bodies themselves to join the working groups. Again, there was little progress in the year, though at year end there was a renewed determination to secure regulator support.

At country level, Norway and Singapore signed an MOU in November 2016, committing to share experience and best practice in the use of open BIM in planning and checking compliance with building codes in the construction industry. The Regulatory Room at bSI played a key role in getting the MOU in place.

The room has two projects at an early stage.
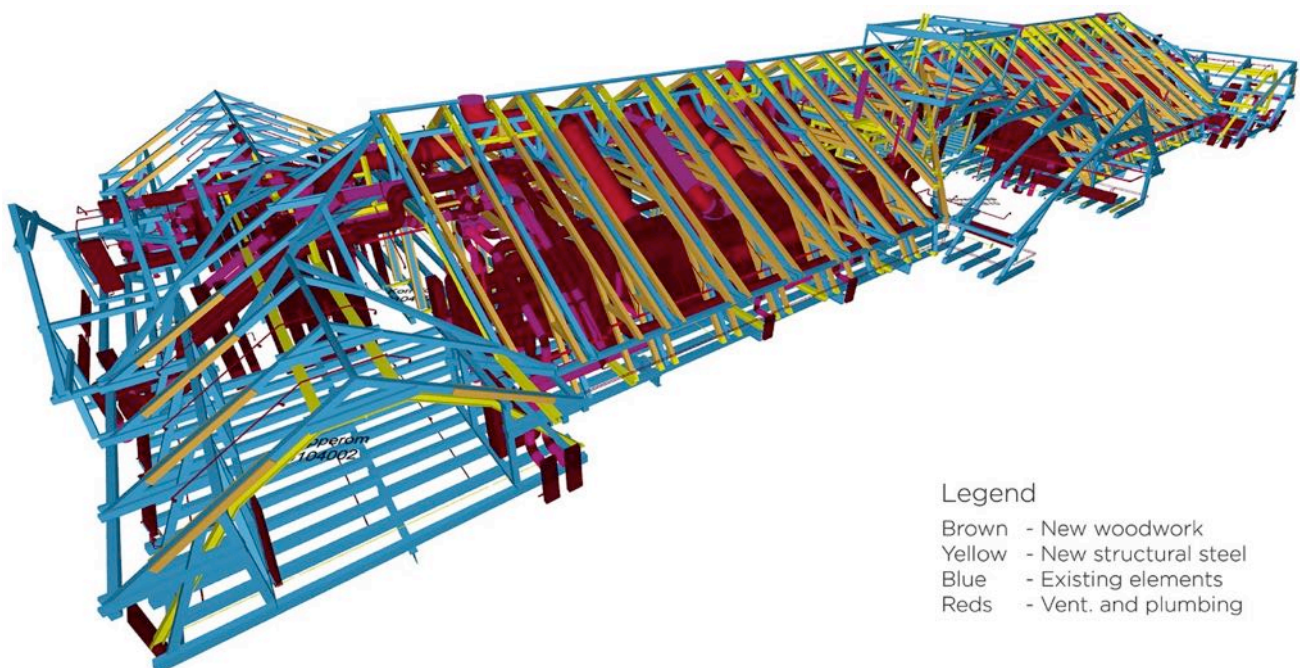
Legend

Brown – New woodwork
Yellow – New structural steel
Blue – Existing elements
Reds – Vent. and plumbing

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Technical Room

The Technical Room plays a key role as the technical heart of standards and tools. The room has its own working groups and is home to two other important groups, the Implementation Support Group and the Model Support Group.

Although some standards development is conducted within dedicated rooms (such as Infrastructure), the Technical Room is available to work collaboratively with other rooms.

A key achievement during 2016 was the endorsement of ifcOWL as a candidate buildingSMART standard. This is the penultimate stage before a prospective standard is accepted as a full buildingSMART standard. The IFC data model is currently available in the EXRESS or XML formats but it is not yet suitable for information exchange via the semantic web. For this to happen, IFC needs to be available in the Web Ontology Language, known as OWL. This is what ifcOWL offers. The prospective standard was developed by a group of academics in Belgium and the Netherlands who are members of the Linked Data Working Group within the Technical Room. Once ifcOWL is up and running as a standard, numerous possibilities open up on the semantic web, allowing users to link to data from other sources and integrating a building information model with standards from other fields.

A second major achievement was the recognition of the concept of the multimodel container (MMC) in the buildingSMART community. The idea of MMC is to combine design and management models in a single and reusable information resource. Although building models from different disciplines can already be integrated with cost and scheduling models, problems arise from the sheer variety of applications. The multimodel container provides a solution and successfully integrates different application models.

