

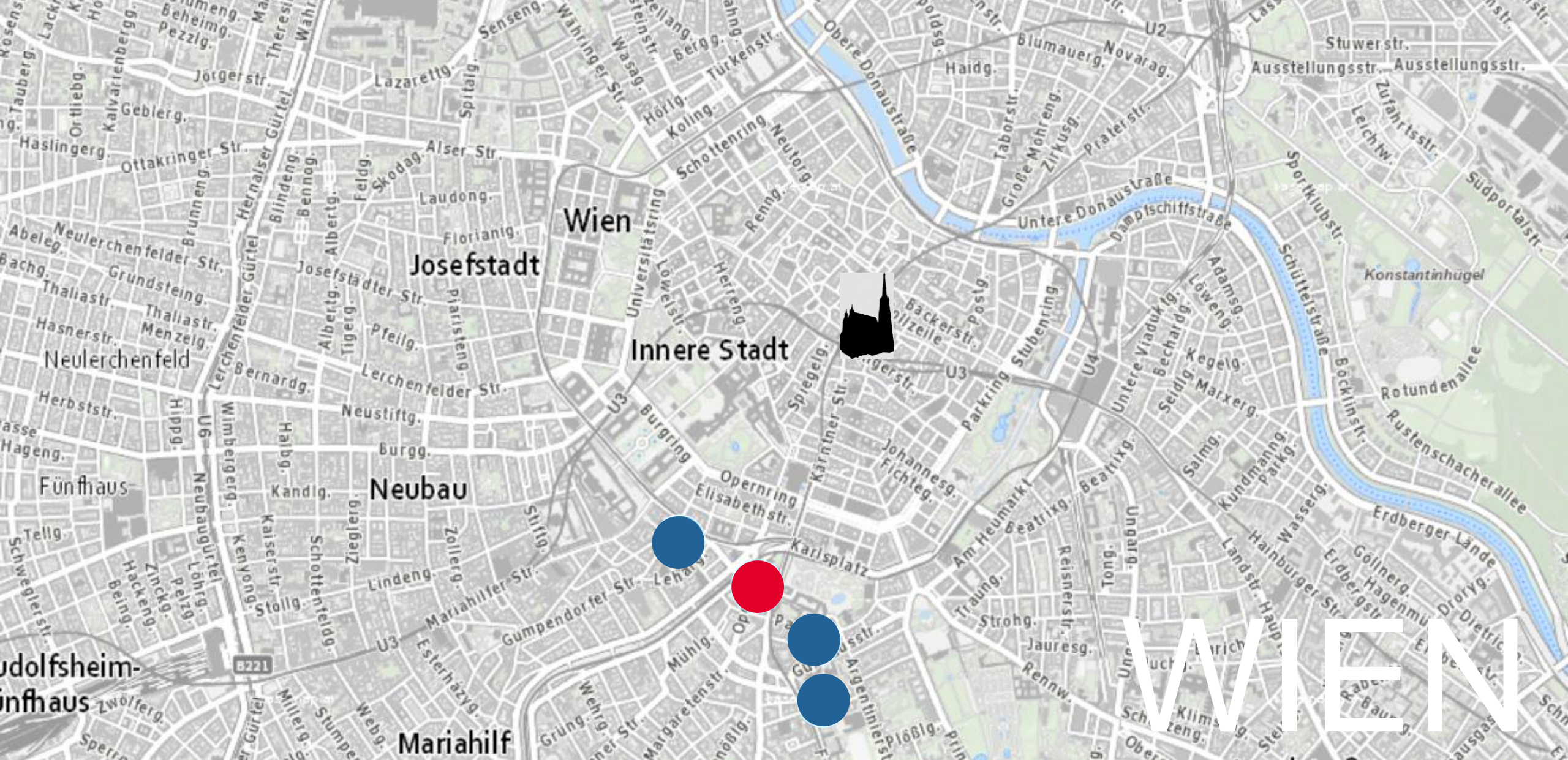
Christine Hax-Noske

SMART CAMPUS – SMART LIBRARY: DEN PHYSISCHEN LERNRAUM VIRTUELL NUTZEN

BID22 8. Bibliothekskongress Leipzig 2022, 31.05.2022



1987













- Freihandbibliothek
- Nettonutzfläche 9.506 qm
- Davon der Freihandbereich 4.700 qm
- Ca. 600 Einzelarbeitsplätze in 5 Stockwerken

