

buildingSMART International

## Detailed Project Plan

### Project Name:

**Facility Management and openBIM**  
**AKA “FM and openBIM”**

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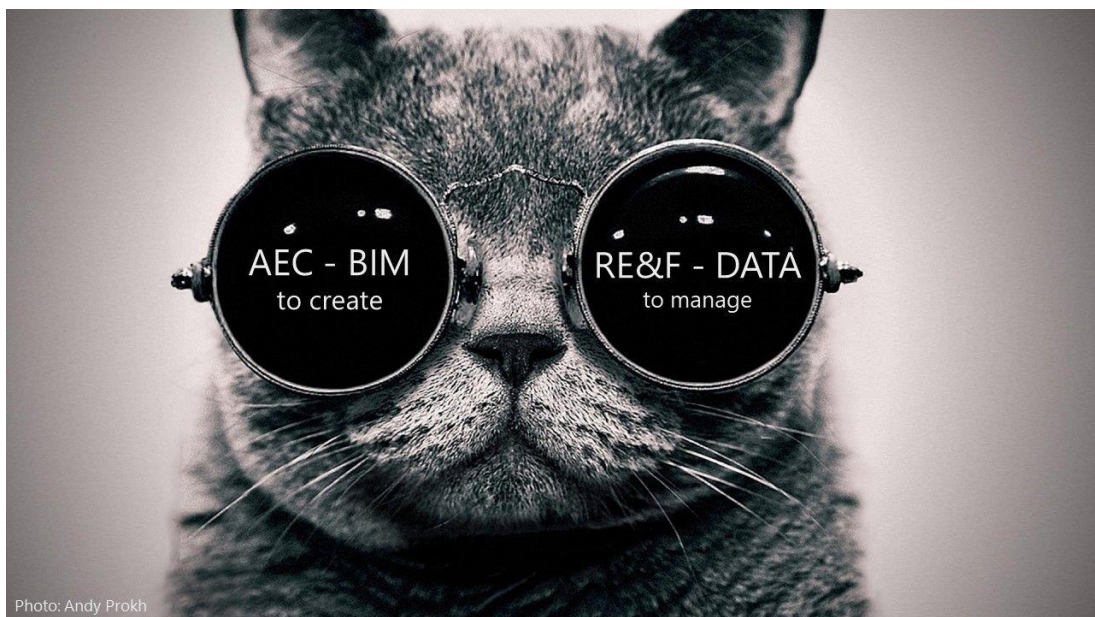
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## 1 GLOSSARY

Body	Abbreviation	Summary
buildingSMART International	bSI	The organization that creates and owns the IFC standards. ( <a href="http://www.buildingsmart.org">www.buildingsmart.org</a> )
Building Room	BR	Open forum within bSI responsible for the Building domain and all developments on IFC within this domain. <a href="#">Building - buildingSMART International</a>
Building Room Project Steering Committee	BRPSC	The body within the BR responsible for managing the Building Room projects, meets once a month, and Project Lead presents the Project Dashboard during this meeting.
Building Room Steering Committee	BRSC	Steers the BR and is responsible for setting out strategy, managing initiatives and liaison with Rooms and bodies.
International Standardization Organization	ISO	<a href="http://www.iso.org/iso/home.html">http://www.iso.org/iso/home.html</a>
European Committee for Standardisation	CEN	<a href="#">Welcome to CEN – European Committee for Standardization</a>
StandICT	SICT	Open Calls for funding European BIM/Digital Twin standardization experts: <a href="#">this link</a> for more information.
Open Geospatial Consortium	OGC	Please follow <a href="#">this link</a> for more information:
Chair Project Team	CPT	Responsible for chairing the PT, managing the project and ensures the project is delivered within budget and on time.
Project Leadership	PL	Responsible for managing the project and ensures the project is delivered within budget /on time. ((Vice-))Chair)
Project Team	PT	Executes a project based on a project plan and delivers the results according to plan.
Chair Expert Group	CEG	Responsible for chairing the EP and coordinating the WGs.
Expert Group (Panel)	EG(P)	All stakeholder experts participating, on in-kind basis, an average of 2hrs per week.
Workgroups	WG	Members of the PT/EG organized to work on an Use-case / Case-study (project 1) and group of selected experts writing Working Draft Standards (phase 2).
Use Case Management Service	UCMS	Used by the Workgroups: <a href="http://www.ucm.buildingsmart.org">www.ucm.buildingsmart.org</a>
BOX	BOX	Document Management System used by the PT and EG Members ( <a href="#">Box   Inloggen</a> )
Standards Committee	SC	The senior governance body within bSI overseeing the <a href="#">standards process</a> . It will comprise representatives from members and chapters.

Standards Committee Executive	SCE	Establishes and manages the <a href="#">bSI standards process</a> and addresses procedural and programmatic issues. <a href="#">Standards Committee Executive - buildingSMART International</a>
Standards Committee Technical Executive	SCTE	Provides technical advice to the SC and SCE the <a href="#">bSI standards process</a> and addresses project technical issues.
Facility Management International Facility Management Association Facility Management Nederland Global FM NFC Index	FM IFMA FMN GFM NFC	As defined by ISO 41000 series ( <a href="#">About (iso.org)</a> ) Represents individual members of the global FM industry ( <a href="#">www.ifma.org</a> ) Represents the Dutch FM profession ( <a href="#">www.fmn.nl</a> ) Represents global FM associations from ( <a href="#">www.globalfm.org</a> ) Dutch demand-side FM benchmarking system based on European EN15221 chaired by FMN ( <a href="#">www.nfcindex.nl</a> ) Represents the European national real estate agencies and ministries ( <a href="#">www.pure-net.org</a> )
Public Real Estate Network ISO Technical Committee 267 CEN Technical Committee 348 Zurich University of Applied Science – FM Architecture, Engineering, Construction Office Furniture Modeling Language Computer-Aided FM Digital Twin Consortium Owner	PuRE-Net ISO/TC267 CEN/TC348 ZHAW-FM AEC OFML CAFM DTC Owner	Represents the global FM standards community (ISO41000) Represent the <a href="#">European FM standards community</a> (EN15221)  Represents the international academic FMBIM network and member of <a href="#">EuroFM</a> . The life cycle phases and industries delivering the built environment <a href="#">IBA standard for independent semantic modelling of furniture in 2D and 3D objects</a> . Software for FM. Similar to IWMS and FMIS. <a href="#">www.digitaltwinconsortium.org</a>
Operator User	Operator User	The organization that legally owns the built environment and has another (internal) organization paying for its use. The organization that, on behalf of the owner, maintains and operates the built environment, but does not use it themselves. The organization that pays for the use of the built environment to facilitate their (internal) end-users (FM)
End-user	End-user	The people that are actually executing their core-business in the facilitated built environment on a daily basis.
Digital Twin	DT	A Digital Twin is a virtual representation of real-world entities and processes, synchronized <sup>1</sup> at a specified frequency and fidelity. <i>openBIM is a collaborative process</i> that is vendor neutral. It facilitates interoperability to benefit projects and assets throughout their lifecycle.
openBIM	openBIM	A paper that describes the ‘openBIM for FM’ information management needs from the FM ISO41000 perspective on the bases of use case(s) / case-studies. Not just a vision or views.
Whitepaper	whitepaper	On the bases of the ISO 19650 and ISO41000-series
FMInformation Requirements FMInformation Delivery Manual/Handover FMCommon Data Environment Golden / Digital Thread	FMIR FMIDM/H FMCDE GT	On the bases of the ISO 19650 and ISO41000-series Organisational and life cycle phases alignment (here: FM data needs), also see <a href="#">THIS</a> NBS, <a href="#">THIS</a> PTC and <a href="#">THIS</a> Cognizant.

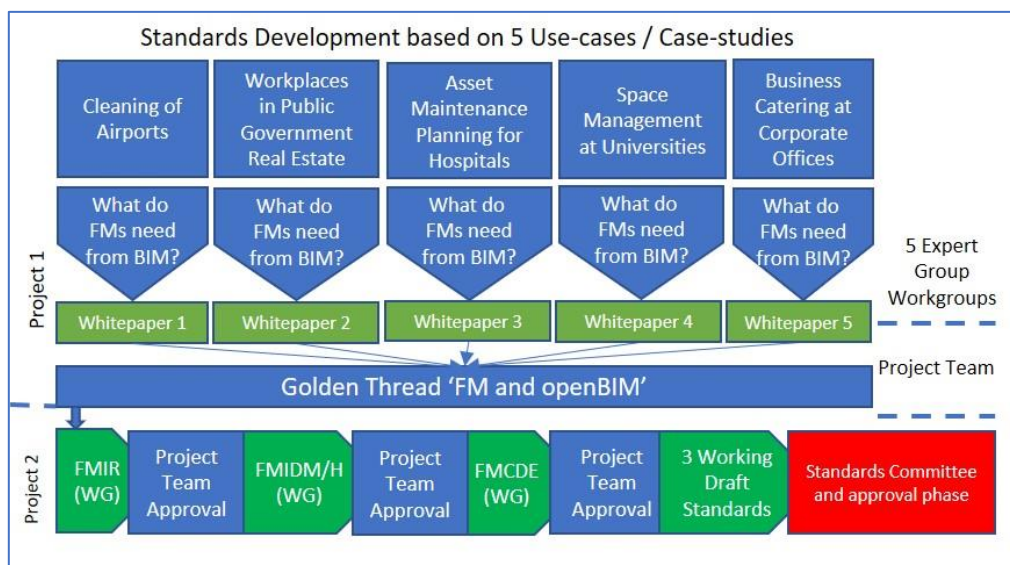
## 2 EXECUTIVE SUMMARY

This Detailed Project Plan (DPP) is based on the approved Activity Proposal BR-2020-1026-AP. It forms the 2<sup>nd</sup> step in creating openBIM standards for the application of BIM by FM. [ISO41000](#) defines FM as the *"organizational function which integrates people, place, and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business"*. For the fulfillment of its purpose FM depends on interoperability of its data with that produced by those that plan, design, built, commission and operate the place where people work. FM represents the Usage-phase of the building whole life management and adds its process-related assets to the space and rooms.



