

# | the open way

White paper



# What about building something bigger than ourselves?

We all want to have a positive impact on the world and we believe that preserving our environment is the most pressing issue. We need to look at how the construction industry can limit its overall contribution to climate change. What if we do something great by opening up and learning from each other?

At Catenda, we have spent the last 15 years improving the use of open data across the infrastructure and construction industries, from design to building operations. We have built a unique ecosystem of open tools that enable anyone in the construction industry to share and communicate data in a user-friendly and easy way. Workflows are digital and frictionless, 3D visualization is stunning, information is meaningful and data is secure and accessible to the right people at the right time.

Because better communication and the participation of every individual is crucial for the future viability of the industry.

Because the culture of open data and open innovation is the driving force that will unleash the industry's enormous potential and enable it to take control of its own future.

Because it is about much more than providing an effective BIM platform.



## Table of Content

What about building something bigger than ourselves?	2
<b>Table of Content</b>	3
<b>Why Catenda?</b>	4
BIM changes the way we communicate with each other	5
BIM means change	6
<b>Catenda Ecosystem</b>	8
Catenda Hub	8
Catenda Site	14
Catenda Duo	15
Catenda Boost	16
<b>We love Catenda!</b>	
What our customers say about us	18
We work together	19
We are a member of the following	19
<b>About Catenda</b>	20
Mission and vision	20

# Why Catenda?

---

On many construction projects, e-mails are still sent, even when a data platform is used.

A traditional channel, email is still a fairly old-fashioned, but above all asynchronous, means of communication. A user can send any message without knowing whether the recipient receives it, notices it or forwards it to colleagues. Moreover, the sender determines who receives what information. At first glance, this seems like a one-way communication.

For many stakeholders, certain questions can therefore remain unanswered, threatening the progress of a project: What is the context? Where are the current documents? Has my email arrived? How do I manage information on what remains to be done? In Word or Excel documents?

Expected answers that are essential to the success of a construction project.

Project management by email does not meet the heart of the main problem: communication in building projects needs to change, to gain agility if we want to develop and operate sustainable buildings together!



---

BIM changes the way we communicate with each other.

# BIM means change

Everything gets better with BIM! We now no longer communicate by email, but via a building model. By experience, this only works under certain conditions:

1

## EASY

### **Everyone must be able to participate.**

Now there are many in the circle of participants, who do not own any 3D modelling software and twice have no idea how to operate such a thing. These people still need access to the data to be able to contribute to the building project.

**The platform must therefore be as easy to use as possible!**

2

## CHANGE

### **All parties involved must see added value!**

A person only changes their behaviour when they see added value for themselves. In this respect, BIM is not so much a choice of the right software solution, but a change project, and in large organisations it is certainly a transformation project.

**The easier it is to use the software, the more successful this change will be!**

3

## QUICK

### **There is no one model!**

In a construction project, we have to coordinate many different models: Architectural model, building services model, structural model and, depending on the level of knowledge of those involved, additional models for fire protection facades or lift planning.

