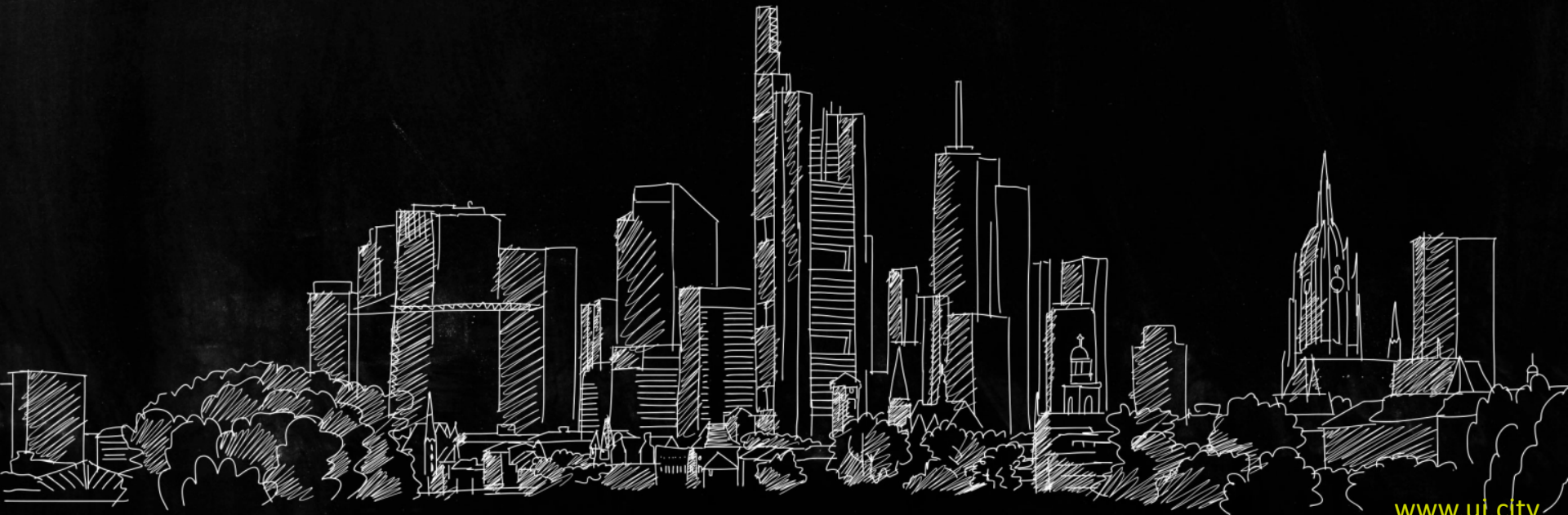# [ui!]
making cities even smarter

the urban institute®

International Smart City Plans, Experiences, Success Factors

European Dimension

European Innovation Partnership on Smart Cities and Communities

The EIP-SCC is an initiative supported by the **European Commission.**

Aiming at overcoming market fragmentation, the EIP-SCC brings together **cities, industry, financers, citizens** to improve urban life through more sustainable integrated solutions.

