The buildingSMART International

Annual Report 2020

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buildingSMART International

Contents

Chairman's Welcome

Patrick MacLeamy

Chairman

buildingSMART International

It is my very great privilege to welcome all of you to the buildingSMART Annual Report for 2020.

I want to thank each of you for your support during this challenging year. Our organization of worldwide Chapters and members overcame the challenges of the coronavirus pandemic by learning to work together virtually. Much good work was accomplished by the Rooms and working groups, with steadfast support from our sponsors. We even welcomed several new Chapters to our community.

buildingSMART members also continued to support our organization throughout this challenging year. Special thanks to buildingSMART Strategic members, who continued to support our mission so generously in this challenging year.

This year of 2020, we were, of course, prevented from meeting in person as in past years due to the coronavirus pandemic. Our growing ability to meet virtually this year is a special accomplishment; I am grateful to Aidan Mercer for his work to lead our transition from in-person to virtual.

Another 2020 highlight is the publication of the buildingSMART Technical Roadmap, which for the first time outlines a clear direction for our work. I am grateful to Léon van Berlo not only for his leadership in creating the Technical Roadmap but also for his efforts to build a broad consensus of support for our technical future.

Finally, I want to personally thank all of you in our community for your continuing friendship. We are engaged in a great effort to transform the building and infrastructure industries. I believe, for us to succeed, we must be friends first, and I thank all of you for joining me in the International Friendship Club!

I want to personally thank all of you in our community for your continuing friendship

Chief Executive's Statement

Richard Petrie

Chief Executive

buildingSMART International

2020 has been an extraordinary year for everyone, impacted in different ways and at different times by the global coronavirus pandemic. For buildingSMART, this meant transitioning to an entirely digital way of working. I am very proud of our readiness and the speed with which we were able to switch to entirely virtual summits and operate with significant back-office workflow integrations, all based on modern digital apps.

Our community, like many others, has been seriously impacted by the pandemic, with lives lost. Our thoughts remain with those in our Chapter and membership community affected by the loss of key and highly valued leaders and contributors.

2020 was another year of very significant progress with our core mission.

- The Road, Rail, Ports and Waterways domain extensions were added to the existing Buildings and Bridges scope with both the Infrastructure Extensions and the Rail Candidate Standards achieving their key milestones.
- Our Technical Roadmap was published in April, setting out the modernisation pathway for the IFC schema and the supporting technical services and strategies. This future-proofing of our core standard is essential to increase the uptake and use of our standards into the future.
- Important progress was also made with a reset of the buildingSMART Data Dictionary (bSDD) and the introduction of the Use Case Management Service (UCM), key services to support the growth in engagement and use of our standards.
- Strategic Working Groups were introduced to facilitate thought leadership and to provide an easy access route for the engagement of newcomers into our community. The Digital Twin working group and Digital Supply Chain in Built Environment (DSCiBE), and our partnership activity with GS1, are such groups that made good progress in the year.
- The Solutions and Standards program comprised eight Rooms with 46 formal activities at various stages following the bSI Process. This program represents a significant and important body of work by the international community both in developing new solutions and in reaching a worldwide consensus—something buildingSMART is uniquely placed to do.




- Valuable foundational technical work continued in many important areas, notably: the openCDE, the development of the BCF functionality and standard, and the development of our API strategy. Following our collaboration agreement with the Open Design Alliance (ODA), implementation of our standards by software designers is now greatly supported in their tools.
- Interest in the IFC2x3 Certification continued steadily, and the IFC4 Certification was launched during the year. Separately, the Professional Certification has continued its growth and receives growing interest in many of our Chapter countries.
- We were delighted to welcome new Developing Chapters in the UAE and Slovenia. The former Nordic Chapter grew by evolution, with each of Denmark, Finland and Sweden now established as Full Chapters.
- Our two Virtual Summits were great successes, with over 1000 in attendance, and 111 project submissions for the Awards 2020 program.

In addition to these 'hard' deliverables, we have seen increasing recognition of the value and importance of open data standards and openBIM in particular. I note, in particular, that national transportation agencies worldwide are adopting IFC: China Rail, Väylä (the Finnish Transport Infrastructure Agency), Trafikverket (the Swedish Transport Administration), Vejdirektoratet (the Danish Road Directorate), Swiss Railway (SBB), and AASHTO is mandating IFC as a national data standard for roads and bridges in the US. Also, that the level of engagement of the major global software companies committed to IFC (Autodesk, Bentley, Esri, Nemetschek, Trimble, etc.) in our deployment projects is high. And finally, that government programs around the world continue to demand open standards and endorse our product.

We have a robust product, plan and proposition that are valued and needed, and we are on track to make open digital ways of working a practical reality for end users.

The implementation and leadership challenges ahead remain considerable, but we can and are making progress by working together and engaging more broadly.

The International Council and annual Chapter Conference were both held virtually and were well attended in June and November, respectively. Our Chapter leaders deserve special mention and thanks for their commitment to our community and for the collaborative culture we share.

Special thanks to all our member organisations and sponsors, as without your support our work would not be possible.

Building Sustainability Through Digital Workflows

buildingSMART International has lofty goals to support the transformation of the built asset industry. The definition of sustainable development has been over thirty years in development. Climate change, the impact of human civilization and the forecasted scenarios for the future are front and centre, as the world aims to move towards a more sustainable future. The 2030 Agenda for Sustainable Development renews the commitment to "protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations". This statement is important, yet there is more to be done. The topic of sustainability is broad and widespread, and rightly so. buildingSMART is tackling this topic and making it a top priority for the coming years.

Building a Sustainable Future

There is no doubt the industry we serve could do more. buildingSMART has been striving to deliver more interoperability by being the go-to body for developing open solutions and standards that work. A tremendous amount of work has been done to modernize the technical requirements by future-proofing the IFC schema. This work includes adding new services like the buildingSMART Data Dictionary (bSDD) and the Use Case Management (UCM) Tool, as well as finding innovative ways to make the schema more agile and modular for a more sustainable future.

Through better industry alignment, collaboration and interoperability, buildingSMART believes it can be the place for organizations to set the requirements for a more sustainable future. Whether it's developing more sustainable practices, understanding the entire journey of an individual brick or obtaining accurate information about the C02 emissions from a building—buildingSMART is a place for the industry to work together for a brighter future. We encourage more engagement and involvement to make this happen. Workflows that span the entire lifecycle are only truly possible with open data standards.

The second important component to building a sustainable future is in the data itself. buildingSMART fundamentally believes in the openBIM concept that no vendor should provide information that doesn't add value to the full lifecycle of a project or asset. The availability of massive amounts of data has increased the demand for global action and a new way of thinking. New topics such as digital twins and industry 4.0 add weight to the argument that a strategic approach to "sustainable data" is critical. New scenarios and communication channels between man-machine and machine-machine will transform the way the industry and assets interact. New possibilities of connected systems and data streams through synchronization of activities and phases will provide new business potential and optimization opportunities. It is critical, therefore, that buildingSMART takes a long-term view of the importance of data flexibility and scalability by better promoting a sustainable perspective. This would put openBIM at the core, with the industry fully embracing open and neutral methodologies, and we are taking a leading role in ensuring a better and more sustainable future.

Through better industry alignment, collaboration and interoperability, buildingSMART believes it can be the place for organizations to set the requirements for a more sustainable future

The buildingSMART Programs

Solutions and Standards

Compliance

User

Technical Service

Solutions & Standards Program

Summary

The Solutions & Standards Program had a productive 2020 and continues with a good output in 2021.

Underpinning the success is the establishment of strong community leadership, supported by a robust process and governance structure as defined by the bSI Process.

All activities in the program follow the bSI Process, and they are managed within specialist domains, called Rooms. Activities define standards, toolkits or reports that are delivered through projects overseen by the Room Steering Committees.

buildingSMART has its world-renowned Industry Foundation Classes (IFC) standard, which is ISO certified. The ISO 16739 standard was published in 2013.

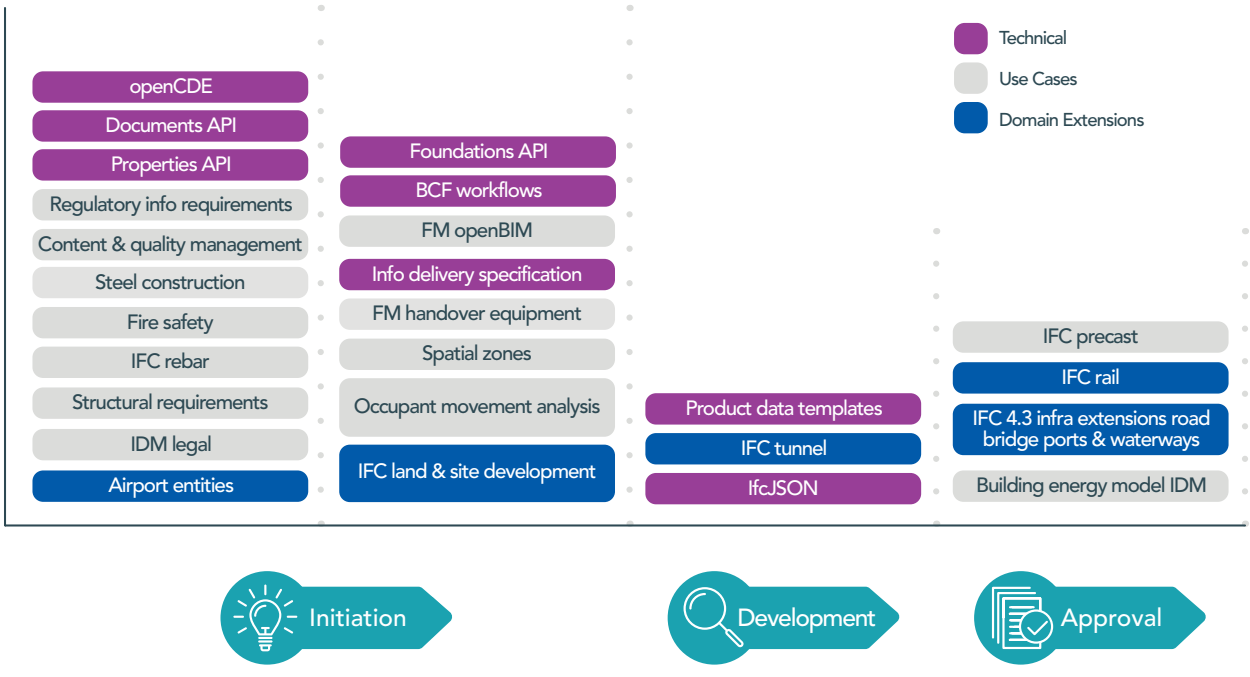
During 2020, the eight Rooms published seven Technical Reports and guidance papers, three Candidate Standards and an industry survey relating to regulation in five different languages. In addition, seven new activities were endorsed by the Standards Committee.