The approved proposal forms an integral part of this DPP. The set opportunity statement is: *How can an ISO 41000-series based FMIR, and FMIDM/H help create automation of the revision of data and geometry in an FMCDE, for and during the use-phase of the life cycle of the built environment?* Based on feedback and suggestions received, listening to experts, analyzing related projects like ‘FMH-EM’ and ‘openCDE Documents API’, AECO/ FM market developments, and acknowledging shifting FM/User-perspectives on BIM and the Digital Twin, the PT proposes to develop 3 openBIM Working Draft Standards for FM: **FMIR, FMIDM/H and FMCDE**. In this DPP we explain why and how we do this. Our approach follows the bSI Standards Process and we use [Box](#), [Monday](#) and [UCMS](#).

FM/User awareness and benefits have not developed strong enough yet. This is why we included many FM-experts in our PT and EG. It is also the main reason why we, in a 1<sup>st</sup> project, develop 5 whitepapers based on 5 use-cases / case-studies to identify the needs of FM in 5 different sectors. We organized an EG of openBIM experts, FM experts, clients and software vendors that will man workgroups defining the needs. The whitepapers, and Golden Thread based on them, will be written with ‘the-end-in-mind’ and used to promote the project, request market feedback and help fund the 2<sup>nd</sup> project; the actual writing of the working draft standards by bSI openBIM standards experts. In accordance with the bSI Standards Process the three drafts will be evaluated by an Expert Panel before being delivered to the Standards Committee. The below graphic shows the approach chosen.



The objectives of the project are:

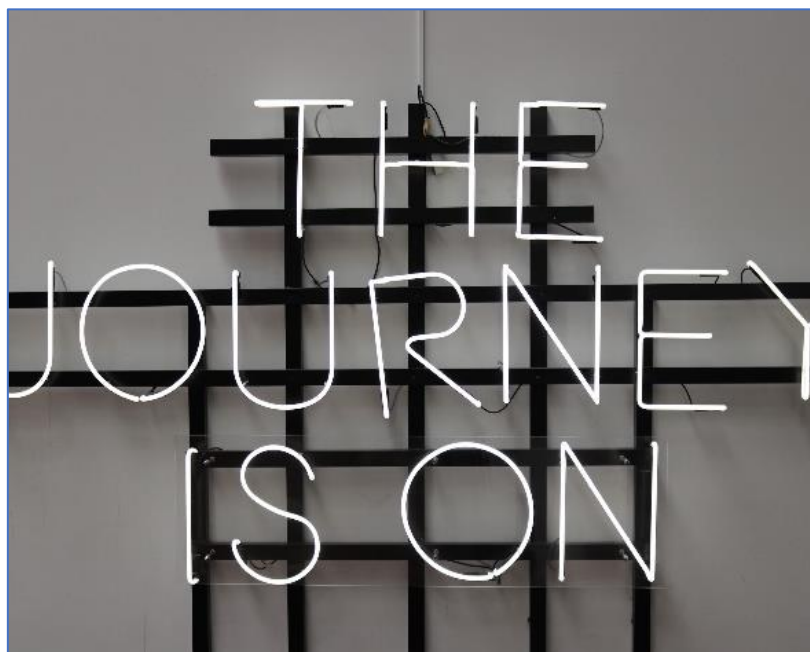
1. Representing the FM industry in developing openBIM and the ecosystem of digital twins (PT-only).
2. Deliver an openBIM FMIR and FMIDM/H standard based on the ISO41000 series that will make automation of handover/transfer and revision of data more accessible for FM.
3. Deliver, based on 2., an openBIM FMCDE standard that will increase real estate value by 2%, bring down FM failure costs by 5% and simplify FM services processes.

All 40 participants deliver 2 in-kind hours per week. Members of the PT acts as liaisons with the global organisations representing the FM and AEC interests, ISO and CEN. Susan Keenlside (Chair EG, Alexander Worp (Vice-Chair PT) and Fred Kloet (Chair PT) will lead the project. All members of the PT and the EG are well connected globally to the various stakeholders.

The strategic idea for funding is that project 1 deliverables will finance project 2 deliverables. The planning strategy is that 5 whitepapers and a Golden Thread will deliver all necessary information on 'FM Needs' for writing the working draft standards by bSI experts. This secures a strong connection with the standards process, bSI roadmap and existing ISO-standards. The total budget required is €150.000 ex VAT for both projects. Project 1 takes from September 1, 2021, till February 1, 2022 and costs €16.600 in cash. Project 2 takes till April 1, 2023 and costs €108.400 in cash. All funding 2.536 in-kind hours needed are covered for. Hiring extra PT leadership hours and experienced openBIM standards writers being the bulk of the cash funding needed. We do not have full funding yet, but are confident we will have full project 1 sign off by September 1, 2021 and project 2 by January 1, 2022.

We have pro-actively engaged with both the global FM world as well as the bSI community. In doing so we have started creating AECO/FM consensus right from the start of the project. This will strongly help maintaining the cross-sectoral interoperability mindset that we need. We realize we are designing an important and valuable bridge and will encounter high hurdles on both sides. We are reaching out to all investors, owners, software providers, (public) real estate managers and facility managers for help by participating in and endorsing the "FM and openBIM" project.

If it would be up to us .....



## 3 BACKGROUND

### 3.1 HISTORY

The approved Activity Proposal presents the history of this project from 2017 till February 2021. It tells where and when it all started, what already had been done in the global FM sector on raising awareness on BIM, and which organisations already were developing FM-related openBIM activities.

After the 'forming' phase, the PT has pro-actively 'stormed' over the past months. We engaged with relevant stakeholders in participating, creating and funding this DPP to start the 'norming' phase. This includes:

1. Collaborate with the FMH-EM, openCDE and the IFC Airport Project teams,
2. Invite other relevant organisations such as RICS, Global BIM, NHS, GEFMA, Bauen Digital, Digital Twin Consortium, TIA, EFCI, OGC, NIBS, bSI Chapters, CEN, ISO and the European Commission, to participate or to establish collaboration,
3. Invite global stakeholders as potential sponsors (Autodesk, Bentley, Oracle, ARUP, esri, Nemetschek, Sodexo, ISS, IBM, Microsoft, Google, Planon, RHDHV, Trimble, FM:Systems, Siemens, and others),
4. Presenting and promoting the project at various national and global events and the bSI Summit,
5. Promoting the project on social media,
6. Finding alternative ways to fund the Project Leadership hours, like with [www.standict.eu](http://www.standict.eu).

### 3.2 OPPORTUNITY & INDUSTRY NEED

This Detailed Project Plan (DPP) is based on the approved Activity Proposal BR-2020-1026-AP and the opportunity and industry needs mentioned (see Box). The opportunity statement is:

***How can an ISO 41000-series based FMBIM Protocol and IDS help create automation of the revision of data and geometry in a CDE, for and during the use-phase of the life cycle of the built environment?***

There is a wide variety of opportunities and industry needs being served by openBIM standards for FM. However, these differ from country to country, sector to sector and even between different organizations in the same sector opportunities and needs differ. Here are some we use for this project.

The [Dutch NFC Index Cooperative](#) calculated managing a 20m<sup>2</sup> workplace costs €490 p/y/m<sup>2</sup>, including Real Estate and Building Operations. FMs organize extra processes because of missing or having inadequate actual and incorrect data of the built environment they work with. Professionals estimate related FM failure costs to be around 15% p/y per workplace: €73,50 p/y/m<sup>2</sup>.

If FM departments would be able to automate the revision of data connected to geometry and information of assets and rooms they rent or use themselves in a BIM, real estate value could increase by 2% according to surveyors and brokers spoken. A 'real-time' updated 'Single Source of Truth' of the built environment geometry and databases, delivers many financial advantages to owners.

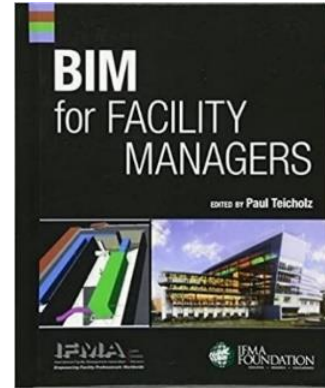
The BuildingSMART position paper '*Enabling an Ecosystem of Digital Twins*' underlines the need for industrial symbiosis and creation of openBIM standards for the use-phase (FM), aligned with openBIM developments in the AEC industries. Interoperability being the major one.