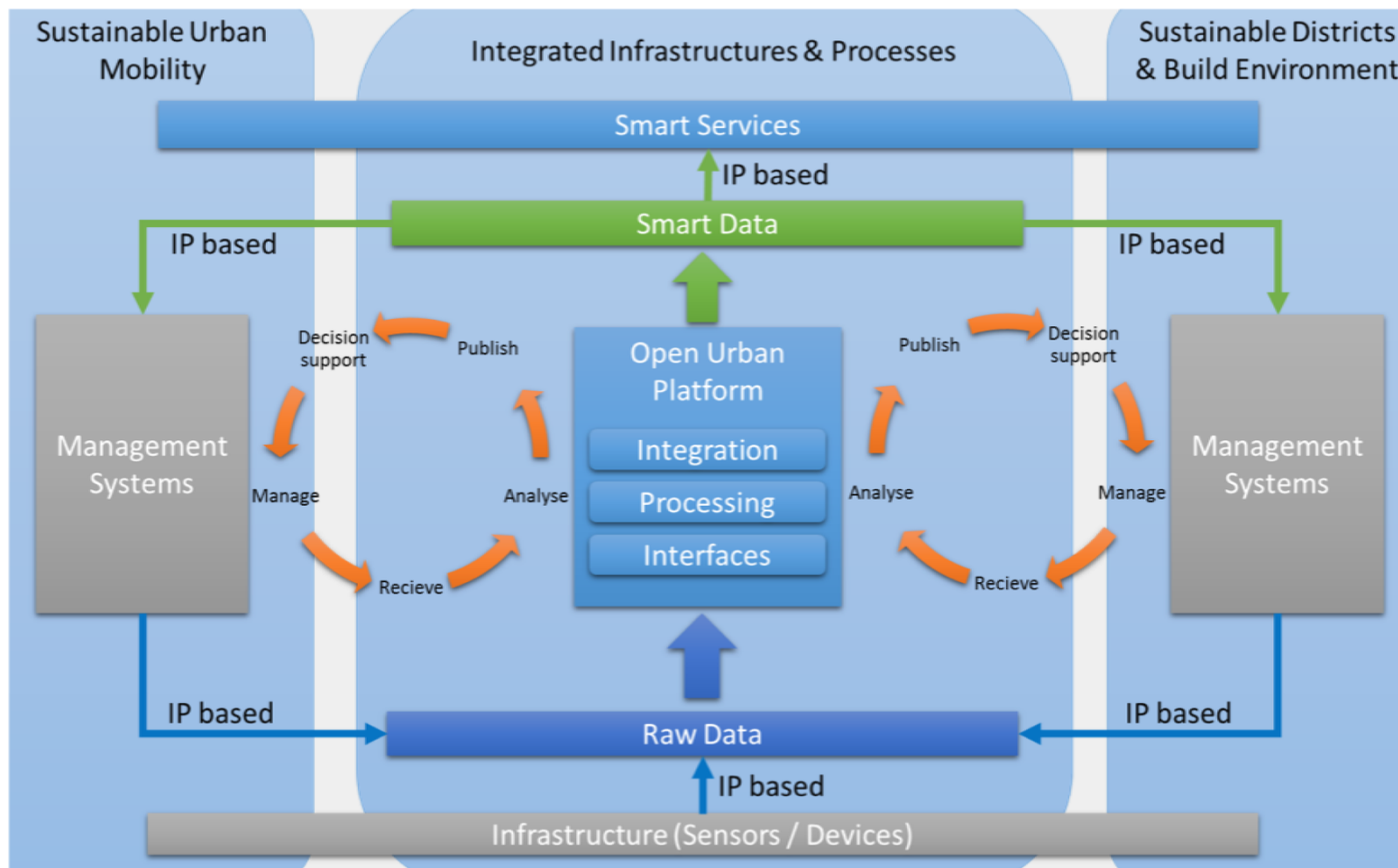Its Market Place has already **5.300 members from 31 countries.**

![ui! the urban institute®]

Citizen Focus

Business Models, Finance and Procurement

Integrated Planning, Policy & Regulation

EIP

Integrated Infrastructures

Sustainable Districts

Humble Lamppost

Small Giants

Urban Platform

Positive Energy Blocks

Sustainable Urban Mobility

EV4SCC

New Mobility Services

Alternative Fuelled Special Vehicles

Intelligent Mobility for Energy Transition

Urban Air Mobility

EIP-SCC SUM Support contract

Urban Data

[ui!] the urban institute®

➡️ Real-time data feeds using open connectors to large variety of types of urban sensor

➡️ Pre-processing of incoming data feeds for real-time event management (sub-second)

➡️ Visualization of the data to provide insight to decision makers

➡️ OpenAPIs re-use and repurpose of urban (IoT) data

DIN SPEC 91357

How should a high-level architecture look like to meet pan-European and thus worldwide demand by cities and operators of urban infrastructures?