**The viewer must provide all information easily and quickly!**

4

## TRACEABLE

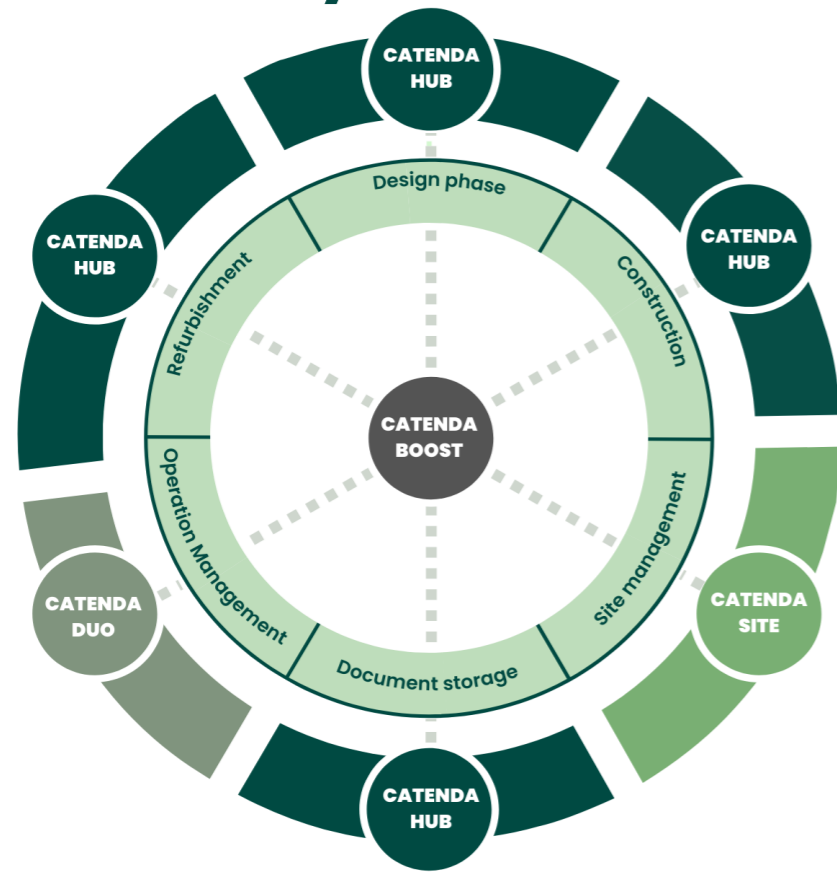
### **A single source of truth.**

The models are only half the truth! We also create many additional documents, such as tender documents, details, contracts, technical information about the components installed in the project, which belong directly with the models.

**The interrelationships must be presented in a way that is comprehensible to everyone involved!**

Therefore, a solution is needed that unites all these worlds. And even then, the question still arises. How do I know what has been changed or what needs to be changed?

# Catenda Ecosystem



## Catenda Hub



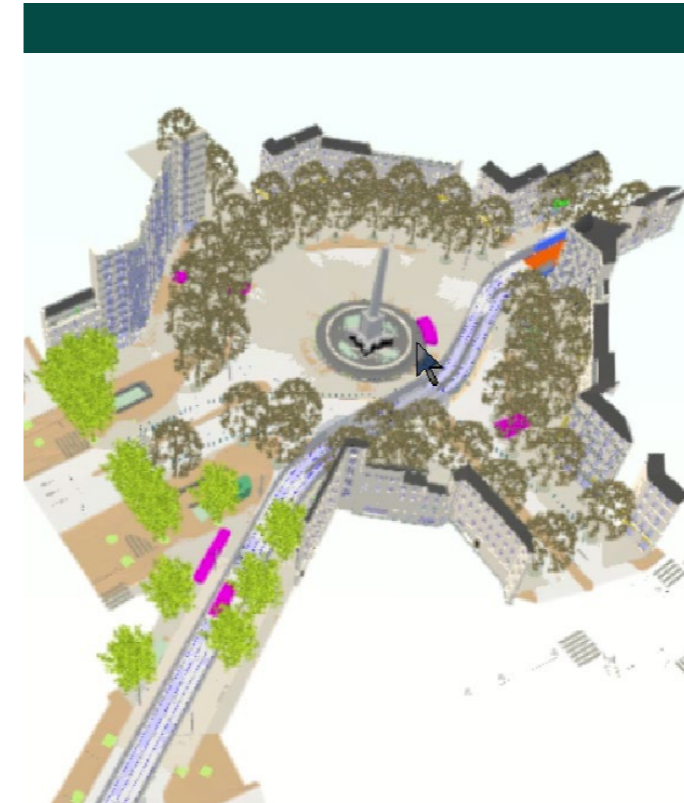
Collaboration is key.