Some years ago, CAFM/FMIS/IWMS/CMMS software providers started their route towards interoperability with BIM. Various whitepapers written by national FM associations emerged. FMN, Planon, TOPDesk, Ultimo, Spacewell, IBIS and Prequest wrote [these two](#) and deliver a third one soon.

Including FM information management requirements at the plan and design stage of a (renovation) project, for services like cleaning, catering, workplaces and space management, allows for predictive occupier costs analytics, scenario visualisation and significant tender advantages.

ISO/TC 267 has recently activated the ISO41016 Technology workgroup. It has included BIM in the scope. It outlines the technology landscape and focus on interoperability and integrated technology practices.

Also, the FM business cases and FM industry needs can be found in a book published by the IFMA Foundation in 2013 and their April 2021 [FMJ magazine](#).



### 3.3 PROJECT GOVERNANCE

The proposed projects will be executed and governed as a buildingSMART International project within the Building Room. If the scale of the projects and the commitment to deliver against grows beyond the size of a single project, then the SCE will be consulted again as to whether an FM Room should be formed and combined with the FMH-EM project. Notwithstanding whether the initial outputs are delivered by a Building Room project or an FM Room series of projects, bSI is committed to responding to the needs of the international FM community. The project will adhere to all requirements coming from the [Standards Process](#) (v. 6.2) as described by [buildingSMART International](#) and shown below.

### 3.4 RELATIONSHIP TO BSI STANDARDS, TECHNICAL WORK, AND TECHNICAL ROADMAP

buildingSMART International has several standards and projects which relate to the topic of Facilities Management. These include the ongoing development work of the Airport Room, FMH-EM, COBie as well as aspects of the bSDD (buildingSMART Data Dictionary) and the bSI Technical Roadmap. Please see the [bSI website](#) and [bSI Summits](#) for more information, including the standards library as available at [this LINK](#). The various bSI Virtual Summits showed a great number of possible relationships, gaps and overlaps between the scope of this DPP with current activities by the bSI Community.

### 3.5 RELATIONSHIP TO OTHER STANDARDS AND TECHNICAL WORK

In this project, links to the following standards and technical work will be taken into account:

- |                        |                       |                     |                  |
|------------------------|-----------------------|---------------------|------------------|
| 1. IFC Schema          | 6. TIA                | 12. ISO12006-2:2015 | 17. UKBIM        |
| 2. IFC-based standards | 7. UN-SDGs            | 13. GEFMA 400       | Framework        |
| 3. ISO 41000           | 8. ISO 19650          | 14. NL/SfB and CCS  | 18. NIBS work    |
| 4. ISO 55000           | 9. CEN/TC 442         | 15. ISO 16739       | 19. IPMS(C)/ICM  |
| 5. IBA-OFML            | 10. ISO/TC 59 and 251 | 16. EN15221         | 20. CEN/TR 17439 |
|                        | 11. ISO 29481         |                     | 21. CEN/TR 17654 |

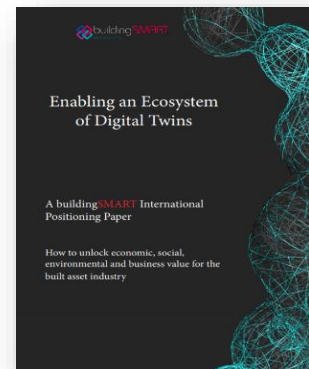
Also, whitepapers written by FMN, GEFMA, RICS, IFMA, EuroFM, IWFM, FMA and other FM-related associations and technical work by the Digital Twin Consortium, the Telecommunications Industry Association, BOMA and CENELEC as well as Smart Building Standards, will all be taken into account.



## 4 SCOPE & OBJECTIVES

### 4.1 SCOPE STATEMENT

The scope of this project is first to determine what it needs to deliver and secondly produce ISO 41000-based openBIM FMIR, FMIDM/H and FMCDE standards matching these needs. Given the existing bSI standards, current Room projects, the [bSI vision](#), their [Technical Roadmap](#) and the [bSI Digital Twin position paper](#). In simple words this comes to making an inventory, doing the analyses and conclude what would be the best way to connect the FM industry with the global openBIM developments.



Given the size of the global FM market and the holistic scope of the profession and industry, it is to be expected there will be many possibilities to create interoperability with the stakeholders and technologies of the other building life cycle phases. As use-cases / case-studies we chose these 5 core FM services and sectors, but the mentioned FM services are also delivered in many other sectors:

1. Cleaning of Airports
2. Workplaces in Public Government Real Estate
3. Asset Maintenance Planning for Hospitals
4. Space Management at Universities
5. Business Catering at Corporate Offices.

Special attention will be given to the possibilities for parametric design and creating digital twins of the mentioned facilities and services. If the scope of the project and the commitment to deliver against grows beyond the size of a single project, then the Standards Committee Executive will be consulted as to whether an FM Room should be formed. Out of the scope of this project are all facilities related to the built Infrastructure and Railway environment. Also, out of range are all subjects specifically related to the sole ownership of the construction industry.

### 4.2 OBJECTIVES

The objectives of the project are:

1. Representing the FM industry in developing openBIM and the ecosystem of digital twins.
2. Deliver standards for an FM Information Requirements (Protocol) and FM Information Delivery Manual / Handover based on the ISO41000 series that will make automation of handover/transfer and revision of data more accessible for FM.
3. Deliver a standard for an AECO/FM Common Data Environment\* that will increase real estate value by 2%, bring down FM failure costs by 5% and simplify FM Services processes.

The umbrella term "Information Requirement (IR)" indicates a clear description of the information required to support a decision. An Information Requirement is usually related to a specific question(s) concerning organizational objectives, operation of an asset, delivery of an asset, or in relation to a specific appointment. The nature of the question helps to inform what information is needed, who will need to understand it, when it will be needed, and how it should be provided. It should also help to inform the framework for the level of information need.

\*Common Data Environment: agreed source of information for any given project or asset, for collecting, managing and disseminating each information container through a managed process.

### 4.3 APPROACH

As explained in the Activity Proposal the FM/User awareness and benefits have not been acknowledged strong enough yet. This is why we included FM-experts in our PT and we split the development in two projects. In the 1<sup>st</sup> project we develop 5 whitepapers focusing on 5 use-cases / case-studies. We organized a PT and EG of openBIM experts as well as FM experts and software vendors that will man the case-study workgroups. We create a community, built awareness and endorse consensus right from the start of the project. The whitepapers will be written with ‘the-end-in-mind’ and used to promote the project, request market feedback and help fund project 2; the actual writing of the draft standards. The PT will extract a [Golden Thread](#) from the whitepapers which acts as starting document for the 2<sup>nd</sup> project. A workgroup consisting of IR-experts starts writing the FMIR. Followed by one for the FMIDM/H and FMCDE. Each step will be concluded by a PT Approval. In accordance with bSI governance the drafts will be evaluated by an Expert Panel before being delivered to the BRSC/SCE.



#### Project 1: FM Needs

The use case of focus can apply to many client sectors; the case studies depict one of these applications, and specifically responding to complex, challenging or currently popular situations in that particular sector. Other client types are welcome to join however! The five use-cases / case-studies defined are:

##### 1. Cleaning of Airports

Running an airport is a 24/7 business. Transport of people and goods is the core-business. But airports are also hospitality, office and retail locations. The variety and quantity of functions and space is huge. The total financial value of cleaning contracts is very high. Key-indicators for programming and calculation of schedules and costs are for example finishing of floors and walls, required hygiene level, space areas, occupancy, window surfaces and the presence of furniture. Reliable knowledge on location, quantities and occupation of used materials and bathrooms are key for a profitable cleaning business. A typical question in this case-study could be: *What information can a cleaning company take from an openBIM approach to deliver its bid in a tender process?*

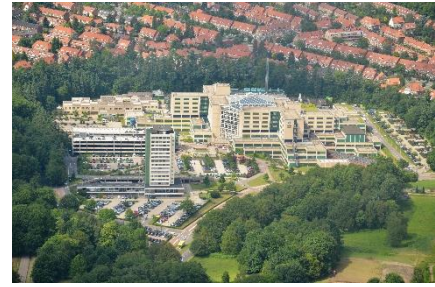
##### 2. Workplaces in Public Government Real Estate

The global furniture industry and architects use the open [OFML-standard](#) of [IBA](#) for a catalogue of 3D-furniture products. Smart Working is a business-focused approach to flexibility and mobility that delivers more efficiency and effectiveness in work-organisation, service delivery and organisational agility, as well as benefits for working people. Public Government has its specific requirements for delivering healthy and productive smart workplaces to its civil servants. Based on ergonomic and procurement regulations, but also regarding floor areas, storage and the application of Activity-Based-Working\* typicals. The (parametric) design of a workplace concept needs to fit the program of demands and existing governmental workplace strategy. Using the OFML-standard in BIM could simplify the digitalization of the physical workplace. And tables and chairs are assets like any other.....

\* Read [BriefBuilder – Activity Based Working Practice Guide](#) for more information.