- Consortium assembled based on EIP SCC stakeholders and other interested parties in Germany
- 8 industry represenatives
- 5 cities – the „Big 4" and a small city representative
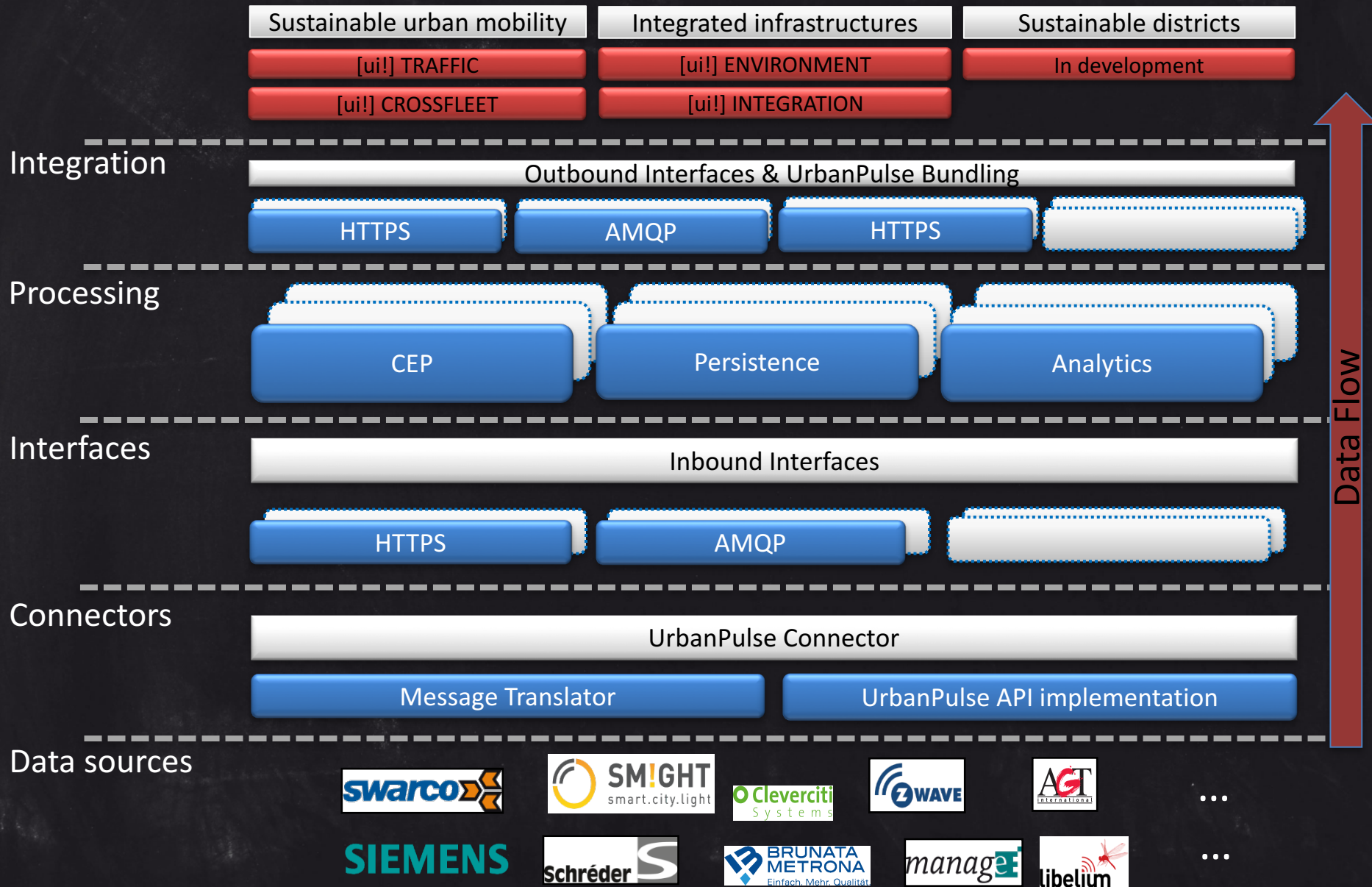- 1 academic

DIN SPEC 91357
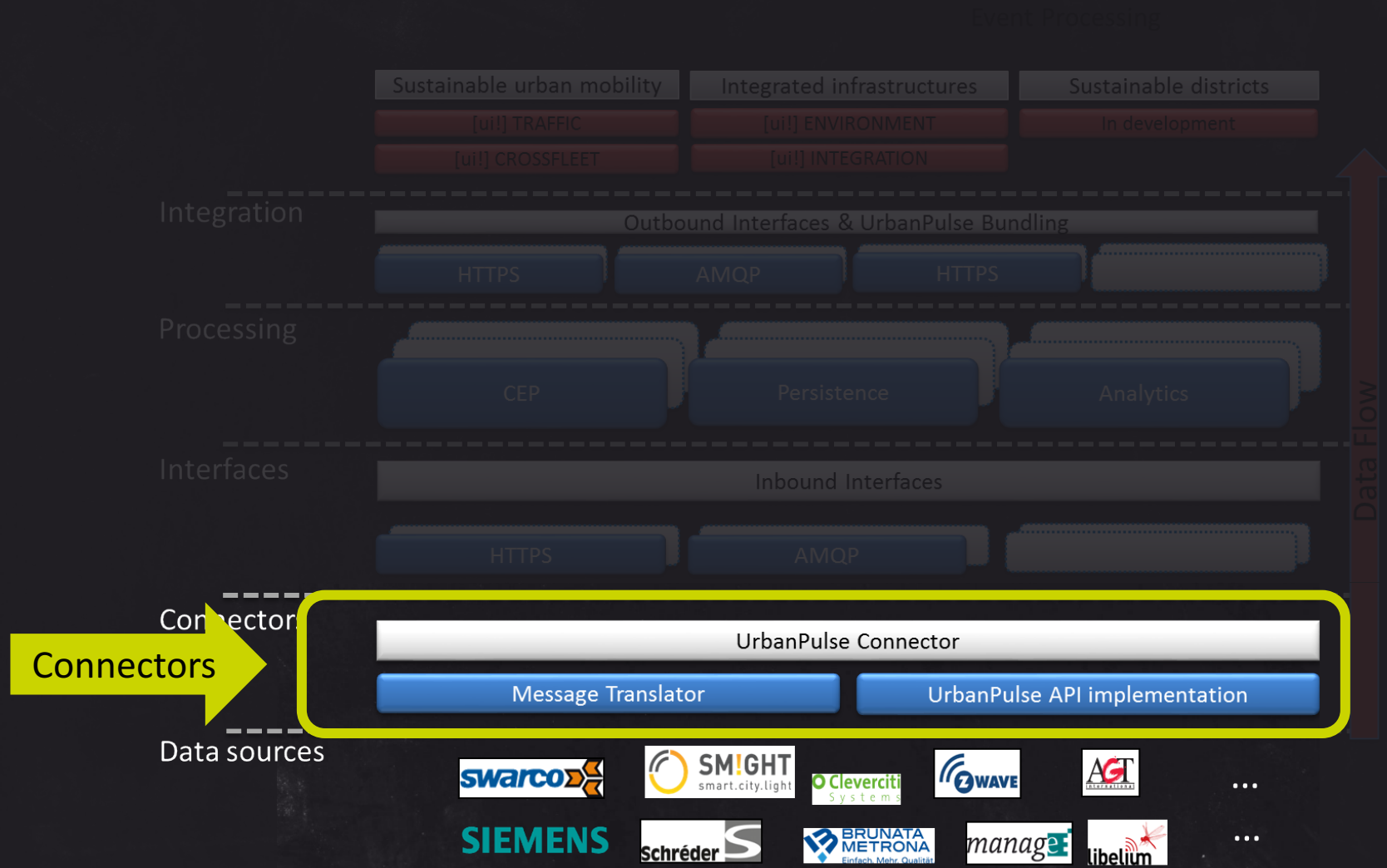
Outcome?