TU WIEN BIBLIOTHEK 2030

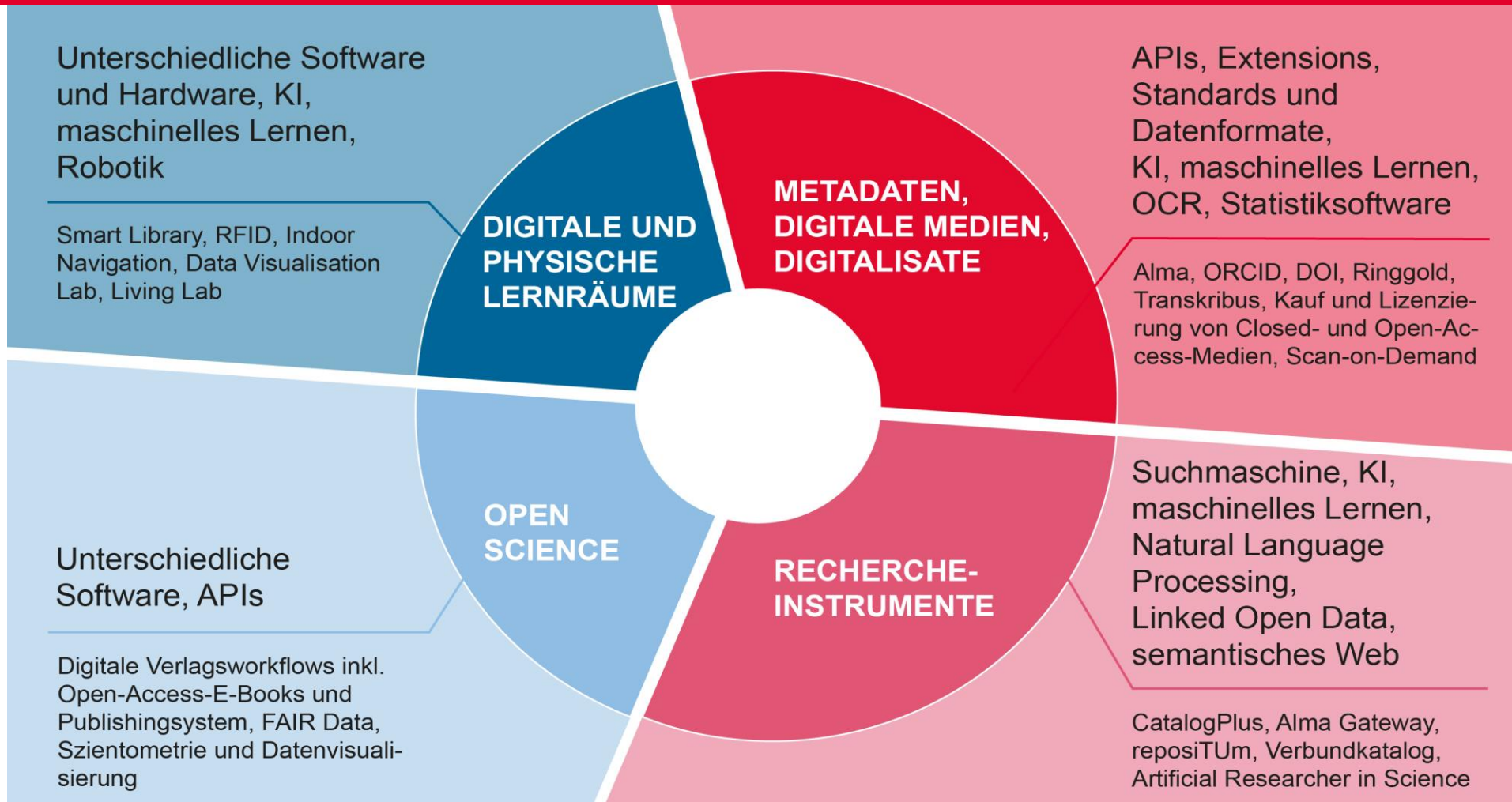


Die Bibliothek in
interdisziplinären
Lehrveranstaltungen neu
denken und gestalten

Beate Guba, Leiterin der TU Wien Bibliothek

SMART CAMPUS – SMART LIBRARY

DIGITALE INFORMATIONSKOMPETENZ



SMART CAMPUS – SMART LIBRARY

Problemstellung

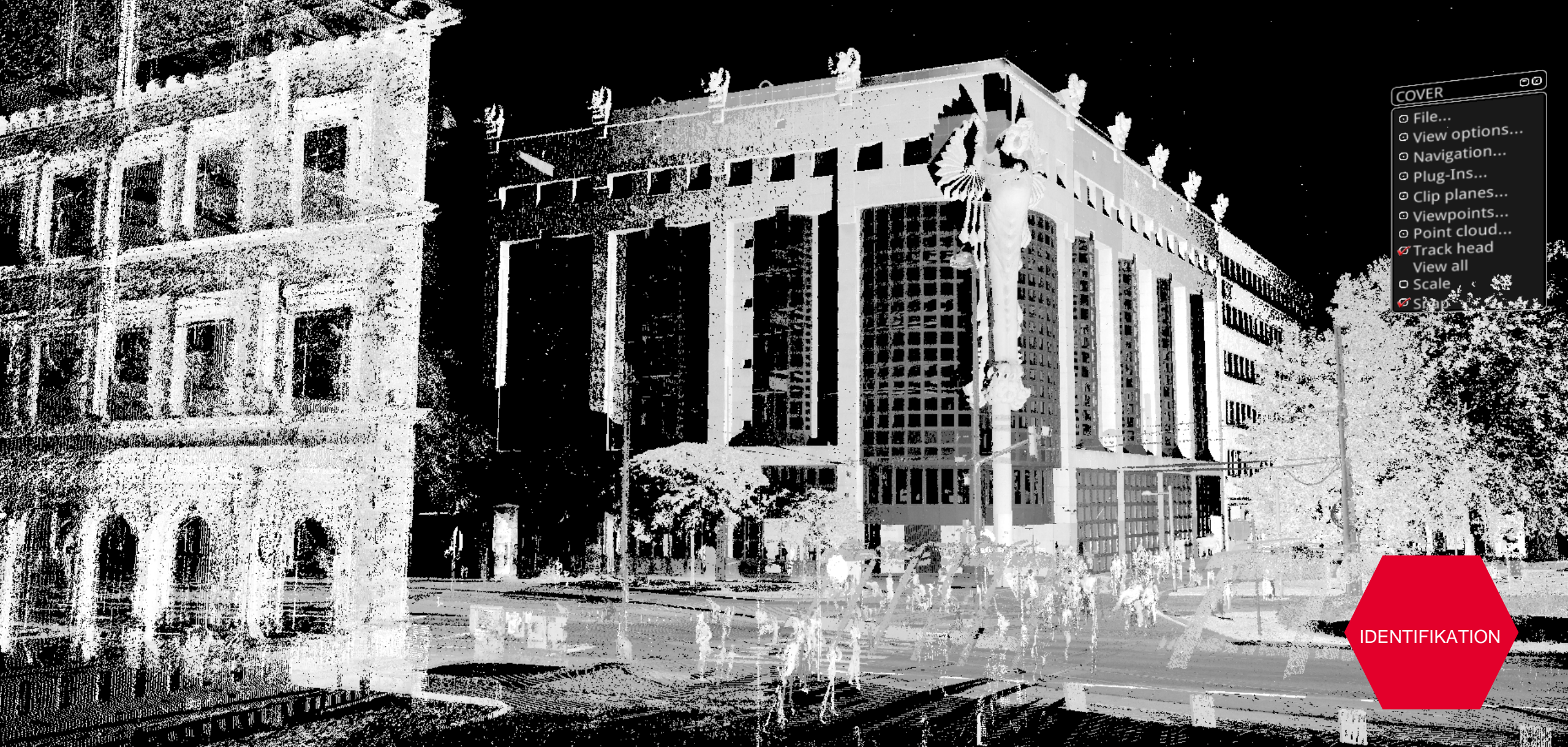
Für Forschung und Lehre ist es schwierig, langfristige Versuchsobjekte zum Thema Nachhaltiges Bauen zu finden.

Die Bibliothek ist sanierungsbedürftig.

Projektziel

Daten zum Bibliotheksgebäude werden in der Bibliothek für Lehrveranstaltungen und für die Forschung offen zugänglich gemacht. Das Projekt wird von Lehrveranstaltungen begleitet.

Gleichzeitig dienen diese Daten als wissenschaftliche Grundlage für die Sanierung des Bibliotheksgebäudes.