**Catenda Hub is your data hub in the cloud.** It combines all the requirements described above on a web-based platform. Catenda Hub is designed to be **simple** and **user-friendly**. The platform is intuitively designed with a clear user interface that makes it easy for users to quickly access the functions they need. Catenda Hub is a **web-based application** that requires **no installation** and can be accessed from any device with an internet connection.

The platform allows users to track and synchronize changes in real time so that all project participants are always up to date. In addition, Catenda Hub supports the exchange of data in various file formats and integration with other BIM software tools.

**Catenda Hub is an Open BIM-based Open-CDE** (i.e. collaboration platform) that can link IFC model elements with documents and BCF tickets as desired. The open API makes it possible to integrate the platform into existing system landscapes.

For example, the data from planning can be further used in building operation with Catenda Duo and also linked there with IOT on site. Decisions for building operation are reliably made from the fully documented digital twin.



### Colorization: a feature co-built with our partners

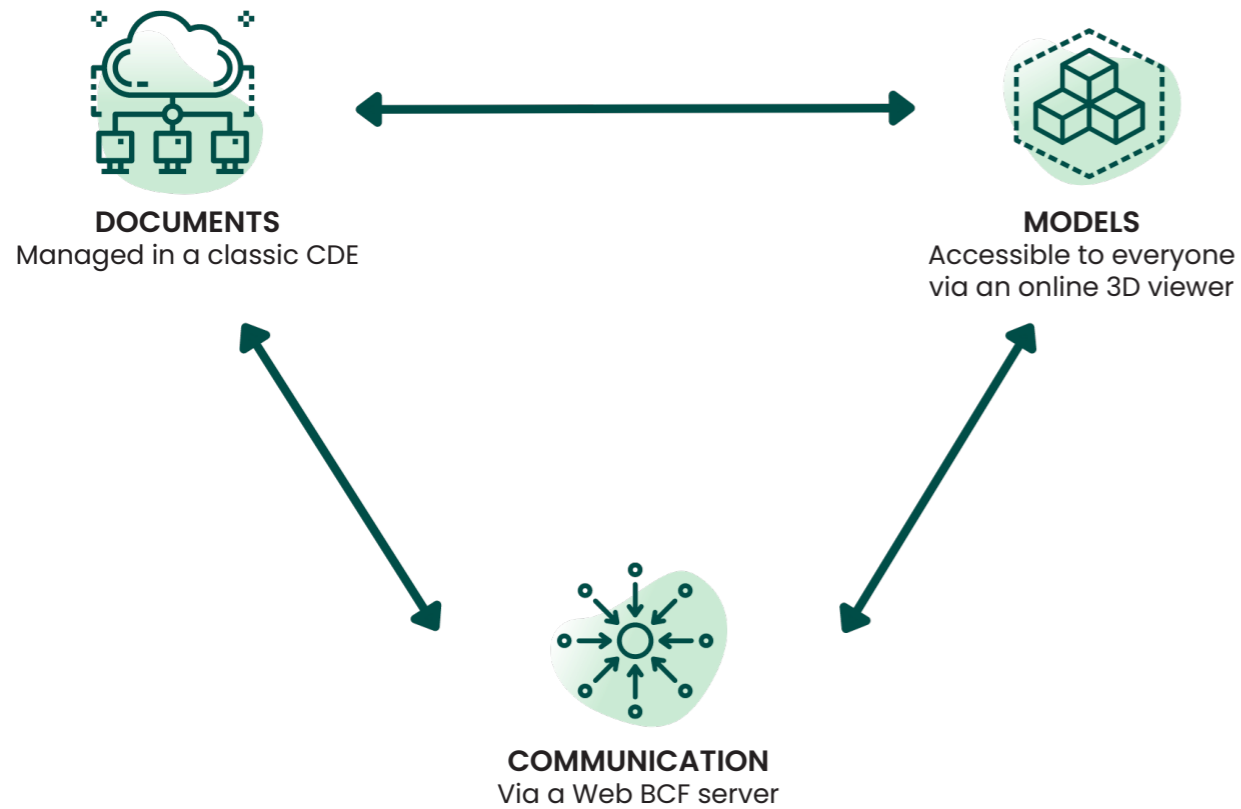
Catenda Hub introduces a remarkable colorization function that enhances the visual clarity of your 3D modeling. Users can assign appropriate colors to different elements in order to most closely match user expectations. This visual representation simplifies identification and navigation in complex projects. Catenda Hub's colorization function optimizes project management by providing a clear and intuitive visual framework.