- Extended and deepened the reference architecture to cope with all issues addressed by cities and industry
- High Level reference architecture for open urban platforms
- High Level description of Open API and relation to existing / in-development technical standards
- Use cases on how an OUP can serve the needs
- Classification of business and operational models

[ui!] UrbanPulse

Sustainable urban mobility	Integrated infrastructures	Sustainable districts
[ui!] TRAFFIC	[ui!] ENVIRONMENT	In development
[ui!] CROSSFLEET	[ui!] INTEGRATION	

Integration

Outbound Interfaces & UrbanPulse Bundling

HTTPS	AMQP	HTTPS	

Processing

CEP	Persistence	Analytics

Interfaces

Inbound Interfaces

HTTPS	AMQP	

Connectors

UrbanPulse Connector

Message Translator	UrbanPulse API implementation

Data sources

swarco   SM!GHT smart.city.light   Cleverciti Systems   Z·WAVE   AGT international   …

SIEMENS   Schréder S   BRUNATA METRONA Einfach. Mehr. Qualität.   manage   libelium   …

Data Flow

Connectors allow the connection of different heterogenous data sources in the domains:

- Energy
- Traffic
- Building management
- Environment

Tasks

- Communication with the UrbanPulse API
- Authentication
- Transformation of raw data

List of connectors
- 45+ connectors to different systems available

Sample set of available connectors

Sustainable urban mobility	Integrated infrastructures	Sustainable Energy districts
swarco	SM!GHT smart.city.light	BRUNATA METRONA Einfach. Mehr. Qualität.
SIEMENS	libelium	Z-WAVE
Cleverciti Systems	Schréder	manage
eFahrung	AGT international	SIEMENS
Continental	FLIR	
	Microsoft	
	SAP	