### 3. Asset Maintenance Planning for Hospitals

Making people healthy again is the core business of a hospital. Building maintenance planning, medical technical assets and good climate and energy systems are key to efficient and reliable operations. Patients, their routing and hospitality form a strong logistical influencer. A hospital is expensive from a CAPEX as well as OPEX perspective. The maintenance of assets and supporting technical installations require intensive moderating and high-



level planning. Operations Rooms often form the heart of a program of requirements for a new hospital. Maintenance, renovation and refurbishment of hospitals requires clear and transparent interoperability standards. Especially in the areas of validation, commissioning and handover. A typical question in this case-study could be: *What asset maintenance information does a hospital FM department need from an openBIM approach to facilitate medical staff making people healthy again?*

### 4. Space Management at Universities

Research and education are the core-business of universities. Students are their main clients. Depending on the type of faculties, the functionalities of typical rooms will vary from labs to simple classrooms. Universities usually organize themselves on a campus. Indoor and outdoor spaces integrate to form a community or village. Many universities use old and monumental buildings that they own and maintain themselves. Many are located in historic city centers. Space Management at a university is very much focused on forecasting space and rooms to facilitate teaching schedules and research programs. A typical question in this case-study could be: *What information does a university FM department need from an openBIM approach to allow for space and area planning?*

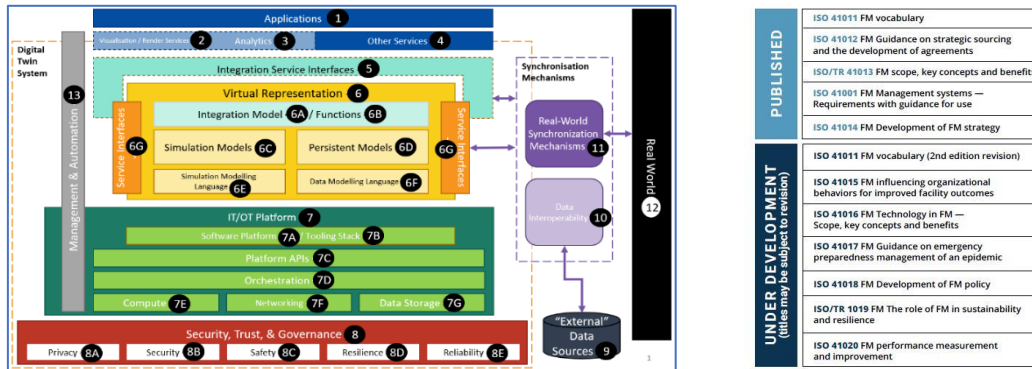
### 5. Business Catering in Corporate Offices

Taking responsibility for the health and well-being of knowledge workers has become a very important factor. Business catering facilities (restaurant, kitchen, coffee corners) often form the heart of an office community. Changing menus to plant-based nutrition and digitalization of supply-chain and procurement processes, demand for a more flexible, transparent and customer-focused catering. Digitalization of equipment and supply chain facilitates this. [This video by NBS](#) shows the designing of a 'Digital Twin Kitchen and Restaurant'. Building-related assets like walls and doors were modelled at similar detailed levels as the assets for functional use like tables, kitchen equipment and soap dispensers. It helps FMs understand that if changing the menu of a restaurant, one can virtually adapt the necessary equipment to deliver that menu, and check whether the fire rating of the wall next to that equipment should change. *What would FM/Business Catering need to make this work?*

All five workgroups will **deliver a whitepaper** using a similar format to the one written by FMN: '[Whitepaper 'BIM for FMIS- part 2'](#)'. The whitepapers will answer questions like:

1. Where to connect the ISO 41000-series content with existing bSI work
2. What are the issues causing the failure costs for FM?
3. What FM actions can lead to increased real estate value?
4. What opportunities do an FMIR Protocol, FMIDM/H and FMCDE deliver?
5. What does this particular FM Service industry and client sector need?
6. What are the pains/gains in using BIM for for this particular FM Service?

Besides looking at existing buildingSMART standards, projects and activities like ‘FMH-EM’, ‘openCDE Documents API’ and IFC Airport Room projects, the workgroups will also use the Digital Twin Consortium Platform Stack Diagram (below, left) as checklist. PT member Salla Eckhardt can be contacted for further DTC information. PT member Gordon Mitchell can be contacted for further information on the ISO41000-series (below, right) and the work of ISO/TC 267.



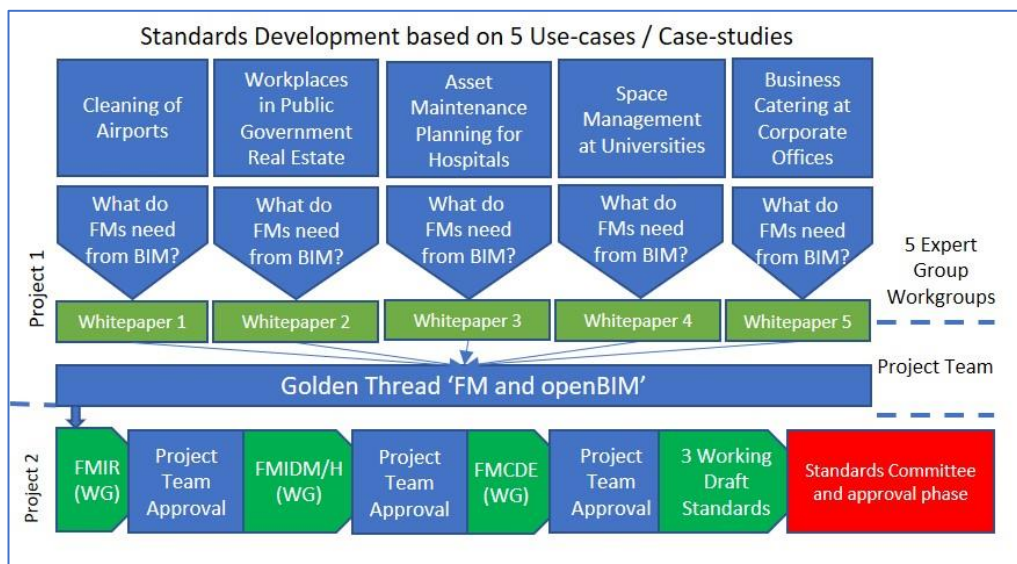
The final step of project 1 will be the extraction of a ‘Golden Thread FM and openBIM’ from the whitepapers. This will then act as a starting document for project 2 of the development, the actual writing of the draft standards by bSI standards writing experts.

### Project 2: openBIM Standards offered

Based on the ‘Golden Thread FM and openBIM’ a to be formed first workgroup of selected bSI standards IR-experts starts writing the FMIR. Managed by the PT and relevant EG participants. Followed by a similar workgroup for the FMIDM/H and after that one for the FMCDE. Each step will be concluded with PT approval. In accordance with the bSI Standards Process all drafts will be evaluated by an Expert Panel before being delivered to the BRSC/ SCE.

If the scope of the projects and the commitment to deliver against grows beyond the size of a single project, then the SCE will be consulted as to whether an FM Room should be formed.

### Schematic overview of the approach followed.



#### 4.4 CHALLENGES

History has shown some significant challenges and risks when undertaking a project like this. The biggest two being the 'CAPEX versus OPEX' and the 'Project versus Process' mindsets.

The 'CAPEX versus OPEX' mindset means the primary objective of investors, project developers and owners is to design, built and deliver buildings to (internal) clients that buy the property or pay for the use. At the same time, renters, occupiers and users need a building to have their organisation perform their activities. High capital value, high rental income and low OPEX are essential for the CAPEX-oriented market. Not so much for the renters, occupiers and users. They want the smallest and highest quality possible building, matching their business needs to the best, at a minimum price, rent and services costs. Reconciling these interests is the key to success. Organisations that are both owner/investor as well as occupier/user are most suited to avoid the 'CAPEX versus OPEX' mindset.

The 'Project versus Process' mindset means architects, builders, and engineers usually have a project-based task. After delivery of the job, they start a new project, while facility managers are entirely focused on holistically facilitating and integrating workplace processes and activities. Project managers are hired to do specific tasks. Process managers make specific activities possible. These two very different roles require very different skills, competencies and mindsets. If project managers from the built environment do not understand the process needs of facility managers, they will never find opportunities for interoperability. Reconciling short-term project objectives with long-term goals of organisations, will avoid misunderstanding and miscommunication.



A potential risk for this project is the unwillingness of participating standards governing organisations to focus on industrial symbiosis with FM. Especially when it comes to choosing national or international standards, public versus commercial standards and open versus closed BIM. We also often see a lack of willingness for cross-sectoral application of best practices. We need holistically thinking leaders searching for symbiosis. Because FMs have a holistic, integrated and generic education and can work in all mentioned industries, they are experts in finding the best practices in one sector and adapting it in another. The bSI community needs to understand, respect and make use of this capability.

#### 5 DELIVERABLES

In project 1 **five whitepapers** will be delivered in line with ISO 41000 addressing the needs of the global Facility Management market when using openBIM standards for:

1. Cleaning of Airports
2. Workplace Management in Public Government Real Estate
3. Asset Maintenance Planning for Hospitals
4. Space Management at Universities
5. Business Catering at Corporate Offices

Project 1 will be concluded by a document describing the '**Golden Thread FM and openBIM**'.