Every Room has made great strides in developing the latest iterations of their Roadmaps to respond to their industry domain needs.

The Airport Room now has a full complement of industry leaders for their Steering Committee. The Construction Room launched its new Steering Committee in January 2021 after hard work by Kajima Corporation to establish good foundations.

The bSI community met during two virtual International Standards Summits, reaching over one thousand people and with each Summit delivering over 80 hours of content across more than 100 sessions.

Portfolio of Activities



Governance & Leadership

Each Room has a Steering Committee made up of industry representatives who create the Room's long-term roadmap.

They oversee the delivery of projects that respond to that roadmap and hence meet the requirements of that industry sector.

The Room Roadmaps and the Project Plans, which will deliver new solutions and standards, consist of a balanced approach to ensure that the functional needs are met, as well as the requirements for quality, longevity and relevance.

The Room leaders managed one "face-to-face" meeting in Madrid in January 2020 for a workshop to plan the adoption of the Technical Roadmap into the Rooms' activities.

The bSI Process also continues to be improved, and certain projects, such as the Rail and Infra Extensions, have been at the leading edge, testing out the requirements such as software validation.

Organisation definition, communication channels and document access are also key elements of the bSI Process, and we have made significant improvements in these areas.

The introduction of technical deployment guidelines is ensuring proper quality control and publishing of new standards.

The web-based platforms that support project management and information flow have been rolled out across the program and training delivered in their use to ensure efficiency and conformity.

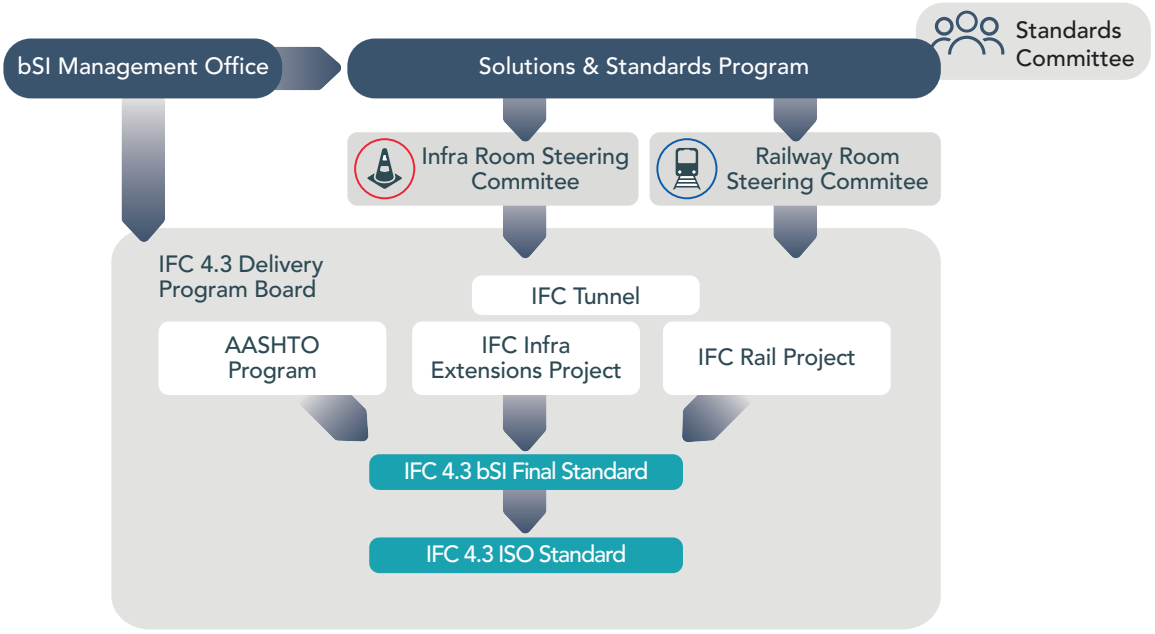
International Standards

There is a broad portfolio of activities across all Rooms.

The IFC4.3 version of the schema, which has been expanded to incorporate infrastructure aspects, is in the final delivery stages. This includes Rail, Road, Bridge, Ports and Waterways, and Tunnel. The current delivery is to bSI Final Standard with the subsequent activity to obtain ISO standard being managed by a new program board.

The Building Room is completing project plans for Facilities Management (FM) equipment handover, FM and openBIM, and Occupant Movement Analysis.

IFC4.3 Delivery



Support Services

1) Use Case Management (UCM)

The new Use Case Management Service was prepared for an early 2021 launch. This service improves the capture of exchange requirements.

Rooms and their projects are able to input specific exchange requirements and search for existing use cases to help with new Activity Proposals.

It will also allow the Room Steering Committees to review user requirements to inform the Room Roadmap plans.

Chapters are also able to obtain a tenancy on the system, and in the near future all enterprises will be able to do so.

2) buildingSMART Data Dictionary (bSDD)

The bSDD has been revised and the new version is now available for use. The openBIM Standards, which are being created through the program, use the bSDD to input the user-defined properties and classifications.

Standards Committee Voting

The Standards Committee consists of representatives from every member and Chapter and is the senior body overseeing that the bSI Process has been correctly followed to ensure international consensus.

They have been asked to vote on the following:

1) Published Reports

- Auto rule checking
- Application forms
- Classification report
- E-submission common guidelines
- IFC, CityGML, LandInfra analysis of integration
- GEO referencing for IFC
- Rail client benchmarking
- Regulatory survey

2) Published Candidate Standards

- Quantity take-off IDM
- Precast
- IFC4.3 Infra extensions

3) Activities Launched

- Information delivery system
- Facilities management handover – equipment
- Facilities management operations
- Professional Certification Practitioner framework
- Open CDE
- IFC JSON
- Fire safety and occupant movement analysis

Compliance Program

Professional Certification Program

The growth of the Professional Certification program and its rollout through the Chapter network is focused on enabling upskilling of users and encouraging a common international framework to support the use of openBIM solutions and services. This continues to be a foundational part for the User Program.

bSI Program Initiation: November 2015

First Chapter launch: **September 2018 (Germany)**

Number of participating Chapters: **19**

Number of active Chapter programs: **9**

Number of Training Providers worldwide: **94**

Number of Qualified Individuals: **4,646**

Number of active development workgroups: **6**
(Practitioner, COBie, Building Performance, Owner/Operator, Contractor, Designer)

Number of volunteers at an international level: **100**
(SC + AP + Experts who reviewed the Question Database in 2018 + current workgroup participants)

Chapters continue to form working groups that align to international Rooms, which helps develop new concepts and helps develop use cases.

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Total sponsorship gained:

€130,000

Total development & operational costs:

€244,000

Total revenue:

€287,000

**These figures are accurate as of December 31st 2020*

Software Certification Program

Software certification services continue to be led and supported by the Institute of Applied Building Informatics (IABI), AEC3 and Apstex. The focus during 2020 was again the drive to move vendors to switch to IFC4 Software Certification as well as the continued support of other standards. Demand for certifications of the established IFC 2x3 exchanges continued to be healthy, with more software exchanges being certified during the year.

This is a good indicator of the continuing and growing use of IFC based exchanges in project work. Numbers for IFC 2x3 Software Certifications:

Total 2x3 certified applications:	**51**
Total export Architectural:	**11, 2 in progress**
Total export Structural:	**8, 2 in progress**
Total export MEP:	**7, 2 in progress**
Total export:	**26, 2 in progress**
Total import:	**40, 2 in progress**
Total 2x3 applications in progress:	**6**

In 2020, 6 further applications were in progress for IFC4 export certifications. More software vendors are expected to follow shortly.

"The advantage of IFC4 certification for users, is the condition that the exchange requirements must be 100% supported by the software applications. This facilitates the application without having to compare certification reports."

Rasso Steinmann, Vice Chairman, buildingSMART International

In 2020, there were a total of six applications certified for IFC 4 export:

GRAPHISOFT SE	ARCHICAD	IFC4	Architectural Reference Exchange	Export	Finished	21/06/2018	05/06/2019
Autodesk	Revit	IFC4	Architectural Reference Exchange	Export	Finished	29/08/2017	19/10/2020
Autodesk	Revit	IFC4	Structural Reference Exchange	Export	Finished	29/08/2017	09/11/2020
DICAD Systeme GmbH	STRAKON	IFC4	Structural Reference Exchange	Export	Finished	07/09/2018	02/11/2020
Trimble Solutions Corporation	Tekla Structures ImportSDK (import)		Structural Reference Exchange	Export	Finished	02/10/2017	22/09/2019
Vectorworks Incorporated	Vectorworks	IFC4	Architectural Reference Exchange	Export	Finished	11/09/2017	17/04/2019

User Program

The buildingSMART User Program facilitates understanding and implementation of bSI standards and solutions around the world. The program also enhances collaboration and communication among the buildingSMART community and the built asset industry at large to make better use of existing standards and solutions.

The growth of the Professional Certification Program and its rollout through the Chapter network is focused on enabling upskilling of users and encouraging a common international framework to support the use of openBIM solutions and services.