### 2D overlay: functionality to meet concrete needs

Catenda Hub provides another feature: the 2D overlay function via a PDF. Now, users can utilize a PDF floor plan as a 2D overlay, either alongside or instead of the regular 2D view in Catenda Hub. This functionality offers the flexibility to leverage all the platform's future features, such as creating BCF issues and querying the floor plan. It extends to Catenda Site as well, enabling seamless collaboration for those accustomed to working with 2D plans.

# The Connected Platform



Catenda Hub, the powerful collaboration platform, can be visualized as a triangle representing its core components. The first block represents document management within a classic CDE, enabling seamless sharing and collaboration. The second block represents accessible 3D models through an online viewer, fostering communication and

understanding. The third block represents communication via a Web BCF server, ensuring centralized task management and facilitating efficient collaboration. Together, these three focus areas create a connected Catenda Hub environment, encompassing comprehensive project coordination and delivering successful outcomes.



## The first building block:

### Documents - managed in a classic CDE

Via the CDE, documents can be viewed, shared, commented on and used with project participants without having to install any software. Documents can include files of any type, from any source.

**Everyone has the current status without having to search!**



## The second building block:

### Models - accessible to everyone via an online 3D viewer

This enables all participants to communicate about the 3D model data. In this viewer, any number of models can be viewed, sections through the model can be set, measured and commented on.

**In this way, the data is made accessible to all stakeholders!**

Since we come from this field, it was clear to us from the beginning that communication could only take place via the **BCF** "Building Collaboration Format".



## The third building block:

### Communication - via a Web BCF server

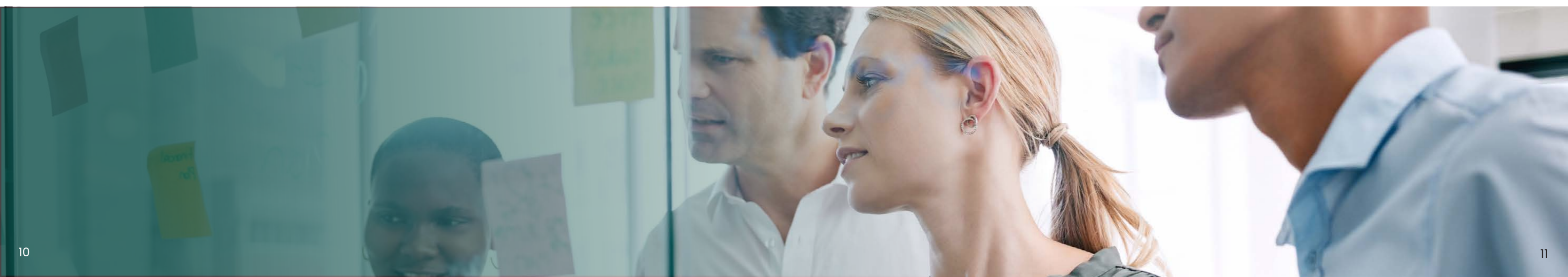
This ticket/task system is also available in the CDE. Thus, the solution has the great advantage that everything that still needs to be changed or has been changed is managed centrally in one place - regardless of whether 2-D or 3-D data is commented on.

## This way you always keep the overview!

The connected triangle on Catenda Hub even creates a bi-directional connection between the documents managed in the CDE, the 3D models usable in the online viewer and the communication via task management.

We communicate through the documents, but the most important thing to understand is the context.