Project 2 will deliver **three Working Draft Standards**:

1. An FM Information Requirements openBIM standard based on the ISO 41000 series representing the requirements of the facility management industry given the scope mentioned at 4.1, that will make handover/transfer and revision of data more accessible for FM.

2. An FM Information Delivery Manual and Handover openBIM standard based on the ISO 41000 series representing the requirements of the facility management industry given the scope mentioned at 4.1, that will make automation of handover/transfer and revision of data more accessible for FM.
3. An FM Common Data Environment openBIM standard and/or model that will help increase real estate value by 2% bring down FM failure costs by 5% and simplify service processes.



## 6 RESOURCES & PROJECT EXECUTION

### 6.1 RESOURCES & SKILLS

Given the huge size and wide variety of industries the global FM market serves, it is essential participating individuals are multicultural aware and understand international governance. Everyone working on this project is to be expected to reconcile the business interests of FM and the AEC industries. Also, it is required to have an open attitude towards existing bSI developments and set strategies and roadmaps. All participants are expected to have read the [buildingSMART International vision](#), their [Technical Roadmap](#), [Digital Twin position paper](#) and browse the [bSI Summit presentations](#).

The Project Leadership will need 4 hrs/wk, communications, office facilities and travel when required. All PT/EG members are expected to be available for project 1 for at least 2 hours per week and take initiatives for funding of the projects. The bSI organisation is responsible for the administration of the project in line with its governance.

All project participants will be asked to help fund the project by sponsoring one of the whitepapers, the Golden Thread and/or the development of the three draft standards. See 8. for the financial needs of the project. All participants are expected to be aware of the challenges and risks mentioned at 4.4.

#### 6.1.1 Personnel / Participants

PT members and their roles are (status June 1, 2021):

- Simon Ashworth ([ashw@zhaw.ch](mailto:ashw@zhaw.ch)), Academic FMBIM Global Liaison
- Salla Eckhardt ([salla.eckhardt@microsoft.com](mailto:salla.eckhardt@microsoft.com)), Digital Twin Consortium Liaison
- Svein Hakon Harv ([SveinHakon.Harv@statsbygg.no](mailto:SveinHakon.Harv@statsbygg.no)), PuRE-Net Liaison
- Susan Keenlside ([Susan.Keenlside@parl.gc.ca](mailto:Susan.Keenlside@parl.gc.ca)), Chair EG
- Jacob D'Albora ([jdalbora@mcveighmangum.com](mailto:jdalbora@mcveighmangum.com)), IFMA Liaison (to be replaced)
- Gordon Mitchell ([gordon.mitchell@key.fm](mailto:gordon.mitchell@key.fm)), ISO/TC 267 Liaison
- Duncan Waddel ([Duncan@fmint.com.au](mailto:Duncan@fmint.com.au)), Global FM Liaison
- Hans Hendriks ([hhs@debimspecialist.nl](mailto:hhs@debimspecialist.nl)), IR, IDM/H, CDE and IFC Schema's Expert
- Richard Kelly ([richard.kelly@buildingsmart.org](mailto:richard.kelly@buildingsmart.org)), bSI
- Jon Proctor ([jon.proctor@buildingsmart.org](mailto:jon.proctor@buildingsmart.org)), bSI
- Alexander Worp ([Alexander.worp@buildingsmart.nl](mailto:Alexander.worp@buildingsmart.nl)), Vice-Chair PT and Chair Workgroup Cleaning at Airports
- Fred Kloet ([Fred@smartwpi.com](mailto:Fred@smartwpi.com)), Chair PT.

The EG is chaired by [Susan Keenlside](#) and consists of (sponsoring) organisations from:

1. Representatives from the bSI Community experienced in working with the ISO19650 (max 6)
2. Workplace Managers from diverse public and private sectors with a (developing) case (max 4)
3. Corporate RE and FM from diverse public and private sectors with a (developing) case (max 4)
4. Corporate IT and/or HR Managers from diverse public and private sectors willing to help develop and use the ISO 41000 FMBIM Protocol (max 4)
5. Software providers with an (developing) ISO 41000 and/or FMBIM strategy (max 6)
6. Business Service providers with an (developing) ISO 41000 and/or FMBIM strategy (max 6)
7. Experts from the Architecture, Construction and Engineering industries. (max 6).

Crucial for selection of the Experts has been the scope mentioned at 4.1 and acknowledgement of the ISO 41000-series being the main constraint.

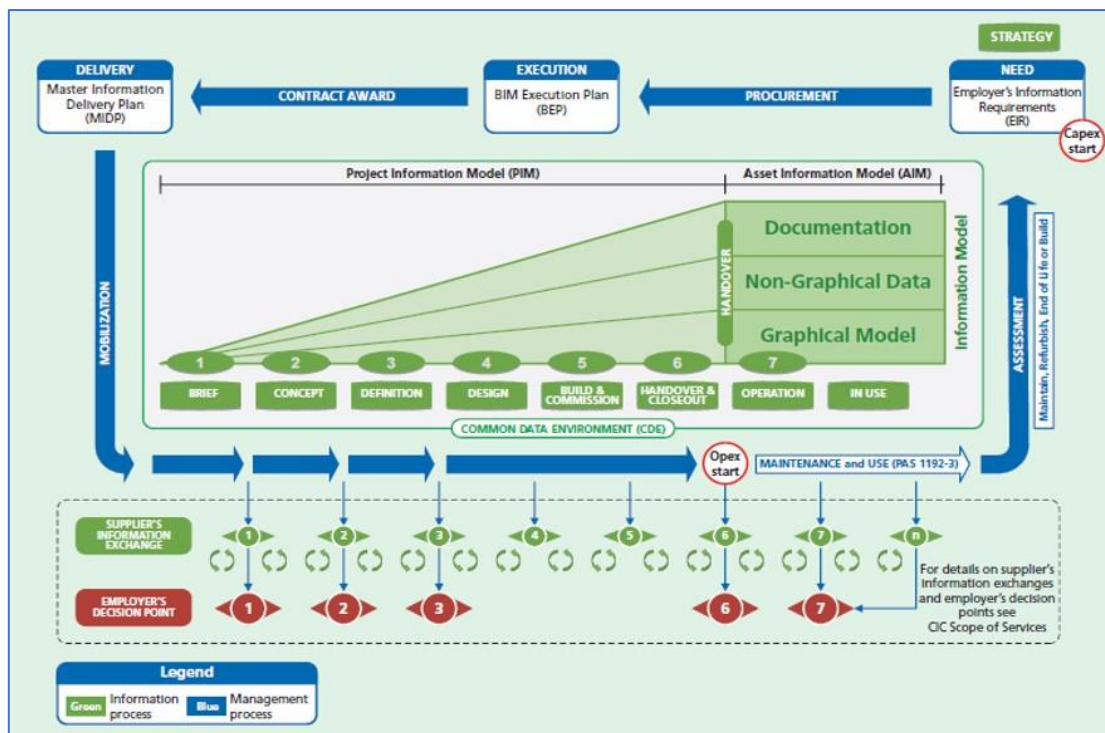
The sheet (status June 15, 2021) on the next page shows all project (potential) participants, including all EG members. It also shows who participates in which project 1 workgroup. The list of participants is to be finalized before the start of project 1. All participants work 2 in-kind hours per week. The PL works an additional 2 in-kind hours plus 4 extra hours per week to manage the project. Participation in project 2 workgroups will be decided on when the Golden Thread has been delivered.

### 6.1.2 Tools / Technology

The project participants will be using the Box document management system and the Monday communication channel. The EG Chair will examine the use of the Use Case Management tool [www.ucm.buildingsmart.org](http://www.ucm.buildingsmart.org) after reading the '[Room Engagement Explanation Document](#)'

For online meetings the project will use Teams. For the creation, delivery and publication of the whitepapers and Golden Thread document, the project will use the lay-out formats provided by bSI.

