



TECHNISCHE
UNIVERSITÄT
DRESDEN

School of Construction and Environment WISSENSARCHITEKTUR Laboratory of Knowledge Architecture

WISSENSARCHITEKTUR

Laboratory of Knowledge Architecture

KA Background

WISSENSARCHITEKTUR Lab founded in 2015

Offspin Juniorprofessur Wissensarchitektur 2009-2015 (Noennig)

Research Unit, fully 3rd party-financed (~ 6 M€ since 2014)

Association: School of Construction and Environment / Department of Architecture

“Research Oasis”

Team

Architecture

Management

Computer Science

Psychology

Economy

Entrepreneurship

Marketing

Civil Engineering

Communication

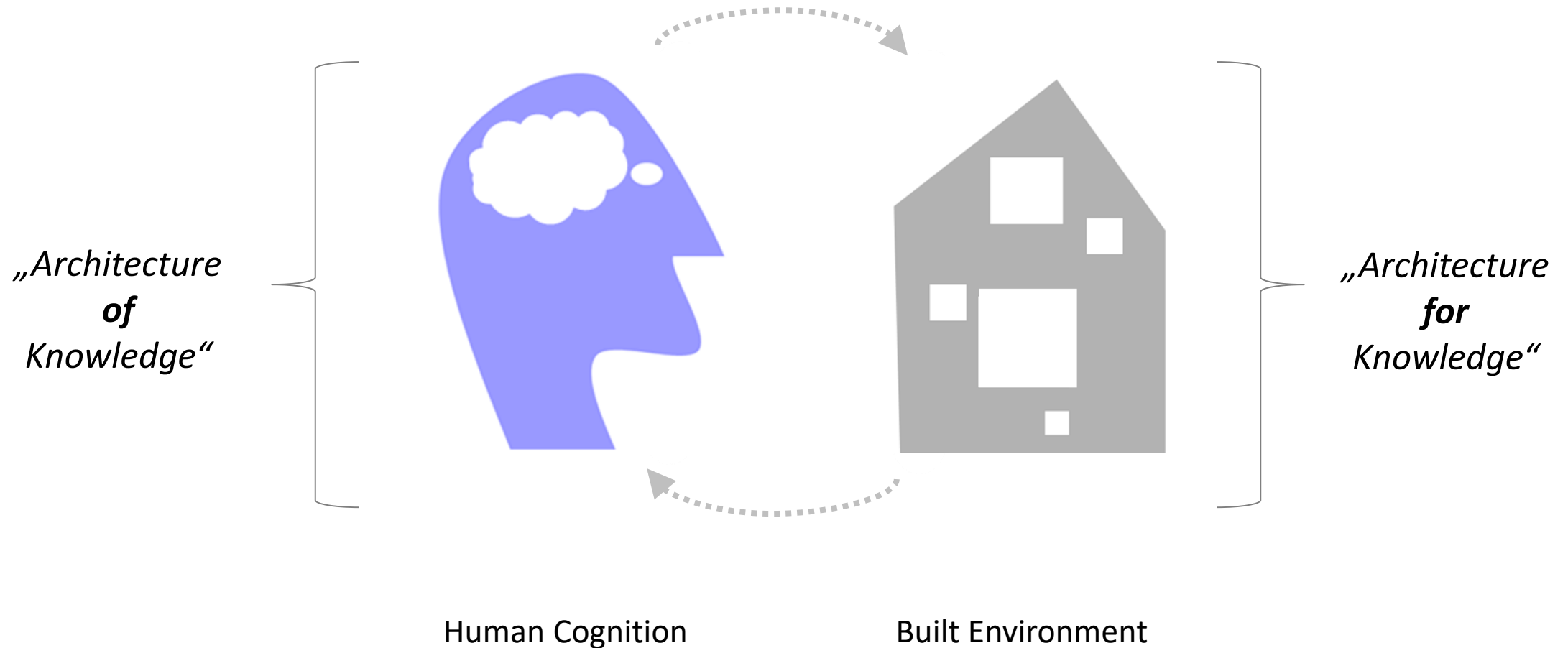
Cultural History

Urban Planning

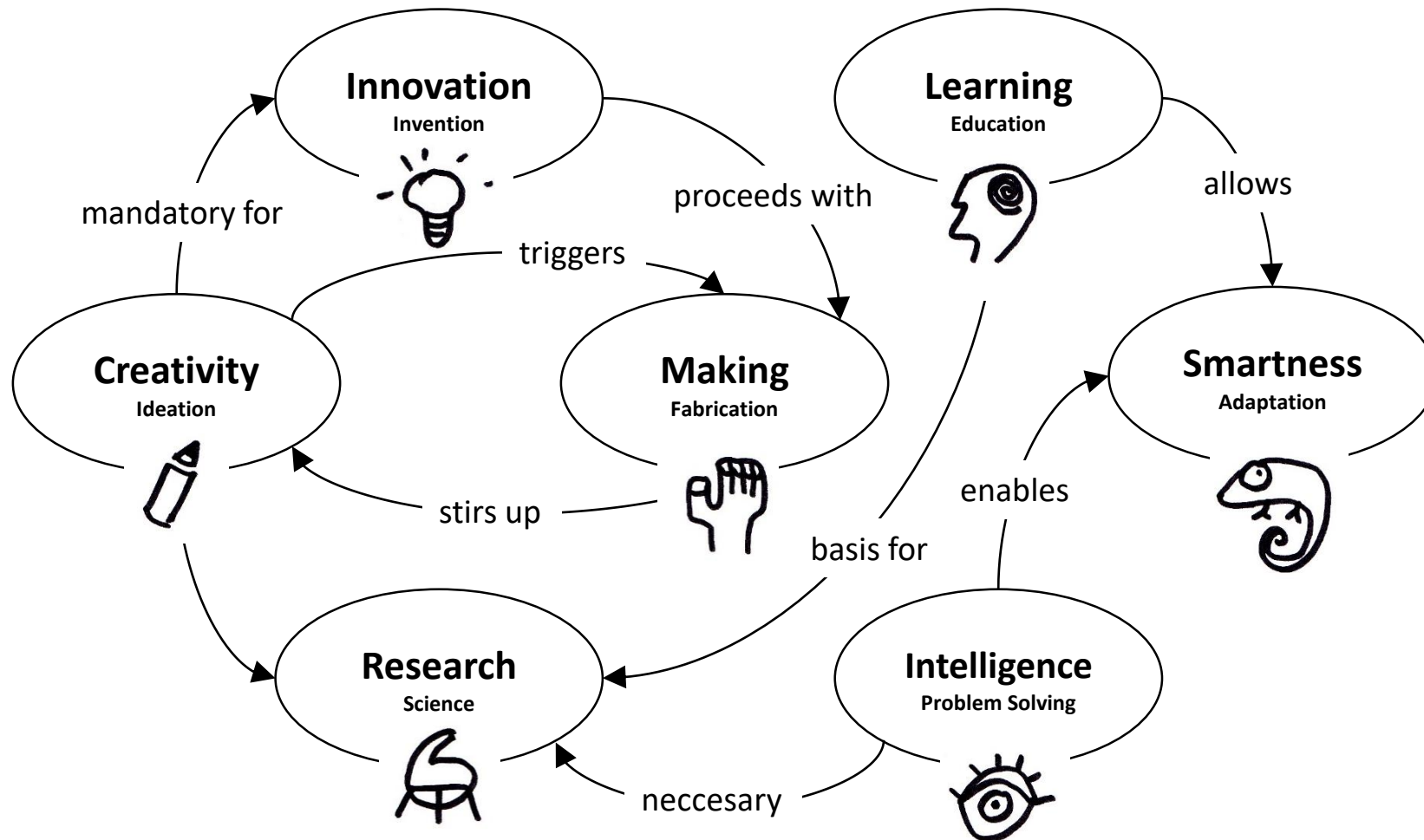
Sociology



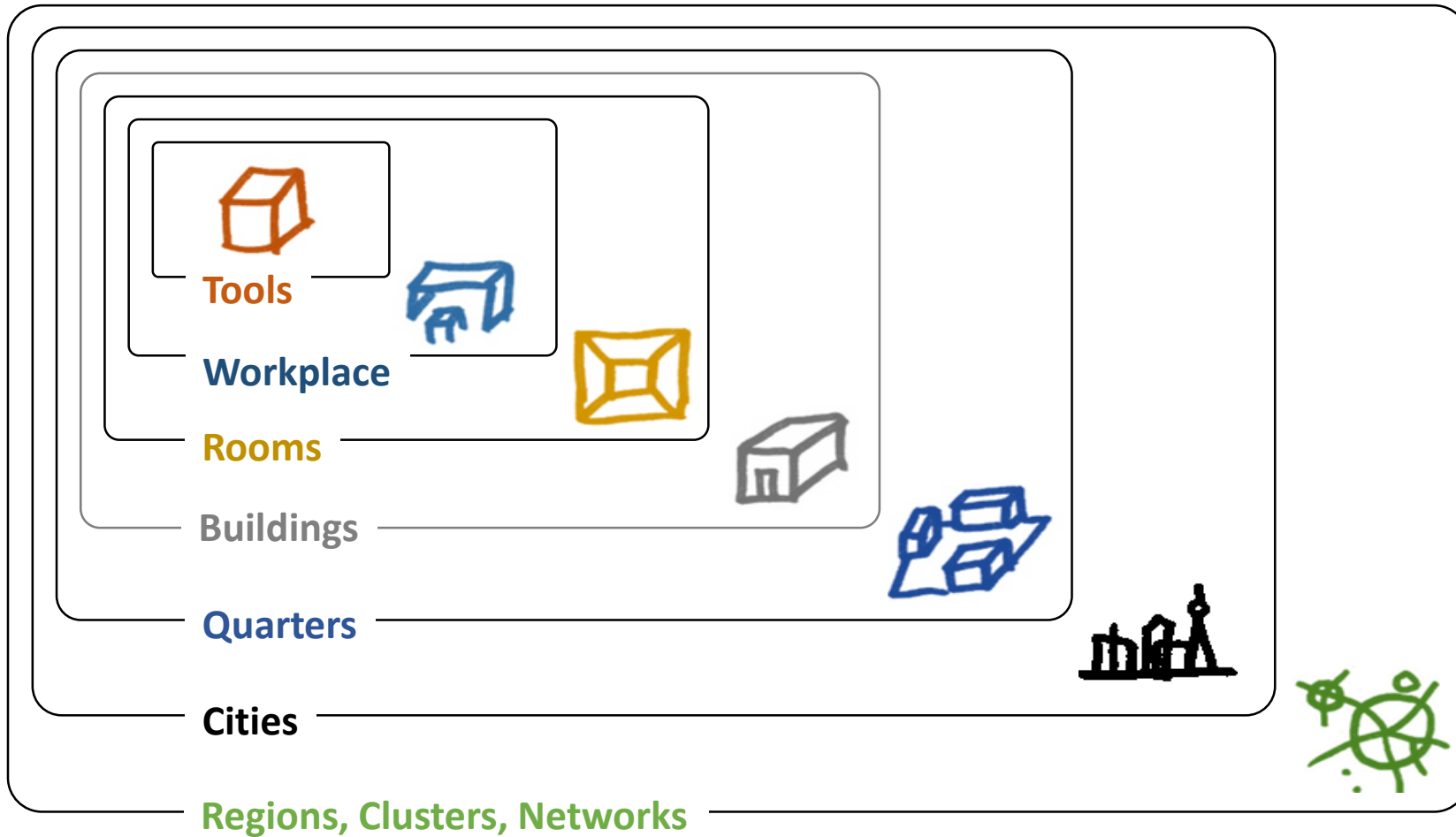
Wissensarchitektur



Knowledge Work Processes