Chapters continue to form working groups that align to international Rooms, which helps develop new concepts and helps develop use cases.

New initiatives such as the User Guides, open house sessions and other related supporting materials are to be developed into 2021 to support the demand for the User Program.

Enabling upskilling of users and encouraging a common international framework to support the use of openBIM solutions and services

The Use Case Management (UCM) tool was formally launched under the bSI umbrella with the goal to exchange experiences from already implemented or ongoing BIM-related projects derived from industry experts. Once operational, each use case follows a clear objective and focuses on a specific outcome or benefit.

The UCM is open to the entire community of buildingSMART. All professionals are required to take the necessary measures in their fields and actively participate in shaping the digitization of their industry.

"The bSI Use Case Management Service empowers Chapters and Rooms to jointly develop Use Cases / IDMs in a co-creation space and make existing and new results available to the whole community."

Thomas Glaettli, Leader, Use Case Management Tool

User Guides have now become a feature of the buildingSMART community, with dedicated resource libraries helping end-users work with existing standards and solutions.

The bSI Awards Program continues to generate more interest, with a total of 111 projects submitted in 2020. There was a total of seven category award Winners, three additional Excellence awards and six Special Mentions. There was also a 2020 Yearbook created with all Winners and Finalists featured. You can see the awards section in the Annual Report for more information.

Technical Services

Technical Roadmap

In April 2020, the buildingSMART Technical Roadmap was published. The roadmap was subtitled "Getting Ready for the Future". In the following years, the focus will be to create a strong base on which technological solutions can be built for the future to come.

The Technical Roadmap was developed as a result of numerous workshops and input from several stakeholders. buildingSMART members, Room Steering Committees, the Board, Chapters, implementors and the Strategic Advisory Council have all contributed to the final result. As of April 2020, these groups have endorsed the Technical Roadmap, and it has been made publicly available on the website.

For the first time in the history of buildingSMART, the Technical Roadmap presents an integrated overview of standards like IFC and BCF, API developments, and new standards like IDS. At the same time, it offers a vision of how usability and predictability can be improved with Technical Services like the buildingSMART Data Dictionary (bSDD) and Software Certification.

Predictability and Usability

The implementation of the Technical Roadmap started directly after publication in 2020. The publication of the "10 Principles for IFC", combined with the decision flow schema that demonstrates how suggested changes are handled, makes IFC development predictable.

The Technical Roadmap has a clear vision about the future of Model View Definitions. The risk of diluting the usability and predictability of IFC by having a sprawl of MVDs has been identified and potential solutions are described. An IFC5 task force made up of representatives from software vendors, open-source developers, data modellers and academia has started working on a new architecture for IFC.

Other components from the Technical Roadmap, like the new Information Delivery Specification standard and a modular API strategy, were also started in 2020 and are expected to deliver their first results in 2021.

Quality Assurance and Quality Checking

In 2020 preparations have been made to improve the predictability of openBIM standards in practice. This starts with quality assurance during the development of the standards. New tooling was developed that provides continuous quality checks to help experts work efficiently and effectively on the developments of standards.

Software Certification for IFC4.3 will stay similar to the existing IFC4 process. Rethinking Software Certification is needed to improve the predictability of openBIM workflows in practice. In 2020, initial ideas were explored to start BCF Software Certification and rethink IFC Software Certification for IFC5.

2020 bSDD Prototype

The buildingSMART Data Dictionary (bSDD) has been identified as a potentially highly effective service to semantically enrich data in practice and help users with information consistency.

New developments like the updated ISO 12006-3 (IFD) and ISO 23386 (PDT) have forced a rethink of the bSDD. This resulted in a new prototype for the "next generation" bSDD. This prototype was developed in the summer of 2020 in close collaboration with contractors, engineering firms and other users. Demonstrating and testing the prototype in practice resulted in the decision to deploy this new development in 2021.

The new bSDD will be further developed to enterprise maturity and deployed in 2021. The current bSDD will stay online till at least the end of 2021.

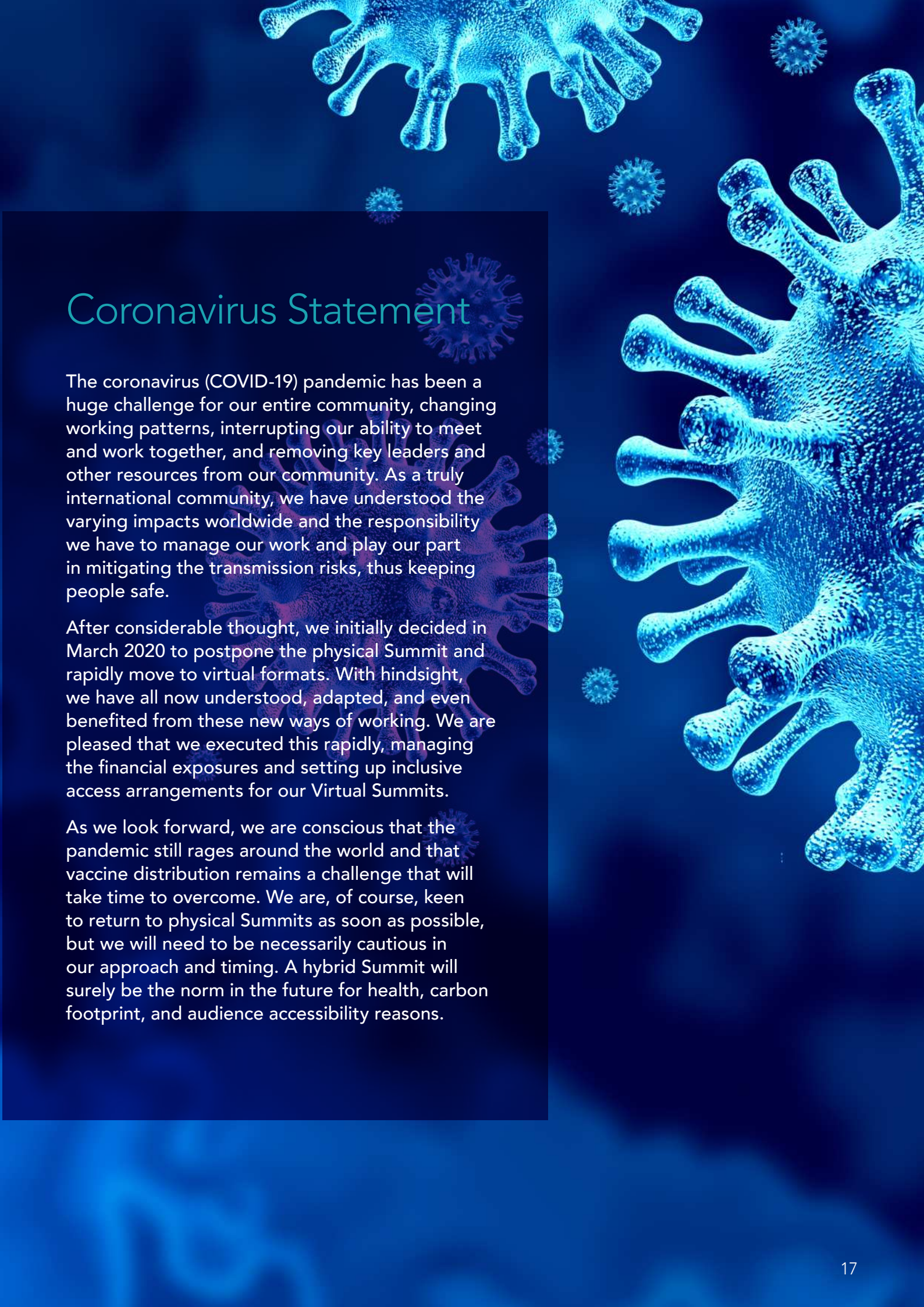
At the end of 2020, it was decided to appoint Frédéric Grand, Technical Director of buildingSMART France, as the Product Manager for the bSDD.

Technical Services Reorganisation

As reported in the 2019 Annual Report, the MSG, ISG and Linked Data groups have been integrated into the "IFC Development Group". In 2020, monthly online meetings were conducted with this group to improve specific topics in IFC. During that period, it became clear that different people have different interests in IFC. Some want to learn how to implement current versions like IFC2x3 and IFC4, others want to test and fine-tune IFC4.3, and some want to help redesign IFC5.

The original ISG group has also started working on non-IFC related topics like API standardisation and the new IDS developments.

Starting January 2021, the development of solutions and standards will be version driven with development groups for each version of a standard. The different groups will meet twice a year during a "General Assembly" to share and integrate progress.



Coronavirus Statement

The coronavirus (COVID-19) pandemic has been a huge challenge for our entire community, changing working patterns, interrupting our ability to meet and work together, and removing key leaders and other resources from our community. As a truly international community, we have understood the varying impacts worldwide and the responsibility we have to manage our work and play our part in mitigating the transmission risks, thus keeping people safe.

After considerable thought, we initially decided in March 2020 to postpone the physical Summit and rapidly move to virtual formats. With hindsight, we have all now understood, adapted, and even benefited from these new ways of working. We are pleased that we executed this rapidly, managing the financial exposures and setting up inclusive access arrangements for our Virtual Summits.

As we look forward, we are conscious that the pandemic still rages around the world and that vaccine distribution remains a challenge that will take time to overcome. We are, of course, keen to return to physical Summits as soon as possible, but we will need to be necessarily cautious in our approach and timing. A hybrid Summit will surely be the norm in the future for health, carbon footprint, and audience accessibility reasons.

Airport **Room**

The mission of the Airport Room is to develop and deploy open digital standards for the airport environment. The unification of digital airport standards will enable more efficient working from the common supply chain and create a uniform approach for the industry.

The Airport Room continues to develop and now has representatives from airports in Asia, China, the GCC, Europe and the United States on its Steering Committee.

