



UNIVERSITY  
OF COLOGNE

**TDH** INSTITUT FÜR  
DIGITAL HUMANITIES  
UNIVERSITÄT ZU KÖLN

# THE VIRTUAL CAMPUS PROJECT

Modelling data for AR Historical Tours with CIDOC CRM and the CRMgeo and CRMact extensions

Maria Sotomayor Chicote

[msotoma1@uni-koeln.de](mailto:msotoma1@uni-koeln.de)



Universität zu Köln

# THE VIRTUAL CAMPUS PROJECT

- Project partners:



- April 2023 – September 2026

- **Goals:**

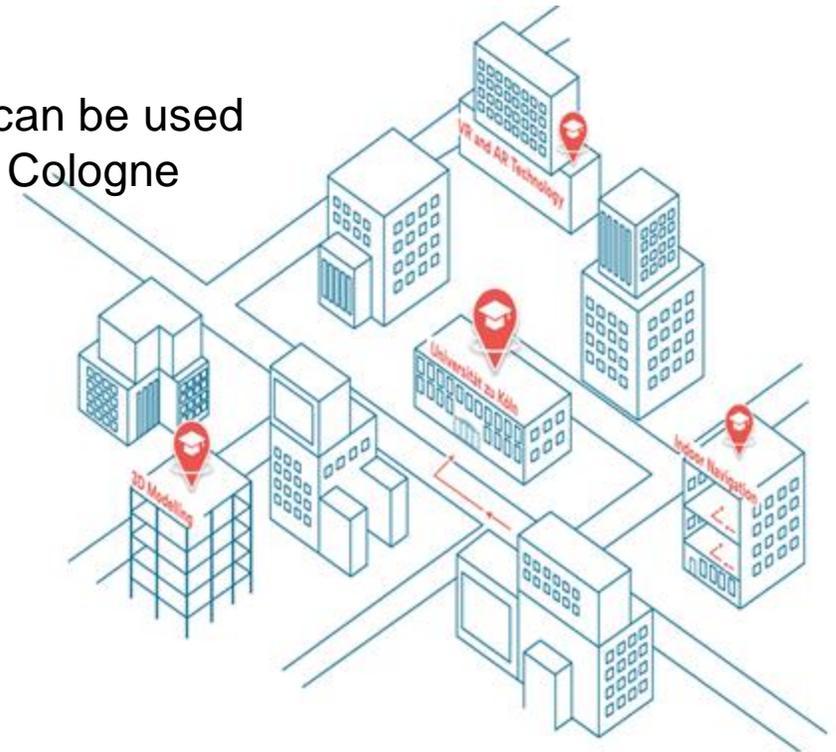
- Explore how Virtual Reality and Augmented Reality technologies can be used to enhance both teaching and daily campus life at the University of Cologne

- Improve finding one's way on the UoC campus

- Provide information on accessibility of buildings and paths

- Create 3D models of (some) of the buildings of the Campus

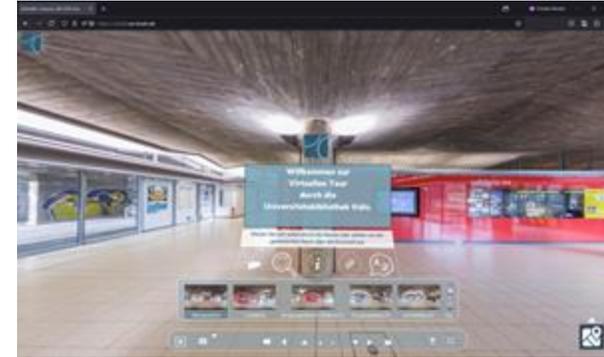
- Project website: <https://virtueller-campus.uni-koeln.de>