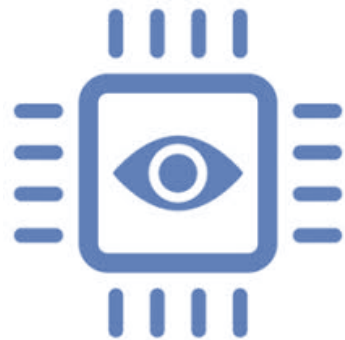
Knowledge Work Environments



Research Units



**Co-Design &
Co-Creation**



**Parametric &
Bionic Design**



**Innovation &
Startup Design**



**Future Workplace
& Learning**



**Digital Future
City**

Research Topics

Kooperationen

Academic Partners

City Science Lab HUC Hamburg

École d'ingénieurs ISEN Toulon France

Technische Universität Delft Netherlands

Ústecký kraj

Leibniz Universität Hannover Germany

Technische Universität Wroclaw Poland

Waseda-Universität Tokyo Japan

Toyohashi University of Technology Japan

TU Voronezh Russia

Chiba University Japan



Authorities

Saxon State Capital Dresden, several authorities

Stadtplanungsamt Hamburg

Ústí nad Labem-město

Marschallsamt Niederschlesien

Municipality of Thessaloniki

Municipality of Riga

Municipality of Messina

