



# SMARTCITY DUISBURG



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DUISBURG**

# What can you expect today?

**1**

This is Duisburg

**2**

The Smart City Duisburg eco-system

**3**

Smart City Duisburg Projects

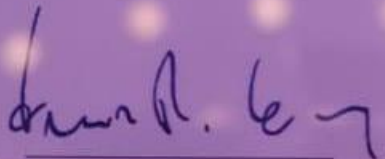
## 28th of May 2019: Award ceremony for the eGovernment competition 2019

- » The eGovernment competition is under patronage of the Head of the Office of the German Chancellor .
- » Duisburg won the silver medal for „Best digitalization project in cities/ regions“ with the Smart City concept.





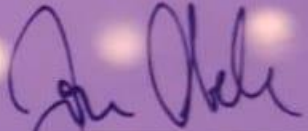
Für den Schirmherrn:  
Prof. Dr. Helge Braun,



Für die Jury:  
Franz-Reinhard Habel,



Für die Ausrichter:  
Christian Korff,



Für die Ausrichter:  
Jan Ahele, Partner

1

# This is Duisburg

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- » Where do we come from?
- » What is special about our city?
- » Why do we need to become „smart“?





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## History of Duisburg

First settlements  
in the first  
century

1655  
foundation of  
the first  
university

Gerhard  
Mercator,  
famous  
cartographer

Industrialization  
in the  
19th century

First  
production  
systems for  
textile and  
tobacco in the  
17th century





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15th  
biggest  
city in  
Germany

Over  
500.000  
inhabitants

Central  
location in  
the  
European  
Union

**Duisburg  
today**

233 km<sup>2</sup>  
area

5th biggest  
city in North  
Rhine  
Westfalia



# Steel location Duisburg



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Largest steel location in Europe with 7 blast furnaces. About half of the pig iron produced in Germany and one third of the crude steel are produced in Duisburg.

» Structural change:  
From 1960 to today decline from 70,000 to 16,000 steel workers.



# Culture, Landscape and Sport



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- » Remarkable Culture Institutions
- » International Festivals
- » Lakes and Natural Places
- » International Sporting Events
- » Olympics application for „Rhine Ruhr City 2032“



Six-Lakes Plate



Rhine and Ruhr  
River



Sport Park  
Wedau



# Duisburg is one of the most important Logistic Sites in Germany



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## Duisport

- » Biggest Inner Port of the World
- » Straight connected with the Sea Port of Rotterdam
- » International Freight Trains: Yuxinou, Hanxinou
- » Terminal for combined Freight Transport
- » International Logistics Centre logport





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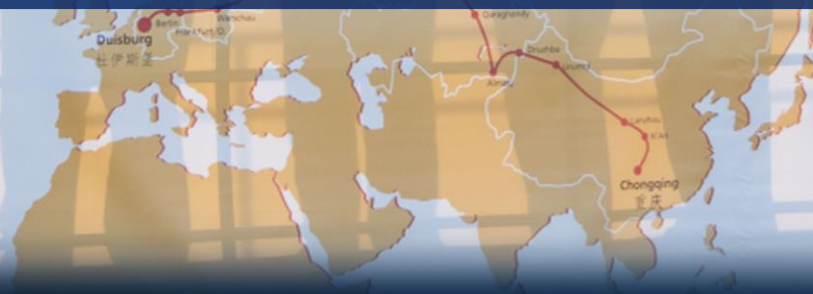


Die "Neue Seidenstraße" - hier zur Ankunft der  
渝新欧铁路列车抵达  
Duisburg, 29. März 2014  
杜伊斯堡, 2014年3月29日

Chinese State President Xi Jinping visits Port of Duisburg  
丝绸之路 - 中欧铁路  
on 29 March 2014

## International relations

- » China as an important partner for city partnerships, logistic and technology
- » New Silk Road – Railway line between China and Europe
- » Students from all over the world study at University of Duisburg-Essen