### ISO19650



FM and openBIM Participants		15-6-2021 FK	invited / to be confirmed				
Project Team (Fred/Alexander)	Person	Email	Organisation	Country	bsi?	Connection	Case 1-5
Chair Project Team	Fred Kloet	<a href="mailto:fred@smartwpi.com">fred@smartwpi.com</a>	SWPi / FMN	NL	yes	30 years/User	2
Vice-chair Project Team	Alexander Worp	<a href="mailto:alexander.worp@buildingsmart.nl">alexander.worp@buildingsmart.nl</a>	bSI BNL	NL	yes	Airports/Clients	1
Digital Twin Cons. Liaison / CRE&FM	Salla Eckhardt	<a href="mailto:salla.eckhardt@microsoft.com">salla.eckhardt@microsoft.com</a>	Microsoft	Finland		User/Software	?
FM Academic Education/Research	Simon Ashworth	<a href="mailto:ashw@zhaw.ch">ashw@zhaw.ch</a>	ZHAW-FM	CH		PhD/Academic/EuroFM	?
IFMA Liaison / FM IT	Jacob D'Albora	<a href="mailto:idalbora@mcveighmangum.com">idalbora@mcveighmangum.com</a>	IFMA ITC	USA		IFMA/IT/Clients	1
Chair Expert Group	Susan Keenlside	<a href="mailto:Susan.Keenlside@parl.gc.ca">Susan.Keenlside@parl.gc.ca</a>	House of Commons	Canada		User	?
ISO/TC 267 Liaison / ISO41000	Gordon Mitchell	<a href="mailto:gordon.mitchell@key.fm">gordon.mitchell@key.fm</a>	ISO/TC 267	Scotland		Standards/User	?
PuRE-Net Liaison / Public Real Estate	Svein Hakon Harv	<a href="mailto:SveinHakon.Harv@statsbygg.no">SveinHakon.Harv@statsbygg.no</a>	PuRE-Net	Norway		User	2
Global FM Liaison / AustralAsian FM	Duncan Waddell (tbc?)	<a href="mailto:duncan@fmint.com.au">duncan@fmint.com.au</a>	Global FM	AUS		Global FM/User/Clients	?
IR/ID/CDE + IFC Schema's Expert	Hans Hendriks	<a href="mailto:hhs@debimspecialist.nl">hhs@debimspecialist.nl</a>	deBIMspecialist	NL		Maintenance/FM-clients	?
Digital Twin Expert/Funding WP	Richard Ferris TBC	<a href="mailto:richard.ferris@lendlease.com">richard.ferris@lendlease.com</a>	LendLease	AUS		Richard Kelly?	
Funding PT	Simon Caspar	<a href="mailto:simon.caspar@pom.ch">simon.caspar@pom.ch</a>	pom+IBPDI	CH		Data Quality/Clients	3
Funding PT	TBC	<a href="https://www.standict.eu/standict.eu-202">https://www.standict.eu/standict.eu-202</a>	StandICT.eu	EU		3rd Open call, Fred applied	
Funding PT							
Expert Group (Susan)	Expert	Email	Organisation	Country	bsi?	Connection	Case 1-5
Whitepaper Funding	Erica Olschnoegger	<a href="mailto:erica.olschnoegger@hilti.com">erica.olschnoegger@hilti.com</a>	Hilti	Liechtenstein		Fred	3
Whitepaper Funding	Patrick Wallis	<a href="mailto:Cwallis@esri.com">Cwallis@esri.com</a>	esri	USA	yes	software	4
Whitepaper Funding	Steen Sunesen/Svein Hakon Harv	<a href="mailto:SveinHakon.Harv@statsbygg.no">SveinHakon.Harv@statsbygg.no</a>	Statsbygg	N	yes	software	2
Whitepaper Funding	Noam Hadromi	<a href="mailto:noam.hadromi@siemens.com">noam.hadromi@siemens.com</a>	Siemens	CH/D		software	3
Whitepaper Funding	Joseph Kuling	<a href="mailto:Joseph@kuling.org">Joseph@kuling.org</a>	BDR/DigiTeam	NL		via Hans Hendriks	
Project Kick Off Funding	Andrew Debenham	<a href="mailto:andrew.debenham@essensys.tech">andrew.debenham@essensys.tech</a>	Essensys			Fred	
Golden Thread Funding							
Exclusive Workshop	Raphael Gielgen	<a href="mailto:raphael.gielgen@vitra.com">raphael.gielgen@vitra.com</a>	Vitra	CH		Fred	2
FMIR Standard Funding							
FMIDM/H Standard Funding							
FMCE Standard Funding							
Approval Kick Off Funding							
bSI Community	Wei Lai	<a href="mailto:weil@bschina.org">weil@bschina.org</a>	bSI China	China	yes	SAC TC 581 (ISO/TC 267)	5
	Väino Tarandi (+Anna Land)	<a href="mailto:Vaino.Tarandi@bimalliance.se">Vaino.Tarandi@bimalliance.se</a>	bSI Sweden	Sweden	yes		
	Alfred Waschl	<a href="mailto:alfred.waschl@buildingsmart.co.at">alfred.waschl@buildingsmart.co.at</a>	bSI Austria	Austria	yes	GEFMA/FMA/CAFMRing/RealFM	
	Joha Luukas		bSI Finland	Finland	yes		
	Xenia Fiorentini	<a href="mailto:xenia.fiorentini@engisis.com">xenia.fiorentini@engisis.com</a>	bSI Italy	Italia	yes	end of 2021 (now IFCRail)	
	Mirbek Bekboliev (+Alfred Waschl)	<a href="mailto:mirbek.bekboliev@buildingSMART.de">mirbek.bekboliev@buildingSMART.de</a>	bSI Deutschland+Au	D+A	yes	GEFMA/FMA/CAFMRing/RealFM	
	Sergio Fdez de Sevilla	<a href="mailto:sergio.fernandezesevilla@retain.es">sergio.fernandezesevilla@retain.es</a>	bSI Spain	E	yes		
	Jeffrey Ouellette	<a href="mailto:jwoellette@gmail.com">jwoellette@gmail.com</a>	bSI USA	USA	yes	RICs/OGC	
	Jim Plume	<a href="mailto:j.plume@outlook.com">j.plume@outlook.com</a>	bSI AustralAsia	AUS	yes	Duncan Waddell / Paul Akhurst	
	Marta Soncodi	<a href="mailto:MSoncodi@tiaonline.org">MSoncodi@tiaonline.org</a>	TIA via ARUP?		yes	Smart Building	
Corporate RE/FM	Hadeel Saadon (+Brett Plant) (tbc)	<a href="mailto:hadeel.saadon@coventry.ac.uk">hadeel.saadon@coventry.ac.uk</a>	Coventry University	UK			4
	Arisca Droog/Maya Tryfona	<a href="mailto:arisca.droog@schiphol.nl">arisca.droog@schiphol.nl</a>	Schiphol Airport	NL	yes	Airport Room / User	1
	(info with Gordon)		NHS	UK		Gordon / User	3
	Stephan Dery TBC		TWN	Global		Susan	2
	Zahra Ghorbani	<a href="mailto:zxp120@psu.edu">zxp120@psu.edu</a>	PennState University	USA	yes	Academic/ Asset Management	3+4
	Karl Fitzpatrick	<a href="mailto:Karl.Fitzpatrick@aucklandairport.co.nz">Karl.Fitzpatrick@aucklandairport.co.nz</a>	Auckland Airport	NZ	yes	User	1
	Andrew Knight (tbc)	<a href="mailto:aknight@rics.org">aknight@rics.org</a>	RICS	UK/Global		Richard P. / Aiden (Kath Fontana)	
	Steen Sunesen	<a href="mailto:steen.sunesen@statsbygg.nl">steen.sunesen@statsbygg.nl</a>	Statsbygg	N	yes	PuRE-Net	3
	Adrian Wildenauer	<a href="mailto:adrian.wildenauer2@sbb.ch">adrian.wildenauer2@sbb.ch</a>	SBB	CH	yes	Simon Ashworth FMBIM PhD	
	Fajwel Wilson	<a href="mailto:f.wilson@amsterdam.nl">f.wilson@amsterdam.nl</a>	City of Amsterdam	NL		FM operations + data (1Mm2)	1
Corporate IT/HR (max 4)	Ryan Tennyson	<a href="mailto:Ryan.Tennyson@scottishfuturestrust.org">Ryan.Tennyson@scottishfuturestrust.org</a>	Scottish Futures Tru	SC			2+3
	Maurice van Deursen (tbc)	<a href="mailto:Maurice-van.Deursen@KLM.COM">Maurice-van.Deursen@KLM.COM</a>	KLM Air France	NL		Fred	
Software Providers	Michelangelo Cianculli	<a href="mailto:michelangelo.cianculli@acca.it">michelangelo.cianculli@acca.it</a>	ACCA	I	yes	PuRE-Net (Agenzia del Demanio)	
(max 6, FM-related)	Brett Spindler	<a href="mailto:brett.spindler@se.com">brett.spindler@se.com</a>	Schneider Electric	UK		Fred	
	Noam Hadromi	<a href="mailto:noam.hadromi@siemens.com">noam.hadromi@siemens.com</a>	Siemens	CH		Fred	3
	Emmanuel Di Giacomo	<a href="mailto:emmanuel.digiaco@autodesk.com">emmanuel.digiaco@autodesk.com</a>	Autodesk	F	yes	Tandem? Not 100% available	4
	Brok Howard	<a href="mailto:brok.howard@drofus.com">brok.howard@drofus.com</a>	dROFUS	USA	yes	Helse Bergen Hospital/IFMA	3
	Alina Stanciu(+Miriam Russom) (tbc)	<a href="mailto:alinast@microsoft.com">alinast@microsoft.com</a>	Microsoft (Azure)	USA		Salla	
	Jan-Fokke Post	<a href="mailto:jf.post@planonsoftware.com">jf.post@planonsoftware.com</a>	Planon/Schneider E	NL		FMN	
	Rogier Roelvink (+Frank Weiss) (tbc)	<a href="mailto:rogier.roelvink@oracle.com">rogier.roelvink@oracle.com</a>	Oracle (Aconex)	AUS	yes		
IFM / Buss.Serv. Providers	Mike Hallas (+Deb Rowland)	<a href="mailto:Mike.Hallas@sodexo.com">Mike.Hallas@sodexo.com</a>	Sodexo	UK		Global	2+3+5
and Consultants	Edu Peek	<a href="mailto:edu.peek@nl.issworld.com">edu.peek@nl.issworld.com</a>	ISS	NL		Cleaning (Fred)	1
max 6	Hans Trilsbeek/Burkhard Remmers	<a href="mailto:Burkhard.Remmers@wilkhahn.de">Burkhard.Remmers@wilkhahn.de</a>	Wilkhahn/IBA	DK		Fred	2
			AustralAsian company				
AEC Experts (max 6)	Yoshinobu Adachi (???)		Kajima	Japan	yes		
	Roberto Minnucci	<a href="mailto:roberto@associatiminucci.com">roberto@associatiminucci.com</a>	Minnucci Associati	Italia	yes	Fred	5
	Chris Heger	<a href="mailto:cheher@oacsvcs.com">cheher@oacsvcs.com</a>	OAC Services Inc.	USA			
	John Turner	<a href="mailto:john.turner@gafcon.com">john.turner@gafcon.com</a>	Gafcon Inc.	USA		Salla/Fred	
	Shawn O'Keefe	<a href="mailto:shawn.okeefe@mma.ie">shawn.okeefe@mma.ie</a>	BIM & Scan	IRL			

SHEET to be finalised before start of the project. Names and e-mails not to be used commercially.