Municipality of Roquetas

Municipality of Vantaa

Municipality of Patras

County of Val-de-Marne, Créteil



Enterprise

Oracle München

ANSYS Marseille

Silicon Saxony Dresden

Spectos Dresden, Brüssel, Hanoi

GMP Hamburg

Werkstätten Hellerau Dresden

Green City Solutions Berlin

WGS Dresden

Fujitsu Germany

Aconex Australia



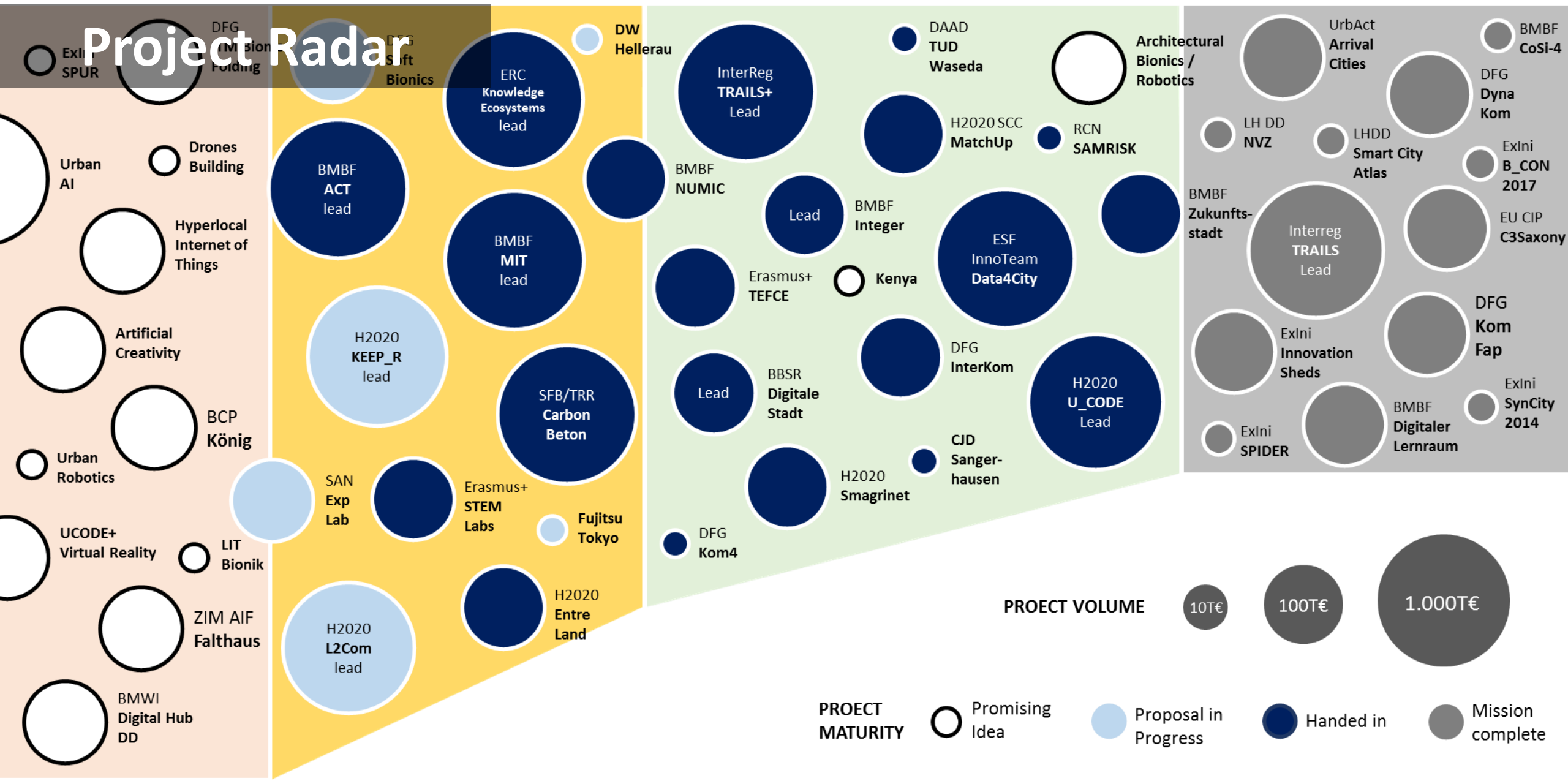
Under Preparation

In Application / submitted

Granted / Running

Finished

Project Radar



Proposal Pipeline

CALLS

INTERREG

ICT 19

ICT 30

INSO 4

INSO 5

IDEAS / TOPICS

Urban Participatory Planning

Internet of Buildings

InnovaKomm BMBF

Regional Participatory Planning

Mobile Swarm Labs

E-Commerce & Time City

Knowledge Ecosystems

PARTNERS

TU DD

TU Wroclaw

CTU Prague

ISEN

FH Detmold

SilSax

SWP

Gemalto

Vojvod Wrocl.

