



NEWSLETTER

2019 ICIS Congress Portland, Maine USA

The 2019 ICIS Delegates Assembly and Congress will be held from Sunday 2 June and finish with the Congress Dinner on the evening of Wednesday 5 June. This year's focus is "**Digitizing Construction Information: A Global Directive**". This theme will explore the use of construction information across a wide spectrum of the built environment from early design to facility management. How does "Big Data Technologies", "Analytics" and "Machine Learning" help to transform this new landscape, and can it be used to influence the design decision process? The information sessions have been divided into:

- ◆ THE FUTURE OF CONSTRUCTION INFORMATION: Data Management; Technology & AI; etc.
- ◆ COST INFORMATION
- ◆ STANDARDIZATION; PRODUCT INFORMATION
- ◆ CONSTRUCTION SPECIFICATIONS; CLASSIFICATION
- ◆ OPEN TOPICS including Facilities Management; Research Projects; Case Studies etc.

Because Portland is a popular tourist destination for sailors, kayakers, whale watching, fishing and more, accommodation should be booked early. A special delegate rate has been arranged, at the Hampton Inn Portland Downtown — Waterfront, and can be reserved on the link https://hamptoninn.hilton.com/en/hp/groups/personalized/P/PWMDTHX-IDA-20190601/index.jhtml?WT.mc_id=POG.

Group Name: ICIS Delegate Assembly 2019
Group Code : IDA



Cost Estimating and BIM

This ICIS report (20 October 2018) was created by members whose interests include cost estimating, BIM, and the development of cost estimating software. This report seeks to investigate cost-estimating systems in general, and how these systems are or can be BIM-compatible.

A cost estimate is an approximation of the costs of the resources needed to complete a project's activities. The accuracy will increase during the iterative loops of the planning phase. Other definitions are explained in the report e.g. cost modelling, cost accounting.

The main purpose of cost estimation is to give the asset owner all the necessary information to make cost-effective decisions and choices based on output-input principles. Therefore, cost estimates should be divided into parts which are appropriate for the person using the information, and which creates specific service/quality for the asset owner/user.

The report describes some cost estimating methods, tools and techniques and provides information about cost estimation systems in the Czech Republic, Norway, Finland and Switzerland.

The report is available at www.icis.org.

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Member Profile

Molio Denmark

MOLIO
BYGGERIETS VIDENSCENTER

Molio www.molio.dk

Molio - The Building's Knowledge Center, supplies digital tools, continuing education and professional literature that help increase the digitization and efficiency of construction. Molio is the result of a merger between Building Center and Bips (spring 2016).

Non-profit organisation

As was the case for Bips and Byggecentrum, Molio's aim is to contribute to strengthening competitiveness for companies involved in construction, works and maintenance, for the benefit of industry and society.

We are a non-profit organisation, and are independent of private interests.

Services

Molio delivers products and tools that further development, digitalization and improvements in efficiency.

Molio's Building Data includes the Danish building statutes, instructions, standards, manuals, and other essential documents in one search tool.

Molio also provides cost data, publications, courses, product information, and specifications.

Danish buildingSMART

Molio has taken over bips' role as the buildingSMART network in Denmark. This means that Molio is the Danish partner in the buildingSMART Nordic Chapter and coordinate buildingSMART activities in Denmark.

A buildingSMART group has been established in Molio's network, in where interested parties can meet and implement buildingSMART standards – both with regards to Molio's products and those of the industry as a whole. This network will also be the focal point of Danish involvement in international buildingSMART development projects.

President's Column

The value underpinning ICIS is the sharing of information and ideas. This reflects the philosophy to share for the benefit of the whole profession. During 2018 the ICIS Board had the opportunity to share information with other organisations, not only through the 2018 ICIS Congress, but also with face-to-face meetings with Svensk Byggtjänst of Sweden, and the Belgium Building Research Institute. I also had the opportunity to meet with Centre Scientifique et Technique du Bâtiment (CSTB), amongst others. NATSPEC also supports the China BIM Union, and PlanBIM of Chile. This is all done in an open way.