The concept has its origins in a German government research project, Mefisto, which developed the MMC 1.0. When Mefisto closed in 2012, the German-speaking chapter took the work forward and developed a generic version, MMC 2.0. Both versions have answered real industry needs and have been implemented by software vendors. The Technical Room launched an MMC working group at the Korea summit in September and plans to collaborate with ISO Technical Committee 59 to develop an ISO standard for containers and linking.

The Implementation Support Group (ISG) provided help with the online tools that will be used once IFC4 certification begins. Testing of the new tools began in the course of the year. The group also helped with the transfer of the old IFC2x3 implementation agreements to the new IFC4 reference view and design transfer view as exchange requirements.

> *A key achievement during 2016 was the endorsement of ifcOWL as a candidate buildingSMART standard.*

The Model Support Group continued to provide technical support for bSI standards. Among other activities, it maintains the IFC model, supports our software tool, ifcDoc and represents buildingSMART at the meetings of ISO's Technical Committee 59 (Sub-Committee 13, joint working group 12). We are also a liaison member of CEN.

With the growth of buildingSMART and structural changes within it, the Technical Room is planning to rethink its role during 2017 and identify how best it can serve the buildingSMART community.
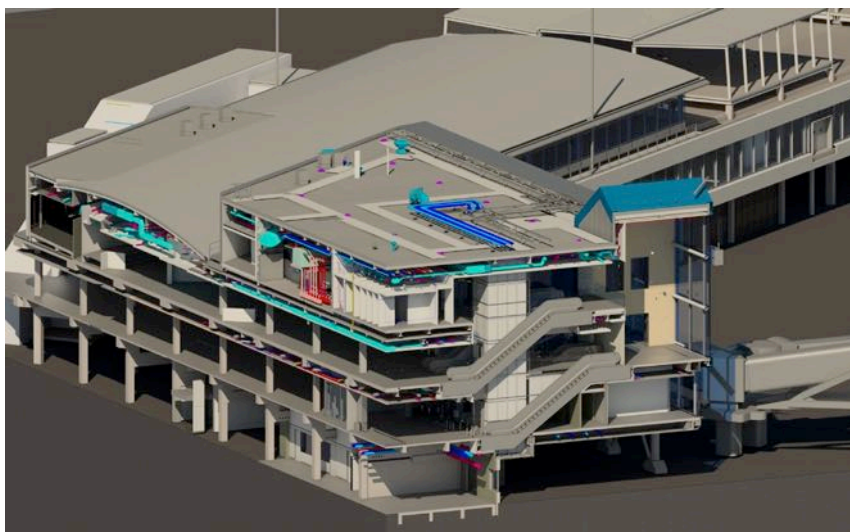
Chapters

BuildingSMART consists of a network of chapters, representing a single country or small cluster (such as Benelux and Nordic).

The individual chapters are members of buildingSMART International; they in turn have a membership consisting largely of AEC companies, large public sector clients, software vendors, professional institutions and universities.

As at December 2016 there were 17 chapters: Australasia, Benelux, Canada, China, France, Germany, Italy, Japan, Korea, Malaysia, Nordic, Norway, Singapore, Spain, Switzerland, UK & Ireland and the US.

Two of these chapters – Switzerland and the US – were launched in the course of the year. Switzerland, formerly part of the German-speaking chapter, launched in January 2016. With BIM uptake rapidly accelerating in the country and large clients eager to reap the benefits of BIM, the Swiss chapter is well placed to roll out buildingSMART processes locally and make a strong contribution to bSI.

The US is especially significant with its long history of innovation in IFC. The US chapter had temporarily lapsed and a new host organisation, BIMForum,

stepped forward, allowing the chapter to be re-formed and relaunched.

Chapter management is devolved to the individual chapters. They encourage user uptake of buildingSMART standards, hold industry days and in some cases have training programs. They contribute to multi-country bSI projects, as partners, and also take part in local projects. The buildingSMART brand is valuable to chapters in promoting the launch of open BIM activities in-country.

Chapter activities vary from country to country. Some chapters have particular ties with some of the rooms (Japan with the Construction Room, Norway and Korea with the Regulatory Room, for example), while others, such as France, Norway, Spain and Finland, are closey linked to national BIM programs.