**Catenda makes the data easy and understandable for everyone involved!**





## Open industry standard

---

At Catenda, we rely exclusively on the open industry standard BCF and IFC. We believe that data must be accessible to all parties in the long term. This is not always the case with the proprietary formats used by modeling software manufacturers.

BCF and IFC are open text formats that ensure they can still be opened in ten or 20 years' time.

## Safety first

---

Our data is hosted on Amazon AWS in Ireland. In the event of server failure, other servers automatically take over.

Backups are stored in different locations, in real time.

Catenda's servers are subjected to external and independent security tests, all of which have proved conclusive.

Since cybersecurity is at the heart of today's challenges, we work daily with our partners to optimize our solutions so they can continue to meet ever more demanding security standards.

The security of your data is of paramount importance to Catenda.

## Open API

---

At Catenda, you have the option of accessing all the data you manage on our platform via an open API (Application Program Interface).

### ***Integrations with other software systems***

As each discipline has its own software preference, collaboration between different authoring software via an open exchange format such as IFC and BCF is essential.

Direct interfaces to 3D modeling software such as Revit®, Archicad®, DDS-CAD® and clash detection software such as Solibri®, Navisworks®, etc. are available. If necessary, other programs can be easily integrated via our open API.

### ***Evaluations via Google Datastudio or Microsoft Power-BI***

For large projects, clients want simple and understandable dashboards that keep them up to date on the project status. With Catenda Hub, this is possible at any time via the open API.

## Open BIM: Integrations with other systems

---

Openness and change are closely linked. Only those who are open are willing to accept and try out new ideas, perspectives and approaches. Therefore, we believe it is important to also focus on Open BIM (Building Information Modeling).

Open BIM allows different BIM software applications to communicate with each other without conflicts or problems.

Open BIM promotes collaboration and the exchange of data and information between different software platforms, leading to better integration and more effective workflows.

For example, Catenda has plugins for all major Open BIM modeling and model checking systems that synchronize all BCF tickets live and simplify the IFC upload to the platform.

# Catenda Site

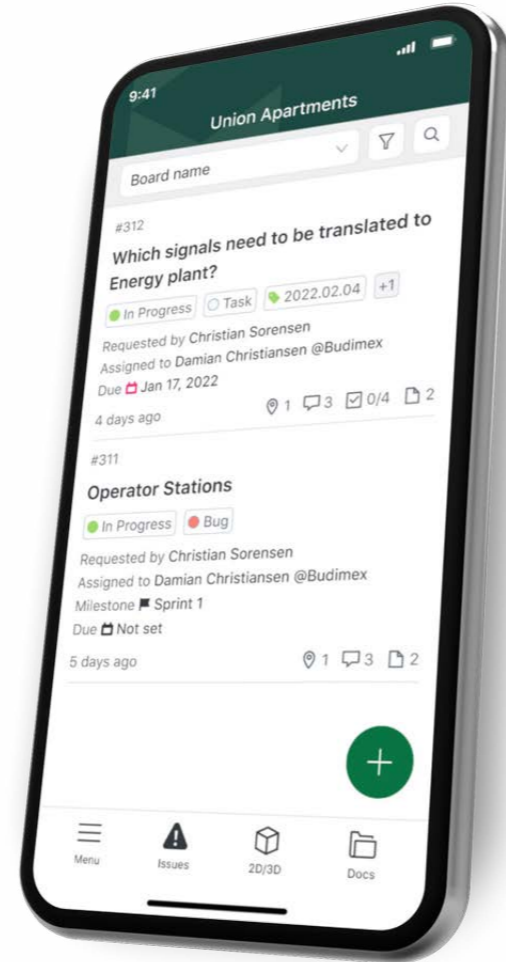
**Catenda Site - automatically included in Catenda Hub - empowers construction teams by bringing critical project data directly to the construction site as a powerful BIM application.**

This transformative solution revolutionizes on-site workflows, enhances communication, and improves project outcomes. Let's explore how Catenda Site bridges the gap between Catenda Hub and the construction site, providing access to comprehensive data, streamlined task management, and efficient defect tracking.