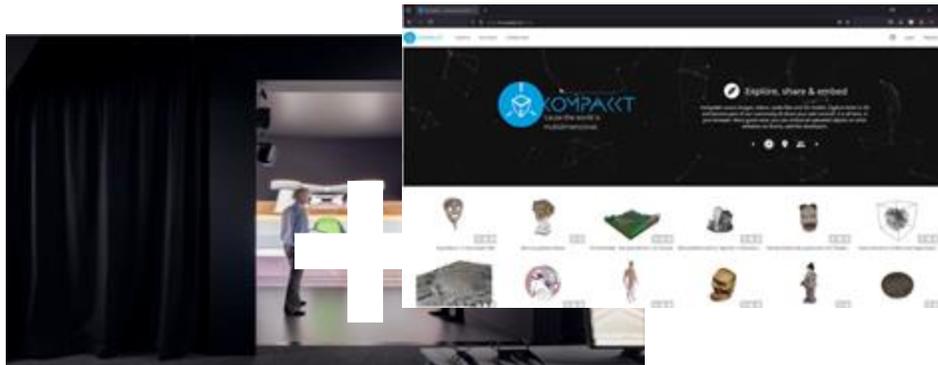
# THE VIRTUAL CAMPUS PROJECT



3D building models



360° virtual tours



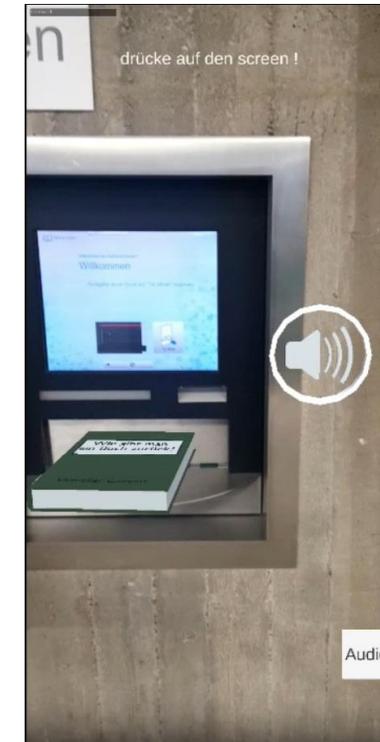
Kompakkt viewer for the CAVE



Teaching: seminar and hackathon

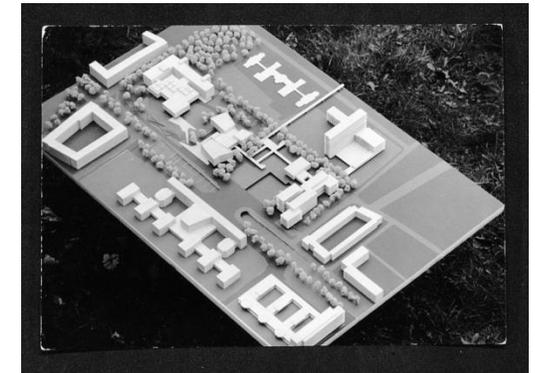
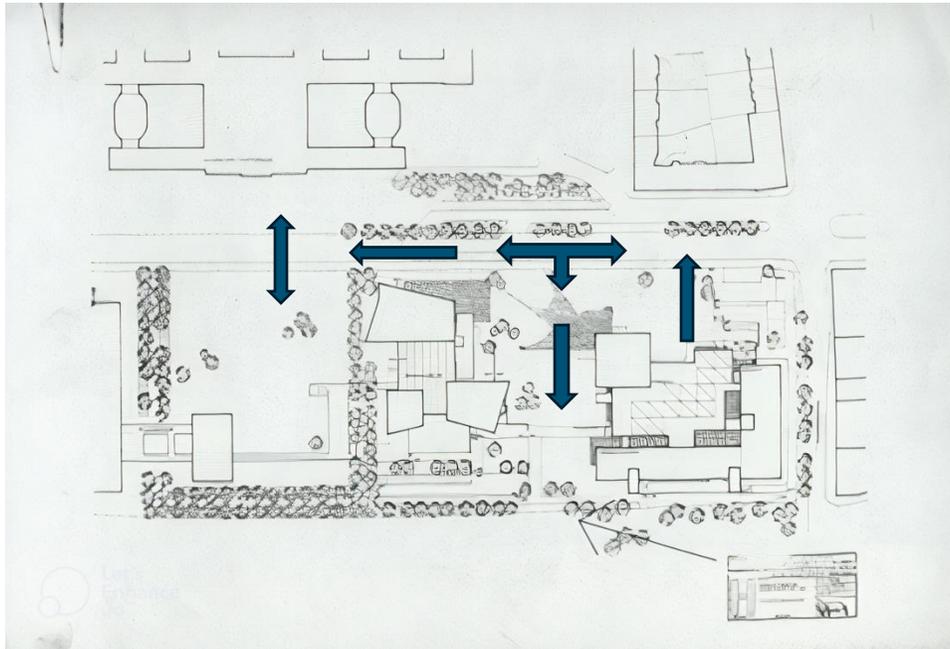
# MOBILE APP- AR NAVIGATION + AR TOURS