In 2015 a new bSI–local chapter structure was introduced to improve liaison and the co-ordination of local projects. This structure was strengthened in 2016 and a chapter alignment agreement was introduced, setting out formally the terms

of alignment, with most chapters now signed up. Regular online meetings are held as part of the chapter leaders forum.

A chapter conference was held in Oslo in May. It brought the chapters together, placing user engagement and compliance high on the agenda. The 'share membership' scheme was presented at the conference, setting out the benefits of a 'one team, one approach' as regards chapter and bSI membership. Over the course of the year, the chapters helped to fine-tune the scheme, which has created a partnership allowing the membership dues of bSI organisational members to be shared equitably between bSI and the chapters.

The buildingSMART family continues to grow, and during the year interest in joining the network was received from several countries. In these cases, bSI provides guidance and visits the country to help a prospective chapter through the process. The work of nurturing a new chapter is painstaking and sometimes slow, but one or more new chapters are expected during 2017.

Membership

Three levels of bSI membership are offered: strategic, international and standard. Strategic members form the Strategic Advisory Board (SAC) and advise the bSI board.

International members are entitled to be members of five local chapters in addition to membership of bSI, while standard members are also given membership of their home chapter.

As at December 2016 there were five strategic members: Arup, Autodesk, HOK, Kajima Corporation and Nemetschek Group. There were four international members and eight standard members. Members sit on the Standards Committee, which endorses the creation of standards, and can work in room committees and on projects. Members benefit from the collective activities of other members locally and internationally. They play an active role not only in identifying issues but also in developing solutions.

New members during the year were the Japanese global construction company, Kajima Corporation (strategic); the software company, Bricsys (international); and the Dutch roads and water systems authority, Rijkswaterstaat, Schiphol Airport in the Netherlands and the Swiss technology company, Mensch und Maschine (these last as standard members).

The SAC contributes to board meetings and met face to face in Oslo on 24 May and in London on 5 October. Its members are involved in special projects or tasks. The first is a marketing project, called 'Marketing IFC Today', which aims to help non-technical users understand what IFC is (and how to use it in their workflows) and to increase the momentum of vendor certification.

Part 1 of the task – now almost complete – is to develop a marketing and certification strategy for IFC today; part 2 will be to implement it.. A steering group comprising senior management from the user and technical communities oversees the task. The second task, led by SAC member Arup and called 'Develop IFC to encompass data to support the design and construction interface', is also progressing.

As organisations recognise the value of bSI in developing open standards and the importance of membership in funding the work, membership continues to grow. The standard category of membership is expected to see the greatest growth.

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Standard Members

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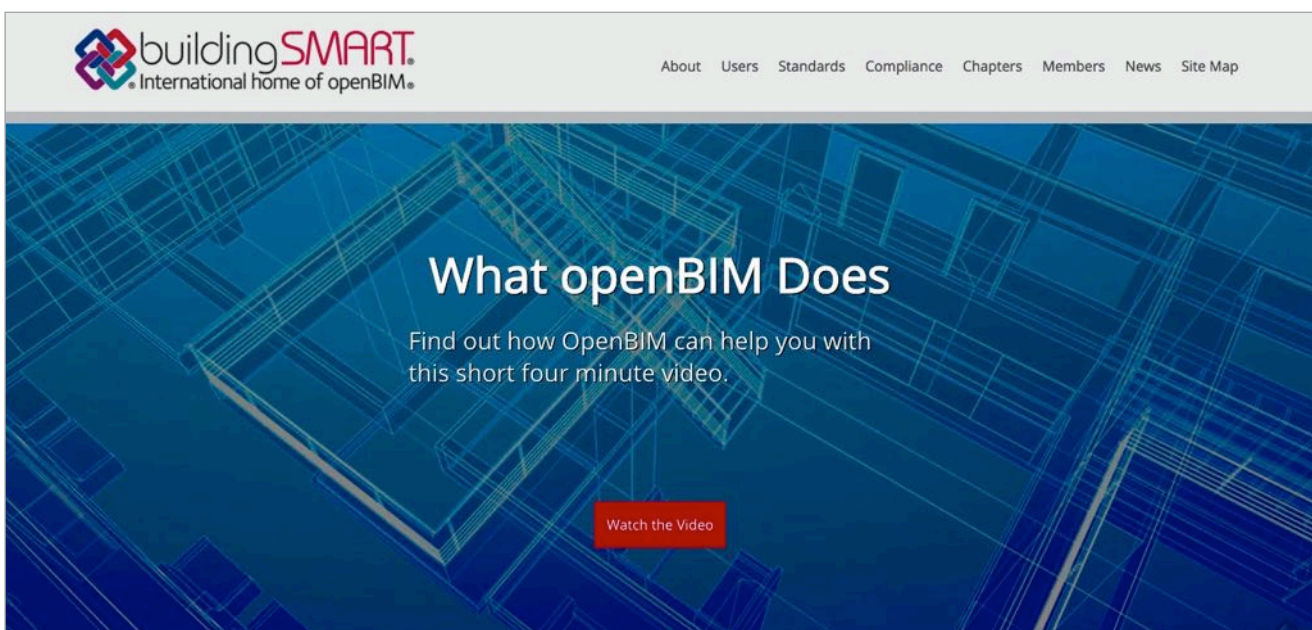
Communications