- COVER
- File...
- View options...
- Navigation...
- Plug-Ins...
- Clip planes...
- Viewpoints...
- Point cloud...
- Track head
- View all
- Scale
- Snap

IDENTIFIKATION

„Das ist eine große Sehnsucht des Menschen und in turbulenten Zeiten ist *Identität* einer der wenigen Stabilitätsfaktoren.“

Jan Teunen im Interview im Rondo Nr. 1142, 13.05.2022

Seiten

Smart Campus - Smart Library

Erstellt von Admin (LO), zuletzt geändert von Edna Mirkovska am 12.10.2021

Seiten

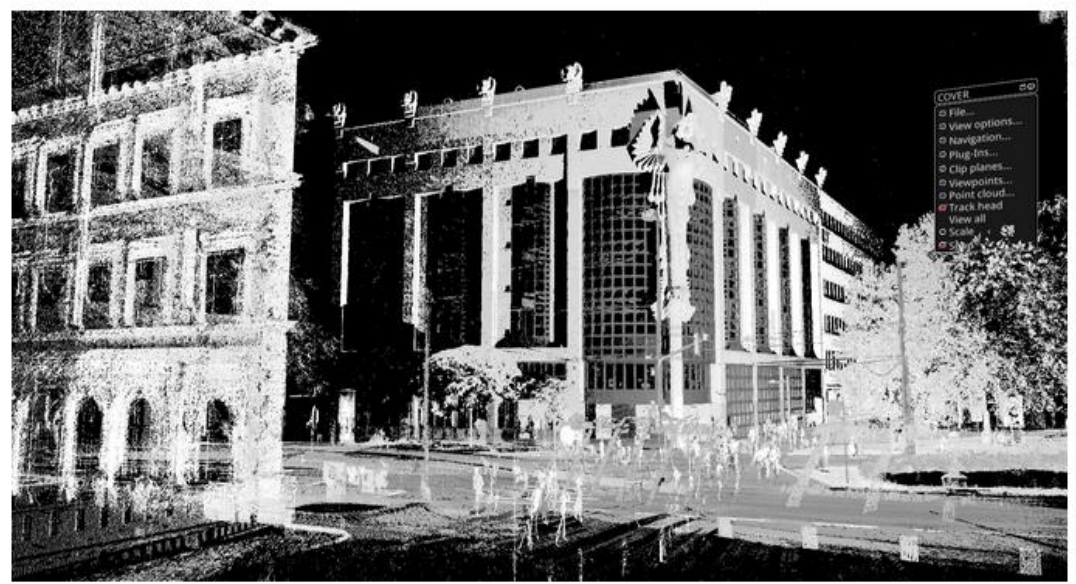
Blog

BEREICHsverknüpfungen

Hier können Sie Verknüpfungen zu Ihren wichtigsten Inhalten vornehmen.

SEITENhierarchie

- Smart Campus Activities
- Models and Data
- Tutorials and Publications
- Who We Are



POINT CLOUD

TU Wien Bibliothek's library building is turned into an interdisciplinary laboratory for research and teaching.

What if TU Wien Bibliothek did not simply provide knowledge in the form of scientific literature, but made data about the library building itself available to researchers, teachers and infrastructure managers? This would turn the "building with the owls", a highly frequented institution in a central Viennese location, into a living laboratory. This idea was put forward at the TU Wien digitalization call and was a success. Together with its project partners, the research units of Building Physics and Wireless Communications, Real Estate and Facility Management and IT Solutions, the library has developed a prototype simulation model of the library building in the academic year 2020/2021. Data on room climate, energy consumption and building utilisation is fed into this simulation model. A future refurbishment of the library building can then be based on scientific data showing the effects of individual measures. At the same time, a highly frequented building is available as a laboratory for research and teaching. All data collected during the project will be made available according to the [FAIR data principles](#).