There is continued focus on the digitalization of construction information. However some, I believe, incorrectly focus on the technology and not on the purpose/outcome. There is a place for both flexible construction specifications as well as reference specifications/technical reports. The focus should remain on specifying an appropriate level of construction quality for that particular project or project type. The requirements for a hospital or hotel are quite different than that for an industrial building or house. In determining the format of information, it is important to determine who is going to use the information, and how they will best access it.

The world of Building Information Modelling, Digital Engineering, Digital Information, etc continues to evolve. I believe the concept of 'digital twin' is now only perpetuated by those that are clinging on to old concepts. Remember when some opposed federated models? The same can now be said of the model being the gateway to the project information. The focus now is on the model/s being one piece of information within the project databank. The same holds with old BIM standards and tools that need to be updated to reflect current thinking.

More controversial is the importance placed on classifications. In the days of paper and libraries you needed to store information in a structure/classification that made it easy to find. This still holds for documents but not for digital information. Digital information needs to be searchable and interoperable. Software interprets "tap" and "taps" to be different products. What will underpin construction information in the future are consistent naming conventions. That is why the Open BIM Object Standard is so important.

The above thoughts are mine and somewhat controversial. Please attend Congress 19 so that you can share, debate, and argue your views.

The more you know, the more you know you don't know. (Aristotle)

Wishing you all the very best,

Richard Choy

President, International Construction Information Society



*Richard Choy with
Souheil Soubra
Director, CSTB
Chair, EU BIM
Taskgroup*



Iconic buildings and memorable places are created by those in the design, project delivery and construction professions. Many other types of buildings, and infrastructure, are needed to make our world function. We at ICPMA take our part in this process seriously and our intention is for our voice to be louder and our messages to be heard by a wider audience.

ICPMA is particularly involved right now with several initiatives that it believes will help to provide a better understanding of the life cycle of projects from inception to delivery and management thereafter. ICPMA believes that new forms of mutual cooperation will improve quality of the final product, and that innovation and modern methods are crucial to drive success.

Specifically, the current immediate aims of ICPMA are to:

- ◆ Recognise excellence through our two annual Award programmes - for projects using alliance as the method of delivery, and for those displaying innovation and quality of final product.
- ◆ Ensure that we attract students and early career professionals to our association to capture their fresh ideas and enthusiasm.
- ◆ Embark on a programme of research sponsorship to guide new thought processes.
- ◆ Continue to encourage participation at our annual conference to exchange ideas and experience and to foster new friendships.
- ◆ Enter into direct liaisons with like-minded organisations to maximise effectiveness.

In respect of that final but crucial aim, ICPMA is delighted to have entered into a MOU with ICIS to work hand-in-hand over the next few years to increase understanding, capitalise on opportunities, and raise the profiles of our professions internationally.

We also hope that some members of ICIS might like to apply to become members of ICPMA or be able to follow us on www.icpma.net; on our Facebook site ICPMA; and via LinkedIn at International Construction Project Management Association. We also hope to see some of you at our next conference in Lausanne, Switzerland on June 13th and 14th 2019.

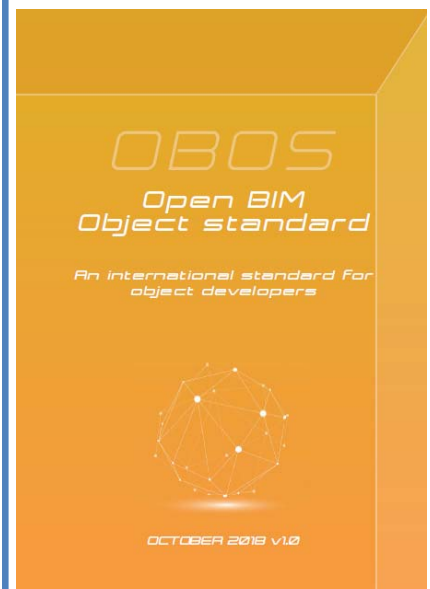


Nick Smith,
President ICPMA 2017-9

Global Open BIM Object Standard

The Open BIM Object Standard has already received positive feedback from around the world. Developed jointly by NATSPEC (Australia) and Masterspec (New Zealand) it aims to bring consistency to BIM properties naming globally. In Australia the NATSPEC BIM Properties Generator <https://bim.natspec.org/tools/properties-generator> has shown how easy it is to implement. In New Zealand you can see that it may be supplemented with local information <https://masterspec.co.nz/NZ-Annexure--Scope/7275/>.