Some of the key objectives/ challenges for the Room include:

- Creating a work plan for managing airport-specific assets
- Usage of rules for IFC models at airports
- Linked data/ontology regarding library exchange specifications
- Development of GIS-IFC interoperability
- Missing IFC entities
- Identification of the functional requirements of a digital twin
- Enabling economies of scale within the supply chain and with maintenance suppliers
- Completing the existing standards with airport-specific objects, data and processes
- Integrating these standards to align with the building, infrastructure and airport processes
- Enabling asset management decisions based on cost, risk and performance derived from openBIM for the entire lifecycle of airport facilities
- Innovative solution decisions designed to reduce disruption at airports
- Collaboration with the other buildingSMART Rooms

Building **Room**

The core mission of the Building Room is to create open digital standards and solutions by enabling intelligent data that either contributes to the planning, design and construction of buildings or the ongoing operations and maintenance.

This will enable process and data integration for buildings for their entire lifecycle.

The Building Room is led by a Steering Committee comprised of representatives from international Members and buildingSMART Chapters that are focused on a variety of projects.

Great progress has continued to be made throughout 2020 and into 2021, with some project reaching their conclusion and new activities being proposed.

Some of the key objectives of the Building Room are:

- Open standard data exchange for whole life building management
- Asset management exchange of information
- Ensuring archives of asset information
- Digital project management

There is a range of initiatives in the Building Room portfolio. Some are close to conclusion, such as the Precast Concrete, Energy Transfer and Quantity Take-Off standards. Others are submitting their project plans, including Fire Safety – Occupant Movement Analysis, FM Handover – Equipment Maintenance, and Facilities Management and openBIM.

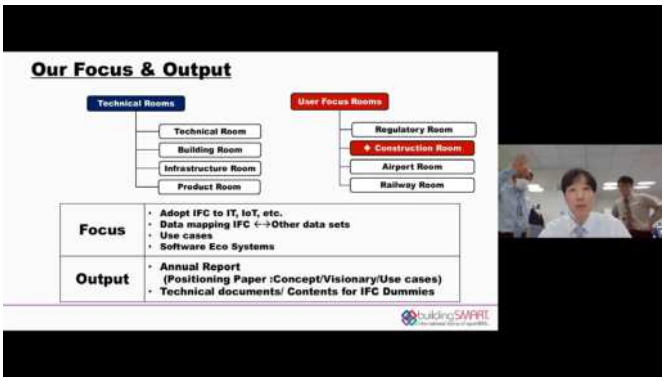
Construction **Room**

The mission of the Construction Room is to advance site productivity, lower construction costs, and improve construction safety through the use of openBIM and the application of open data standards. The Room aims to boost the usage of digital tools and standards to improve overall performance and seeks to change the entire construction industry for the better.

The Construction Room has been researching international use case requirements and best practices and will now begin to develop solutions and standards that respond to these. A Room Steering Committee was created in January 2021 to establish the roadmap and oversee the projects that deliver against it.

Some of the key objectives of the Construction Room are:

- Advance the digitalization of construction
- Develop site environment best practices based on openBIM
- Integration of design, cost and schedule
- Capturing of use cases to make 4D and 5D more commonly used
- Provide openBIM education to the construction industry
- Logistics, material management and barcoding/RFID integration
- Incorporate forward-looking Information and Communication technologies into the development of open construction solutions and standards



With a strong focus on new technologies, the Construction Room intends to focus efforts on new and emerging trends that will enhance on-site performance. Proposed initiatives include Construction Information Management, Integrated BIM Project Management, 4D/5D modelling, openBIM and the Internet of Things (IoT), and the design of autonomous vehicle control.

Infrastructure **Room**

The Infrastructure Room aims to combine, enhance and develop open standards for intelligent data, with enable process and data integration for infrastructure projects and assets. The Infrastructure Room leads buildingSMART's efforts in several areas, including roads, bridges, tunnels, ports and waterways and alignment work.

Some of the key objectives of the Infrastructure Room are:

- Enable data exchange based on open standards for the planning, realization and maintenance of infrastructure works and ultimately all aspects of the built environment
- Improve the exchange of information and open data access between asset management databases
- Promote enduring archives of asset information based on open standards
- Enable lifecycle information management for infrastructure based on open standards
- Enable the merging of project related information e.g. requirements and risks, with asset information

The Infra Extensions deployment project has taken as its starting point the Candidate Standards for Road, Ports and Waterways and Bridge which published the requirements analysis, taxonomy report, an extended UML model report and an implementation report. IFC Bridge has been used for implementation in US, France and Italy already.

The output of this new project will be the IFC 4.3 version. Currently 'storylines' are being used to validate the schema concepts against the needs of the industry, whereas unit tests are verifying that the schema concepts can be implemented with the IFC import and exports.

The development of IFC 4.3 is being done in conjunction with a Railway Room project that is extending the IFC entities for the railway ecosystem. The IFC 4.3 Delivery Program board ensures coordination between the projects to ensure high quality and consistent results. The program board will also oversee the future recognition as an ISO standard.

The buildingSMART collaboration with Open Geospatial Consortium continues following the publication of last year's report and focuses on the importance of BIM-GIS coordination as does the cooperation with CEN TC442

The Room Steering Committee is also focused on the roadmap which addresses the future needs of the infrastructure industry and addresses these in conjunction with other core themes such as the bSI Technical roadmap, partner liaisons, completion of current standard creation work and launching of the next activities.

Product **Room**

The Product Room's core mission is to manage the development and provision of processes, templates, tools and functionality to enable the robust and efficient use of product data. This includes relevant third-party standards, classification systems and other forms of structured content for openBIM.

A refreshed Steering Committee has been elected, and they are developing strategies that will bridge the information divide between those operating in the supply chain, where there are no international open standards, and the design and build domains, which are using IFC-based standards.

Some of the key objectives of the Product Room are:

- Enable the efficient use of product data in projects and subsequent asset management, including advances in digital supply chains
- Support the other Rooms to define the product data requirements needed as outcomes of their standards
- Develop and execute projects for product support to advance the development of openBIM
- Facilitate the translation and localization of IFC

The Room is also liaising with the consortium working group for advancing the supply chain needs in a proposal to connect bSI and GS1 standards, which will ultimately develop new standards for product manufacturers.

Railway **Room**

The core mission of the Railway Room is to accelerate and exploit new digital opportunities for railway systems and create a comprehensive and applicable digital representation of the entire railway ecosystem that will support all phases of the lifecycle. This provides the basis of interoperable support systems, reduced complexity, secure and safe solutions, and reduced costs for all stakeholders.

The Railway Room Steering Committee is led by representatives from ÖBB-Infrastruktur, SBB, Trafikverket, CRBIM, MINnD, SNCF, FTIA and RFI. The Steering Committee oversees the largest international project at bSI, called the IFC Rail Project. This project is developing an extension to the IFC schema to include railway entities. The resulting IFC4.3 Production Standard is on schedule to complete in autumn 2021.

Some of the key objectives of the Railway Room are:

- Develop interoperable support systems
- Reduce the complexity of the rail ecosystem
- Assure secure and safe solutions
- Reduce project costs and delays for all players
- Work with buildingSMART, rail owners and operators, and other stakeholders to:
  - Extend the IFC Infrastructure Schema for the rail domain, construction and maintenance
  - Contribute to the IFC Common Schema development
  - Build on international consensus
  - Take into account iterative works with complementary data and IFC deployments
  - Support early deployment and testing by making the deliverables publicly available and open

With the IFC Rail Project being the focal point of this Room, specific activities of the project are divided into several initiatives supported by a Project Management Office and Technical Services team. The groups have developed use cases, Information Delivery Manuals (IDM), UML models and process maps. They are now validating all the test cases in software and following the IFC4.3 deployment guidelines. The main domains of focus are Track, Power, Signaling, Telecommunications and the common elements for infrastructure domains. Phase 2 of the project has defined more specific use cases, called storylines, which are being tested and validated in software.

The development of IFC4.3 is being done in conjunction with an Infrastructure Room project that is extending IFC for Road, Bridge, Tunnel, Ports & Waterways. The IFC4.3 Delivery Program Board ensures coordination between the projects to deliver high quality and consistent results. The Program Board will also oversee the future recognition of IFC4.3 as an ISO standard.

Regulatory **Room**

The core mission of the Regulatory Room is to help both facility owners and regulatory authorities benefit from the use of openBIM to meet expectations. The vision is an automated regulatory process, achieved by supporting gradual change in workflow from manual to fully automated whilst safeguarding the legal perspective.

The Regulatory Room continues to improve in the development and procedures needed to support activities across the community. The Regulatory Roadmap has developed with short, medium and long-term goals, based on its published charter and roadmap.

Some of the key objectives of the Regulatory Room are:

- Standardize processes, workflows and procedures for applicants and regulators based on openBIM and support them with tools, guidelines and manuals
- Support interoperability between Regulatory, Requirements and Recommendatory (RRR) content
- Provide an open discussion forum for each government's building regulators, researchers and implementers to promote openBIM-based processes and collaborative issues
- To be an arena for government regulatory bodies to share information, inspire and implement automated code checking using openBIM standards, including ISO 16739, in real-life situations
- Lead and manage projects and initiatives to facilitate and influence adoption by stakeholders

The Room has published several bSI Technical Reports, including:

- e-submission: common guidelines to introduce BIM to the building approval process
- Application forms: common information requirements for automated compliance checking

Automated regulatory checking is an initiative to support the development of the business case and enhance current technologies with the intent to develop a model checker that performs rule-based code compliance checks within the BIM model.

The Room surveyed Regulatory bodies, reaching 160 participants in 38 countries. It concluded that awareness of BIM in Regulatory bodies was high, with the majority planning to use it in their processes, setting a good foundation for the Room's plans.

Technical **Room**

The Technical Room works with the global bSI community to foster advances in the core data architecture, tooling, and applications of open data standards to support built asset industry interoperability.