- Flutter + Unity
- Help students to navigate the UoC campus to find:
  - Buildings and rooms
  - Books/media
  - ...
- Location-based information on buildings (services, opening hours...)
- AR tours → Historical AR tours



# THE UNIVERSITY CAMPUS- BRUTALIST ARCHITECTURE

- Rolf Gutbrod, Gottfried Kühn and Jürgen Hans Grümmer
- Integrated system ➡ Energy flowing through buildings and open spaces (lost nowadays)



# What is visible to us?



- **2010:** Universitätsforum in monument register list



- **2020:** Gutbrod buildings and surrounding landscape protected as built heritage

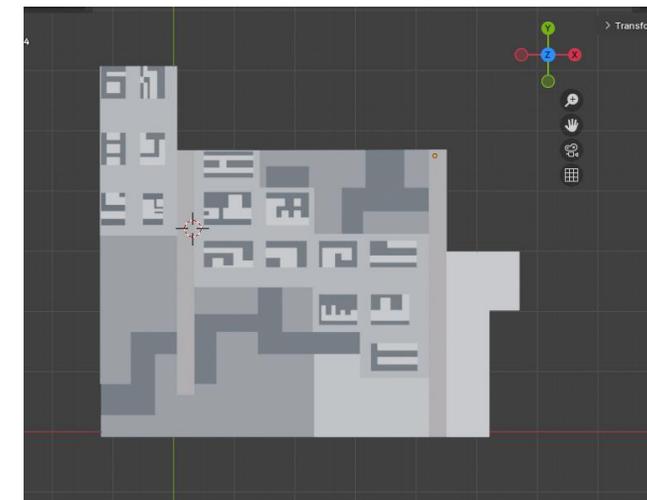
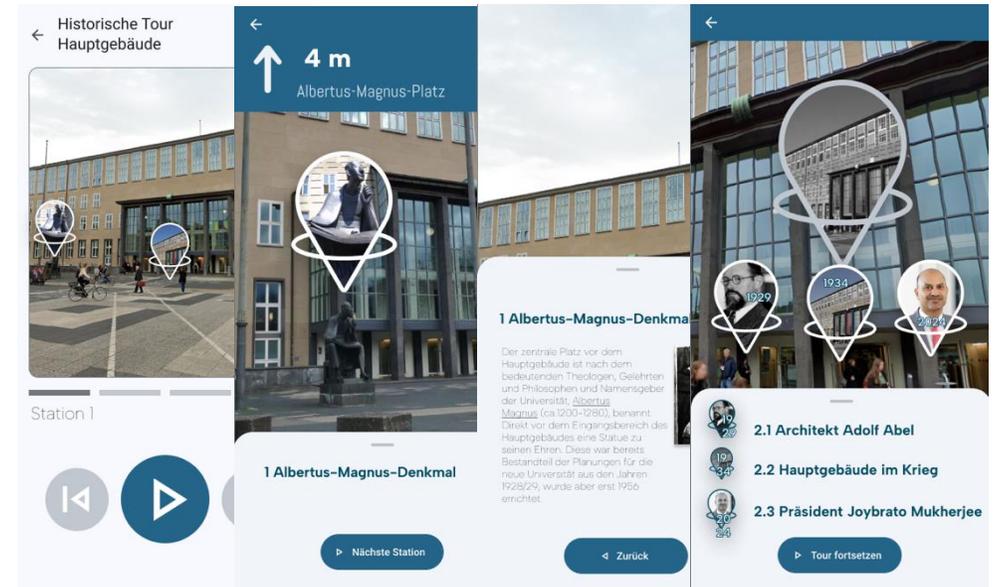
# AR HISTORICAL TOURS