**Catenda Site provides comprehensive data accessibility on the construction site, allowing construction teams to access project data, including 2D drawings and 3D models, directly from their mobile devices.**

This eliminates manual document handling, reduces the risk of outdated information, and enables stakeholders to visualize designs and review specifications. Additionally, Catenda Site offers efficient defect tracking, empowering teams to document and categorize issues on-site, leading to improved construction quality and reduced rework. The platform also facilitates real-time collaboration and communication, enabling seamless sharing of information among on-site teams and stakeholders, promoting transparency, enhancing decision-making, and fostering a collaborative work environment.

**Mobile Accessibility and On-site Connectivity:** Catenda Site is designed with mobile accessibility in mind, providing construction professionals with on-site connectivity and



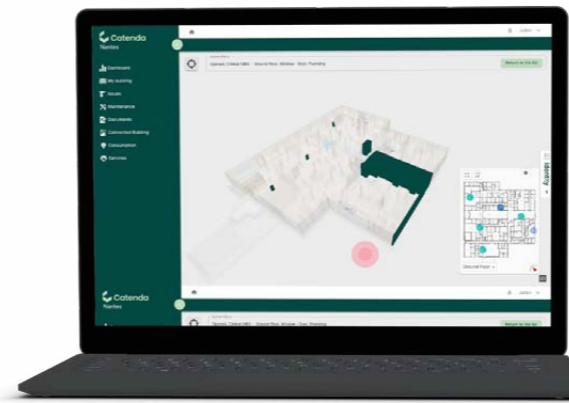
access to critical project data. With the Catenda Site mobile app, users can access drawings, models, and task management features from their smartphones or tablets. **This mobility empowers on-site teams to make informed decisions, track project progress, and collaborate seamlessly, even in environments with limited connectivity.**

**Integration with BIM and Open Standards:** Catenda Site seamlessly integrates with BIM methodologies and open standards, enabling seamless data exchange and interoperability. **By leveraging BIM models and adhering to industry standards, Catenda Site ensures that project teams can access accurate, up-to-date information on the construction site, enhancing productivity, and facilitating efficient construction processes.**

# Catenda Duo

**Catenda Duo is a cutting-edge maintenance and operation platform that revolutionizes building data collection and optimization, driving sustainability and reducing the environmental impact of your buildings.**

This intuitive and user-friendly building operating system empowers you to centralize and streamline all your building data, making it easily accessible and actionable.



**The centralized platform of Catenda Duo ensures that all stakeholders have access to the latest and most accurate data.**

All the information related to the building, such as models, documents, any issues during the operation phase, and facility management data, is stored and organized in Catenda Duo. Whether it's BIM supervisors, facility managers, building owners, or sustainability professionals, everyone can collaborate and make data-driven decisions based on real-time insights. This level of transparency and collaboration fosters efficient communication, reduces errors, and improves overall operational efficiency.

With Catenda Duo, you can effortlessly manage a wide range of data collected by sensors, including heating, electricity, documents, B.M.S & IoT, and more.

**This comprehensive data integration allows you to gain valuable insights and make informed decisions to improve energy efficiency, optimize resource usage, and enhance overall building performance.**

One of the key features of Catenda Duo is its ability to connect documents and data to virtual assets with just a single click. By seamlessly linking relevant documents and data to specific building components or systems, **Catenda Duo enables you to create a true digital twin of your building.** This digital representation provides a holistic view of your building's operations, allowing for better monitoring, analysis, and optimization of its performance.

Embrace Catenda Duo and unlock the power of data-driven building operations.





---

## Catenda Boost

**Catenda Boost is an API solution that empowers software companies, including market competitors, to develop their own BIM solutions.**

With an open API and a commitment to the principles of Open standards, Catenda Boost facilitates flexible and seamless integrations with other software systems.