In some cases mentioned people and organisations have not confirmed their participation yet!!!!



## 6.2 PROJECT EXECUTION & MANAGEMENT

The projects will initially be the responsibility of the BRSC. They will be organized similar to a Room in order to prepare for a potential FM Room initiative. The Project Leadership and PT will be given the freedom to develop the thought definition on the scope and deliverable(s). They will be supported with outreach to other potential contributors.

The PT Leadership formed the PT and EG. Members of the PT act as the portal or liaison to their organization, chapters, colleagues, members and workgroups in promoting, representing and coordinating the activities of the projects while encouraging them to participate and organize (national) mirror-groups. PT membership will take a minimum of 2 hours per week, communications and office facilities and travel when required. The member's organizations will cover time and facilities themselves. Project Leadership (chair and Vice-Chair) will work 8 hours per week of which 4 in-kind and 4 paid.

Every use-case workgroup will need about 144 hours of work to deliver a whitepaper.

Project Leadership and bSI Administrator will act as the liaison to the broader bSI Community, including national chapters. The bSI Administrator will be agreed at a later stage.

bSI and the BRSC will actively invite other Rooms and bodies to engage with the project. Project Management is explained in [Addendum 3 of the bSI Process](#). All participating individuals or organizations need to be international or national bSI-member.

## 6.3 LIAISONS

Many of the participants are already actively involved and with technical work on various standards mentioned at 3.5. See 6.2 for names, organizations and e-mail addresses of all PT members and EG members. Use LinkedIn to view their profiles.

The liaisons of PT members are indicated at 6.1.1.

The PT will make additional strategic liaisons with representative organisations of the industries and sectors connected via the use-cases and case-studies.

## 7 WORK & TIME SCHEDULE

After approval of the DPP the summer of 2021 will be used to finalize the formation, funding and prepare the start at the bSI Summit in September. The workgroups will work on 5 whitepapers addressing the use-cases / case-studies forming the basis for the “Golden Thread FM and openBIM”. Whitepapers and Golden Thread are to be delivered by January 2022. At the first bSI Summit of 2022 project 2 will start with the FMIR WG kick off. Followed by the FMIDM/H and FMCDE WGs. All three concept Working Draft Standards will be presented to an Expert Panel before being delivered as Candidate Standards. All planned activities can be found in below schedule.

Planning "FM and openBIM" (high-level blocking schedule)	2021												2022												2023		
	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
1 Developing DPP	15																										
2 DPP/Standard Proposal Approval	27																										
3 Finalize Workgroup Teams																											
4 <b>PROJECT 1 KICK OFF (SUMMIT)</b>																											
5 Workgroup meetings project 1																											
6 Draft whitepapers																											
7 Publication whitepapers																											
8 Define Golden Thread (PT)																											
9 Finalize project 2 sponsoring/funding																											
10 <b>PROJECT 2 KICK OFF (SUMMIT)</b>																											
11 FMIR Workgroup																											
12 PT Feedback & Approval																											
13 FMIDM/H Workgroup																											
14 PT Approval (SUMMIT)																											
15 FMCDE Workgroup																											
16 PT Approval																											
17 <b>3 Working Draft Standards</b>																											
18 Expert Panel Output																											
19 <b>Start Approval Process (SUMMIT)</b>																											

### 7.1 PROJECT MANAGEMENT / GOVERNANCE MEETINGS

The projects will be led by a Chair and Vice-Chair of the PT. Together with the CEG they form the Project Leadership. The PT meets online once per month. The 5 workgroups, one per use-case / case-study, meets online every two weeks. Workgroup chairs will deliver an update to the PT once every month. The PT will report once per month report to the BRSC the day after the PT meeting. The PT and EG will present its progress at every bSI Summit. PT, EG and WGs will update the broader bSI community via Box and Monday and use the UCMS.

Project 2 requires guidance from an individual that understands the bSI Standards Process well and who is accountable to both the BRSC as well as bSI Operations Director. The Administrator acts as secretariat to the project and manages the documents that form the operation of the project. They also manage the database of project participants.

The CEG delivers a detailed WG planning after PT decided on manning the WGs (5.). The whitepapers will all follow the same format as described at 4.3 page 11 (6./7.) The standards written in project 2 (10. to 16.) will follow the bSI guidelines. The Expert Panel (18.) will be selected by the PT in Q4-2022.

### 7.2 MILESTONES

- June '21 : DPP / Standard Proposal Approval
- September '21 : Start project 1: FM Needs
- January '22 : Publication whitepapers and Golden Thread
- March '22 : Start project 2: openBIM standards offered
- January '23 : 3 Working Draft Standards ready for Expert Panel
- March '23 : Candidate Standards ready for Approval phase



## 8 BUDGET & FUNDING

The strategic idea for budgeting and funding the two project is:

- Minimal project 1 cash requirements,
- Sponsoring project 1 deliverables finances project 2,
- Full commitment for all in-kind hours needed at the start of the projects.

In both phases all members of the PT and EG will deliver 2 in-kind work hours per week. As a compensation they will be offered free access to bSI summits. For making the 5 whitepapers and Golden Thread document in project 1 a total of €16.600 cash and 1.272 in-kind hours is needed.

In project 2 the three workgroups will be manned by hired bSI standards writing experts that will in total cost net €54.000 for 9 months work. Their financial distribution will be decided when hiring. Project 2 needs €108.400 and 1.264 in-kind hours. Making the 2 projects total 2.536 in-kind hours. We are happy to have already received full commitment for all in-kind hours required.

In-Kind hours Funding "FM and openBIM"	2021				2022												2023			Work Days				
	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec		Jan	feb	Mar	
1 Finalizing DPP																								8
- PT members (7x2hrs/wk)	28																							
- PL: Chair/Vice-Chair/CEG (3x4hrs/wk)	36																							
2 DPP/Standard Proposal Approval	0																							0
3 Finalize Workgroup Teams (PL)		16																						2
4 PROJECT 1 KICK OFF (SUMMIT)																								6
- PT members (4x2hrs/wk)			0	32																				
- PL: Chair/Vice-Chair/CEG (1x4hrs/wk)			0	16																				
5 Workgroup work project 1 (5x)																								111
- PT members (3x2hrs/wk)				24	24	24																		
- PL: Vice-Chair/CEG (2x4hrs/wk)				32	32	32																		
- EG members (30x2hrs/wk)				240	240	240																		
6 Draft whitepapers (PT+PL)							104																	13
7 Publication whitepapers (PL)								48																6
8 Define Golden Thread (PT+PL)								104																13
9 Finalize project 2 spons/funding (PT+PL)											104	56												20
10 PROJECT 2 KICK OFF (SUMMIT)																								6
- PT members (4x2hrs/wk)											32													
- PL: Chair/Vice-Chair/CEG (1x4hrs/wk)											16													
11 FMIR Workgroup (SWG)																								31
- EG members (5x2hrs/wk)											40	40	40											
- PT members (3x2hrs/wk)											24	24	24											
12 PT Feedback & Approval (7x2hrs/wk)														56										
13 FMIDM/H Workgroup																								31
- EG members (5x2hrs/wk)															40	40	40							
- PT members (3x2hrs/wk)															24	24	24							
14 PT Approval (SUMMIT)																	56							
15 FMCDE Workgroup																								31
- EG members (5x2hrs/wk)																	40	40	40					
- PT members (3x2hrs/wk)																	24	24	24					
16 PT Approval																			56					
17 3 Working Draft Standards (PT+PL)																				104				13
18 Expert Panel Output																						104		13
19 Start Approval Process (SUMMIT)																							104	13
Total in-kind hours per month	64	16	0	344	296	296	104	152	104	104	64	64	120	64	64	120	64	64	120	104	104	104	104	
Total in-kind hours development phase	>	>	>	>	>	>	>	1272	>	>	>	>	>	>	>	>	>	>	>	>	>	>	>	2536

The total budget is focused on creating the 5 whitepaper and Golden Thread in project 1 and the 3 standards in project 2. Because all but the Chair, Vice-Chair and to be hired standards writing experts deliver only in-kind hours, this is where the largest portion of the budget sits. When in project 2 the formal bSI Standards Process starts extra bSI support is required. In project 1 only services included in membership fees are required.