## Why AR?:

- The AR navigation feature exists anyways
- AR tours: interactive, location-based, can be done at any time, multisensory, hopefully compelling

## Current status:

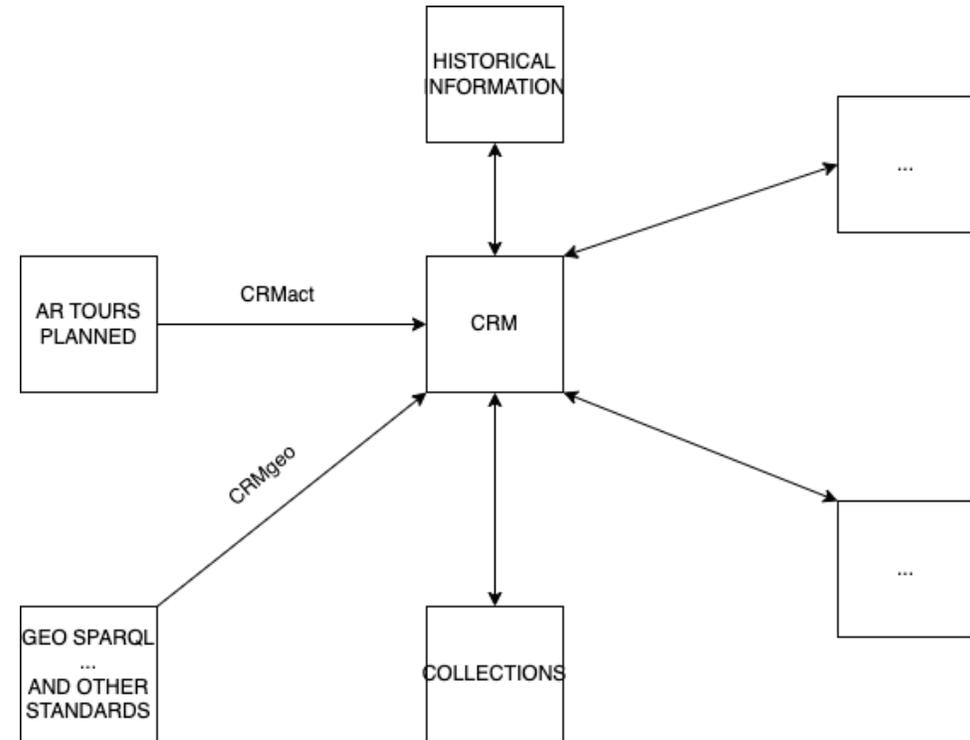
- Functioning AR navigation for outdoor areas (AR tour prototype is still being developed)
- 3D reconstructions to be displayed in AR-> mosaics of Albertus-Magnus square