Heidebogen

Proposal sample

INTERREG

U_CODE

InnovaKomm

TU DD

TU Wroclaw

SWP

Vojvod Wrocl.

SilSax

WISSENSARCHITEKTUR Laboratory of Knowledge Architecture

25

Mio. €

Project Volume with
KA Lab involvement

6,1

Mio. €

Third Party Funding
for KA Lab

26

Researchers
employed
(12/2018)

15

Intl. Guest Researchers

119

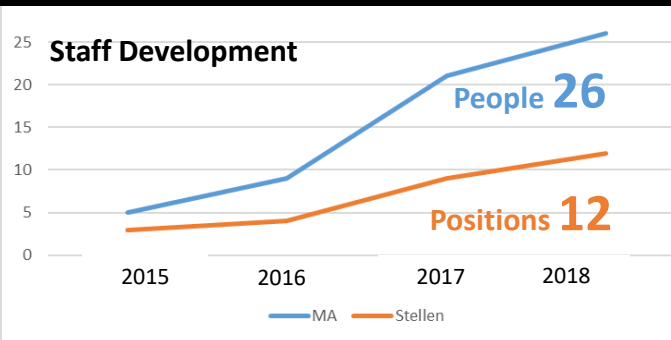
Internation. Partner

210

Abroad Travels

22

Intl. Conferences



48

Researchers
employed
since 2015

Projects International



Projects EU



43

Project Proposals
submitted

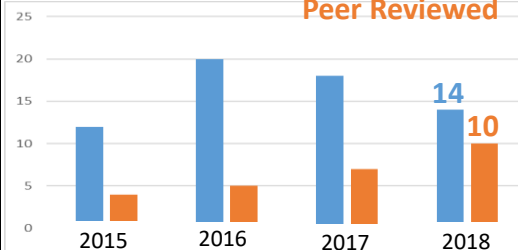
21

Successful Project
Proposals

3

former staff with
Professorships

Publications



115

Publications
since 2015

940

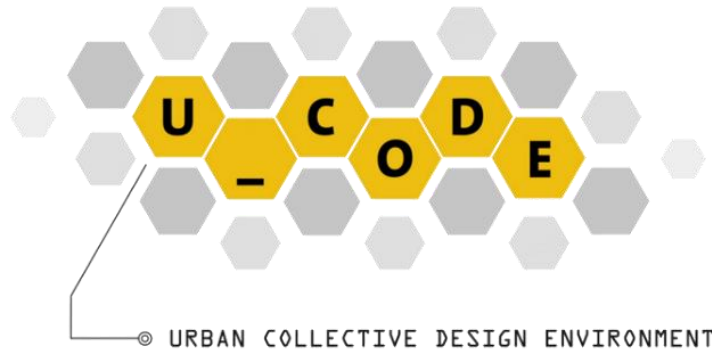
Participants in
teaching

48

Thesis projects

3 Horizon Projekte im Vergleich

Kurzvorstellung der Erfahrungen aus drei erfolgreichen Projekten im Horizont 2020



RIA [42M]
02/2016 – 07/2019
TUD KA Koordinator

IA [60M]
10/2017 – 09/2022
TUD KA Partner

CSA [30]
04/2019 – 09/2021
TUD KA Partner

3 Horizon Projekte im Vergleich

Kurzvorstellung der Erfahrungen aus drei erfolgreichen Projekten im Horizont 2020



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Ambition

Safer urban planning



Massive involvement



Digital Co-design



3 Horizon Projekte im Vergleich

U
-
C
O
D
E

© URBAN COLLECTIVE DESIGN ENVIRONMENT

Was ist U_CODE?