The OBOS is based on globally available information and may be used in your country as it has IFC as its foundation. We hope you will take the opportunity to look at the OBOS and provide feedback on how it can be improved.



Aiming for effective information management

Comprehensive, internationally compatible and navigable construction nomenclatures throughout the life cycle are a prerequisite for the full utilization of digitalization.

Building nomenclatures, such as House 2000 and the Infra nomenclature system, are a key way of designating and classifying parts of construction and the built environment. Information management for building projects and built-up property also relies on nomenclatures. It is a challenging situation that the current nomenclatures are separate and they do not have a common link - when there are different vocabularies and standards, the usability and coverage of nomenclatures vary widely. On the other hand, overlapping and contradictions in the nomenclatures of building and infrastructure construction are also found.

A solution to the problem is sought through the Construction Nomenclature Comparison project, launched in October 2018, which maps the current status and development needs of the Finnish property and construction nomenclature in terms of different uses and alignment. The purpose of the project, which ends at the end of the year, is to provide an explanation of how the mutual and international compatibility of Building, Electricity, HVAC, Infrastructure and Property Nomenclatures should be developed. Standardization aims to better realize the benefits of digitalization for the entire construction industry.

"The aim is that in Finland, at some point, machine-friendly, globally-compatible and globally compatible nomenclatures will be used. In this case, the greatest benefit is gained from digitalization", says Petri Neuvonen, Head of Communication and Development at the Building Information Foundation.

The built environment needs a common language

The end of the first workshop in October resulted in a lively debate. The workshop confirmed that there was a strong need for standardization of the nomenclatures by construction professionals and asset owners.

"In large hybrid projects, such as Triplas, which includes both residential, commercial, and hotel facilities, it is particularly important to have a common language. Nomenclature plays a key role in project management and the movement of information between the various parties, so they should definitely be consistent", says Ville Teräväinen, Project Manager responsible for project management development at YIT.

Also from the point of view of the construction product industry and infrastructure construction, the mutual and international compatibility of nomenclatures deserves development.

"Clear, uniform nomenclatures would facilitate Nordic co-operation and support all parties: builders, contractors, architects and designers. It is interesting to see how digitalization will affect the development of nomenclatures", commented also Janita Vänskä, Uponor Infra, Master Data Specialist who participated in the workshop.

Tools for changing value networks

The development of nomenclatures requires the identification of the underlying principles of formation and standards as well as their convergence, differences, overlaps and interfaces. The development also requires a clear idea of the conditions under which nomenclatures fit with data modelling. Intelligent building requires a common understanding.

"Digitalization will change the operating methods and value networks of the industry. When collaborating with actors who have never met each other, they need to be able to communicate smoothly. Currently the same things are described in different terms. For example, land surveying people perceive the real estate word as a land area that is registered in the land registry, while in real estate maintenance the same word means the building. For convenience and information management, this is a bad thing: artificial intelligence does not just help as long as the same term means many different things, says CEO Juha Saarentaus from Geowise Oy, a consulting services provider for built-in environments.

International consistency or local clarity?

In addition to digitalization, the standardization of nomenclatures is also strongly linked to the internationalization debate. Is it necessary to harmonize nomenclatures across borders?

"Building activity is still local but will be more international in the future. For example, design work is becoming more international. We already have Eurocodes already in use. In international projects, we generally aim to use the same nomenclature, so comparability is achieved. In any country or project, the same material is used and the same nomenclature should be used", ponders Teräväinen.

Kieliki sets his own challenges in the development of nomenclatures.

"Although it would be useful to have international compatibility, it would be good to maintain linguistic independence, but avoid issues, so it does not happen as it once did on the IT side. There is a certain kind of snobbery at the expense of uniformity. When there are different actors in the value network, intelligibility must be at all levels of service", Saarentaus says.