Digital City Darmstadt
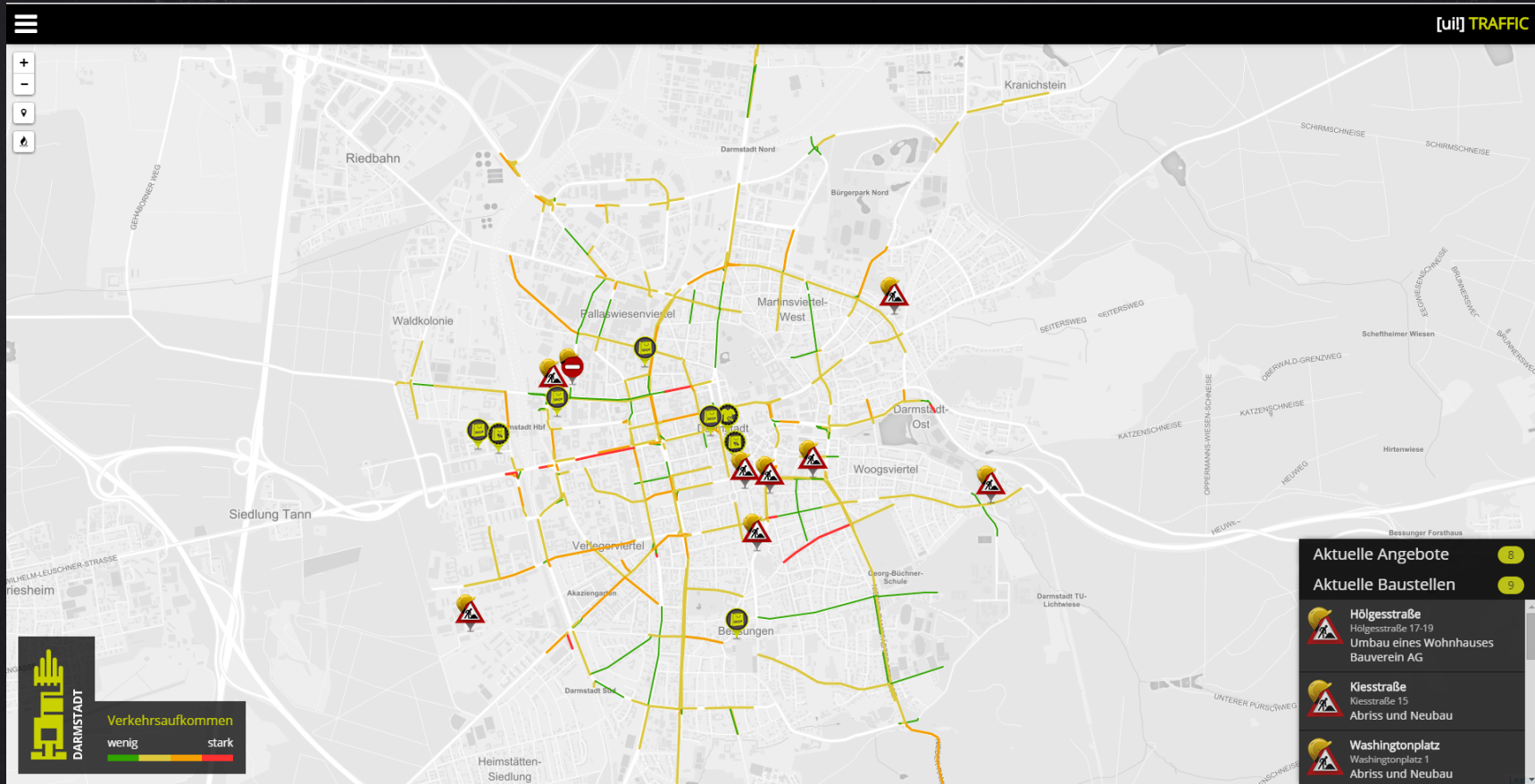
Darmstadt mit [ui!] zur "Digitalen Stadt"

OB Jochen Partsch und Bundeswirtschaftsministerin Brigitte Zypries bei der Urkundenüberreichung   © Wissenschaftsstadt Darmstadt
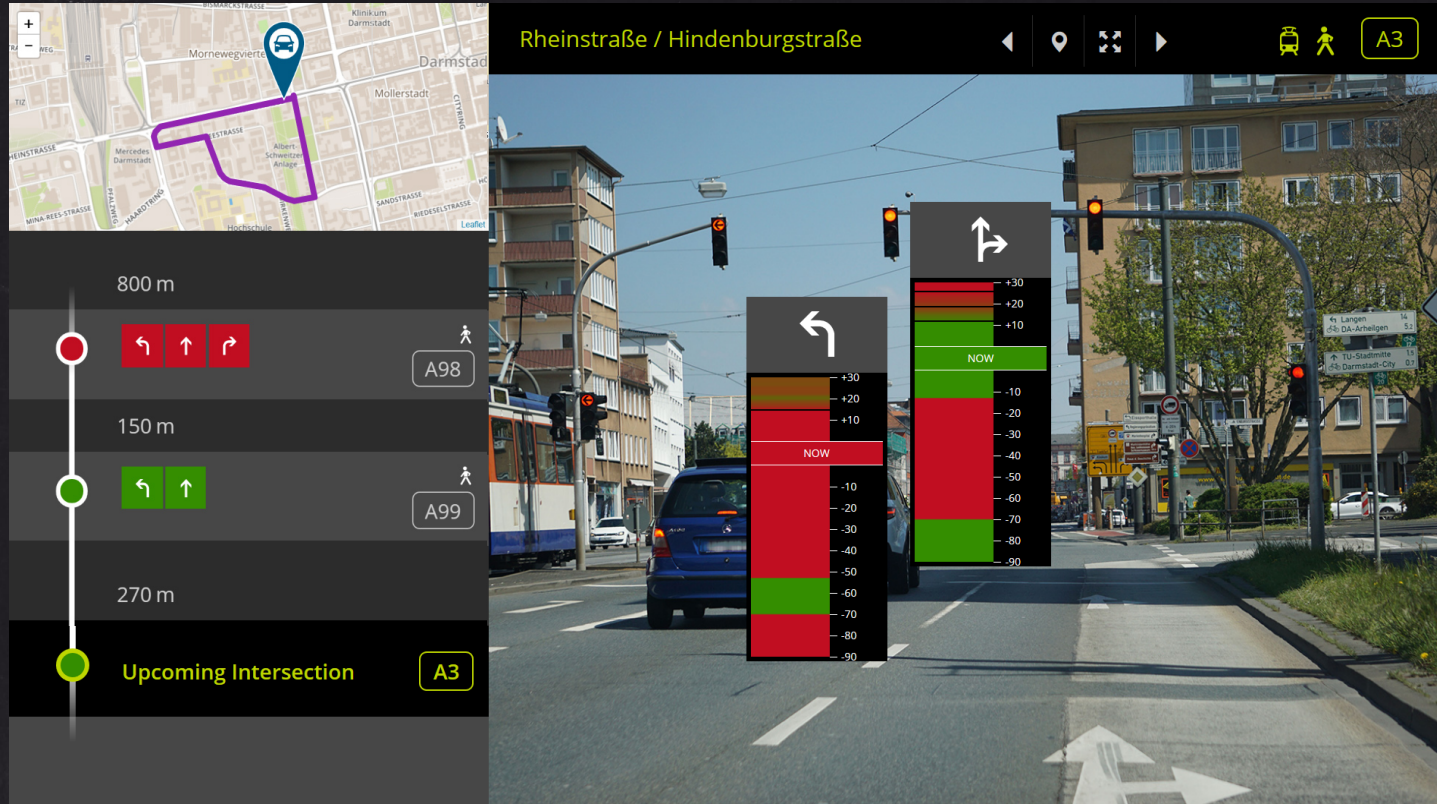
Die Wissenschaftsstandt Darmstadt ist Gewinner des Wettbewerbs „Digitale Stadt", den der Digitalverband Bitkom gemeinsam mit dem Deutschen Städte- und Gemeindebund (DStGB) ins Leben gerufen hat. Bei der Erstellung des Antrages war [ui!] mit CEO Prof. Dr. Lutz Heuser, neben mehr als 20 Partnerunternehmen, maßgeblich beteiligt.