# The research and education sector in Duisburg is growing permanently



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## University of Duisburg-Essen

- » one of the youngest and largest universities in Germany
- » holding place 19 in the Times Higher Education Ranking of the world's 200 best young universities
- » member of the University Alliance Ruhr with partnerships around the globe
- » ~ 43.000 students in total
- » 14 % of the students have a foreign entrance qualification:
  - Asia 61 %
  - Europe 27 %
  - Africa 9 %
  - The Americas 3 %
- » Around 500 partnerships



**Fraunhofer Institute for Microelectronic Circuits and Systems** Research, development and pilot fabrication of microelectronic solutions for industrial and public clients

**Fraunhofer-inHaus-Center**  
Novel room concepts, innovative construction materials, intelligent building technology, and electronic systems for assisted living.

**The hydrogen and fuel cell center ZBT GmbH**  
Development of fuel cells, battery technologies, hydrogen generation processes

# 2

## The Smart City Duisburg eco-system

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- » What does Duisburg aim for?
- » How do we work and decide?
- » With whom do we work?



# Goals of the Smart City Duisburg eco-system



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- » To develop a sustainable vision for Duisburg
- » To increase the economic efficiency of the city
- » To improve the citizen's quality of life in Duisburg



**Gather ideas  
of citizens**



**Develop  
innovations**



**Staff  
participation**



# The city of Duisburg is working together with partners to become a Smart City



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On the 9th of July 2018, all partners signed the letter of intent.

This laid the foundation for the conception of the Masterplan for a Digital Duisburg.



# The partner organisations with their various competences are essential for city development



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City of Duisburg



University of  
Duisburg-Essen



Subsidiary for  
supply and  
transport



Fraunhofer Institute  
for Microelectronic  
Circuits and Systems



Subsidiary for  
recycling  
economy



Chamber of industry  
and commerce for  
Duisburg and the  
Lower-rhine region



Employer's  
association of  
Duisburg



Subsidiary for  
housing



Huawei

Partnerships with further organisations  
are currently in progress:



Association for economic  
development



Harbour and innovations  
platform for logistic



Tourism and city marketing  
for Duisburg



# The Special Office for Digitalization coordinates internal and external processes



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## Political governance

All main decisions need a presentation, discussion and resolution in the city council.

- Summer 2018: The **Concept for the Masterplan Digital Duisburg** contains the idea process, areas of activity and partners
- Summer 2019: The **Masterplan Digital Duisburg** contains concrete projects, a process for project management and all partners

## Smart City governance

Strategy

Strategy council

Decision

Program council

Planning and  
controlling

PMO

Execution

Smart City  
Projects

GEO/GIS

E-Government



# Becoming a smart city is still a process full of administration and bureaucracy



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**Der Oberbürgermeister**  
OB/10 Kluge, 2223

Drucksache-Nr.  
18-0273  
Datum  
01.03.2018

**Beschlussvorlage** öffentlich

Zur Sitzung	Sitzungstermin	Behandlung
Rat der Stadt	05.03.2018	Vorberatung 1. Lesung
Personal- und Verwaltungsausschuss	27.04.2018	Vorberatung
Rat der Stadt	07.05.2018	Entscheidung

**Betreff**  
Konzeption zur Erarbeitung eines "Masterplan Digitales Duisburg"

**Beschlussentwurf**  
Der Rat der Stadt beauftragt die Verwaltung, die Organisation zur Erarbeitung eines „Masterplan Digitales Duisburg“ zu schaffen und die Phasen 1 – 3 des vorgeschlagenen Konzeptes umzusetzen.