This objective is facilitated by:

- Surveying the information technology, data architecture, and data science advances happening across the broader technology industry for applicability to bSI initiatives
- Connecting innovators in industry and academia to encourage participation in buildingSMART technical programs and projects
- Facilitating bSI processes for maturing technology innovation from ideation through formalized projects and subsequent formalized standards
- Facilitating the development and promoting the distribution and use of workflow-enabling toolkits, tools, and technologies

2020 saw the maturation of a number of formal initiatives by the bSI technical community, including:

- **IFC-JSON** – the development of a Javascript Object Notation (JSON)-based version of the IFC4.3 standard, along with supporting open-source tools that facilitate translation from traditional IFC encoding (IFC-STP and IFCXML), as well as capabilities for connecting IFC data stores to other prevalent web and microservices technologies. A goal of this initiative was to position IFC as a core component of next-generation machine-to-machine communications among web-enabled data services, such as Internet of Things (IoT) applications. In 2020, this initiative was formally approved as a bSI Technical Room project and is now swiftly moving forward
- **openCDE Foundations API** – the development of a standardized API for authentication, as well as user and project identification, across a multitude of CDE platforms. This is the foundation for additional openCDE-related projects, such as the next generation of BCF and the openCDE Documents API. In 2020, the openCDE Foundations API project was formalized and has produced its first specification in Q2 2021
- **BIM Collaboration Format (BCF)** – an open standard for digital communication, based on a project IFC model, further enabling collaboration by exchanging information directly across connected compatible applications throughout the project lifecycle. In 2020, BCF was brought under the Technical Room agenda, with the openCDE Working Group, as a formal bSI standard along with proposed revisions (BCF 3.0) to improve implementation and results. The project has proposed its revision to the bSI community for approval in Q2 2021
- **openCDE Documents API** – development of standardized access to documents in online environments. Project documents can be any kind of dataset (including, but not limited to, IFC files, BIM datasets with proprietary format, PDF documents, zip files, etc.) located across multiple document management or CDE platforms. In 2020, the openCDE Documents API project was formally proposed and accepted as a Technical Room project and is scheduled to deliver its first set of specifications in 2021
- **Information Delivery Specification (IDS)** – the development of a machine-readable, computer-interpretable specification for IFC-based exchanges. It proposes an alternative to previous methods and formats for defining exchange requirements from an end-user perspective, reducing the technical threshold to define, document, and deliver such requirements. In 2020, it was proposed and accepted as a Technical Room initiative and is currently undergoing further exploration and development toward full project status

The Technical Room has also facilitated the robust exchange of ideas between the bSI community and a broad set of complementary data standards initiatives, including integration between IFC and Geographic Information Systems (GIS), the Internet of Things (IoT), building energy use auditing (BuildingSync), and Digital Twin Description Language (DTDL) initiatives.

In 2021, the anticipated focus for the Technical Room will be to build on the progress and success of the 2020 initiatives, providing platform technologies for machine-to-machine data exchange with additional infrastructure and tooling. It is hoped that the results can accelerate the use of bSI standards and technologies both as core components of an increasingly connected built environment, as well as across project delivery, operations, and asset management processes.

Chapter Network

The buildingSMART Chapter network continues to see strong growth into 2020 and beyond. The second half of the year saw the addition of three developing Chapters in Slovenia, UAE and the re-launched USA. A fourth new Chapter in Czech Republic was welcomed in early 2021.

There has been new interest shown from North African countries such as Morocco and Algeria, as well as continued interest from Lithuania and the South American continent by way of Red BIM Gob Latam, the Latam Government Client Group.

New supporting processes and materials have been added to help prospective Chapters create their submission and more information about what's expected from Chapters. There are also regular Chapter updates, which can be found on the bSI website.

"Chapters provide the ability to make standards and solutions useable in regions which makes the whole operation of what buildingSMART does so powerful and far-reaching".

Aidan Mercer, Marketing Director, buildingSMART International

As a result of the COVID-19 pandemic, the Spring International Standards Summit, which was due to take place in Norway, was moved online. The second Summit of 2020 in the autumn was then hosted in coordination with the Norwegian Chapter.

Chapters continue to lead the way on programs such as Professional Certification and regional events, and it is anticipated that the Use Case Management (UCM) Tool will become an important tool for the communities they represent.

Chapters provide the ability to make standards and solutions useable

Full Chapters

Benelux
Canada
China
Denmark
Finland
France
Germany
Japan
Korea
Norway
Russia
Sweden
Switzerland
UK and Ireland

Developing Chapters

Australasia
Austria
Czech Republic
Hong Kong
Italy
Poland
Singapore
Slovenia
Spain
Turkey
UAE
USA

Membership

Membership remains the primary business model for buildingSMART International. As 2020 was a challenging year for so many around the world, bSI didn't see the same growth in new members as in previous years. However, bSI was pleased with the retention of the majority of members, in addition to some new arrivals. Their strength of commitment to remain with bSI has helped continue the development of programs and activities and is the reason bSI can operate as it does. bSI is hopeful 2021 will see another upturn in membership, as previously experienced in other years.

There was a new membership category launched in 2020. The "Principal" membership category is closely aligned to work being done on the Technical Roadmap and ensured funds generated would contribute to the much-needed investment required for this piece of work. There are, however, no members for this category. Other levels of membership include Strategic, Multinational and Standard. Strategic membership is the most influential level, with members contributing to the strategic direction of buildingSMART through a variety of benefits. These include the Strategic Advisory Council meetings, hosted twice yearly. Multinational members are entitled to be members of up to five local Chapters, in addition to membership of bSI. Standard members are also given membership of a local Chapter of choice, plus membership to bSI.

As of early 2021, there are eight Strategic members: Arup, Autodesk, China Communications Construction Company (CCCC), China Railway BIM Alliance (CRBIM), Nemetschek Group, Oracle Construction and Engineering, Siemens and Trimble. There are 16 Multinational members and 36 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 local and international activities of other members. They play an active role, not only in identifying issues but also in developing solutions.

New members during the year were Trimble as a Strategic member, DDS, Esri, Obayashi and Shimizu as Multinational members, and China Digital Tech. Co., Finnish Transport Infrastructure Agency (Väylä), EAE Elektrik AS, Geodata, Graebert, HDR, Lombardi, Network Rail, Pragoprojekt and Tongji Architectural Design as Standard members.

Fellows

The buildingSMART Fellowship Scheme was established in 2017 to honour long serving professional contributors who have been the organisation's lifeblood over many years. These individuals have made significant contributions to the work of buildingSMART and the advancement of BIM. buildingSMART Fellows have contributed substantial leadership or technical input at an international level, working on international programs or standards or with more than one chapter.

Frédéric Grand
France

Jim Plume
Australia

Birgitta Schock
Switzerland

Leif Granholm
Finland

Dana 'Deke' Smith
USA

Tiina Perttula
Finland

The full list of existing Fellows (which is also published annually on the website https://www.buildingsmart.org/community/fellows is as follows:

Yoshinobu Adachi
Kjell Ivar Bakkmoen
Francois Grobler
Chris Groome
Reijo Hänninen
Ian Howell
Rudolf Juli
Jan Karlshøj
Arto Kiviniemi
Thomas Liebich
Alain Maury
Patrick MacLeamy
John Mitchell
Rasso Steinmann
Cheng Tai Fatt
Väino Tarandi
Mikio Shoji
Jeff Wix
Christophe Castaing
Birgitta Foster
Nick Nisbet
Øivind Rooth
Jøns Sjøgren
Susan Keenliside
Tomi Henttinen
Roger Grant
Inhan Kim

Marketing

Overview

2020 was a real year of transition for buildingSMART, and marketing efforts reflected the need to move much of the work done by the community to online platforms. With the significant disruption to physical events, and in response to the changing situation, buildingSMART was able to take early action to avoid serious impact. Two Virtual Summits were organized and delivered using new online platforms, which spanned Room and project activities, as well as thought leadership and keynotes.

Further to this, the awards program continued to be a growing success, with a new record of 111 submissions from around the globe. Finalists were invited to present at the Virtual Summit, and a new awards brochure was created as a result. With the growing demand and need to move to more digital platforms, buildingSMART was able to hire a new Events Manager to help manage the workload. Dan Little joined following a successful contribution to the Autumn Virtual Summit and will help professionalize and accelerate future events. We also hired a freelance writer and graphic designer to help develop the materials needed to showcase the awards program and to provide a renewed brand policy and set of guidelines.

We were also able to successfully grow engagement, membership, and activities throughout the year.

Platforms

The main communication mechanism is the CRM platform, **HubSpot**. Marketing further improved overall usage by having a higher frequency of communications and a more targeted audience. An update to the communications preferences means the community can now opt-in to information most relevant to the subscriber.

Zoom became the webinar/meeting platform of choice, replacing **GoToWebinar** and **GoToMeeting**. buildingSMART invested in an online platform called BigMarker to manage its Summits, providing a virtual environment for keynotes, sponsors, and attendee interaction during the two week-long events.

Videos are managed on the **Vimeo** account, giving options for on-demand content to be placed and then embedded in various websites as a result. This functionality to host videos of projects and demonstrations is also being offered as a membership benefit.

The team is now enabled with **Camtasia** accounts, and a lot of video production is being done to support the marketing activities.

Award Force continued to be the platform for supporting the Awards Program, adding professionalism and ease of use for submitters and jurors. This software has helped support the role Susan Keenliside, Awards Program Manager, plays in delivering the program.