Construction nomenclature comparison is a KIRA digital project funded by the Ministry of the Environment, implemented by the Finnish Building Information Foundation RTS in cooperation with Gravicon Oy and Sitowise Oy. Picking is responsible for communicating the project. Nomenclature comparison also co-operates with the Estonian Ministry of Economic Affairs and Communications and the Sanastokeskus TSK. In the first workshop at the end of October, the current state of nomenclature was identified with its problems. The second workshop focused on the target state and development needs, and was held on 12.11.2018. The project will be completed by the end of 2018.

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RAKENNUSTIETO

BIM and the process industry

Norconsult's ISY Plant is a collection of tools for transferring 3D data and properties between various 3D tools. These products have an international market since the challenges are largely the same everywhere.

The process industry and construction / infrastructure industries have different 3D tools and content requirements in their 3D models. ISY Plant transfers 3D data and properties between the various tools, so everyone can work with the tools they normally use.

In the process industry, plant design tools are used, and usually with ready-made and complete units and piping systems components selected from catalogues. Construction / infrastructure is more tailored (no building is the same) and the tools are adapted to this.

There are many connections between these industries. A processing plant is usually inside a building. If there are separate specialized contracts, it is often necessary that everyone can see each other's 3D data in order to work as effectively as possible and to avoid errors.

The client often requires one complete model delivered in a specific format when the project is completed. In the Norwegian oil / gas industry this is often AVEVA PDMS.



Standardization of information levels



BIM Advisor Marzia Bolpagni is the leader of the task group to find a European consensus on how level of detail is defined. Since different purposes require different information, the European Taskgroup, for example, works with the concept of "Level of Information Need". The working group consists of people from 11 different countries and they will publish their work in 2019.

In an interview with Molio's International Relations Manager Gunnar Friberg, Marzia explains why it is important and what challenges lie ahead.

<https://www.youtube.com/watch?v=LHEU4I-Sfzk>

China BIM Union



Professor HUANG Qiang, Chairman of the China BIM Union, with Richard Choy, CEO NATSPEC & President of ICIS caught up together in Shenzhen, China where Professor Huang launched the new Chinese A&b Class Construction Classification System based on actions and business cases for processes.

BIM-compatible Classification

New horizons for civil and infrastructure engineering

CRB is working in tandem with partners from Switzerland and the USA to develop a national BIM-compatible classification for civil and infrastructure engineering. This classification will pave the way for the measurement of quantities in CAD models and the digital exchange of cost-relevant information from the 3D model all the way up to the specification and tendering stage. Data exchange will be made possible by mapping the eBKP-T (element-based cost classification for civil engineering) onto buildingSMART International's future IFC 5.x standard.

At the 2018 Swissbau construction trade fair, CRB presented a solution for the development of BIM-compatible elements using the eBKP-H (element-based cost classification for building construction). These elements are based on buildingSMART International's data exchange standards and are designed to meet the needs of the Swiss construction industry. CRB customers who implement BIM methodology are able to link up the eBKP-H to the buildingSMART International standard (IFC).

On the other hand, no suitable international standards for digital data exchange as yet exist for the fields of civil and infrastructure engineering. However, intensive development work is in progress at buildingSMART International and, based on the current schedule, users will be provided with a first release in the new IFC 5.x exchange format as of 2020. Until then, CAD models will have to rely on individual classification solutions – a situation that adds considerable effort to the project development process.

Collaboration with national and international partners

As part of a research project, CRB is currently working with Swiss partners (CAD software provider CADWORK Informatik and construction administration software partner ABBF Bausoft AG) and an eminent American university on the development of a national BIM-compatible classification for civil and infrastructure engineering. The classification will provide for the measurement of quantities in the CAD model and the subsequent digital exchange of these data. This, together with the mapping of the eBKP-T civil engineering classification onto buildingSMART International's future IFC 5.x standard, will lay the foundation for users to benefit from standardized digital information exchange.

The future aim is to open up the new possibilities offered by BIM methodology not only to clients and designers, but also to contractors. That is why, as work proceeds, contractors will also be involved in the development of the BIM-compatible elements.