**Der Oberbürgermeister**  
IV/10 Kluge, 2223

**Mitteilungsvorlage** öffentlich

Zur Sitzung	Sitzungstermin	Behandlung
Ausschuss für Personal, Verwaltung und Digitalisierung	21.09.2018	Kenntnisnahme

**Betreff**  
**Digitaler Masterplan – Handlungsfeld E-Government**



**Der Oberbürgermeister**  
IV-01 Gonschior, 8605

Drucksache-Nr.  
18-0866  
Datum  
06.09.2018

**Mitteilungsvorlage** öffentlich

Zur Sitzung	Sitzungstermin	Behandlung
Ausschuss für Personal, Verwaltung und Digitalisierung	21.09.2018	Kenntnisnahme

**Betreff**  
**Sachstandsbericht über die Konzeption zur Erarbeitung eines „Masterplan Digitales Duisburg“**

Die Stabsstelle Digitalisierung legt dem Ausschuss für Personal, Verwaltung und Digitalisierung einen Bericht über den aktuellen Sachstand zur Konzeption „Masterplan Digitales Duisburg“ vor.

# The development of a Smart City is expensive



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Government aid is necessary to realize projects in Duisburg, but strict requirements need to be fulfilled.

## Examples for development programs in Duisburg:

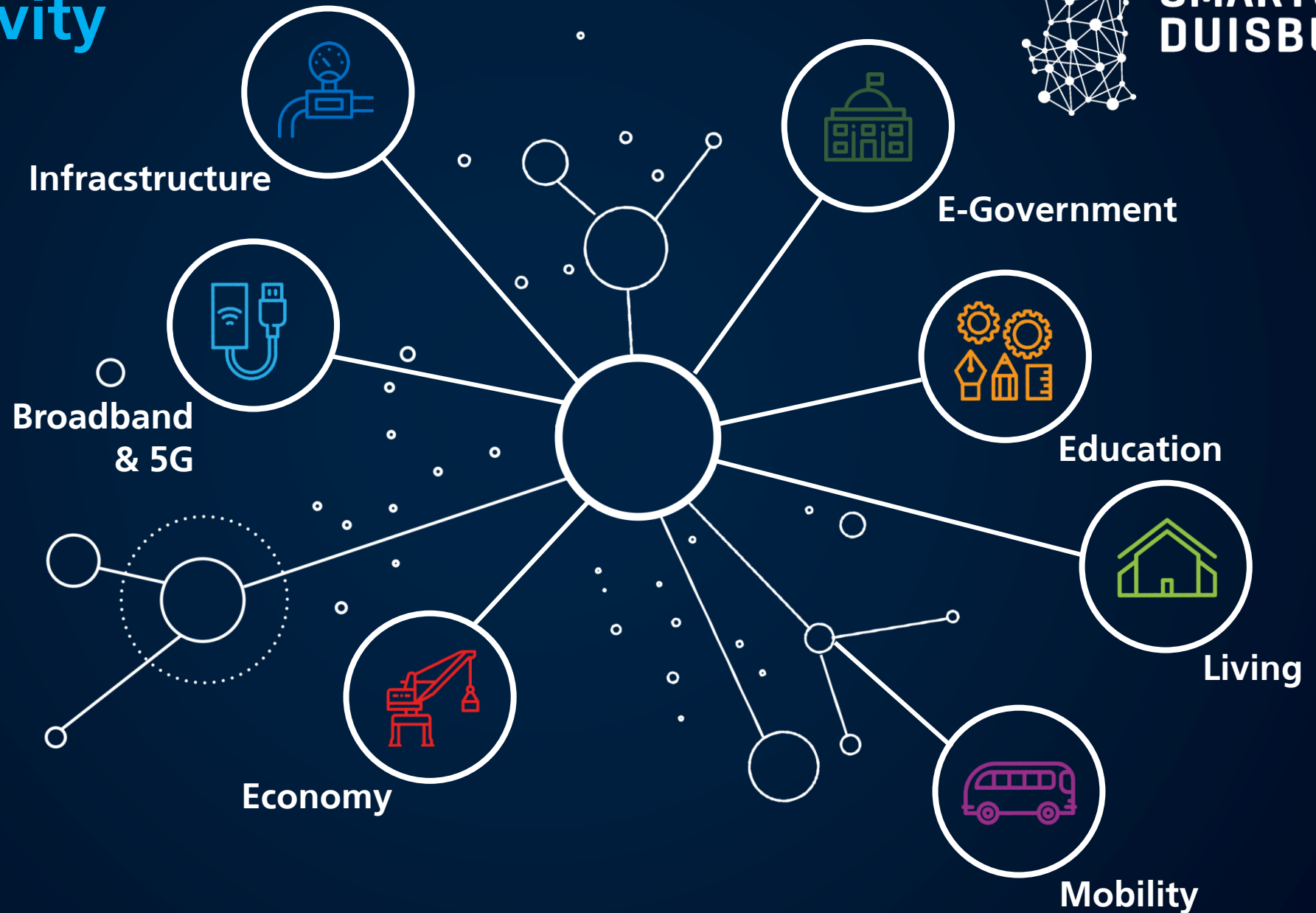
- » Competition „Modell project Smart Cities“ by the German ministry of the interior:  
up to 17,5 mio. EUR (ongoing application)
- » Government aid for broadband expansion:  
around 18 mio. EUR
- » Different development programs for the digitalization of schools