U
-
C
O
D
E

© URBAN COLLECTIVE DESIGN ENVIRONMENT

Bürger
Anwohner
Nutzer



Planer
Entwickler
Verwaltung

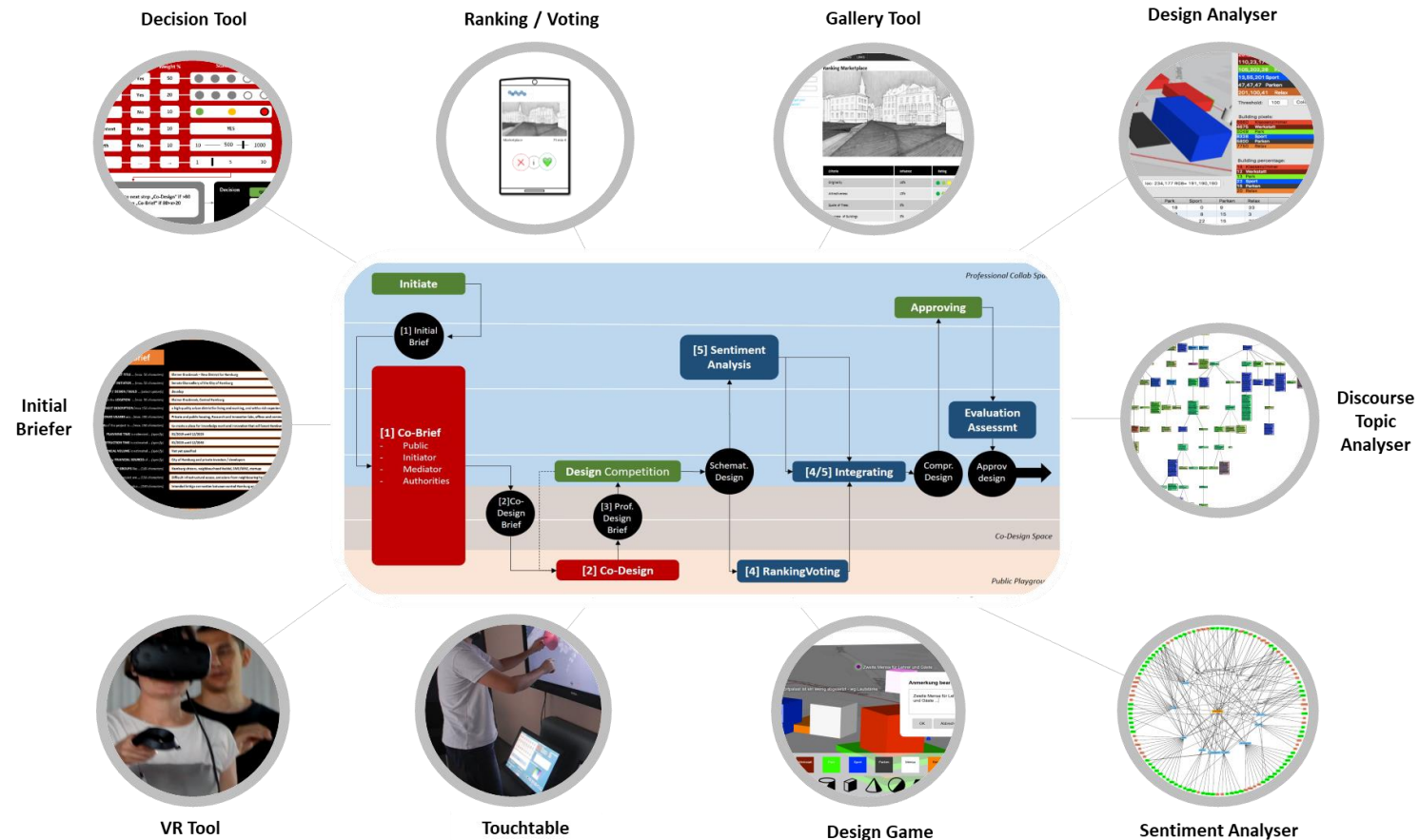


This project has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No 688873.

3 Horizon Projekte im Vergleich

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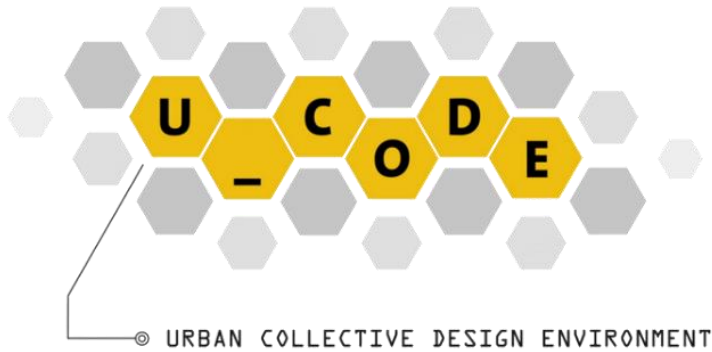
Minimal Viable Process / Tools



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3 Horizon Projekte im Vergleich

Kurzvorstellung der Erfahrungen aus drei erfolgreichen Projekten im Horizont 2020



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3 Horizon Projekte im Vergleich

MATchUP – H2020 SMART CITIES & COMMUNITIES



MATchUP = Maximizing the Upscaling and replication potential of high level urban transformation strategies

Coordinated by the City of Valencia,



This project has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No. 774477.



3 Horizon Projekte im Vergleich

MATchUP – H2020 SMART CITIES & COMMUNITIES

MATchUP OBJECTIVES

Planning of sustainable urban transformation to get rid of old and inefficient technologies to seize new efficient solutions in the energy, mobility and ICT fields

Effective replication and upscaling of smart city solutions by ensuring the convergence of the demand and supply sides

Implementation of these upscaling and replication plans to successfully reshape and repaint cities and their communities

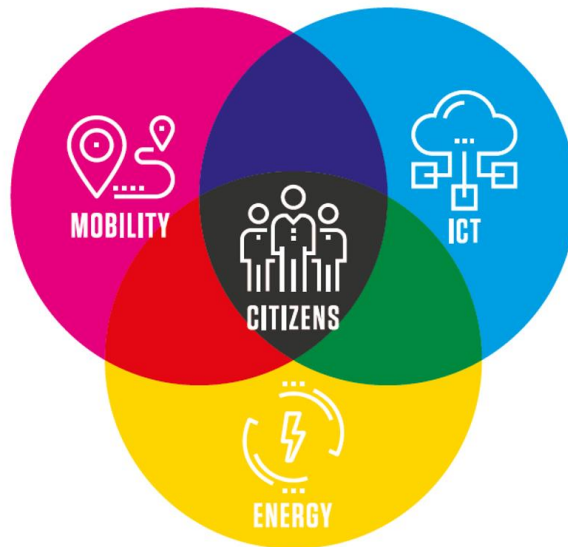


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3 Horizon Projekte im Vergleich

MATchUP – H2020 SMART CITIES & COMMUNITIES



ENERGY

LESS ENERGY, MORE SOLUTIONS

MATchUP aims to achieve high-performance districts through a series of interventions:

- improvements in buildings' energy efficiency,
- high integration of renewables in the energy supply,
- implementation of advanced energy management systems combined with innovative storage systems.