Development of framework for national data exchange

The first phase will entail integration of the eBKP-T into CAD modelling and the performance of compatibility checks. The framework will be developed by a process of verification using practical examples and the output from an ongoing university research project. The classification criteria and measurement rules defined in the eBKP-T will then be applied to determine the digital quantities. Not only will this unlock new options for the measurement of quantities, it will also be possible, via a standardized interface, to pass on the data for further processing, e.g. in a construction administration program. The data can then be used to generate an eBKP-T-based bill of quantities.

Alignment with international standards

The second phase will focus on cross-linking the national, BIM-compatible eBKP-T to buildingSMART International's future IFC 5.x standard. Thanks to the BIM compatibility of the eBKP-T, CRB will then also be able to offer its customers the possibility of using 4D and 5D BIM methodology for civil and infrastructure engineering projects and to generate bills of quantities with the data.

For more information on the project, please contact: Marcel Chour; mc@crb.ch

Object Standard for Japan

BIM Library Consortium (BLC) Japan was founded in Oct. 2015, and have been conducting activities to achieve one of its goals of a nationwide BIM object standard.

The draft of "BLC BIM Object Standard" was agreed unanimously by 75 major companies in AEC and manufacturing industries in the general special assembly and was recognized as a "Standard" among BLC member companies. "BLC BIM Object Standard" is aiming at improving redundant objects producing activities that will result in improving productivity in the AEC industry and is also the first step for building a nationwide BIM object library. "BLC BIM Object Standard" is made on "Stem" modeling system which has been developed and used in Japan for years and which is unique in delivering geometry and attribute both in separate mode and combined mode and consequently it shall be applied for 2-D CAD users.

BLC plans to conduct its research activities with the view of achieving digital design, digital construction and digital facility management in liaison with the research on applying BIM to building permits that started in autumn.

On Budget and On Schedule

First and foremost, a client demands that they receive what they have ordered - within the agreed time and at the agreed costs. Even a large construction project should not be completed before the courts.

For over 60 years CRB has been providing the Swiss construction industry with tools for better understanding and smooth data exchange in order to meet this requirement. The high culture and high quality of the Swiss building industry is unique worldwide and also has to do with this good understanding.

If in the current uncertain times of digitization there is one requirement that will survive, then it is probably this demand of the builders! CRB is committed to playing a leading role in the preservation of culture and quality in the course of digitization.

With the assignment of the Swiss cost structure eBKP to the international data exchange standard IFC (Industry Foundation Class), a ruleset is currently available for pilot projects. Quantities and costs can thus be extracted from models in a known structure and made available to third-party systems. CRB intends to publish a comprehensive standard before the national construction fair Swissbau 2020. Until then, details must also be clarified with our partners; for example, the handling of today's dimensional regulations, which are not used in this type of modelling.

In general, modelling guidelines will play a major role in the future. Here, too, a clear understanding is needed so that different stakeholders can obtain exactly what they expect from the geometry for further processing. With the user manuals for the cost classification eBKP, CRB already provides tools which have to be adapted and extended accordingly. Maybe we will even be able to display these dynamically to the user in relation to the current context?

Using a prototype, we have also shown that a classical tender according to the Swiss specification standard NPK should be possible directly from the model. CRB also builds on the international standard IFC and will extend it to include the contents of this NPK. However, we have not yet been able to conclusively clarify how we can assign rule-based elements from the model to construction services that are not modelled (e.g. delivery of sample doors or protection of components against damage or contamination).

CRB is also breaking new ground with regard to cost parameters. Based on standardized structures, it should be possible to use characteristic values dynamically and context-dependently. Whether the interested user wants to analyse specific, recalculated objects in the sense of today's OAK (object types catalogue), create cost estimates for individual projects or compare individual items with market prices, he should be able to obtain this via CRB as services. We have already created prototypes and are currently negotiating partnership agreements with specialists.

In summary, it can be said that CRB's declared goal is to offer the construction industry solutions that allow information on components, quantities, costs and services to be made available across organizations and systems without media discontinuity. We are confronted with very high complexity and great effort. Nevertheless, the employees of the CRB have accepted these challenges and are motivated to contribute to the solutions.

BIMcreds®

buildingSMART Australasia (bSA) has partnered with experts in the BIM field to develop a robust methodology to assess the knowledge of practitioners, then provide recognition of that expertise (in the form of a Certificate of Completion).