Smart Campus Activities



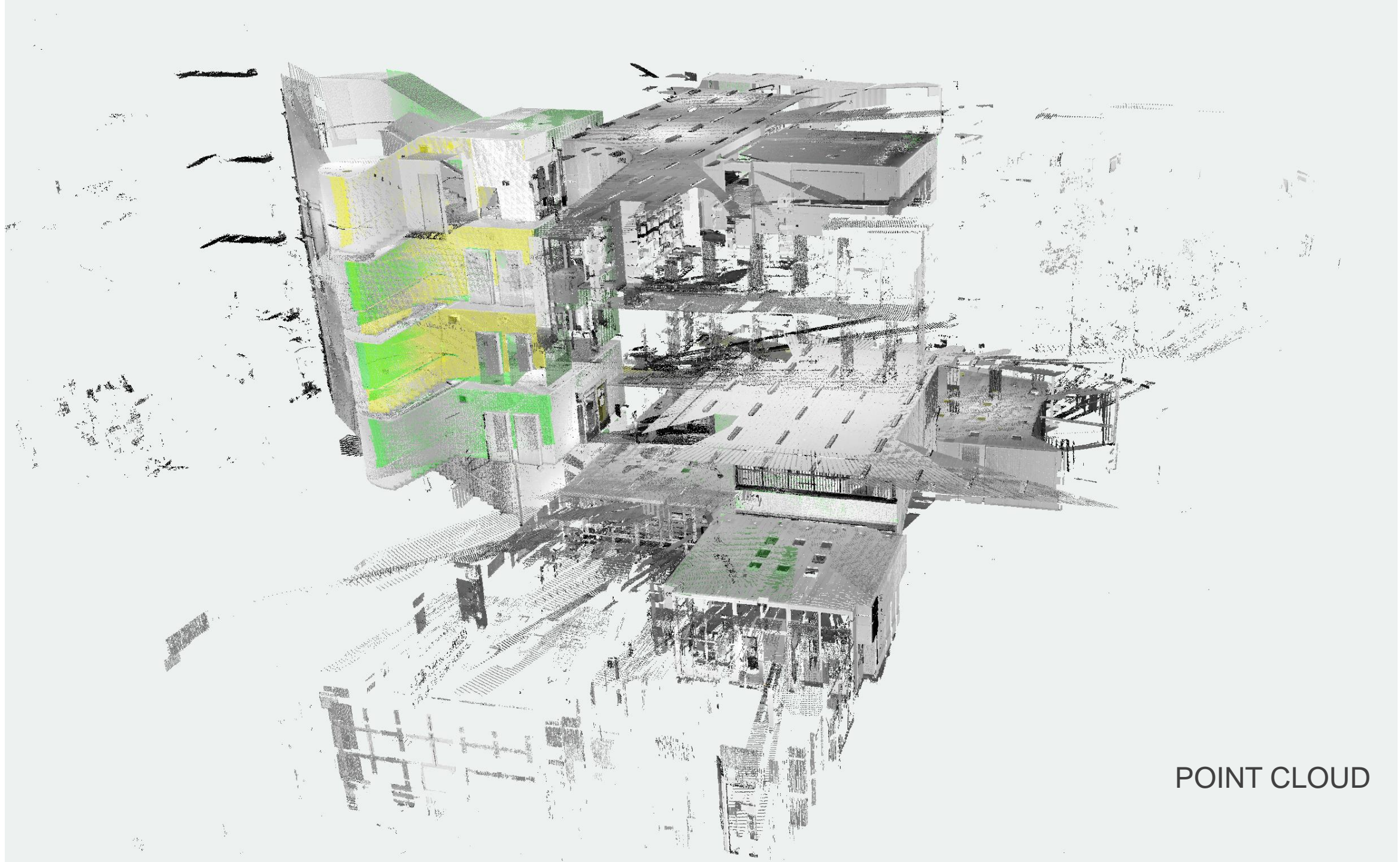
Models and Data



Who we are



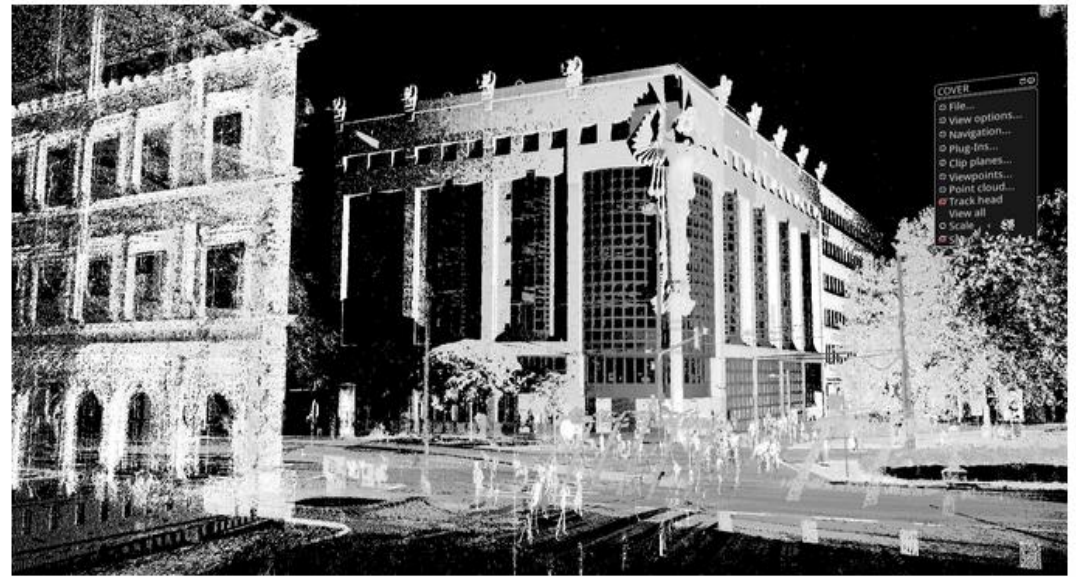
Tutorials and Publications



POINT CLOUD

Smart Campus - Smart Library

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Smart Campus Activities



Models and Data



Who we are



Tutorials and Publications

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> [Smart Campus Activities](#)

> [Models and Data](#)

• [Tutorials and Publications](#)

• [Who We Are](#)

Seiten / [Smart Campus - Smart Library](#) 

Who We Are

Angelegt von Christine Hax-Noske, zuletzt geändert am 13.10.2021

Project coordination:

TU Wien Bibliothek, Reader Services

Dr. Christine Hax-Noske

TU Wien Bibliothek, Scientometrics and Data Visualisation

Dr. Alicia Fátima Gómez Sánchez ([ORCID iD](#)), Dr. Doron Goldfarb ([ORCID iD](#)), Edna Mirkovska

Project partners:

TU Wien, Faculty of Civil Engineering, Research Unit of Building Physics

Prof. Dr. Thomas Bednar ([ORCID iD](#)), Maximilian Bühler, Luiza Christina Corpaci

TU Wien, Faculty of Electrical Engineering and Information Technology, Research Unit of Wireless Communications

Prof. Dr. Markus Rupp ([ORCID iD](#)), Dr. Philipp Svoboda ([ORCID iD](#)), Richard Prüller, Roman Weixelbaumer

TU Wien, Service Unit of Information Technology Solutions

Michael Schadler, Wilhelm Koch

TU Wien, Real Estate and Facility Management, Service Unit of Construction, Maintenance and Equipment

Jürgen Fränzer



Smart Campus - Smart Library

Erstellt von Admin (LO), zuletzt geändert von Edna Mirkovska am 12.10.2021

Seiten

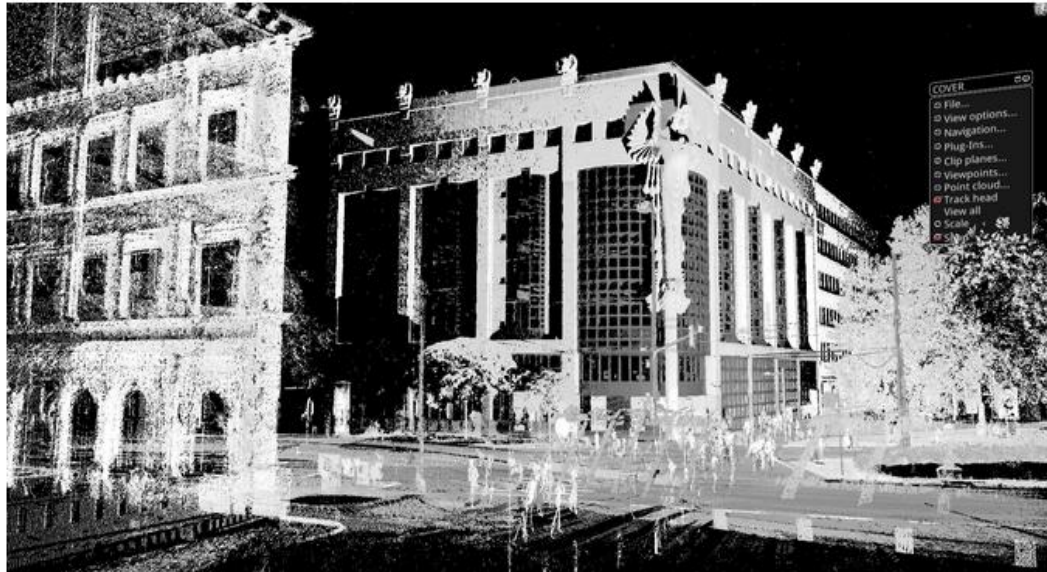
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**TU Wien Bibliothek's library building is turned into an interdisciplinary laboratory for research and teaching.**

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Smart Campus Activities



Models and Data



Who we are



Tutorials and Publications

Smart Campus Activities

Angelegt von Christine Hax-Noske, zuletzt geändert am 13.10.2021

Seiten


Blog

BEREICHsverknüpfungen

Hier können Sie Verknüpfungen zu Ihren wichtigsten Inhalten vornehmen.