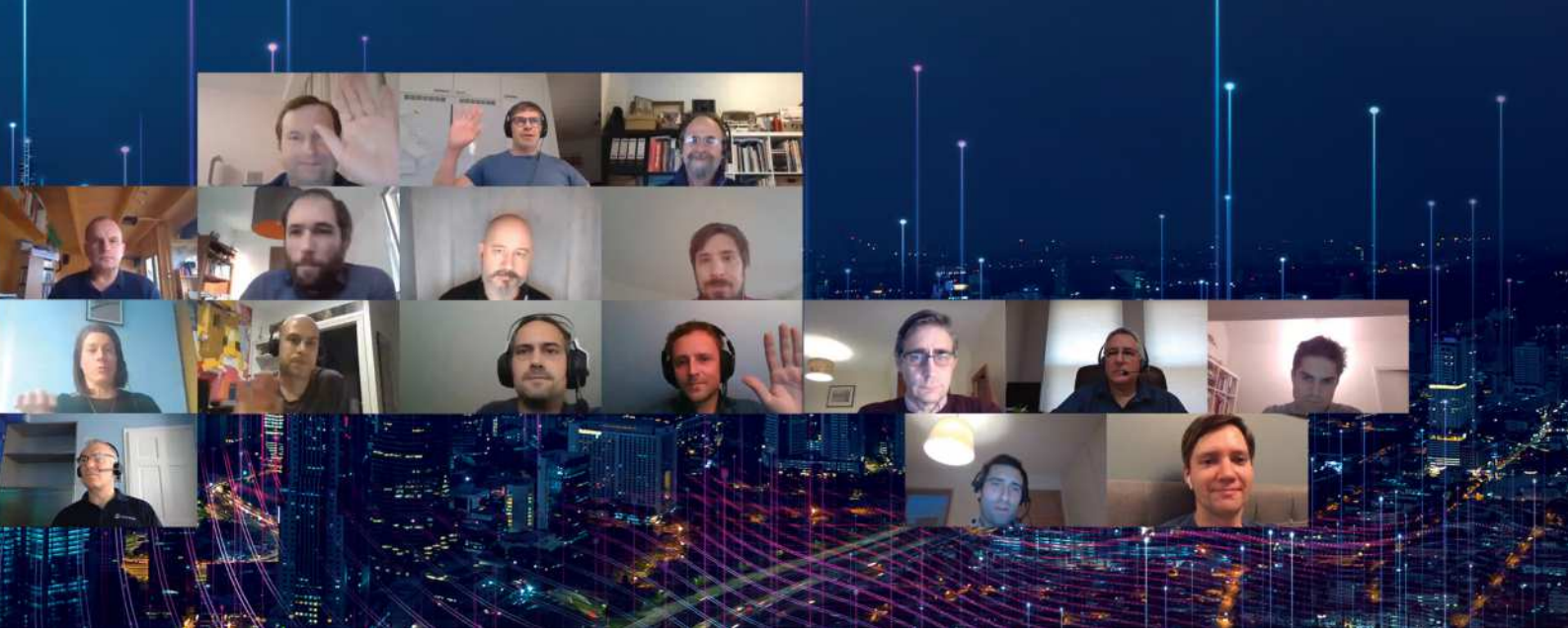
GitHub helps to manage open-source code and documentation related to the standards and solutions. The buildingSMART page can be found at github.com/buildingSMART.

Monday.com is predominantly used for managing the solutions and standards program and is a tool for project managing the Rooms and the output. This includes working documents, tasks and deliverables, and roles and responsibilities.

Miro is a new tool used to help collaborate and brainstorm for strategic or working meetings by capturing notes and ideas.

Buzzsprout is the platform for the buildingSMART Digital Twins Podcast and provides a base for all the episodes.

The buildingSMART Forum continues to provide users with a variety of ways of getting involved and engaging with the community.



Social Media

Social media platforms are fast becoming a critical function for buildingSMART's outbound communications. Growth in LinkedIn, for example, has been high.

The LinkedIn page has grown from 18,402 followers in 2019 to 25,607 in 2020. This channel sees the highest amount of engagement.

- Twitter grew from 6,499 followers to 7,130
- Facebook grew from 1,527 to 2,430
- YouTube has grown from 1070 followers to 1,470
- Vimeo now has 252 followers

News

The Digital Newsletter continues to be a widely read material for the community and has a large subscriber base.

In 2020, bSI published a variety of important news stories for the community, which can be found on the website. Some important highlights from the year included:

- The bSI virtual summit in March saw 1,045 registrants
- Autodesk joined the Strategic Advisory Council
- bSI and the Digital Twins Consortium (DTC) signed MoU
- bSI joined the International Construction Measurement Standards (ICMS)
- Slovenia and UAE became new Chapters
- Bart Brink became the leader of the Digital Twins Working Group
- Both the Oslo Summit and the Montreal Summit were cancelled

25,607
LINKEDIN

2,430
FACEBOOK

1,470
YOUTUBE

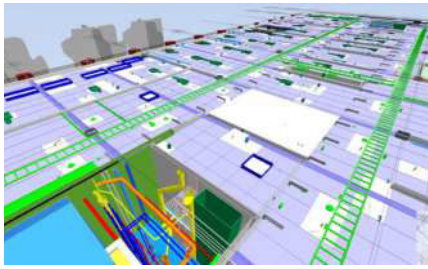
7,130
TWITTER

We were also able to successfully grow engagement, membership, and activities

Awards Program

With more submissions than ever in 2020 came more jurors than ever, both of which stood at 111 by pure coincidence. The projects were submitted under seven categories, and 74 projects passed the triage stage. From there, the jury scored all projects to determine the Finalists and also to award a number of Special Mentions.

As with much of 2020, the awards ceremony was moved online and was held as part of the buildingSMART International Virtual Summit Autumn 2020. All Finalists presented their submissions by way of a 20-minute video. Subsequently, the jury members for each category held online deliberations, and the resulting ten projects were declared overall Winners.



A new and exciting publication resulting from the 2020 Awards is "The buildingSMART Awards Yearbook". This brochure outlines the overall process and statistics and features all Winners, Finalists and Special Mentions – 26 projects in total. The brochure can be found at:

https://publications.buildingsmart.org/the-bsi-awards-brochure-2020.html

Award Winners

Category of Asset Management

Winner: Auckland International Airport Ltd, New Zealand

Project Name: Auckland Airport Maps its Future with openBIM

Category of Innovation

Winner: BEXEL Consulting, Slovenia

Project Name: Smart openBIM Project Management on Novo Brdo Residential Complex with Bexel Manager

Category of Client Leadership

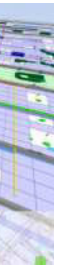
Winner: Norwegian Public Roads Administration, Norway

Project Name: Machine Readable Norwegian Classification Manual for Bridge Inspections - V440

Category of Professional Research

Winner: The University of Manchester, United Kingdom

Project Name: "Discovering Safety" – BIM Safety Risk Library for Built Environment



Category of Construction

Winner: Byggstyrning, Sweden

Project Name: The Celsius Laboratory in Uppsala Sweden Built Exclusively from openBIM

Category of Student Research

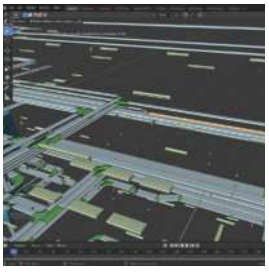
Winner: École des Ponts ParisTech, France

Project Name: Smart BCF Solution "to a Generalized BIM"

Category of Design

Winner: CCCC Highway Consultants Co., Ltd, China

Project Name: openBIM-OSIS Integrated Design of Panama Canal 4th Bridge



Category of Technology

Winner: Lendlease, Australia

Project Name: A Modular Toolkit for Developing openBIM Data Pipelines

Category of Handover

Winner: Vestfold Hospital, Norway

Project Name: Vestfold Hospital: The Tønsberg Project

Category of Technology Leadership

Winner: ACCA Software, Italy

Project Name: usIFC.server: The Revolution in the Use of IFC Files from Static to Dynamic

Governance and Finance

buildingSMART International is incorporated in the UK as a company limited by guarantee, while the self-governing Chapters are set up according to the legal framework in their 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.

The Board met online on eight occasions in 2020. Its work includes setting key priorities, reviewing and signing off of accounts, receiving and deciding upon new Chapter applications, setting and updating Company Bylaws and oversight of key strategies.

The Strategic Advisory Council (SAC) also advises bSI, and during the year SAC members met with the Board on two occasions. Five full-time officers were employed by bSI in 2020: a Chief Executive, an Operations Director, a Marketing Director, a Finance Manager (who joined in January 2020) and a Business Administrator. The Chief Executive is also the company Secretary.

Other services are procured on a fee basis and include a Technical Director, technical support for solutions & standards development, an International Project Coordinator, US representation and support, communications support and website management.

The principal source of income for bSI is membership dues which in 2020 contributed €1,410,000, a 7% growth on 2019. Income from Chapter membership stood at €359,000. €260,000 was returned to the Chapters under the rebate scheme. Income from services was €303,000. €200,000 of this was due to Professional Certification examination and training provider income from Chapters that have implemented the Individual Qualification foundation program. Over 60% of this income was reinvested in the rapidly expanding Professional Certification program. €75,000 was due to software certification, but most of this income passes through with payments to the service provider. Agent license fees for the old bSDD generated €20,000 of service income. Other income comprises grants and bSI charges for non-member project sponsors.

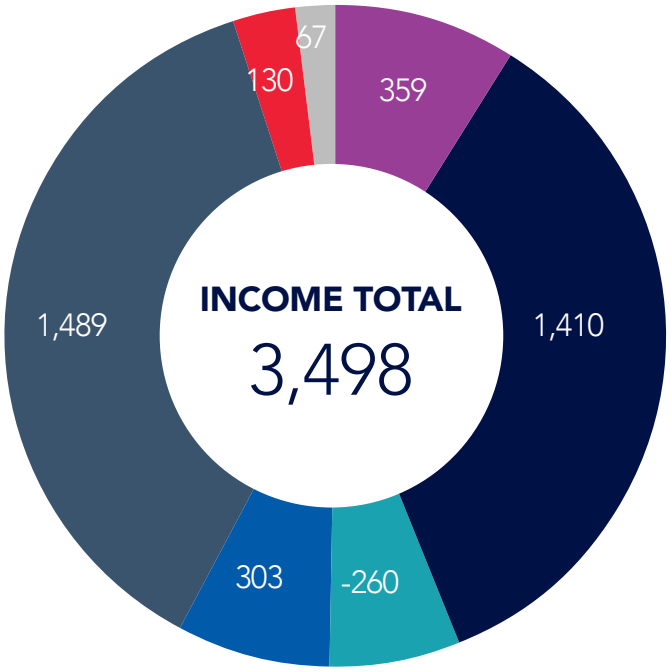
The two bSI Virtual Summits in 2020 generated income through sponsorship and ticket sales, and the majority of this income was spent on hosting, with the remainder contributing to core operational costs consumed in the organization of the two summits.