The assessment platform is called BIMcreds and it is a pragmatic, practical approach to identify those who know what they are talking about when it comes to BIM and its application to their profession. The assessments fit with the APCC/ACIF BIM Knowledge and Skills Framework and are designed for individual practitioners (not groups or organisations). Organisations that employ individuals who have passed BIMcreds assessments will be able to leverage the resumes of these people to strengthen their own organisational capabilities and credentials. https://buildingsmart.org.au/bim-skills/bimcreds/#.W_qCOugzY2y

BIM Definition

BIM is a digital form of construction and asset operations. It brings together technology process improvements and digital information to radically improve client and project outcomes and asset operations. BIM is a strategic enabler for improving decision making for both buildings and public infrastructure assets across the whole lifecycle. It applies to new build projects and crucially, BIM supports the renovation, refurbishment and maintenance of the built environment – the largest share of the sector. [EU BIM Taskgroup Handbook, 2018]

<http://www.eubim.eu/handbook/>

2018 Year Book

The International Construction Project Management Association is proud to announce the 2018 Year Book showcasing recent award winning projects.

<http://icpma.net/onewebmedia/ICPMA%202018%20Yearbook.pdf>



Nordic ConTech

Three hundred leading industry representatives met to discuss the future digitized construction industry at Nordic ConTech Talk on November 13, 2018. Nordic ConTech Talk was organized by Svensk Byggtjänst in cooperation with Bygg 4.0, Industrifakta, Nordbygg and SiS. During the meeting, it was important to note that change has to take place, and here the focus was on finding common efficiency solutions.

Nordic ConTech's industry meeting on the future's digitized construction industry offered concrete proposals on how the industry could become more productive - and the experience of the financial world became a major source of inspiration.

The financial sector's digitization transformation, called FinTech, started much earlier than the construction industry. It was therefore of great interest when several leading representatives from the financial world were generously telling about their experiences at Nordic ConTech Talk, including some processes where their industry collaborates. Bankgirot's CEO, Jeanette Jäger, said that similar process teams could provide clear profits for both customers and construction companies:

"What the banks did to be more productive was to look into what services we compete for and what services we do not win to compete for. Were there any processes that could easily be done by a single company?"

The solution became Bankgirot, perhaps Sweden's first FinTech company, all of which banks joined. Which in turn meant that customers also chose this efficient service. Jeanette Jäger also raised other successful partnerships within FinTech such as Swish and Bank ID. She saw Nordic ConTech as part of the solution. "To get a similar result as FinTech, the partners in the construction industry must meet. Small startups need partners and the big companies always need development."

When the customers' willingness to pay fails

The industry's changing attitude to innovation was clearly identified. The audience agreed when the moderator claimed that two years ago it would not have been possible to collect as many participants as at Nordic ConTech Talk. Interest simply had not been enough. Now, in November 2018, it was so popular that everyone could not get a place. The increasing interest was seen as a result of the failing business cycle. There have been no real incentives to push forward change when the construction industry had such a privileged situation.

"The shift in trend has only come now when the customers' willingness to pay has decreased. Those who fail to increase their productivity will not succeed. It is unlikely that customers' willingness to pay will increase because interest rates cannot be lower", said Jimmy Bengtsson, CEO of Veidekke.

Lars Albinsson from Building 4.0, and moderator for the evening compared to other industries: "No one called Apple and told them you have to invent an iPhone, the construction industry must create the innovations themselves."

How productivity can be increased

Representatives from FinTech also saw that the construction industry must come closer to the customer in its offering. The panel with leading representatives from the construction industry was self-critical when they reasoned about the fact that no other industries have machines that stand still for most of the day.

"Productivity gap means that there is a lot of potential that someone will fill. The question is just who is filling that gap. Now there are other tools digitized, which of you want to join? It is wonderful that there is an industry with so many opportunities", said Serendipity's board member Saeid Esmailzadeh, talking about the established industry.

Tuva Palm, formerly Nordnet and Klarna, reminded us: "Just because you own the customer today, you're not sure you'll do so tomorrow."



Photos from Congress 18, Cologne Germany