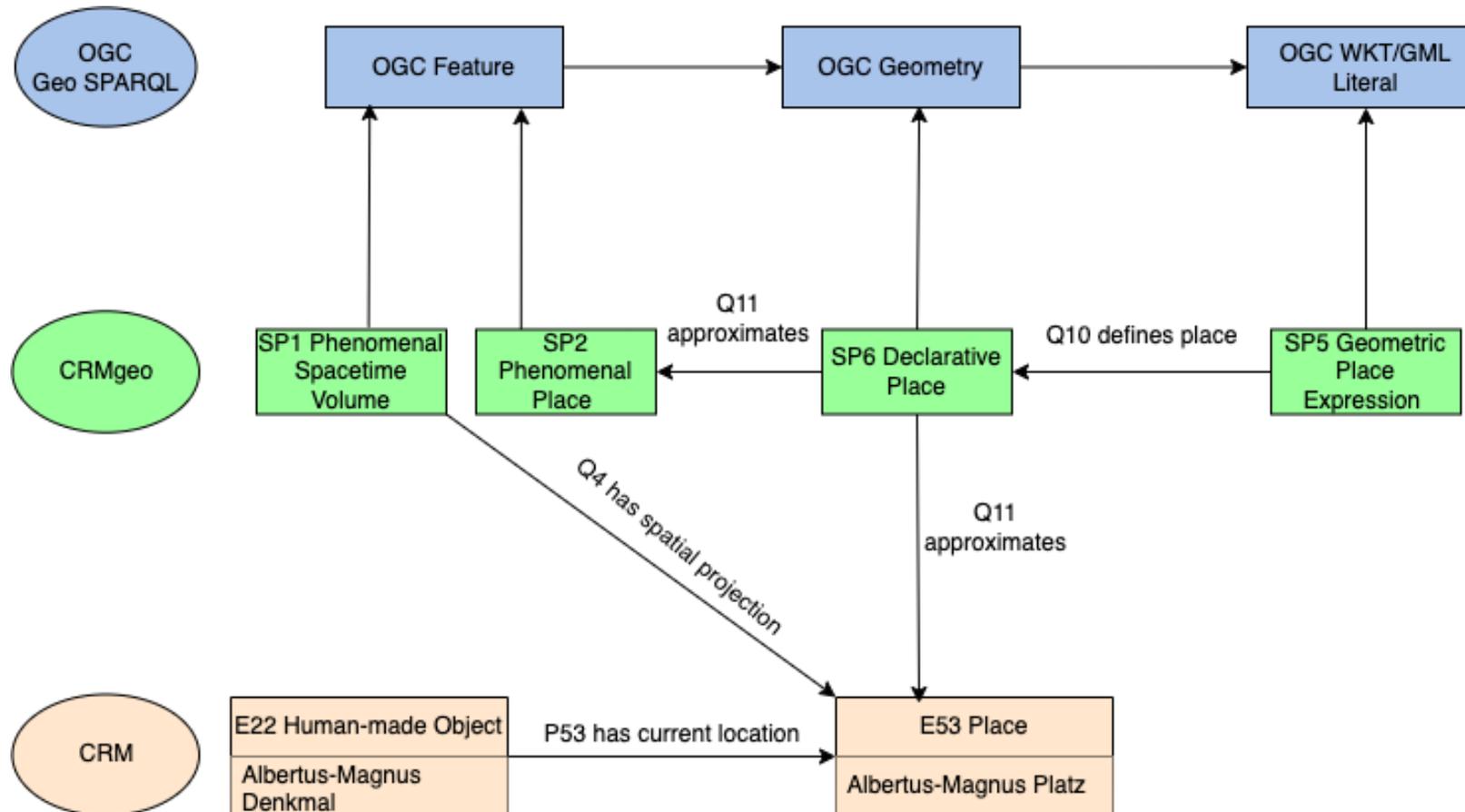
# WHY CIDOC CRM?