Neben den Bereichen Energieversorgung, Schulen, und dem Gesundheitswesen soll insbesondere der Verkehrssektor mit neuesten digitalen Technologien ausgerüstet und ausgebaut werden. Zudem sollen künftig die öffentliche Verwaltung innovative Online-Anwendungen und der Handel
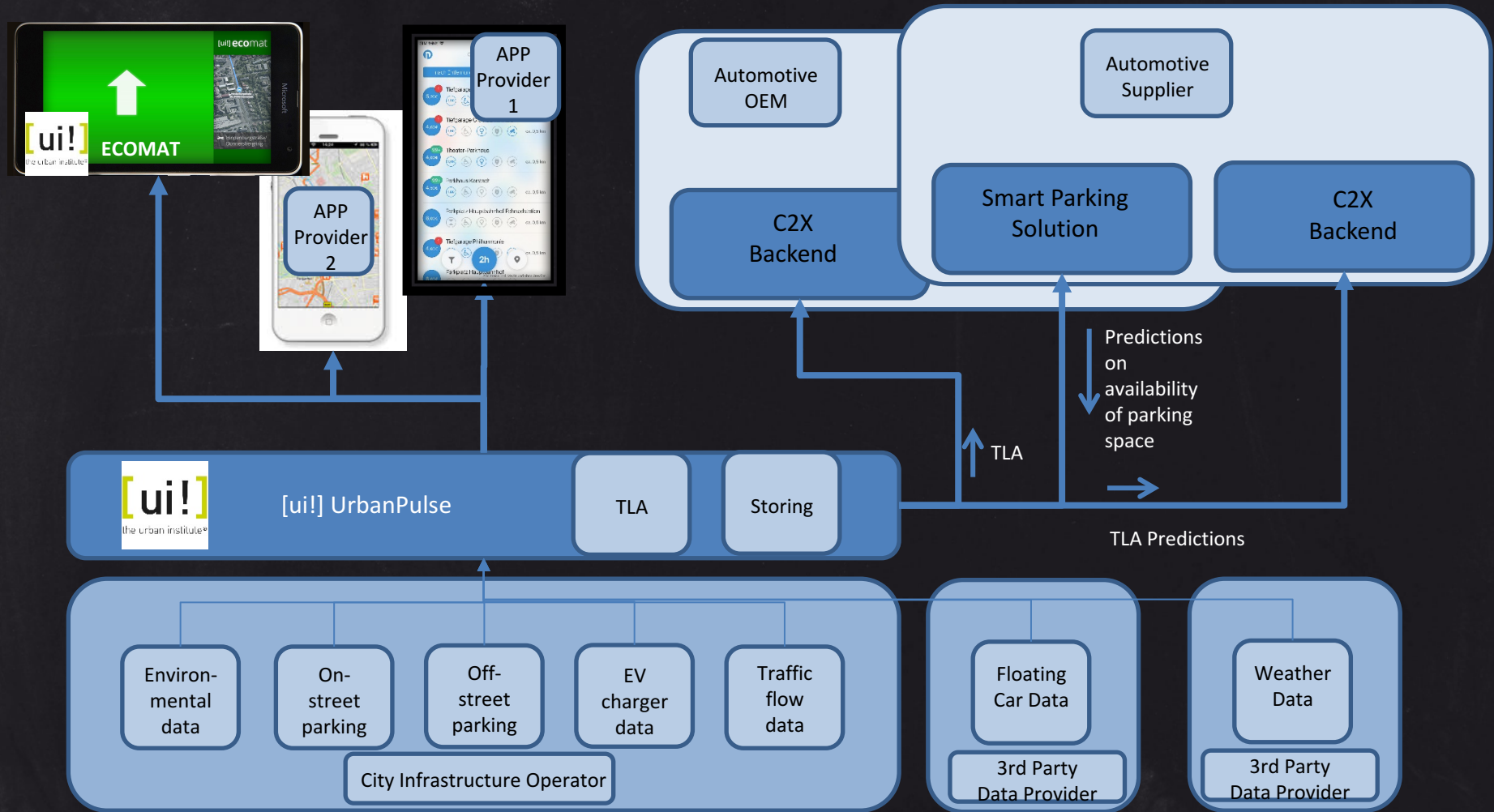
Realtime traffic information for the citizens

