

CS500918

A true Common Data Environment by integrating platforms with ACC Connect - CS500918

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Learning Objecties

- Learn about CDE & integrations through BAM's case study.
- Learn from BAM's Challenges & lessons learned
- Understand the Business value of true client focus
- Understand the benefits of a Practical application of the ISO19650

Description

- Are you ever requested to deliver information into client or project decided systems?
- Do you find yourself in the situation that you're delivering information directly into the client or project decided systems, but you want a record of it?
- Is managing what you should deliver when to deliver it, and to who something that has an output that you can re-visit 5 years after the project?

Then the BAM approach toward a true CDE may be interesting for you to learn from. After our presentation, we'll discuss interactively so you can ask us whatever questions you may have.

BAM's vision towards this is the implementation of CDE, which we call the **C**ommon **D**ata **E**cosystem. This ecosystem is built on the concept of integration, connecting everything with everything.

Our internal way of working and the platforms we use in the information management process can integrate into the client platforms and in this way, we ensure the client gets the best quality of information. And by using the ISO10650 to manage the process we can determine which information and when.

In the old way of working, our employees would work in our office building, at their desks, with their computers and software. We would deliver our information at agreed times in agreed formats which would be delivered by the postman. We didn't move into the client's office and

work from there unless our services were contracted in that way. So why would we now try to work in all these client systems?

Autodesk has incorporated the Autodesk Cloud Connect platform which we're using as an integration platform to connect everything with everything. If it's our internal Work in progress environment with client systems, open databases IoT sensors? It's all about integration.

The Context

In our industry we've been working in a certain way for decades, to deliver the asset as is described by the client which is a difficult task often ending up in disagreements?.

The first known construction law dates from 400 BC in the codex of Hammurabi which is among the oldest translatable writings. It consists of 282 laws, most concerning punishment. The 5 construction laws are designed to align the incentives of builders and occupants to ensure that builders created safe homes which are built to requirements. Punishment is either a death sentence for the builder/his son or the builder is to fix everything at their cost.

As construction works have become more complex, delivering the right information at the right time to the right person is a challenge we still have today.




So, we're not going to solve this overnight, but we'll make quite a good attempt through integration.

A CDE can be seen as a single environment, hence the meaning: Common Data Environment. At BAM, we take a different approach, which is to understand the systems our clients use and through automation deliver the right information at the right time to the right person.

In this way create a genuine client-focused Common Data Ecosystem. Our vision is that we can give our clients seamless access to their project data at any given time. By adding a secure, yet open integration layer that seamlessly integrates between ours and the client's Common Data Environments, the data is centralized yet supported on the best applicable platform. Our clients can work in their environment which integrates into our platform.

From this presentation you can learn from our journey, integrating the internal BAM systems into one so our employees can quickly access, use and re-use the information. Whether its referenced information in data archives or open data sources outside, our employees should be able to easily find and re-use it. With the ACC connect and Forge we created the ecosystem so the client can always have access to the right data at the right time in their systems. A no hassle? ISO19650 compliant solution enhancing quality for our clients.

Speaker(s)

<p> LinkedIn</p> <p>Roland Daane: I've been working in the AEC industry since 2008 in different roles. Since 2012 I've been working on BIM implementation and mainly on the subject of CDE. I'm BRE certifies BS1102 and Operam certified ISO19650 and I represent the Netherlands in the EU development group for the ISO19650 (CEN TC/442 WG3).</p> <p>In my career, I've been in commercial roles as well as IT implementation roles.</p>	
<p> Sophat Sam</p>	

About Royal BAM

Royal BAM Group nv designs, builds, and maintains high-quality, sustainable buildings, homes, and infrastructure for public and private sector clients.

BAM is one of a few large companies to have set science-based targets to reduce the CO2 intensity of its operations by 50 percent in 2030 compared to 2015 and is committed to maintaining its place on the Climate Change A-List, published by CDP each year. This commitment is set out in BAM's strategy for 2021-2023, called 'Building a sustainable tomorrow', which also aims to provide employees with safe and rewarding work and generate attractive returns for shareholders.

Using the latest industry innovations, our 15,000 employees reduce the carbon footprint of the built environment, whilst delivering increased well-being and social value to the communities we serve. With annual revenues of approximately €7 billion, the Group supports clients through two main divisions (Netherlands, and United Kingdom and Ireland) and a PPP business.