The communication strategy has continued to develop and more channels for engaging with the community and beyond have been created.

The www.buildingsmart.org website is the mainstay of the communication resource and all other channels radiate from it. The members-only intranet, which was launched at the end of 2015 for our governance and project teams to work collaboratively, had over 400 users on the system at year-end.

All bSI news is posted on the main website and then sent on through dedicated Twitter, Facebook and LinkedIn feeds. Twitter followers jumped to 3,000, a fivefold increase, once the dormant account was rejuvenated. The official LinkedIn page attracted well over 1,000 followers within six months of creation and an unofficial IFC LinkedIn page has 3,000 participants.

All the official social media channels are currently transmit only. We do not yet have sufficient resource to engage in two-way communication.

The bSI YouTube channel has also proved extremely popular, with a large audience for our Data Dictionary micro lecture and BIM Collaboration Format cartoon explanation.

Many of the people visiting our main website are looking for technical information and they click through to www.buildingsmart-tech.org. There are plans to increase the usability and improve the content generation of this site.

The main website also links to all the chapter websites to allow connections to the local community.

The members-only intranet, which was launched at the end of 2015 for our governance and project teams to work collaboratively, had over 400 users on the system at year-end.

The quarterly newsletters, published on the website, provide a summary of activities, with news stories and features.

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Governance and finance

The buildingSMART network consists of a lead body, buildingSMART International (bSI) providing guidance and direction at the centre and individual chapters operating at country level.

BuildingSMART International is incorporated in the UK as a company limited by guarantee while the chapters, who are self-governing, are set up according to the legal framework in their home country.

The International Council (IC) consists of representatives from the chapters in their governance capacity and holds an annual general meeting. Each chapter sends two representatives to the IC meetings. A board is elected at the annual International Council meeting. In 2016 it was expanded from five to eight members. The Strategic Advisory Council (SAC) also advises bSI, and during the year SAC members met with the board on two occasions.

Two full-time officers are employed by bSI: a chief executive and an operations director. The company secretary is paid on a fee basis. Other services are also procured on a fee basis, and include technical support for standards development and the bSDD, communications support and website management.

The principal source of income for bSI is membership dues, which in 2016 contributed €604,000. Of this, the Strategic Advisory Council contributed dues of €449,000. Income from chapter membership stood at €274,000.

IFC2x3 software certifications slowed in anticipation of certification to IFC4, which is poised to start in 2017. The new certification will produce a stronger income stream, as will individual certification when it launches. The licensing of the buildingSMART Data Dictionary produced an income of €3,000 in 2016; the licensing framework was reformed during the year.

The principal outgoings are bSI management (€472,000 in 2016); room overheads (€161,000) and the bSI website and marketing (€80,000). Other smaller outgoings are travel and auditing expenses.

Projects are funded separately, with total funding and expenditure balancing out on project completion.

The currency exchange rate between the euro and GBP brought a benefit of €59,000.

The year ended with a surplus of €40,000. Increasing revenue, chiefly through membership, remains a priority.

The accounts are published at the end of this report.

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Priorities for the coming years

We are growing in many ways – in the number of our members, our chapters and our rooms. All of the rooms have multiple activities, and some have complex and demanding work programs.

One of our first requirements is to maintain and increase our resources, both to provide leadership and administration within bSI and to fund individual projects which will lead to new standards.

Certification will be an important priority for us. Once software certification to IFC4 is launched – it will cover the design transfer view and the reference view – it will secure a continuing income stream for us while ensuring that IFC4 is deployed to our high standards. People certification will similarly generate revenue and raise user standards.

Another priority is the buildingSMART Data Dictionary. We believe that the bSDD can offer a unique service, and we will work to develop a targeted service offer and the Dictionary itself to meet the needs of users in different countries.

