Research to Market: From Results to Innovative Product/Service offerings
SP 2020
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Innovative Products

Sustainability Consulting

ESCO and Smart Grid
Innovative Products & Services
ZUTEC: REAL ESTATE information management

IES ICL: Intelligent Communities Lifecycle

Synavision: Monitoring Based Commissioning

BrainBox AI: Autonomous AI HVAC technology

Matterport: Virtual tours, 3D survey and digital twin

BIMcollab: cloud based BIM issue management

GREENPASS: assess the greenery impact on resilience

Onyx Solar: photovoltaic glass for buildings
Digital Construction

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Digital Construction
Cloud platform for property and site management and software connected to BIM. Improves quality, increases productivity and reduces costs throughout the project lifecycle. By building knowledge, you don’t lose anything.
BIMcollab
Cloud based BIM issue management

An issue management environment, BIMcollab offers a comprehensive set of software to simplify BIM collaboration so you no longer have to use calculation, email and other tools.
Virtual tours, 3D survey and digital twin

The powerful 3D all-in-one of Matterport virtual tour and spatial data platform allow companies to turn any building into an accurate and engaging digital twin. Taking spatial awareness and visualization to a new level, Matterport enables stakeholders throughout the building's life-cycle to connect and collaborate in 3D.
R2M BIM Support Service

INNOVATIVE PRODUCTS


- BIMcollab: Integrated Platform to manage your BIM issues.

- Matterport: Three-dimensional camera system you can use to create fully immersive experiences.

BIM Services

- Scans: Survey activities through tools that use the lastest technologies.

- BM Modelling: BIM modeling services and clash detection.
Indoor surveys

Cameras

**Precision**
99% of accuracy

- Specialized high-accuracy 3D reality capture
- Scanning large or outdoor spaces in 2K
- Applications that need highest accuracy

**High resolution**
99% of accuracy

- Best-in-class all-inclusive 3D capture system
- Creating highest-quality 3D scans with unlimited 4K photography
- Long battery life for multiple scans per day

**Velocity and portability**
92-96% of accuracy

- Scanning several rooms or an entire home
- High portability
- Good entry-level camera
Indoor surveys

App Capture 3.0
Indoor surveys

1 Design
Save time by capturing existing site conditions. Improves the efficiency of Building Information Modeling (BIM) and remodeling processes.

2 Build
Simplifies document flow, material estimates and stakeholder cooperation.

3 Promote
Improves revenues with greater involvement, visibility and occupancy rate and reduces the adays spent in the market.

4 Operate
Increases ROI by reducing plant management, maintenance and asset documentation costs.

5 Insure
Reduce risks with accurate 3D documentation. Improve the quality of subscriptions, speed of refunds and customer satisfaction.

6 Repair
Reduce time and disputes in the field by making estimates and settlements remotely.

R2M Solution
3D scan and SCAN-to-BIM
Construction site monitoring

Comparison between phases and monitoring of works

PHASE 1

PHASE 2

PHASE 3

PHASE 4

3D scan and SCAN to BIM
Construction site monitoring

Comparison between phases and monitoring of works
Augmented reality and point clouds

Example of a point cloud from an indoor scanning

More scanning points mean more accuracy of the point cloud.

The point cloud can be compared with the BIM Model of the design.

The point cloud can be a starting point to build up a BIM model.
Augmented reality and point clouds

Comparison between an area scanned by a 3D scanner and a picture taken in the same place
Scan to BIM & BIM to scan

Modeling

Quality check
Innovative tools supporting BIM Modeling

BIM Modelling Services

- Modelling service using BIM software Authoring "Autodesk Revit" e "Archicad".
- Departmentalization of the models according to the different disciplines
- Management of project parameters to be shared with stakeholders
- Test the quality of the model
ZUTEC FIELD App
ZUTEC BIM integration
Innovative tool to support BIM model

Model Quality Verification

**CLASH DETECTION**

BIMcollab ZOOM allows you to check the interference between the IFC models coming from the BIM Authoring software.

**PROJECT PARAMETERS CHECKS**

The Smart Views allow you to assign conditional based rules and verify the correct set of the parameters entered during the modeling phase.
IES ICL: Intelligent Communities Lifecycle

Synavision: Monitoring Based Commissioning

BrainBox AI: Autonomous AI HVAC technology

Modeling Commissioning Operation
A range of “digital twin” technologies to support you in creating your own sustainable and intelligent community, from detailed building simulation to urban scale.
Intelligent Community Design (ICD)
IES iCD

3D rendering

Final iCD model
Virtual Environment (VE)
Intelligent Control and Analysis (iSCAN)
Digital Test Bench is the first cloud analysis and calculation software for the design, commissioning and monitoring of performance and proper operation of plants and buildings, to implement Quality Management and Building Automation in a concrete, effective, integrated and sustainable way.
synavision developer and first provider of the world's first building operation quality certificate