Royal BAM Group Nv is listed on the Amsterdam Euronext exchange.

Find out more at: <https://www.bam.com>

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Learn about CDE & integrations through BAM's case study

Main Considerations:

- Develop a vision for client collaboration
- Develop a strategy for integration and automation
- Unify towards an international information management process
- Understand your client systems

To support Common Data Ecosystem and Digital construction in particular BAM set out to implement an integration platform that meets a set of requirements.



Under the program BAM Source, the implemented functionalities focussed on integration & Parameterized automation, Project Site provisioning, Cross-platform user synchronization, and IoT. We first solved the inner circle by using Autodesk BIM360, Forge, SharePoint, and Workato, and the information management process is based on the ISO19650.

The ACC Connect Platform(Workato) was made available by Autodesk where we first started integrating SharePoint and BIM360 through Forge, having SharePoint as Work in Progress and BIM360 for Shared and Published information.



The next step was to implement the parameterized creation of sites in ACC Connect, so users can request sites through a centralized form. Through webhooks ACC Connect can also receive information from systems such as Microsoft CRM or ERP, automating the whole process. Once the sites are set up the synchronization processes start automatically based on information in the SharePoint parameter list used for provisioning.

In SharePoint, we automated the ISO19650 processes (review and approval) which result in the Shared information landing on BIM360.

Click [HERE](#) for the “Source in a nutshell video”. To minimize risk we do not use Power Automate for any flow in the information production process other than one centralized review/approval flow which is used by all SharePoint projects.

By Adding platforms such as Asite into the process, we can serve many clients that work on Asite. In this way, the project CDE receives shared information directly into the client CDE while our teams work on our environments. We have a short and long list of platforms we’d like to integrate with, and talks are on their way with the different vendors.

We see the integration platform as the future hub where we can also publish a BAM API that complies with the OpenCDE protocols which are under development at Building Smart. During and after project delivery the client can still access any information at any given time.

Learn from BAM's Challenges & lessons learned

Main considerations:

- Understand the concept of connectors and RESt APIs
- Use a naming convention in the development
- Do not change column names in SharePoint
- Organize the automations
- Set up the governance for change.

The integration platform Workato

We have developed 44 recipes for site provisioning, information and user sync, error handling, reporting, and support.

With an average of almost 11 million API calls per month, we have serviced projects with close to 70 million jobs in 2022. This is mainly data transferring between SharePoint and BIM360 because we're first getting our internal act together.

Of the 70 million jobs, just 20,000 failed of which just over 99% were solved in the error handling. In 200 jobs we saw errors in the user sync because people had a new bam.com account but on BIM360 didn't change their email address.

Support

To support this, we have set up 3 environments (Dev, TEST, and PROD), and with the Workato functionality, we have organized the governance of applying changes through an OTAP process. All our recipes are structured in project folders per account.