## - Event centered ontology for integration:

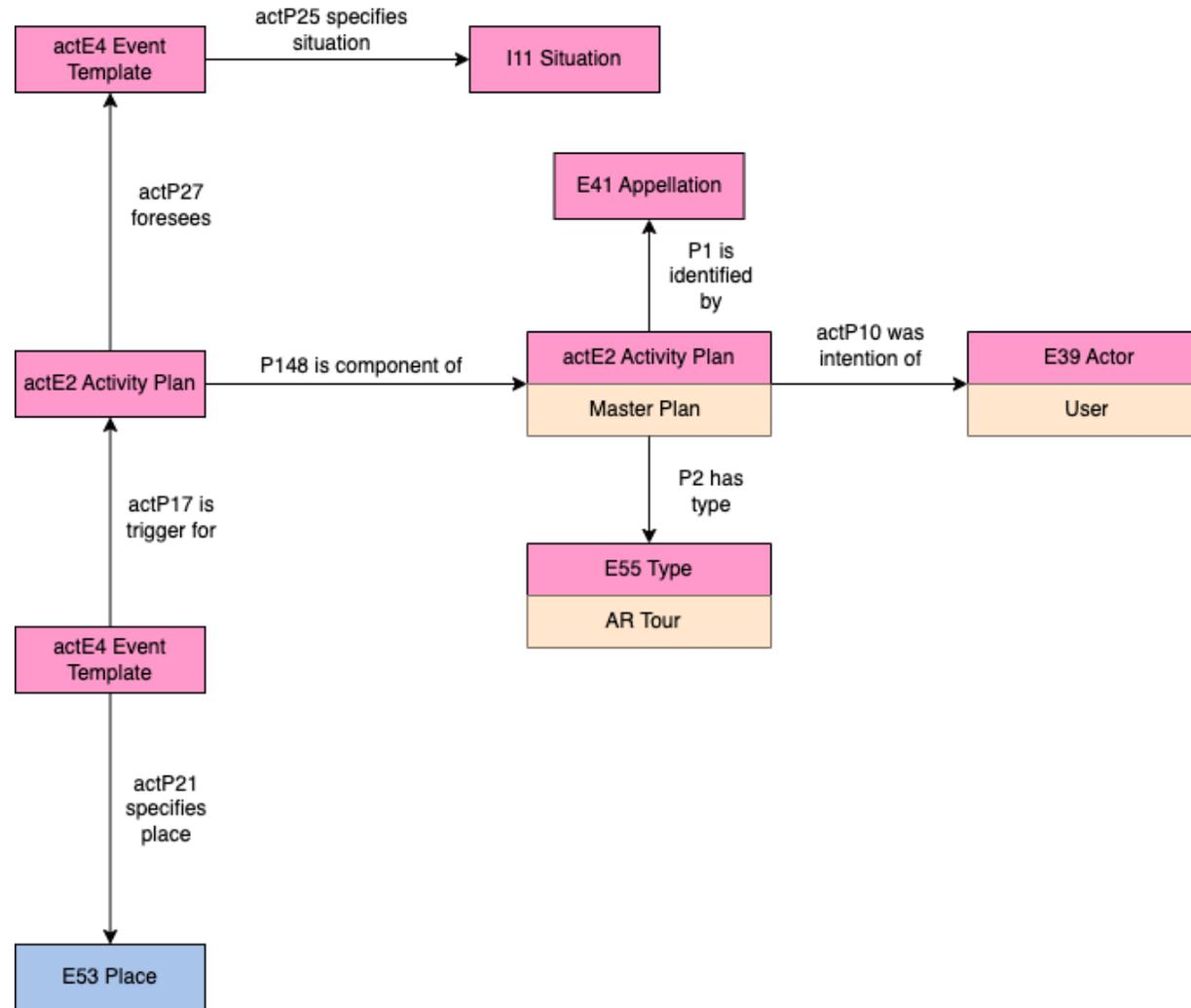
- Historical information (both tangible and intangible)
- Geospatial data (CRMgeo)
- Planned activities as AR Tours (CRMact)