# Smart City Duisburg

## Areas of activity



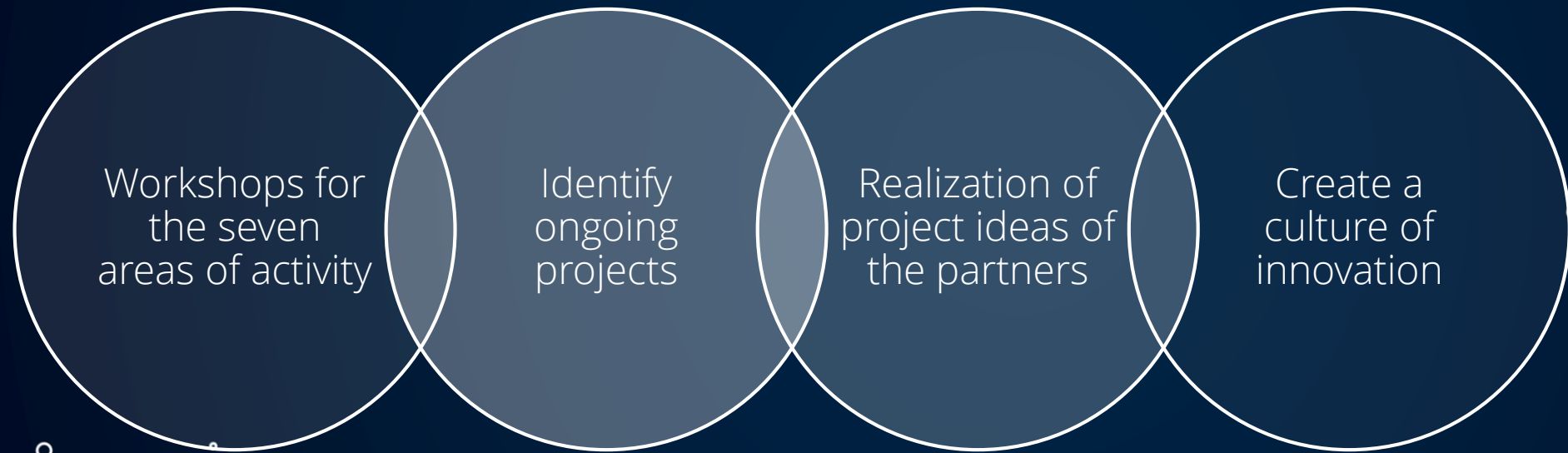
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# A systematic innovation process was defined for the Smart City Duisburg eco-system



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## The first step for gathering ideas:

Workshops with citizens, and participants from city government / administration, political parties, university and firms