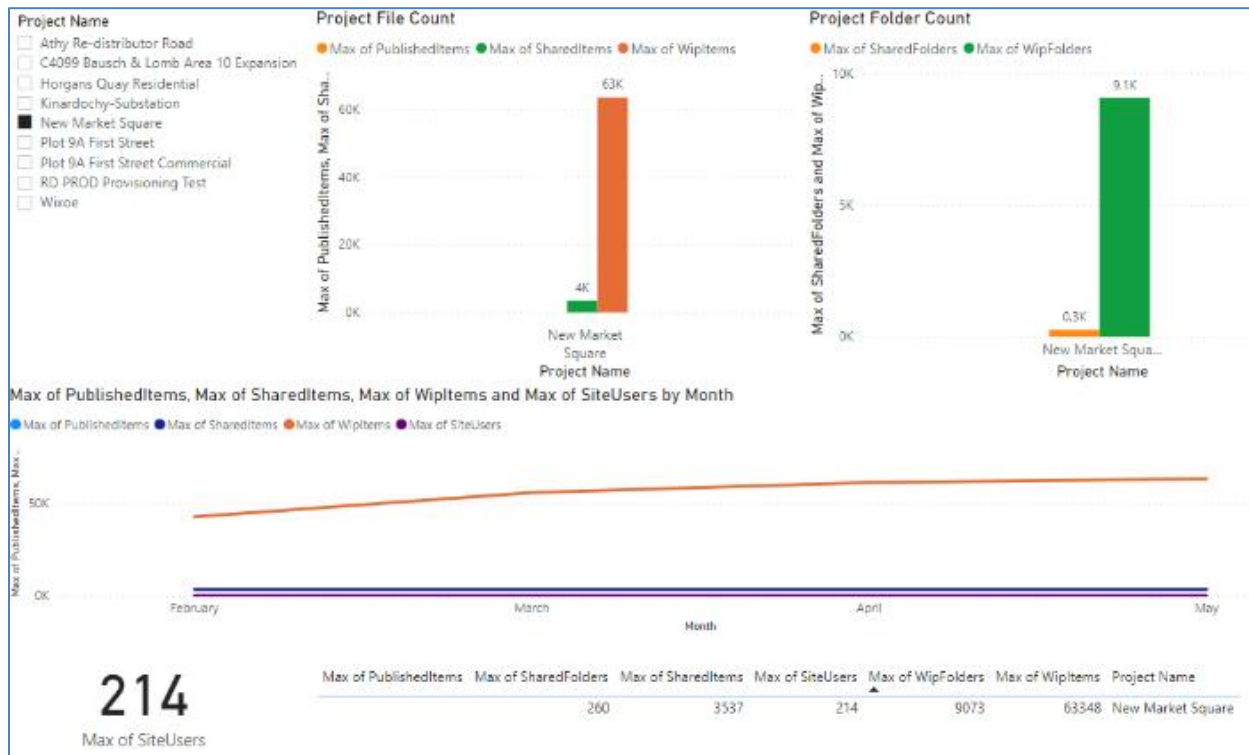
We have also created support pages so non-technical staff are warned if something goes down and if so, they can restart.

From the admin page, they can run the check on all recipes and either start/stop all recipes or individual ones.

bam SharePoint			Search					
DC SPO ACC 04			Published 5/17/2022			Not following		
Home			+ New			Published 5/17/2022		
ACC process list			+ New			Published 5/17/2022		
ACC_error_list			+ New			Published 5/17/2022		
ACC_Provisioning_error_list			+ New			Published 5/17/2022		
Sites			+ New			Published 5/17/2022		
GlobalApprovalFlowLog			+ New			Published 5/17/2022		
GlobalSiteUsageList			+ New			Published 5/17/2022		
Admin			+ New			Published 5/17/2022		
Recycle bin			+ New			Published 5/17/2022		
Edit			+ New			Published 5/17/2022		

Reporting on Usage

We are taking usage information from both SharePoint and BIM360 currently, so we can see the



actual usage in statuses of files, the use of the approvals flow, and the number of users.

What we can see is that the use of the approvals flow is a timesaver, because it reduces errors and rework on the one hand but on the other, the data about the approvals flow can be used for quality purposes.

External integration

Now we're starting to connect to client CDEs. Asite has provided us with accounts and environments and support on the use of their API, and we expect to be able to post all SHARED and PUBLISHED information to the EA for instance who have standardized their information management on Asite.

Finding out what systems our clients are using, and how to integrate with them is where we are currently.

Understand the Business value of true client focus

Main considerations:

- Understand the client and the way they manage their information
- Deliver for the client
- Integration and automation reduce manual labor, enhancing quality and efficiency

By organizing our process to the ISO19650, in such a way that information authors don't need to understand the whole ISO and naming convention, we've made the process and technology easy to use.

As a result, the quality is enhanced, and by providing this high level of quality for free we can spend more time with the client.

Therefore, we are a partner to the client, not just for delivering an asset but also for helping find the best ways to get there.

Understand the benefits of a Practical application of the ISO19650

Information authors shouldn't be busy with the ISO19650. It should be embedded in their way of working, so to get there, we've made it as easy as possible.

They can work in WIP on their information in their naming standard. They can use the benefits of the naming convention online where they can filter the types of information for instance making it easier to work with (and see) only the information that is required.

It's important that creating or uploading files or triggering a workflow is as easy as possible. Users can upload a file with any name, and the option to start the workflow becomes available when the mandatory metadata is set. Our focus, for now, is the information type.

Instead of opening Outlook and attaching a file to send to a colleague which must be converted into a pdf before it goes out, users can now click a button, choose the type of approval and the approver, and the rest is automated for them.

What they need to understand is that a (peer) reviewed document stays in SharePoint, and an approved document is converted to pdf, sent to BIM360 and the native revision is archived. Make it easier than the current way of working and users will cross the chasm.