Total core operational and program costs in 2020 were €1,698,000. The principal outgoing was bSI management (€1,140,000). Management costs increased by 20% compared with 2019 due to having the full-time Finance Manager and Technical Director for the full year. Other operational costs were broadly similar to 2019 with the exception of travel costs which were only €32,000 due to travel restrictions imposed by the pandemic. With increasing Program engagement and activity, program support costs increased by just over 20% compared with 2019.

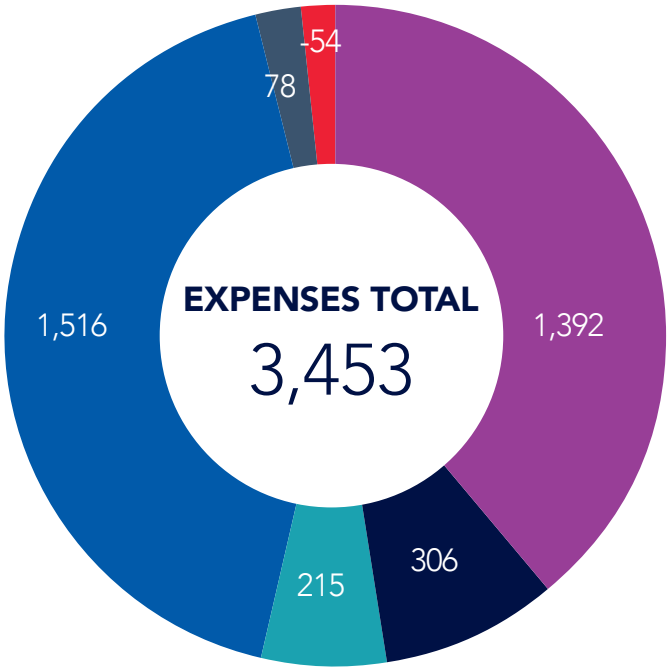
Projects are funded separately, with total funding and expenditure balancing out on project completion. The €465,000 increase in project funding showing in the accounts for 2020 is predominantly due to the Rail, Professional Certification, IFC Infra Extension Deployment and Tunnel projects.

The currency exchange rate between the Euro and GBP brought a benefit of over €50,000 in 2020. The year ended with a surplus of €45,000, and the total equity was €476,000. Increasing revenue, chiefly through membership, remains a priority. The accounts are published at the end of this report.

2020 Full Year



Income	2019 Actual	2020 Budget	2020 Actual
Chapters	310	370	359
Membership	1,317	1,783	1,410
Chapter rebate	-169	-321	-260
Services	225	320	303
Projects	1,024	856	1,489
Summits	0	200	130
Other Income	144	111	67
Income Total	**2,851**	**3,319**	**3,498**



Expenses	2019 Actual	2020 Budget	2020 Actual
bSI Core	1,369	1,673	1,392
Programs	251	396	306
Services	152	243	215
Projects	993	856	1,516
Summits	4	150	78
Exchange	84	0	-54
Expenses Total	**2,853**	**3,318**	**3,453**

Surplus	**-2**	**1**	**45**
GBP to Euro rates	1.18	1.19	1.12
(€000's)			

Priorities for 2021

Recognising the increasing interest in open digital ways of working based on buildingSMART's openBIM methodologies and tools, buildingSMART's priorities reflect the need to ensure solutions developed are relevant to client needs, accessible for users, and maintained and designed to be fit for purpose in today's world and the future.

An overriding priority has been to ensure the continued momentum and success of the buildingSMART activities and community worldwide in the face of the coronavirus (COVID-19) pandemic.

2021 priorities:

- Continue to communicate the value of open standards and openBIM, and to advocate for increased adoption
- Ensure the completion of the Bridges, Ports and Waterways, Rail, and Road domain standards, and progress these to the International Organization for Standardization (ISO)
- Provide leadership and support to initiate new activities in areas of high need, notably: Asset Management, Digital Supply Chain in the Built Environment, Digital Twins, Facility Management and Handover for Facilities Management
- To embed and facilitate the Technical Roadmap by enabling technical investigation to prepare the IFC5 pathway, the development of API-based capabilities, guidelines for deployment, and MVDs and support tools and services (bSDD and USM) to ensure a well-developed and robust technical environment
- Develop and deploy a robust, modern Intellectual Property Policy to secure the future for our standards and solutions as vibrant, open solutions at the heart of an increasingly digital way of working in the future built asset industry
- Develop a comprehensive roadmap for the compliance program

buildingSMART International Ltd
Unaudited Financial Statements
for the year ended 31 December 2020

buildingSMART International

Statement of Financial Position

	Notes	2020 £	£	2019 £	£
Non-current assets					
Intangible assets	3		137,737		154,954
Property, plant and equipment	4		10,936		4,234
			148,673		159,188
Current assets					
Inventories		620		2,930	
Trade and other receivables	5	222,240		224,560	
Cash and cash equivalents		1,939,761		1,445,830	
		2,162,621		1,673,320	
Current liabilities	6	(1,792,906)		(1,345,730)	
Net current assets			369,715		327,590
Total assets less current liabilities			518,388		486,778
Non-current liabilities	7		(93,819)		(102,218)
Net assets			424,569		384,560
Reserves					
Capital contribution reserve			52,431		52,431
Income and expenditure account			372,138		332,129
Members' funds			424,569		384,560

The directors of the company have elected not to include a copy of the income and expenditure account within the financial statements.

For the financial year ended 31 December 2020 the company was entitled to exemption from audit under section 477 of the Companies Act 2006 relating to small companies.

The directors acknowledge their responsibilities for complying with the requirements of the Companies Act 2006 with respect to accounting records and the preparation of financial statements.

The members have not required the company to obtain an audit of its financial statements for the year in question in accordance with section 476.

These financial statements have been prepared and delivered in accordance with the provisions applicable to companies subject to the small companies regime.

Notes to the Financial Statements

1 Accounting policies

Company information
buildingSMART International Limited is a private company limited by guarantee incorporated in England and Wales. The registered office is 9 Quy Court, Colliers Lane, Stow-cum-Quy, Cambridge, CB25 9AU.

1.1 Accounting convention
These financial statements have been prepared in accordance with FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" ("FRS 102") and the requirements of the Companies Act 2006 as applicable to companies subject to the small companies regime. The disclosure requirements of section 1A of FRS 102 have been applied other than where additional disclosure is required to show a true and fair view.

The financial statements are prepared in sterling, which is the functional currency of the company. Monetary amounts in these financial statements are rounded to the nearest £.

The financial statements have been prepared under the historical cost convention. The principal accounting policies adopted are set out below.

1.2 Income and expenditure
Turnover comprises the fair value of the consideration received or receivable for the provision of services in the ordinary course of the company's activities and membership subscription income. Turnover is shown net of sales/value-added tax, returns, rebates and discounts.

The company recognises revenue when:
The amount of revenue can be reliably measured;
it is probable that future economic benefits will flow to the entity;
and specific criteria have been met for each of the company's activities.

Income is recognised over the period to which it relates and any amounts received during the year that relate to future periods are carried forward at the balance sheet date as deferred income.

1.3 Intangible fixed assets other than goodwill
Intangible assets acquired separately from a business are recognised at cost and are subsequently measured at cost less accumulated amortisation and accumulated impairment losses.

Intangible assets acquired on business combinations are recognised separately from goodwill at the acquisition date where it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity and the fair value of the asset can be measured reliably; the intangible asset arises from contractual or other legal rights; and the intangible asset is separable from the entity.

Amortisation is recognised so as to write off the cost or valuation of assets less their residual values over their useful lives on the following bases:

bSI DD Straight line over 10 years

1.4 Property, plant and equipment
Property, plant and equipment are initially measured at cost and subsequently measured at cost or valuation, net of depreciation and any impairment losses.

Depreciation is recognised so as to write off the cost or valuation of assets less their residual values over their useful lives on the following bases:

Office equipment 25% straight line basis

The gain or loss arising on the disposal of an asset is determined as the difference between the sale proceeds and the carrying value of the asset, and is credited or charged to surplus or deficit.

1.5 Impairment of non-current assets
At each reporting period end date, the company reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset, the company estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (or cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognised immediately in surplus or deficit, unless the relevant asset is carried at a revalued amount, in which case the impairment loss is treated as a revaluation decrease.

Recognised impairment losses are reversed if, and only if, the reasons for the impairment loss have ceased to apply. Where an impairment loss subsequently reverses, the carrying amount of the asset (or cash-generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (or cash-generating unit) in prior years. A reversal of an impairment loss is recognised immediately in surplus or deficit, unless the relevant asset is carried at a revalued amount, in which case the reversal of the impairment loss is treated as a revaluation increase.

1.6 Inventories
Inventories are stated at the lower of cost and estimated selling price less costs to complete and sell. Cost 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.

Notes to the Financial Statements

Inventories held for distribution at no or nominal consideration are measured at the lower of replacement cost and cost, adjusted where applicable for any loss of service potential.

At each reporting date, an assessment is made for impairment. Any excess of the carrying amount of inventories over its estimated selling price less costs to complete and sell is recognised as an impairment loss in profit or loss. Reversals of impairment losses are also recognised in profit or loss.

1.7 Cash and cash equivalents

Cash and cash equivalents are basic financial assets and include cash in hand, deposits held at call with banks, other short-term liquid investments with original maturities of three months or less, and bank overdrafts. Bank overdrafts are shown within borrowings in current liabilities.