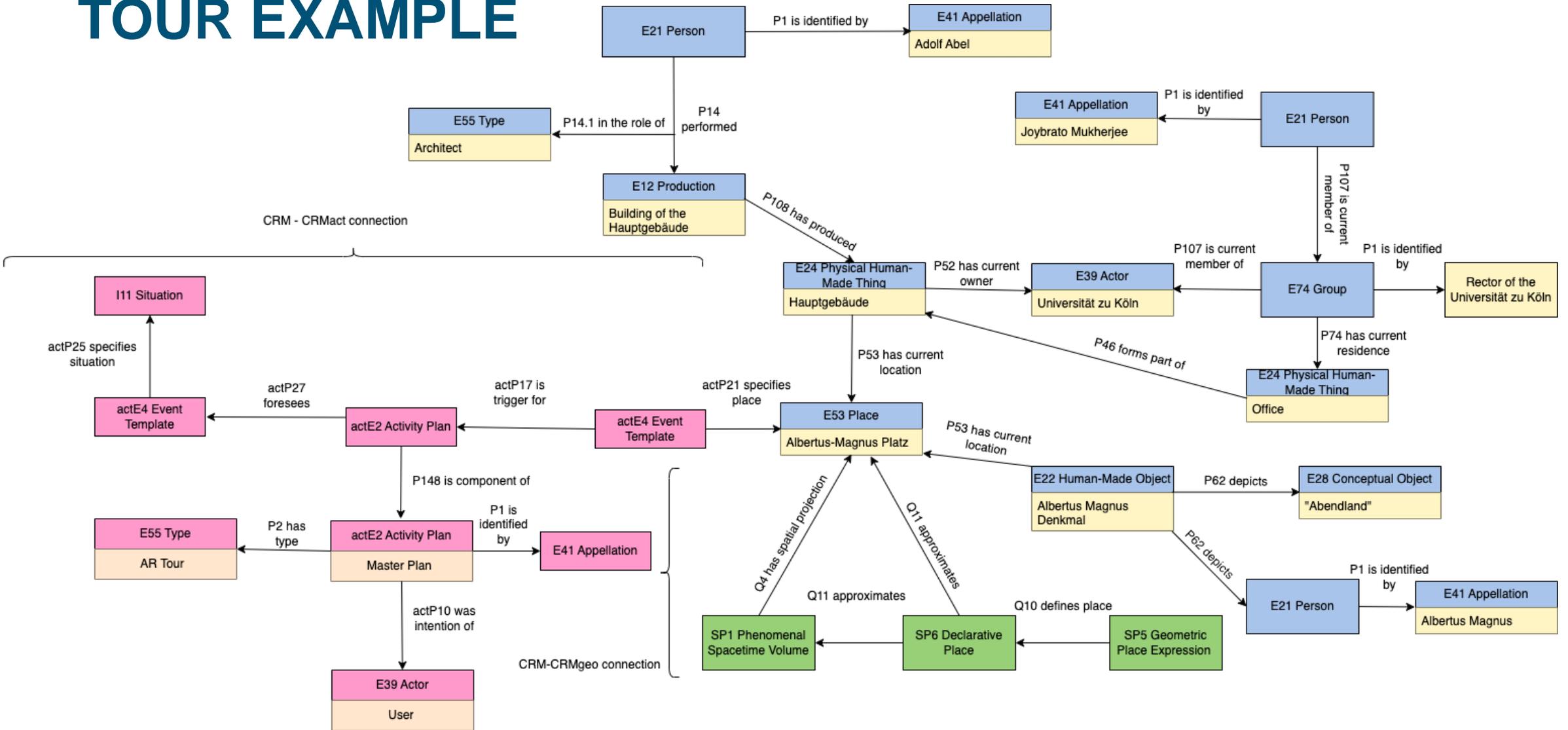
# INTEGRATION OF GEOSPATIAL DATA



# INTEGRATION OF AR TOURS PLANNED



# TOUR EXAMPLE



# CONCLUSIONS AND NEXT STEPS

- We created a framework (and we would like to receive some feedback, comments, ideas... 😊)
- **Next steps:**
- We need to populate it with external data
- Further develop more tours

## Virtueller Campus



Die Universität zu Köln in der virtuellen Realität

<https://virtueller-campus.uni-koeln.de/>

### Mobile AR-App

App für Android und iOS, Flutter- und Unity-basiert

- „Wo finde ich meine Vorlesung? In welcher Bibliothek und in welchem Regal steht mein Buch?“
- AR-unterstützte Indoor- und Outdoor-Navigation auf dem Campus
- Interaktive Campus-Touren für Erstsemester und internationale Studierende

### AR-Touren durch die Universitäts- und Stadtbibliothek

Integriert in die mobile AR-App

- Interaktive Führungen in verschiedenen Sprachen
- Selbstständige Erkundung der USB-Angebote
- Hilfestellung und Anleitung zu allen Diensten und Angeboten