We have already taken the first step of refreshing our licensing framework.

We know that there is an eager market for buildingSMART standards in infrastructure. We plan to intensify our efforts in developing standards for road and rail. The two buildingSMART SPECs published in 2016 give accreditation to the considerable groundwork done in Korea and China; now we must move forward and develop full standards.

We will work to increase our membership among organisations. We value the input and contributions from our Strategic Advisory Council members and will seek to recruit further strategic members. At the same time, we will work with our chapter members, who are at the heart of our development programs, in cases where they are experiencing changes in their home countries.

We value the input and contributions from our Strategic Advisory Council members and will seek to recruit further strategic members.

Finally, we are aware that the buildingSMART brand is known all around the world. Our reputation will endorse our activities in areas such as certification and partnerships to develop projects, and we will ensure in turn that our future achievements continue to build our brand.

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2016 Full Year

Income

	2015 Actual	2016 Budget	2016 Actual
Chapter	271	300	274
Membership	486	835	604
Chapter rebate		(63)	(26)
Certification	27	25	46
Services & Licensing	16	13	20
Projects	43	359	260
Exchange gain on income			43
Income Total	**843**	**1,469**	**1,222**

Expense

	2015 Actual	2016 Budget	2016 Actual
bSI Core Overheads	640	855	706
Room Overheads	150	180	161
Certification	10	23	44
Services & Licensing	17	15	20
Projects	69	359	309
Bad Debt / Curr Exch	55	25	(59)
Expense Total	**941**	**1,456**	**1,182**

	2015 Actual	2016 Budget	2016 Actual
Surplus / Deficit	**(98)**	**13**	**40**
GBP to EURO rates	1.36	1.40	1.17

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buildingSMART International Limited

Company limited by guarantee

Annual Report and Unaudited Financial Statements

for the Year Ended 31 December 2016

buildingSMART International Limited

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buildingSMART International Limited

(Registration number: 05024694)
Balance Sheet as at 31 December 2016

	Note	2016 £	2015 £
Fixed assets			
Tangible assets	3	1,363	1,002
Current assets			
Stocks	4	10,999	-
Debtors	5	57,069	60,117
Cash at bank and in hand		508,678	346,228
		576,746	406,345
Creditors: Amounts falling due within one year	6	(541,390)	(404,910)
Net current assets		35,356	1,435
Net assets		36,719	2,437
Reserves			
Profit and loss account		36,719	2,437
Members' funds		36,719	2,437

For the financial year ending 31 December 2016 the company was entitled to exemption from audit under section 477 of the Companies Act 2006 relating to small companies.

Directors' responsibilities:

• The members have not required the company to obtain an audit of its accounts for the year in question in accordance with section 476; and

• The directors acknowledge their responsibilities for complying with the requirements of the Act with respect to accounting records and the preparation of accounts.

These financial statements have been prepared in accordance with the special provisions relating to companies subject to the small companies regime within Part 15 of the Companies Act 2006.

These financial statements have been delivered in accordance with the provisions applicable to companies subject to the small companies regime and the option not to file the Profit and Loss Account has been taken.

Approved and authorised by the Board on 8 March 2017 and signed on its behalf by:

....

Ms T Koppinen

Director

buildingSMART International Limited

Notes to the Financial Statements for the Year Ended 31 December 2016

1   General information

The company is a company limited by guarantee incorporated in England.

The address of its registered office is:
9 Quy Court
Colliers Lane
Stow-cum-Quy
Cambridge
CB25 9AU

The principal place of business is:
Ethos
Kings Road
Swansea Waterfront
SA1 8AS

These financial statements were authorised for issue by the Board on 8 March 2017.

2   Accounting policies

Summary of significant accounting policies and key accounting estimates
The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

Statement of compliance
These financial statements have been prepared in accordance with Financial Reporting Standard 102 Section 1A - 'The Financial Reporting Standard applicable in the UK and Republic of Ireland' and the Companies Act 2006.

Basis of preparation
These financial statements have been prepared using the historical cost convention except that as disclosed in the accounting policies certain items are shown at fair value.

Tangible assets
Tangible assets are stated in the statement of financial position at cost, less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

The cost of tangible assets includes directly attributable incremental costs incurred in their acquisition and installation.

Depreciation
Depreciation is charged so as to write off the cost of assets, other than land and properties under construction over their estimated useful lives, as follows:

Asset class	Depreciation method and rate
Office equipment	25% straight line basis

Cash and cash equivalents
Cash and cash equivalents comprise cash on hand and call deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

Trade debtors
Trade debtors are amounts due from customers for merchandise sold or services performed in the ordinary course of business.