Chair and Vice-Chair are to be reimbursed for the travel expenses to/from relevant meetings and events when required by the bSI leadership. Both roles receive a monthly net fee of €1.600 for work done. This includes office-expenses and communication, excluding VAT. The Chair will be reimbursed €3.000 net, excluding VAT for his leadership from October 2020 till DPP Approval.

Budget "FM and openBIM"	2021						2022												2023			
	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1 Developing the DPP	PM																					
2 DPP/Standard Proposal Approval																						
3 Finalize Workgroup Teams																						
4 PROJECT 1 KICK OFF (SUMMIT) (online)																						
5 Workgroup meetings project 1 (online)																						
6 Draft whitepapers																						
7 Publication 5 whitepapers									1200													
8 Publication Golden Thread (PT)								200														
9 Finalize project 2 sponsoring/funding																						
10 PROJECT 2 KICK OFF (SUMMIT)																						
11 FMIR Workgroup external Experts (online)											6000	6000	6000									
12 PT Approval																						
13 FMIDM/H Workgroup external Experts (online)														6000	6000	6000						
14 PT Approval (SUMMIT)																						
15 FMCDE Workgroup external Experts (online)																	6000	6000	6000			
16 PT Approval																						
17 3 Working Draft Standards publication																					1200	
18 Expert Panel Output																						
19 Start Approval Process (SUMMIT)																						
Project Leadership Chair/Vice-Chair	PM	1600	0	3200	3200	3200	2400	1600	2400	3200	3200	3200	3200	3200	1600	3200	3200	1600	3200	3200	2400	2400
bSI support (UCMS/Box/Monday/Notes)				PM	PM	PM	PM	PM	PM	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Budget per month</b>	0	1600	0	3200	3200	3200	2400	3000	3400	4200	10200	10200	10200	10200	8600	10200	10200	8600	10200	5400	3400	3400
<b>Project 1 budget (in Euro)</b>	>	>	>	>	>	>	>	16600														
<b>Project 2 budget (in Euro)</b>																						108400
<b>Total Budget</b>																						125000
<b>Unforeseen / contingency 20%</b>																						25000
<b>Total Budget excluding VAT</b>																						150000
<b>Total Budget including VAT (20%)</b>																						180000

Project 1 budget is € 16.600. Project 2 €108.400. The cash budget to fund for the two projects is €150.000 including 20% unforeseen / contingency costs and excluding VAT. PT members travel and accommodation will be reimbursed when needed and agreed.

## 8.1 FUNDING ALLOCATION

This is how we will fund the cash budget:

### A. € 10.000 to € 20.000

This level of sponsorship will help the PT in working on 5 use-cases / case-studies, delivering the "Golden Thread FM and openBIM" and the creation of 3 openBIM standards for FM. Sponsors at this level benefit from:

1. Free standard membership to bSI for the remainder of 2021
2. International recognition via globally distributed whitepapers for specific sectors (hospitals, universities, airports, corporates and public real estate)
3. Active membership in the EG Workgroup on 5 use-cases/case-studies
4. International recognition at the buildingSMART summits.

### B. € 2.000 - € 10.000

This level of sponsorship allows your organization to show your organisation's commitment in the development of the 3 international standards by sponsoring an online project update presentation by the project leadership to your chosen audience.

Cash Funding "FM and openBIM"	2021						2022												2023			
	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1 Developing the DPP	bSI																					
2 DPP/Standard Proposal Approval	bSI																					
4 PROJECT 1 KICK OFF (SUMMIT)				4000																		
7 Sponsorships 5 whitepapers								75000														
8 Golden Thread sponsoring (PT)								5000														
10 FMIR (SUMMIT)										7000												
14 FMIDM/H (SUMMIT)													7000									
FMCD (Special event)																	7000					
19 Start Approval Process (SUMMIT)																						12000
Paid presentations by Project Team members					2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	1000	2000	2000	2000
<b>Total funding ex VAT</b>								92000														150000
<b>Total funding including VAT</b>																						180000

Please see the annex 'Call for Sponsors' for more information.

Organisations willing to support the project as requested, complete the 'Agreement to Participate' document (particularly the last page) with details of the proposed sponsorship and which sponsor opportunity they are interested in. The Agreement also lets organisations indicate if they wish to participate as an EG member and offer in-kind hours.

The organisations funding the project are listed in the overview presented at page 16 (6.1.1).

## 8.2 FINANCIAL DISTRIBUTION

Cash Distributiong "FM and openBIM"	2021						2022												2023			
	June	July	Aug.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
a Chair (Fred Kloet, 4hrs/wk)		1600	0	1600	1600	1600	1200	800	800	1600	1600	1600	1600	1600	800	1600	1600	1600	800	800	1200	1200
b Vice-chair (Alexander Worp, 4 hrs/wk)				1600	1600	1600	1200	800	800	1600	1600	1600	1600	1600	800	1600	1600	1600	800	800	1200	1200
c bSI				PM	PM	OM	PM	PM	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
d Whitepaper production								1200														
e Golden thread production								200														
f FMIR Workgroup external Experts										6000	6000	6000										
g FMIDM/H Workgroup external Experts														6000	6000	6000						
h FMUDE Workgroup external Experts																	6000	6000	6000			
i 3 Working Draft Standards document																					1000	
j Expenses like travel, office, etc.				0	0	0	0	0	200	200	200	200	200	200	0	200	200	200	200	200	200	200
<b>Cash distribution per month</b>	0	1600	0	3200	3200	3200	2400	3000	2800	4400	10400	10400	10400	10400	8600	10400	10400	10400	8800	3800	3600	3600
<b>Total cash distribution</b>								<b>16600</b>														<b>125000</b>
Unforeseen/Contingency																						<b>25000</b>

### Be Aware:

If the scale of the projects and the commitment to deliver against grows beyond the size of a single project, then the SCE will be consulted as to whether an FM Room should be formed. For an FM Room bSI would require the BRSC and project stakeholders to provide sufficient funding from the outset to employ the Leadership and Administrator and facilitate the PT and EG during the phases of the project establishment:

- Project formation/onboarding of participants – 8 hours a week – 3 months (€5k)
- Charter & Roadmap creation/call for participation – 16 hours a week – 3 months (€10k)
- Projects planning/consortium agreement formation – 24 hours a week – 3 months (€15k)
- Projects launch – full time as part of the PMO – 38 hours a week – 2 years + (€200k).

## ANNEX 1: CALL FOR SPONSORS



# Facilities Management and openBIM

## Call for Sponsors

There is a growing need to make the information produced by AEC (Architecture, Engineering and Construction) better interoperable for the function of Facilities Management (FM) during the use-phase of the built environment. The FM industry knows that having available real-time information on the status of built assets, would decrease their failure costs and simplify services processes while increasing real estate value. It appears that AEC and FM do not use shared Information Requirements (IR) protocols, Information Delivery Manuals and Handover (IDM/H) and standardised Common Data Environments (CDE), making automation of the process for revision of data and geometry by FM, particularly during the use phase of the lifecycle of the built asset industry, close to impossible. This in part explains the lack of adoption of BIM by the FM industry; and is one of the driving factors for this project. The objectives of the "FM and openBIM" project, to be created and delivered in 2021/2, are:

1. Represent the FM industry in developing openBIM and the ecosystem of digital twins.
2. Deliver openBIM FMIR Protocol and FMIDM/H standards based on the ISO41000 series that will make automation of handover/transfer and revision of data more accessible for FM.
3. Deliver an FMCDE that will increase real estate value by 2%, bring down FM failure costs by 5% and simplify FM services processes.

There is a need to internationalise and standardise, and the buildingSMART project team have developed a project plan as part of the bSI Process to work on the development of these 3 "FM and openBIM" standards.

## Opportunity for you

buildingSMART International is calling on industry sponsorship to help fund the project. This exciting opportunity comes with a variety of benefits, including free membership for new members to bSI for the remainder of 2021. Sponsors can:

- Be part of an international market making project
- Become a leader in the development of 3 FM standards
  - Collaborate with other industry professionals
  - Benefit from global exposure

### Funding goal: €180,000

€10,000

–  
€20,000

This level of sponsorship will enable the Project Team to develop the 5 use-cases / case-studies, delivering the "Golden Thread FM and openBIM" and the creation of 3 openBIM standards for FM. Sponsors at this level benefit from:

- Free Standard membership to bSI for the remainder of 2021
- International recognition via globally distributed whitepapers for specific sectors (hospitals, universities, airport, corporates or public real estate)
  - Active membership in the Expert Group Workgroup on 5 use-cases/case-studies
- International recognition at the buildingSMART summits

€2,000

–  
€10,000

This level of sponsorship allows you to show your organisation's commitment in the development of the 3 international standards by sponsoring an online project update workshop by the project leadership to your chosen audience.

To become a sponsor, please email: [contact@buildingsmart.org](mailto:contact@buildingsmart.org)