Moreover, an advanced management of the urban energy infrastructures will be set up, integrating innovative storage technologies to increase the global performance and RES contribution. Several innovative management systems will be deployed, from smart meters to overall recharging management solutions to reduce the grid impact.



MOBILITY

SMART SOLUTIONS, BETTER MOBILITY

New electromobility solutions, both for persons and goods, will be implemented in MATchUP through new electric vehicles (EV) and charging infrastructures.

The most relevant actions that MATchUP will implement in this area are:

- conventional vehicles replacement: more than 150 EV will be introduced,
- implementation of around 120 innovative charging infrastructures for e-vehicles and e-buses,
- improved logistic solutions, like last mile logistics based on e-Bikes, and
- multimodality strategies.



ICT

CONNECTED CITIES, LIVEABLE LIVES

MATchUP will develop ICT solutions for improved planning management, control and maintenance of physical urban infrastructures and operational technologies in buildings, energy and transport, to enable better services for individuals and businesses.

An Open Specifications ICT concept will be established, defining a common approach in all functional requirements, software architecture and data structures to be designed and implemented.

Following this open specification concept, the current existing ICT models present in the cities will be improved with ICT solutions fully integrating at urban level to complement the demonstration.



CITIZENS

SMART CITIES, CITIZENS' CITIES

MATchUP wants to redesign cities by complementing the technical solutions with a set of non-technical ones, such as specific social engagement activities, sustainable employment initiatives, staff exchange, city mentoring, and validation of innovative business models.

Different key actors – policy makers, universities, industry, investors and, most importantly, citizens – will join forces to develop smart models of innovation, inclusion and prosperity to restore cities' liveability.

MATchUP aims to strengthen the city transformation strategies in a sustainable and inclusive manner, empowering citizens to participate in the planning process and integrating their voice in the replication and scale up plans.



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+13%
ENERGY EFFICIENCY IMPROVEMENT

+4,000
TONS OF CO₂ SAVED PER YEAR

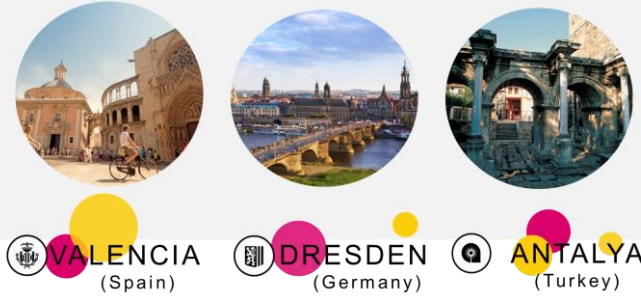
SMART
INTEGRATION OF CITY SERVICES

90,000
CITIZENS INVOLVED IN 3 DISTRICTS



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LIGHTHOUSE CITIES



FOLLOWER CITIES



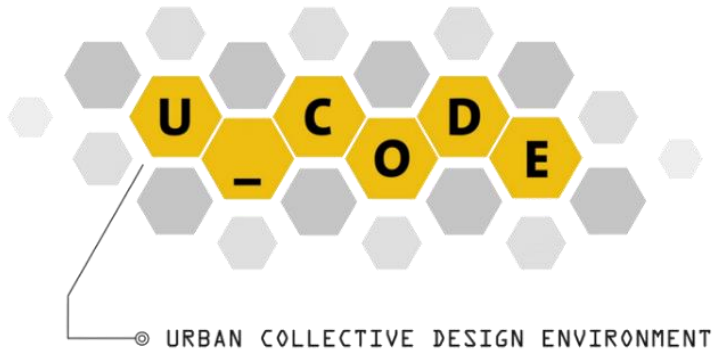
Key Facts:

- 17.5 Mio. € total consortium
- of which 4.5 Mio. € for Dresden
- 46 Implemented Action per Lighthouse City
- 2 years Monitoring and evaluation
- with 28 partners from 8 different countries



3 Horizon Projekte im Vergleich

Kurzvorstellung der Erfahrungen aus drei erfolgreichen Projekten im Horizont 2020



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10/2017 – 09/2022
TUD KA Partner