Trade debtors are recognised initially at the transaction price. They are subsequently measured at amortised cost using the effective interest method, less provision for impairment. A provision for the impairment of trade debtors is established when there is objective evidence that the company will not be able to collect all amounts due according to the original terms of the receivables.

buildingSMART International Limited

Notes to the Financial Statements for the Year Ended 31 December 2016

Stocks

Stocks are stated at the lower of cost and estimated selling price less costs to complete and sell. Cost is determined using the first-in, first-out (FIFO) method.

The cost of finished goods and work in progress comprises direct materials and, where applicable, direct labour costs and those overheads that have been incurred in bringing the inventories to their present location and condition. At each reporting date, stocks are assessed for impairment. If stocks are impaired, the carrying amount is reduced to its selling price less costs to complete and sell; the impairment loss is recognised immediately in profit or loss.

Trade creditors

Trade creditors are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Accounts payable are classified as current liabilities if the company does not have an unconditional right, at the end of the reporting period, to defer settlement of the creditor for at least twelve months after the reporting date. If there is an unconditional right to defer settlement for at least twelve months after the reporting date, they are presented as non-current liabilities.

Trade creditors are recognised initially at the transaction price and subsequently measured at amortised cost using the effective interest method.

Borrowings

Interest-bearing borrowings are initially recorded at fair value, net of transaction costs. Interest-bearing borrowings are subsequently carried at amortised cost, with the difference between the proceeds, net of transaction costs, and the amount due on redemption being recognised as a charge to the Profit and Loss Account over the period of the relevant borrowing.

Interest expense is recognised on the basis of the effective interest method and is included in interest payable and similar charges.

Borrowings are classified as current liabilities unless the company has an unconditional right to defer settlement of the liability for at least twelve months after the reporting date.

buildingSMART International Limited

Notes to the Financial Statements for the Year Ended 31 December 2016

3 Tangible assets

	Furniture, fittings and equipment £	Total £
Cost or valuation		
At 1 January 2016	1,336	1,336
Additions	927	927
At 31 December 2016	2,263	2,263
Depreciation		
At 1 January 2016	334	334
Charge for the year	566	566
At 31 December 2016	900	900
Carrying amount		
At 31 December 2016	1,363	1,363
At 31 December 2015	1,002	1,002

4 Stocks

	2016 £	2015 £
Other inventories	10,999	-

5 Debtors

	2016 £	2015 £
Trade debtors	36,346	17,509
Other debtors	20,723	42,608
Total current trade and other debtors	57,069	60,117

buildingSMART International Limited

Notes to the Financial Statements for the Year Ended 31 December 2016

6 Creditors

	Note	2016 £	2015 £
Due within one year			
Bank loans and overdrafts	8	-	1,525
Trade creditors		51,923	46,490
Amounts due to related parties		52,431	52,431
Taxation and social security		3,974	3,997
Other creditors		-	781
Accruals and deferred income		433,062	299,686
		541,390	404,910

7 Company limited by guarantee

The company is a private company limited by guarantee and consequently does not have share capital.

Each of the members is liable to contribute an amount not exceeding £500 towards the assets of the company in the event of liquidation.

8 Loans and borrowings

	2016 £	2015 £
Current loans and borrowings		
Bank overdrafts	-	1,525

Officers, board members and leaders

As at 31 December 2016

Chair
Patrick MacLeamy

Chief Executive
Richard Petrie

Operations Director
Richard Kelly

Board Members
Inhan Kim,
Tiina Koppinen (treasurer)
Bill Moore
Christophe Moreau
Jan Myhre (deputy chair)
Dirk Schaper
Rasso Steinmann

Company Secretary
Chris Groome

Airport Room
Alex Worp, Yannick Vos and Rob Roef

Building Room
Ricardo Bittini (taking over from Jan
Karlshøj during the year)

Certification
Rasso Steinmann (software certification)
Mark Baldwin (professional certification)

Construction Room
Kazumi Yajima
Ken Endo

Infrastructure Room
Christophe Castaing
Tiina Perttula

Product Room and bSDD
Roger Grant

Regulatory Room
Inhan Kim
Øivind Rooth

Technical Room
Leif Granholm

Implementation Support Group
Jeffrey Ouellette (taking over from Rasso
Steinmann during the year)

Model Support Group
Thomas Liebich

User Group
Kjell Ivar Bakkmoen
Birgitta Foster

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