SEITENhierarchie


- Smart Campus Activities
 - .dcall 2020
 - Building Physics: Shading Analysis
 - Visitor Flows
 - Virtual Reality Visualisation
- Models and Data
- Tutorials and Publications
- Who We Are




.dcall 2020



Building Physics: Shading Analysis



Visitor Flows



Virtual Reality Visualisation

Gefällt mir Sei der Erste, dem dies gefällt.

Keine Stichwörter

Kommentar schreiben

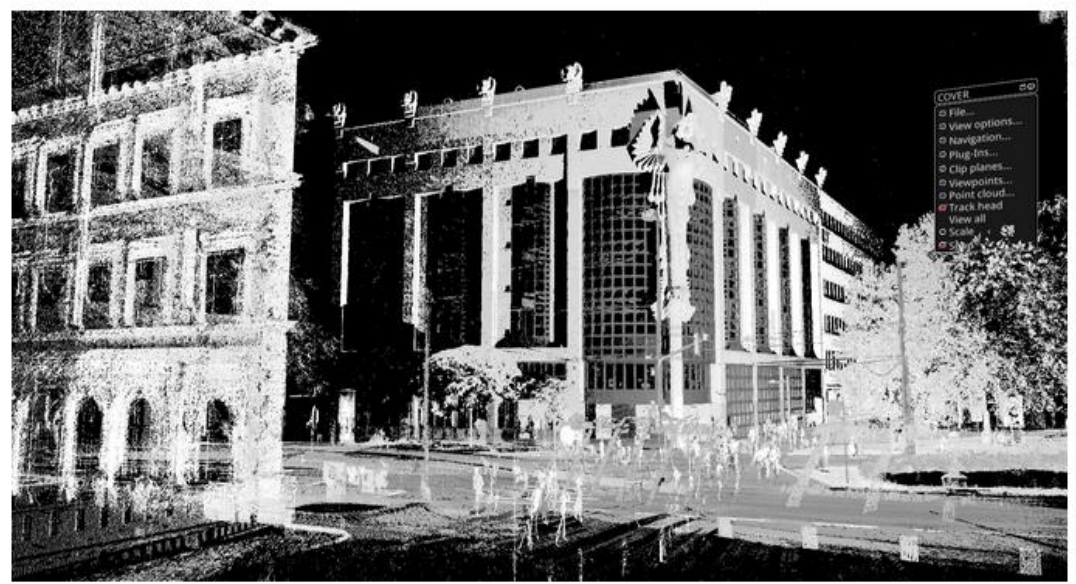


- > Smart Campus Activities
- > Models and Data
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Smart Campus - Smart Library

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Smart Campus Activities



Models and Data



Who we are



Tutorials and Publications



Hier können Sie Verknüpfungen zu Ihren wichtigsten Inhalten vornehmen.

- Simulation Model
- Building Model
- User Flow Prediction Model
- Data Management
- Possible Student Projects
- Tutorials and Publications
- Who We Are

Models and Data

Angelegt von Christine Hax-Noske, zuletzt geändert am 13.10.2021

The models and data presented in this section are made available according to the FAIR principles:

- **Findable:** We use the [TU Data Repository](#) as platform for data sharing and long-term-preservation. This repository provides standardised metadata and assigns DOIs as permanent and unique identifiers.
- **Accessible:** Records and metadata in the TU Data Repository are openly accessible. Access to models and files can be granted on request.
- **Interoperable:** We provide and describe data in a way that is common within our domain. We provide good documentation for all our datasets.
- **Reusable:** We make our data reusable by adding metadata and comprehensive Readme files to all published data sets.

We are working with sensible building data and data on people movement. Open access is not possible, but we provide meaningful metadata plus contact information for access requests.

You can find detailed information in the [Data Management Plan](#).

Take a look at records and metadata at the [TU Data Repository](#) (available soon) to get an overview of the project structure and visit the individual sections below.

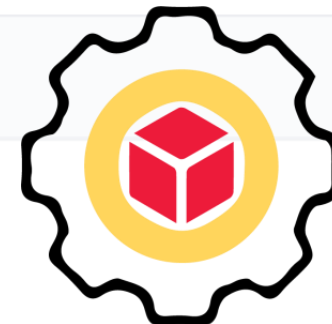
[Simulation Model](#)[Building Model](#)[User Flow
Prediction Model](#)[Data Management](#)[Possible Student
Projects](#)

Gefällt mir Sei der Erste, dem dies gefällt.

Keine Stichwörter



Kommentar schreiben



SMART_CAMPUS_TU_WIEN_BIBLIOTHEK_20210208_UATB.simultan - SIMULTAN Component...

File General Tools Components admin ?