De-risk your real estate projects and investments!
The Digital Test Bench: IoT-platform for numerous use cases

Definition and monitoring of service level agreements for operational success

- Technical Monitoring
- Energy Management in acc. With ISO 50001
- Design of digital functional descriptions („Digital Twin“) in the context of BIM-projects
- Toolbox for fast results and data management
- Corrosion-monitoring in hydraulic systems
- Build your own algorithms for superior data analyses
- Automated data quality check for consistency, ranges, completeness
- Digital testing of fire protection devices and systems
- Performance certifications according to LEED, BREEAM, DGNB and COPILOT!
How it works: Putting data to work at Munich Airport.
Workflow (1/2)

Kickoff

2 Designing of Digital Twin

3 Dashboard

www.synavision.de
How it works: Putting data to work at Munich Airport
Workflow (2/2)

4 Automatic evaluation of trial operation’s data

5 Deep dive

www.synavision.de

6 Reporting & Monitoring

www.synavision.de
Standardized minimum instrumentation of operating parameters and measurement concepts in the design phase

<table>
<thead>
<tr>
<th>No.</th>
<th>Process Description</th>
<th>Minimum</th>
<th>Measurement Plan</th>
<th>Note</th>
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<td>Mittelwert der Ventilatorleistung Zu-/Abluftventilator</td>
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<td>Gesamtdruckdifferenz über den Zuluft-Wechselanlage</td>
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<td>6</td>
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<td>(zu berücksichtigen ab einem Rotationswärmeübertrager)</td>
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**Additional Notes:**
- For verification of constant systems, e.g., for ventilation systems.
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BrainBox AI: Autonomous AI HVAC technology

BrainBox AI is the world’s first autonomous AI HVAC technology. Thanks to the application of advanced deep learning models, our solution is the most powerful and nimble on the market. BrainBox AI literally studies your building and learns how it operates, identifies every potential improvement opportunity and then acts on it. It requires no human intervention and reacts to changes in the built environment immediately to ensure the highest tenant comfort and energy efficiency, at all times.
AI TECHNOLOGY IS HERE

BrainBox AI is the leader in autonomous building control

- Uses **deep learning** artificial intelligence (AI) models
- Adapts to a building’s behavior during the **learning period**
- Transforms HVAC systems from reactive to **predictive or “self-driving”**
- Utilizes **existing data** from building systems (e.g. BMS, access control systems) and third-party sources (e.g. weather, occupancy) to drive decision-making
- Autonomously drives HVAC systems by directly writing back to the controller in **real-time**
- Requires **no human intervention**
LOW EFFORT/LOW RISK/NO CAPEX

STEP 1
INSTALLATION

The BrainBox connects to your HVAC network **in 3 hours**

Minimal customer **onboarding time** required (overall less than 10 hours for the full end to end process)

STEP 2
AI TRAINING

For a period of 4-8 weeks the AI learns the building. It creates an energy profile **unique to your building**.

At the end of the AI training period, a total savings estimate is produced for your review.

STEP 3
AUTO-PILOT

At your discretion you can take possession of those savings by authorising **Auto-pilot mode**.

**Auto-pilot can be disengaged at any time** (and system will revert back to its previous state)
RESULTS

Up to 25% reduction in total energy costs

20-40% decrease in carbon footprint

60% improvement in occupant comfort

2-3 hours to install
Energy active envelope

Onyx Solar: photovoltaic glass for buildings
Photovoltaic glass for buildings

Architectural glass not only provides the building with the same passive properties as conventional glass, but also generates renewable energy.

The only construction material available on the market that provides your building with an economic return on investment.
Ventilated Façade - Spandrel
Ventilated Façade - Spandrel
BIPV Roofs
Parapets
Skylights
Brise Soleil
Innovative Products

IES ICL: Intelligent Communities Lifecycle

ZUTEC: REAL ESTATE information management

BIMcollab: cloud based BIM issue management

Matterport: Virtual tours, 3D survey and digital twin

GREENPASS: assess the greenery impact on resilience

NBS Green & Resilient Citites
Asses the greenery impact on resilience

GREENPASS® is the first “easy-to-use” software for architectural design and planning of urban areas resilient to climate change.

Nature to design “green cities”, livable and resilient cities.
Urbanisation

The continuous urbanization is a phenomena difficult to stop and that entails the decrease of green areas, contributing to a series of critical issues:

- Air pollution
- Urban Heat Island Effect
- Biodiversity reduction
- Floodings
Enables livable cities
GREEN Performance Assessment Software System
UNSTUDIO – Citylife in Milan (IT)

Where: Milano (IT)
Who: UNSTUDIO
Level: Competition
Area: 3,8 ha
Time: 2 weeks
UNSTUDIO – Citylife in Milan (IT)
UNSTUDIO – Citylife in Milan (IT)
UNSTUDIO – Citylife in Milan (IT)
Grazie