By leveraging Catenda Boost's open API, software companies can establish robust connections to enhance their existing solutions or build new BIM applications. **This allows for seamless data exchange, interoperability, and collaboration across different software platforms, fostering a unified and efficient BIM ecosystem.**

**The open nature of Catenda Boost promotes a spirit of collaboration and innovation within the BIM community.** By making our technology available to other software companies, Catenda encourages the development of diverse and specialized BIM solutions tailored to specific industry needs. **This collaborative approach facilitates knowledge sharing, encourages competition, and drives continuous improvement in the construction industry.**

**Catenda Boost aligns with open BIM standards, ensuring compatibility and interoperability with a wide range of industry software systems.** This allows for seamless data transfer, avoiding information silos and promoting collaborative work processes.

By adhering to open BIM principles, Catenda solutions contribute to the democratization

and standardization of BIM practices, benefiting the entire industry.

**All in the spirit of Open BIM!**



---

**With Open BIM, humans and technology converge to build a better future.**

## What our customers say about us

*“Catenda Hub is able to support technical conversations that are objects or specific locations in the model and manage them until their completion.”*

Nicolas Ferrara, Head of Digital Twins an Services for O&M, Rails at Egis

*“My favorite feature in Catenda Hub is the fact that anyone can use it. No matter which company customers come from, they can click on a button and immediately see what their what their future building will look like.”*

Daan Arts, Manager Innovation and Digitalization at JAJO

*“We chose Catenda Hub because it is so easy to use, because it manages the tasks in BCF format and because it offers a model viewer via the cloud that does not requires no installation. For me these aspects are crucial in order to make BIM beyond architecture and planning offices.”*

Benoit Lecrioux, BIM Director at NGE Batiment

*“Catenda Hub is intuitive for everyone, even for people who are not familiar with 3D viewers. It’s easy to navigate the navigate the models.”*

Erik Lindström, BIM Coordinator at Plan V

*“Catenda Hub is a tool that allows you to collaborate on digital models. The strengths of this platform is the introduction of BIM. In other words: Every player pursuing a BIM approach is looking for a simple tool to exchange informations with the others. And that is the case with Catenda Hub. The platform is very easy to use, especially when it comes to editing comments, but also the definition of the roles that are assigned to the participants.”*

Guillaume Desmedt, BIM Deployment Director at SUEZ Consulting Engineering



## We work together



## We are a member of the following organizations



# About Catenda

Catenda is a company specializing in the development of software for Building Information Modelling (BIM) and the creation of Common Data Environments (CDE). The company is headquartered in Norway and was founded in 2009.

Catenda offers a cloud-based platform called Catenda Hub, which serves as a shared data environment for construction projects. The platform allows users to create, edit and share 3D models, as well as manage and collaborate on information and documents with other project stakeholders. Catenda Hub is an open platform and supports the exchange of information between different BIM software solutions.

Catenda is also committed to open source software and promotes collaboration within the BIM community by supporting standardization initiatives and participating in Open BIM initiatives. The company is also committed to promoting sustainability and energy efficiency in the construction industry and has supported several projects that address these issues.

## Mission and vision

### We want to be open

Openness is our core value and we share it with all team members from day one. We believe that openness is the best way to collaborate and we have always encouraged an open way of communicating. Satisfying our

curiosity, working hard to make our knowledge accessible to all through open source formats and cultivating an international culture as a strength are our ways of meeting the challenges of the industry.

### We focus on building trust

Because of our commitment, we are recognized as a trusted partner. With Catenda, you can be sure that your data is secure and stored 100% according to open standards. We don't believe in being tied to a particular provider. Your data belongs to you and you can access it at any time.

### We strive for quality

We help build long-lasting structures and infrastructures, and our goal is to avoid quality problems. In our pursuit of quality, we constantly improve our products and focus on the results achieved. Our customers stay with us because they believe we offer the best solution.

Catenda

The Open Way



© Catenda  
All rights reserved.