Add Component Add Reference Add Parameter Add Calculation Delete Calculate Aggregate Groups Supervise Publish Import Library Export Library Show Component Colors Supervise/Publish Import/Export Colorization

Components Value Fields Networks Parameters User List

Filter component list

Element 1 item(s)

Import 1 item(s)

List 2 item(s)

Componenten/MaterialBibliothek	description...	List
TU Wien Bibliothek		List
Raumliste TU Wien Bibliothek	Raumliste	List_00
Aufbautenzuweisungen	Aufbautenzuweisun...	List_01
Vorhangfassade	description...	Element_001
ZUW AW erdb.	Aufbauzuweisung	Element_021
ZUW AW Feuermauer	Aufbauzuweisung	Element_019
ZUW AW mit Naturstein	Aufbauzuweisung	Element_020
ZUW Dach 7OG	Aufbauzuweisung	Element_013
ZUW Dach DG	Aufbauzuweisung	Element_014
ZUW Dach DG Schief	Aufbauzuweisung	Element_015
ZUW FB 10G-50G	Aufbauzuweisung	Element_09
ZUW FB 60G	Aufbauzuweisung	Element_011
ZUW FB Auskragung 1 OG	Aufbauzuweisung	Element_08
ZUW FB DG	Aufbauzuweisung	Element_012
ZUW FB EG	Aufbauzuweisung	Element_05
ZUW FB EG Außenbereich	Aufbauzuweisung	Element_032
ZUW FB TH1 10G-70G	Aufbauzuweisung	Element_010
ZUW FB TH1 EG	Aufbauzuweisung	Element_06
ZUW FB TH1 UG1-UG2	Aufbauzuweisung	Element_01
ZUW FB TH2 EG	Aufbauzuweisung	Element_07
ZUW FB TH2 UG1-UG2	Aufbauzuweisung	Element_02

Property Editor

Component ZUW AW mit Naturstein

Filter Property Editor

Component

Name: ZUW AW mit Natu...

Slot: Element

Slot-Extension: 20

Geometry Relation: [Icons]

Sorting By: [Icons]

Description: Aufbauzuweisung

User Color: [Green]

Id: 40362

Access

Public:

Last modification: 12.02.2021 10:45 by [User]

Last supervision: Never

Access Profile: [None]

Last release: Never

Calculator Mappings

Mappings: No Mappings

References

Referencing Components

- Fläche 18437 2D
- Fläche 18493 2D
- Fläche 18490 2D
- Fläche 18485 2D
- Fläche 18455 2D
- Fläche 18450 2D
- Fläche 18445 2D
- Fläche 17812 2D

Project Explorer

Add Sub-project Add Resource Remove Manage Resource Folders Filter Resources

SMART_CAMPUS_T

Anmerkungen.docx Aufbauten.xlsx

Bibliothek_DD_smarter_t han_smart_20201124.s... New Siteplanner.spdxf

Bibliothek_DD_smarter_than_smart_20201124.simgeo - SIMULTAN GeometryViewer

File Home View Debug

Offset Surfaces

V... Display Settings

Leeres Modell x

Property Editor

Face

Filter Property Editor

Geometry

Name: Fläche 15324

Color: [Green]

Layer: OG3 [Green]

Is Visible:

Parent: None

Components: [ZUW AW mit t] -

Properties

Normal: 1.000 0.000 0.000

Area: 53.077

MinA: 37.127

MaxA: 53.077

Min Height: 24.620

Max Height: 27.840

Size: W: 21.962 H: 3.220

Minimum Size: W: 21.908 H: 2.500

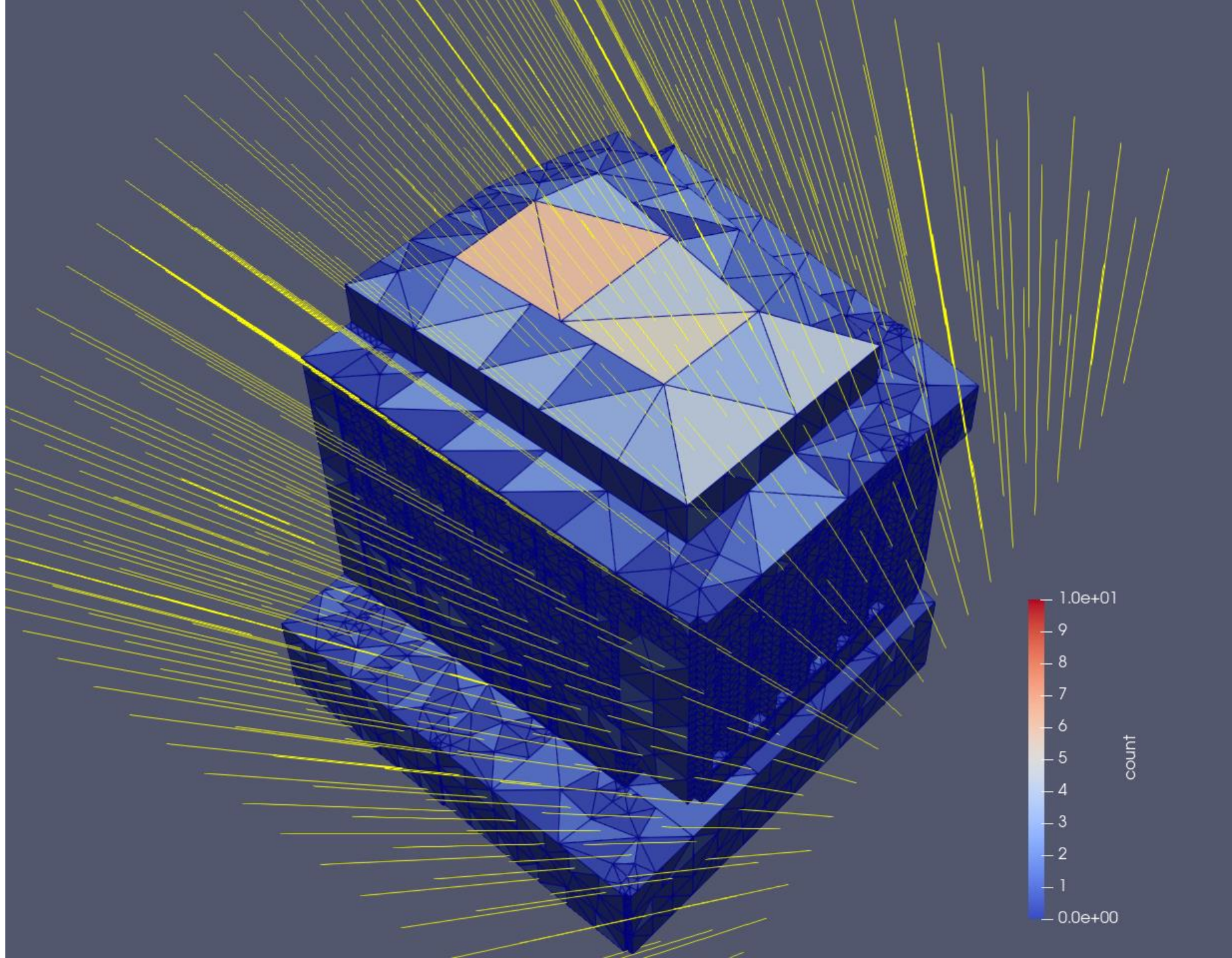
Maximum Size: W: 21.962 H: 3.220

Floor Polygon:

Developer Version. For internal use only

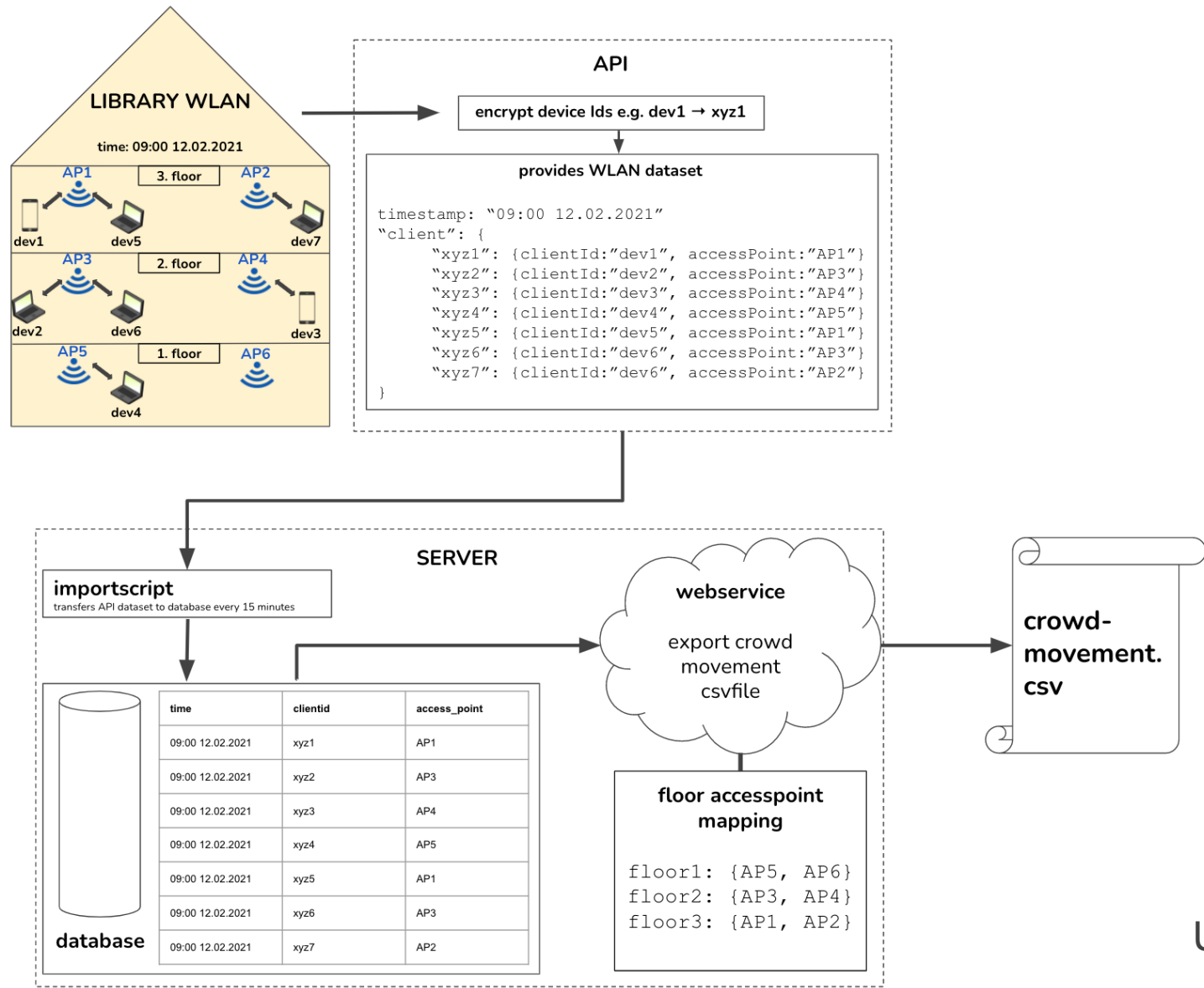
Geometry M... Property Edi... Geo-Referen...

SIMULATION MODEL





BUILDING MODEL



USER FLOW MODEL

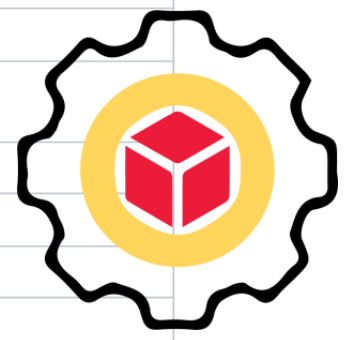
- Simulation Model
- Building Model
- User Flow Prediction Model
- **Data Management**
- Possible Student Projects
- Tutorials and Publications
- Who We Are