Traffic light assist - Web App

[ui!]
the urban institute®

[ui!] the urban institute®

Smart Region Sunshine Coast

Integrated multi-functional Humble Lampposts.

UrbanPulse

67 BPM

HISTORY · REALTIME · FORECAST

Oct 31, 2016 09:12:23

Caloundra
SUNSHINE COAST · QUEENSLAND · AUSTRALIA

WATER CONSUMPTION
Map | i

Location: Caloundra

2 Litres

were consumed within the last 15 minutes

2/2 DIGITALLY MONITORED

67 l WERE CONSUMED WITHIN THE LAST 24H

SMART LIGHTING
i

56 of 56 lamp posts connected

2.68 kW

Lights on — 0% · 50% · 100% — **98 %**

Brightness level — 0% · 50% · 100% — **92 %**

SMART WIFI
Map | i

Location: Caloundra

6 %

of nearby devices are connected to the WiFi

95/95 ACCESS POINTS IN OPERATION

74 DEVICES CONNECTED

ENVIRONMENT
Map | i

2 of 2 sensors connected

	lx AMBIENT LIGHT		1004 hPa BAROMETER
54.3 % HUMIDITY		8.5 °C TEMPERATURE
0 µg/m³ DUST		499 ppm CO_2
0 ppb OZONE		49 dBA SOUND INTENSITY

PARKING SPACE
i

Location: Caloundra

13/35 Parking bays available

63% in use

URBAN TRASH BINS
Map | i

0 trash bins connected

0 bins FULL

0 bins FILLED

0 bins EMPTY

◄ ADJUST DISPLAYTIME ►

TIMELINE

REALTIME

200 · 150 · 100 · 50

-11h · -10h · -9h · -8h · -7h · -6h · -5h · -4h · -3h · -2h · -1h

HISTORY · FORECAST

+1h · +2h · +3h · +4h · +5h · +6h · +7h · +8h · +9h · +10h · +11h

Smart Services Portfolio

[ui!] INTEGRATION

Public Internet access as a basis for integrated urban infrastructures.

[ui!] TRAFFIC

Traffic information in real time at a glance for a future-oriented, sustainable urban mobility.

[ui!] CROSSFLEET

Electric vehicles as an innovative business model to optimize the use of electric mobility within the mobility service of fleets.