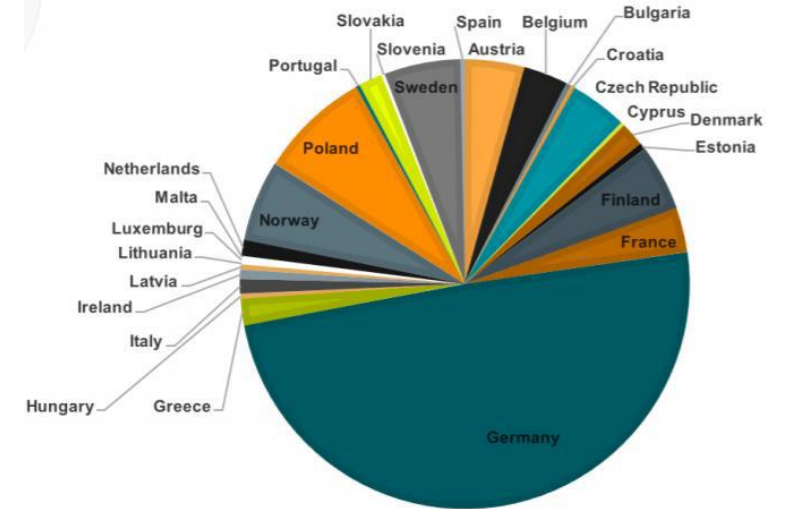
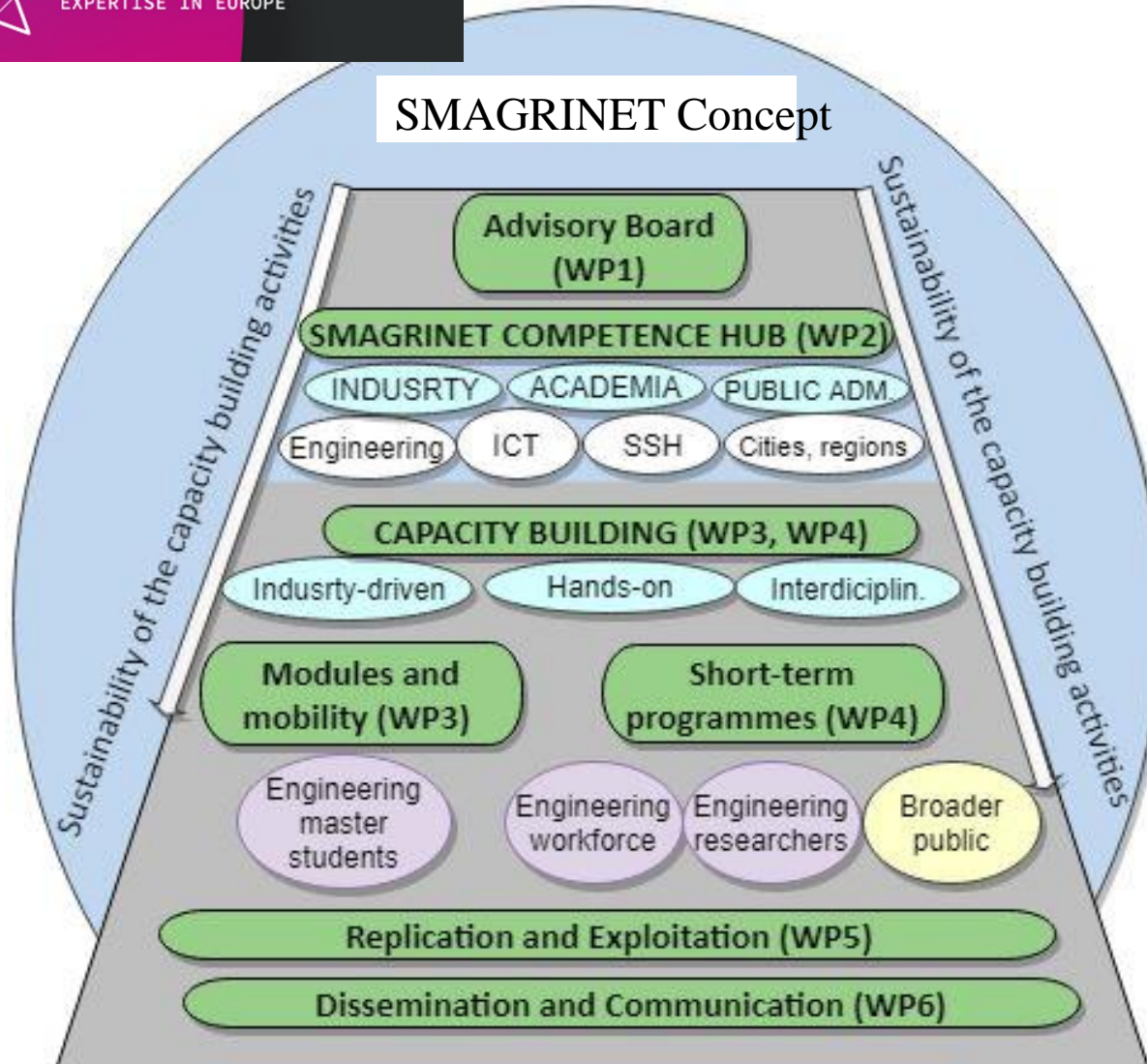
CSA [30]
04/2019 – 09/2021
TUD KA Partner

3 Horizon Projekte im Vergleich

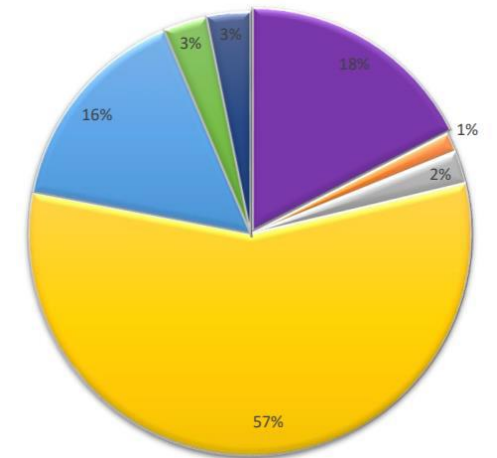


SMAGRINET
POWERING SMART GRID
EXPERTISE IN EUROPE

SMAGRINET Concept



Stakeholder list distribution according to countries



Distribution of the entities



This project has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No 837626



SMAGRINET main outputs:

- **Competence hub** for collaboration and networking
- Needs, capacities and resource base mapping
- **Case-based modules** that are integrated to the curricula of the universities will be developed for the master students (MA, MSc or ME)
- **Blended Learning programmes** (for upskilling and reskilling)





Key Facts:

- Online Courses for Studenten, Experts and Public
- Evaluation and Replication
- with 9 partners from 6 different countries

**TAL
TECH**

Estonia
www.ttu.ee



Univerza v Ljubljani

Slovenia
www.fe.uni-lj.si



GERMANY
www.tu-dresden.de

LOBA[®]