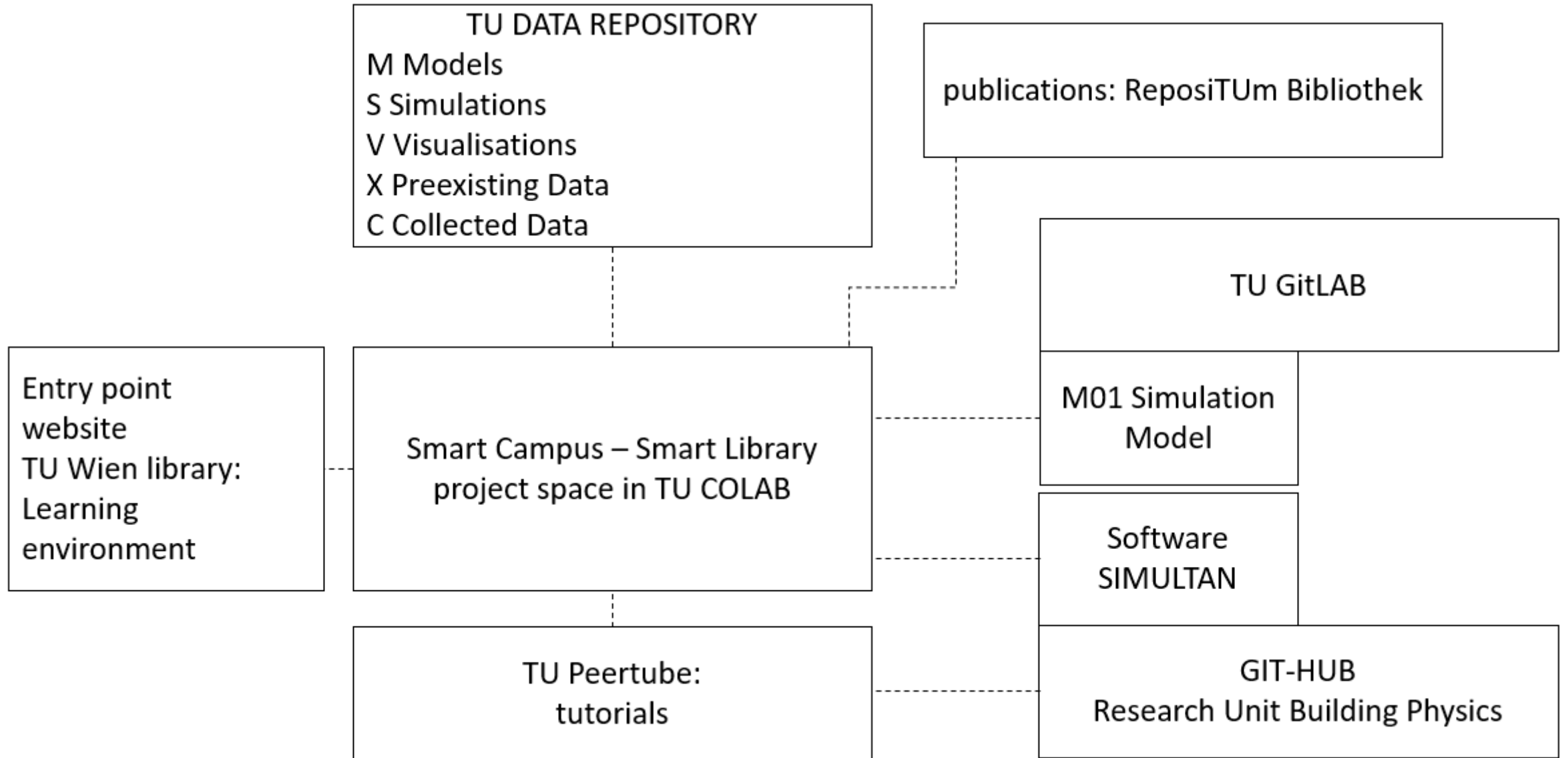
The core part of this project is an improved simulation of environmental and technical processes and user mobility in the main library building of the TU Wien. In order to enable this we collect extensive data from different sources. We have identified three main areas of information:

1. The building status data
2. The number of current visitors
3. Data collected from newly installed sensors

We are working with sensible building data and data on people movement. Open access is not possible, but we provide meaningful metadata plus contact information for access requests.

ID	type	comment	link
M	MODELS		
M01	Simulation Model	The simulation model is stored in GitLab. You can find more information in the section Simultan Model Access to the simulation model is granted on request. <i>Please contact @Maximilian Bühler</i>	GitLab
M02	User Flow Prediction Model	You can find detailed information User Flow Prediction Model and in the section Visitor Flows	
M03	Building Model	The building model will be accessible soon in TU Data Repository. Find more information in the section Building Model . Access to the Building Model is granted on request. <i>Please contact @Doron Goldfarb</i>	TU Data Repository
S	SIMULATIONS		
S01	Simultan-Simulations (with M01)	Simulations will be stored in the TU Data Repository. You can find more information in the section Smart Campus Activities .	
V	VISUALISATIONS		
V01	Pictures		
V02	Videos		
V03	Vtk-exports		
X	PRE-EXISTING DATA		
X01	CAD-floorplans	CAD-floorplans are the design basis for the geometry model. They will soon be accessible in the TU Data Repository.	
X02	Paperplan scans Construction		
X03	Paperplan scans HKLS		
C	COLLECTED DATA		
C01	Log-In-Data from Wifi-Access-Points		





SMART CAMPUS – SMART LIBRARY

Mehrwert

Lehrende und Studierende arbeiten in einem Modell, das in der Praxis eingesetzt wird

> Praxisnähe ist sinnstiftend und erhöht den Lerneffekt

Lehrende und Studierende lernen die FAIR-Prinzipien verstehen und Forschungsdaten entsprechend zu managen

> Best Practice in Open Science / Open Data

Die Langzeitstudie ist ein hervorragender Grundstein für die notwendige Gebäudesanierung, die Bibliothek fungiert als Living Lab.

WARUM DIE BIBLIOTHEK?

AN EINEM ZENTRALEN ORT

OFFEN

INTERDISZIPLINÄR / FAKULTÄTSÜBERGREIFEND

DIGITALE INFORMATIONSKOMPETENZ

LANGFRISTIGES SMART BUILDINGS FORSCHUNSOBJEKT

IDENTIFIKATION MIT DEM LERNOBJEKT

3RD MISSION

DATA VISUALISATION LAB

INTUITIVE UND IMMERSIVE ERFAHRUNG VON KOMPLEXEN ZUSAMMENHÄNGEN DIGITALER DATEN DURCH VISUALISIERUNG: WISSENSGENERIERUNG UND GEMEINSAMES RAUMERLEBNIS.

NIEDERSCHWELLIGER, EXPERIMENTELLER ZUGANG AN EINEM OFFENEN, NEUTRALEN ORT.



*In Visualisierungen im
Data Visualisation Lab
der Bibliothek werden
komplexe
Datenzusammenhänge
aufbereitet und
erlebbar gemacht.*

STUDIENJAHR 2022/23

<https://colab.tuwien.ac.at/display/SCSL/Smart+Campus+-+Smart+Library>



Christine Hax-Noske
Leitung Fachbereich Benutzung

christine.hax-noske@tuwien.ac.at
<https://www.tuwien.at/bibliothek>

FAKULTÄTEN AN DER TU WIEN

BAUINGENIEURWESEN: BIM, TRAGWERKE, BAUPHYSIK

ARCHITEKTUR: GRUNDLAGENERHEBUNG, NUTZEREINBINDUNG, ENTWURF

INFORMATIK: VIRTUAL AND AUGMENTED REALITY , GAMING, FILM

CHEMIE: RAUMLUFTQUALITÄT, SCHADSTOFFBELASTUNG

MASCHINENBAU: STRÖMUNGSSIMULATION

ELEKTROTECHNIK: NETZABDECKUNG, ENERGIEVERBRAUCH, BENUTZERSTRÖME

MATHEMATIK: GEOMETRISCHE KÖRPER, OBERFLÄCHEN

GEOWISSENSCHAFTEN: GEOGRAF. INFORMATIONSSYSTEME

PHYSIK: BAUPHYSIK, ENERGIESTRÖME