1.8 Financial instruments

The company has elected to apply the provisions of Section 11 'Basic Financial Instruments' to all of its financial instruments.

Financial instruments are recognised in the company's statement of financial position when the company becomes party to the contractual provisions of the instrument.

Financial assets and liabilities are offset, with the net amounts presented in the financial statements, when there is a legally enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

Basic financial assets

Basic financial assets, which include trade and other receivables and cash and bank balances, are initially measured at transaction price including transaction costs and are subsequently carried at amortised cost using the effective interest method unless the arrangement constitutes a financing transaction, where the transaction is measured at the present value of the future receipts discounted at a market rate of interest. Financial assets classified as receivable within one year are not amortised.

Classification of financial liabilities

Financial liabilities and equity instruments are classified according to the substance of the contractual arrangements entered into. An equity instrument is any contract that evidences a residual interest in the assets of the company after deducting all of its liabilities.

Basic financial liabilities

Basic financial liabilities, including trade and other payables, bank loans, loans from fellow group companies and preference shares that are classified as debt, are initially recognised at transaction price unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future payments discounted at a market rate of interest. Financial liabilities classified as payable within one year are not amortised.

Debt instruments are subsequently carried at amortised cost, using the effective interest rate method.

Trade payables are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Amounts payable are classified as current liabilities if payment is due within one year or less. If not, they are presented as non-current liabilities. Trade payables are recognised initially at transaction price and subsequently measured at amortised cost using the effective interest method.

1.9 Taxation

The company is primarily a mutual company and as such is exempt from corporation tax on surpluses generated from mutual activities.

1.10 Employee benefits

The costs of short-term employee benefits are recognised as a liability and an expense, unless those costs are required to be recognised as part of the cost of stock or non-current assets.

The cost of any unused holiday entitlement is recognised in the period in which the employee's services are received.

Termination benefits are recognised immediately as an expense when the company is demonstrably committed to terminate the employment of an employee or to provide termination benefits.

1.11 Leases

Rentals payable under operating leases, including any lease incentives received, are charged to profit or loss on a straight line basis over the term of the relevant lease except where another more systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

1.12 Foreign exchange

Transactions in currencies other than pounds sterling are recorded at the rates of exchange prevailing at the dates of the transactions. At each reporting end date, monetary assets and liabilities that are denominated in foreign currencies are retranslated at the rates prevailing on the reporting end date. Gains and losses arising on translation in the period are included in profit or loss.

2 Employees

The average monthly number of persons (including directors) employed by the company during the year was:

	2020	2019
Total	5	4

3 Intangible fixed assets

Cost	bSI DD £
At 1 January 2020 and 31 December 2020	172,171
Amortisation and impairment	
At 1 January 2020	17,217
Amortisation charged for the year	17,217
At 31 December 2020	34,434
Carrying amount	
At 31 December 2020	137,737
At 31 December 2019	154,954

4 Property, plant and equipment

Cost	Plant and machinery etc £
At 1 January 2020	11,885
Additions	12,231
At 31 December 2020	24,116
Depreciation and impairment	
At 1 January 2020	7,651
Depreciation charged in the year	5,529
At 31 December 2020	13,180
Carrying amount	
At 31 December 2020	10,936
At 31 December 2019	4,234

5 Trade and other receivables

Amounts falling due within one year:	2020 £	2019 £
Trade receivables	145,351	161,159
Other receivables	76,889	63,401
	222,240	224,560

6 Current liabilities

	2020 £	2019 £
Trade payables	91,171	52,776
Other payables	1,701,735	1,292,954
	1,792,906	1,345,730

7 Non-current liabilities

	2020 £	2019 £
Other payables	93,819	102,218

8 Members' liability

The company is limited by guarantee, not having a share capital and consequently the liability of members is limited, subject to an undertaking by each member to contribute to the net assets or liabilities of the company on winding up such amounts as may be required not exceeding £500.

9 Operating lease commitments

Lessee

At the reporting end date the company had outstanding commitments for future minimum lease payments under non-cancellable operating leases, as follows:

	2020 £	2019 £
	6,438	8,882

10 Related party transactions

P MacLeamy
(director)
Included in other operating income are donations the director made via CAF America.

Other member organisations
The directors W H Moore, Professor R T Steinmann, K V Anderson, D Schaper, K Yajima and C Castaing are connected with member organisations, which each pay annual membership subscriptions to buildingSMART International Limited in the normal course of their business.

In the course of normal business, some member organisations also receive payments for services provided to the company. Such services are provided on an arm's length basis.

Strategic Members

ARUP

CCCC
CHINA COMMUNICATIONS CONSTRUCTION COMPANY

RBIM 铁路BIM联盟
China Railway BIM Alliance

NEMETSCHEK
GROUP

ORACLE
Construction and
Engineering

SIEMENS
Ingenuity for life

Trimble

Multinational Members

Bentley
Advancing Infrastructure

GRAPHISOFT
A NEMETSCHEK COMPANY

BEXEL

鹿島
KAJIMA CORPORATION

BRICSCAD

OBAYASHI

Catenda

Royal
HaskoningDHV
Enhancing Society Together

cobuilder

SBB CFF FFS

DASSAULT
SYSTEMES

SHIMZU CORPORATION
SHIMZ

DATA DESIGN SYSTEM

STRABAG

esri

VECTORWORKS

Standard Members

FM Global

Rijkswaterstaat

Basler & Hofmann

Finnish Transport Infrastructure Agency

mensch maschine
CAD as CAD can

SAMOOC.M.
Creative Management in Design & Construction

BIM INFRA.DK

GEODATA

DIREKTORATET FOR BYGGKVALITET

Schiphol
Amsterdam Airport

CBIM
Digital Makes Cities Better

Gräbert
The Trinity of CAD
Desktop - Mobile - Cloud

ÖBB INFRA

SNCF RÉSEAU

stoRaenso

CEMEX

HDR

OYO
oyo corporation

strategic buildinginnovation

crb

HOCHTIEF
ViCon

POLITECNICO MILANO 1863
DIPARTIMENTO DI ARCHITETTURA, INGEGNERIA DELLE COSTRUZIONI E AMBIENTE COSTRUITO

TAKENAKA

DB NETZE

h+k

PRAGOPROJEKT

TNO innovation for life

EAE
ELEKTRİK

ILF
CONSULTING ENGINEERS

ProMaterial
The digital construction network

TJAD

ferrovial
construction

Leica
Geosystems

RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

TRAFIKVERKET

Officers, Board Members and Leaders

buildingSMART International Management Office

Richard Petrie
Chief Executive
Richard Kelly
Operations Director
Léon van Berlo
Technical Director
Aidan Mercer
Marketing Director

Board Members

Patrick MacLeamy
Chairman
Rasso Steinmann
Deputy Chair
Bill Moore
Treasurer
Karin Anderson
Christophe Castaing
Jaan Saar
Dirk Schaper
Kjetil Tonning
Kazumi Yajima

Company Secretary

Richard Petrie

Certification

Mark Baldwin
Rasso Steinmann
Léon van Berlo

Infrastructure Room

Tiina Perttula
Phil Jackson
Jürgen Litsch
Tristan McDonnell
Roland Moser
Anna Neidenström
Jim Plume
Marion Schenkwein
Marek Suchocki
Nobuyoshi Yabuki

Construction Room

Ken Endo
Adolfo Gutierrez
Veljko Janjic
Konstantinos Kessoudis
Giovanni Volpatti

Railway Room

Winfried Stix
Kristian Fevejle Andersen
Peter Axelsson
Christophe Castaing
Modestino Ferraro
Xenia Fiorentina
Pierre-Etienne Gautier
Vincent Keller
Joakim Fenigsen Lockert
Suo Ning
Patrick Offroy
Tysnes Eivind Pagander
Franz Josef Peer
Tarmo Savolainen
Liming Sheng
Adrian Wildenauer

Building Room

David Ivey
Rob Roef
Kjell Ivar Bakkmoen
Mirbek Bekboliev
Benjamin Gonzalez
Inés Azpeitia González
Jan-Anders Jönsson
Francis Leung
Geraldine Rayner

Airport Room

Adam Rendek
Miika Kostamo
Xuan Dai
Arisca Droog
Christoph Carl Eichler
Basak Keskin
Fumiaki Kishida
Mohammed Salem
Birgitta Schock
Maya Tryfona
Gerard van der Veer
Lai Wei

Product Room

Michel Bohren
Umberto Alesi
Radboud Baayen
Michel Bohren
Frédéric Grand
Hans-Christoph Gruler
Robert Heinze
Hansueli Schmid
Espen Schulze
Lai Wei

Regulatory Room

Nick Nisbet
Franco Coin
Tamer El-Diraby
Tomi Henttinen
Kirill Mikhalkin
Masaki Muto

Technical Room

Greg Schleusner
Dennis Shelden
Robert Anderson
Jakob Beetz
Christophe Castaing
Christian Frey
Thomas Liebich
Bjørn Stangeland
Angel Velez

Standards Committee Executive (SCE)

Birgitta Foster
Kjell Ivar Bakkmoen
Leif Granholm
Rasso Steinmann
Richard Petrie
Richard Kelly

Standards Committee Technical Executive (SCTE)

Håvard Bell
Mirbek Bekboliev
André Borrmann
Christophe Castaing
John Dickinson
Benjamin Gonzalez
Leif Granholm,
Jan Karlshøj
Haijiang Li
Thomas Liebich
Nick Nisbet
Greg Schleusner
Dennis Shelden
Souheil Soubra
Bjørn Stangeland
Rasso Steinmann
Maya Tryfona
Léon van Berlo
Sergey Vishnevetsky
Chi Zhang
Richard Kelly

Implementers Support Group

Jeffrey Ouellette
Angel Velez

Model Support Group

Thomas Liebich
Jon Mirtschin
Thomas Krijnen
Nicholas Nisbet

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