PORTUGAL
www.loba.cx

CIVITTA

ESTONIA
www.civitta.com



LITHUANIA
www.ktu.edu



GERMANY
www.sense.tu-berlin.de



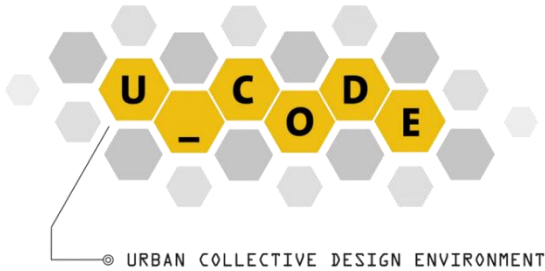
ESTONIA
www.elektriliit.ee



FRANCE
www.welcome.univ-lorraine.fr



3 Horizon Projekte im Vergleich



U_CODE – Urban Collective Design Environment: A new tool for enabling expert planners to cocreate and communicate with citizens in urban design, H2020 ICT for Creative Industries H2020-ICT-19-2015, RIA [Research and Innovation Action] Project Coordinator: Wissensarchitektur TUD, GA No 688873, <https://www.u-code.eu/>

RIA [42M]
02/2016 –
07/2021
TUD KA Koordinator



MATCHUP - MAXimizing the UPscaling and replication potential of high level urban transformation strategies, H2020 Smart Cities and Communities, IA [Innovation Action], Project Coordinator: Municipality of Valencia, GA No 774477 <https://www.matchup-project.eu/>

IA [60M]
10/2017 –
09/2022
TUD KA Partner



SMAGRINET - Smart grid competence hub for boosting research, innovation and educational capacities for energy transition, H2020-LC-SC3-2018-NZE-CC, CSA [Coordination and Support Action], Project Coordinator: TalTech University, Estonia, GA No 837626 <https://www.smagrinet.eu/>

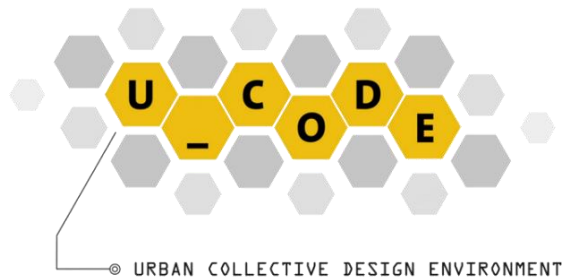
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3 Horizon Projekte im Vergleich

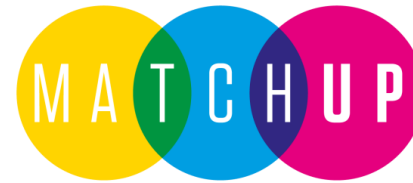
Was lief gut und was weniger gut? – in Bezug auf die Antragstellung und Projektverlauf

+

Autorenschaft: volle Kontrolle über den Inhalte, Tasks, Vision
Kernkompetenz Planen, Entwerfen, Co-Design



Lokales Team, Schreibaarbeit lag bei Cartif
Vielfalt Themen und Nationen



Einladung, Schreibaarbeit lag bei CIVITTA, Alle Zuarbeiten wurden übernommen,
Übersichtliches Konsortium



—

Am Ball bleiben und als Koordinator alle regelmäßig einbeziehen

Abstimmungsprozesse durch die vielen Partner

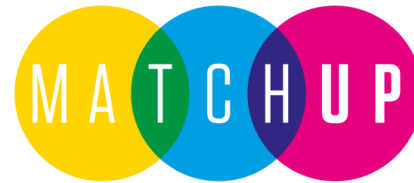
Gemeinsames Verständnis – Ziele – Tasks . Abfolgen
Corona

3 Horizon Projekte im Vergleich

Was hat mehr Arbeit und Anstrengung gekostet als gedacht?
Antragstellung Projektverlauf

Antragstellung

Schreibarbeit



Projektverlauf

- Gemeinsames Aligement und Sprache finden
- Technisches Konzept und Umsetzung

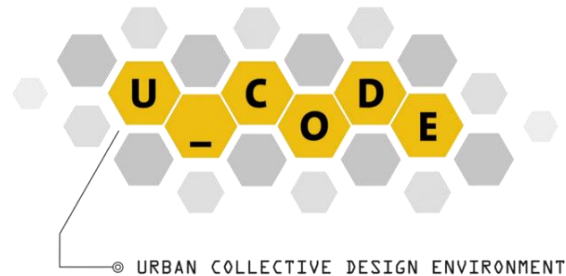
- Sehr viele Partner,
- Übersicht über die eigenen Verantwortlichkeiten erlangen
- Diskrepanz zwischen EU, Wissenschaft und Verwaltung

- Gemeinsames Zielumsetzungsdefinition
- Module aufsetzen und in die Lehre implementieren
- Zuarbeiten und Zuständigkeiten

3 Horizon Projekte im Vergleich

Was gilt es in der Nachbereitung zu beachten?

RIA
2014-2015
02/2016 –
07/20219
TUD KA Koordinator



- Audit und finale Berichterstattung
- Final Review Meeting und Laufzeit der Arbeitsverträge

3 Horizon Projekte im Vergleich

Generelle Tipps / Hinweise für Antragssteller



- English is a must!
- Spaß an Austausch, Diskussion, Vergleich
- Seine Kernkompetenzen einbringen und das Projekt gemeinsam weiterentwickeln
- Offen bleiben – für agile Bedarfsanpassungen
- Die Kompetenzen für einen erfolgreichen Antrag sind nicht immer deckungsgleich mit den notwendigen Kompetenzen bei der Durchführung / Umsetzung

3 Horizon Projekte im Vergleich

Was war bei Horizont 2020 anders als bei Bundesförderprogrammen?



- Anwendungsorientiertheit
- Europäischer Austausch – Lösungen fokussieren nicht auf den Deutschen Markt
- Europa – kulturelle Unterschiede
- Langer Bearbeitungszeitraum
- Reisetätigkeiten

Fragen?

Kontakt:

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anja.Jannack@tu-dresden.de

WISSENSARCHITEKTUR

Laboratory of Knowledge Architecture

Technische Universität Dresden

www.tu-dresden.de/ka