[ui!] PARKING

Rapid, sustained and real-time overview of the current parking situation within a city.
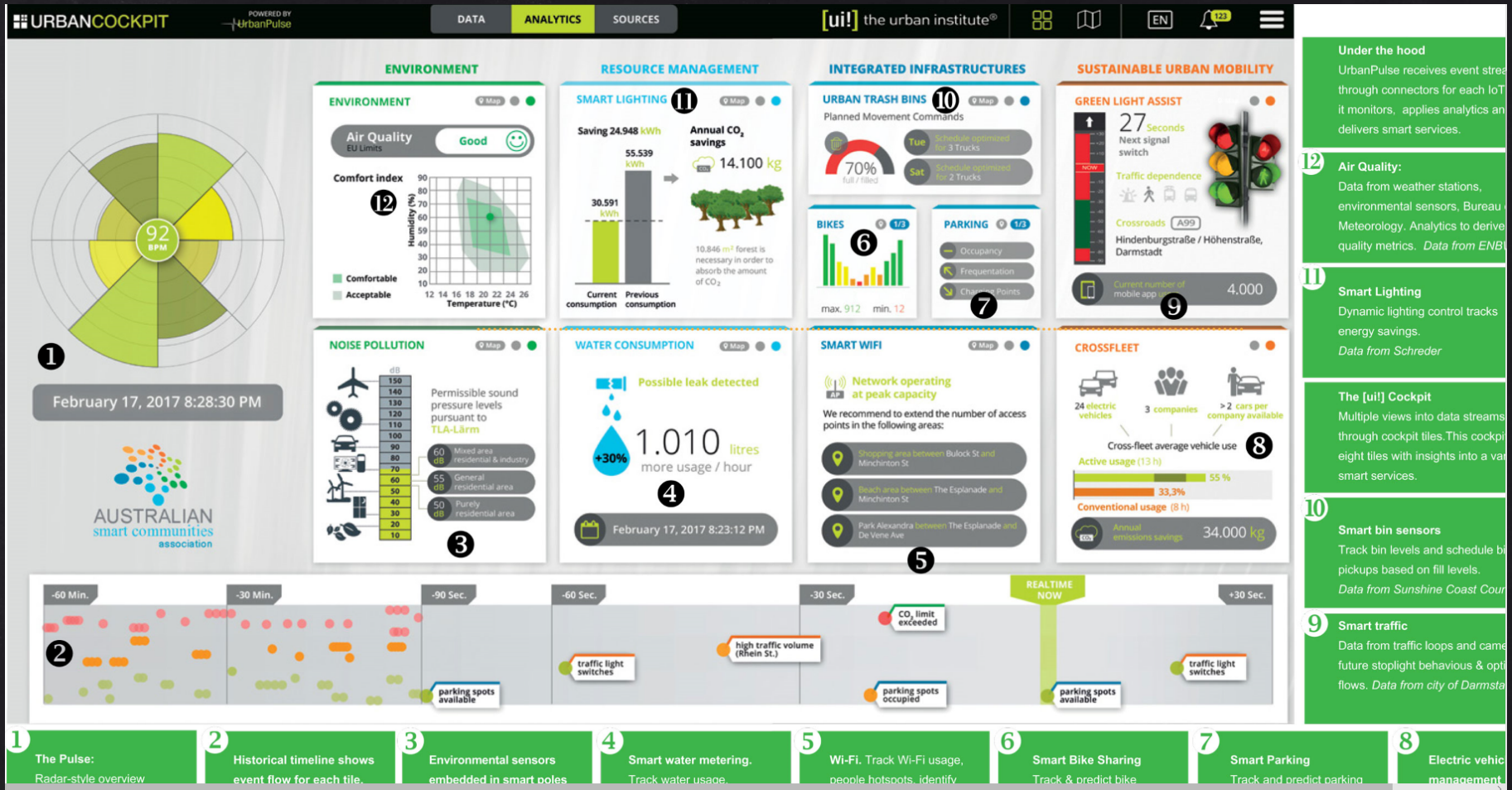
[ui!] ENVIRONMENT

Climate data from the urban environment, prepared and displayed for citizens of the city.

[ui!] ENERGY

Real-time energy consumption and recovery data as well as energy and security management for property & lodgings.

www.ui.city

[ui!]

CHEMNITZ
Zwickauer Straße 223a
D- 09116 Chemnitz
T +49 (0) 371 8 57 98 59
chemnitz@the-urban-institute.de

DARMSTADT
Julius-Reiber-Straße 15a
D- 64293 Darmstadt
T +49 (0) 6151 4 93 20 60
darmstadt@the-urban-institute.de

MÜNCHEN
c/o GATE, Lichtenbergstr. 8
D- 85748 Garching bei München
T +49 (0) 89 54 84 20 95
muenchen@the-urban-institute.de

BERLIN
Fasanenstraße 3
D- 10623 Berlin
T +49 (0) 30 208 47 24 40
berlin@the-urban-institute.de

WALLDORF
Haydnstraße 34
D- 69190 Walldorf
T +49 (0) 6151 49 320 60
walldorf@the-urban-institute.de

New York
One World Trade Center
285 Fulton Street, Suite 8500
New York, NY 10007
Tel   +1-212-220-7177
usa@ui.city

Australia
c/o Innovation Centre
90 Sippy Downs Drive
Caloundra 4556 QLD Australia
T +61 411 511 122
australia@ui.city

Hungary
Egry József u. 18, V1 Building C wing.
Budapest, 1111,
Budapest University of Technology
and Economics
T (+36) 1 463 34 19
hungary@ui.city

www.ui.city

Thank you

[ui!]

..making cities
even smarter