# The acceptance process needs to be managed actively



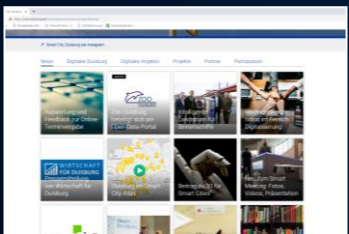
- » make the work sustainable
- » involve citizens and employees in digitalization processes
- » create understanding from employees and a will for change

## involving citizens

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Future workshops with citizens  
(two in 2019)



Communication via  
duisburgsmartcity.de



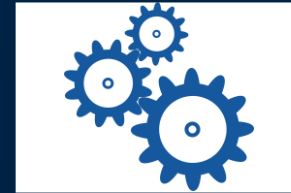
Public events to present the  
present project status

## involving employees

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Future lab with city administration  
employees



Change Management in the  
city administration



First Digitalization teacher at an Institute  
for Studies on the Municipal Administration



Cooperation with the university for  
Smart City study programmes

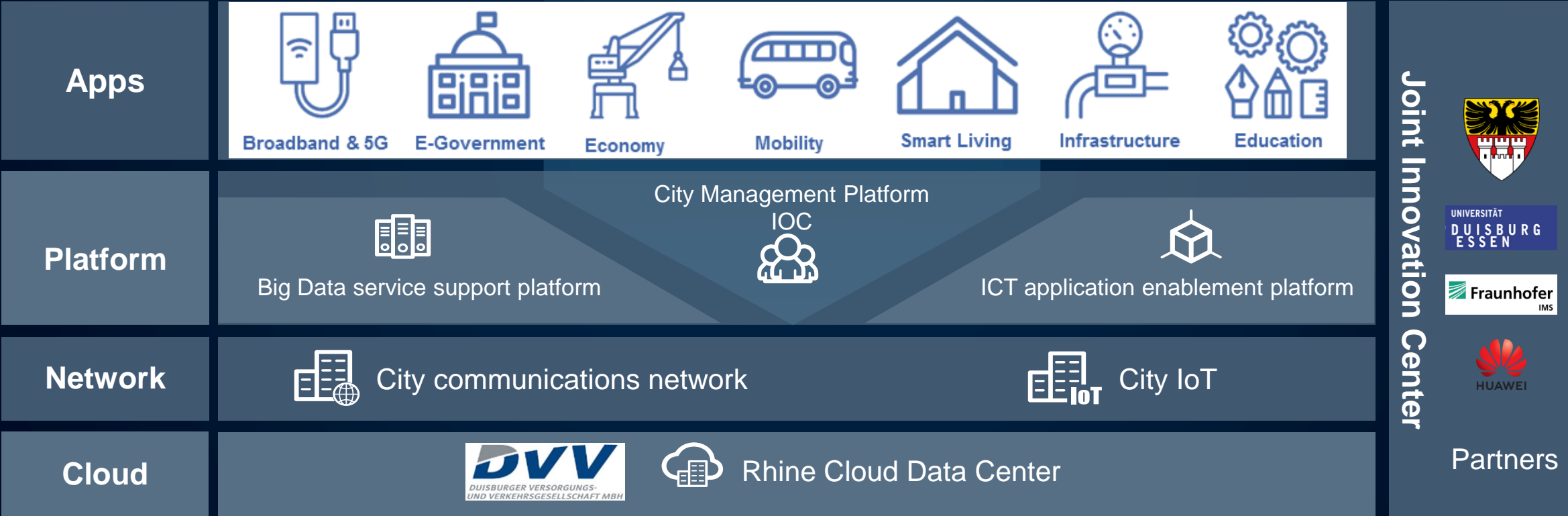
# Target concept for the smart city architecture



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# 3

## Smart City Duisburg Projects

- » How to transform the ideas into projects?
- » Which projects are realized?
- » What's next?

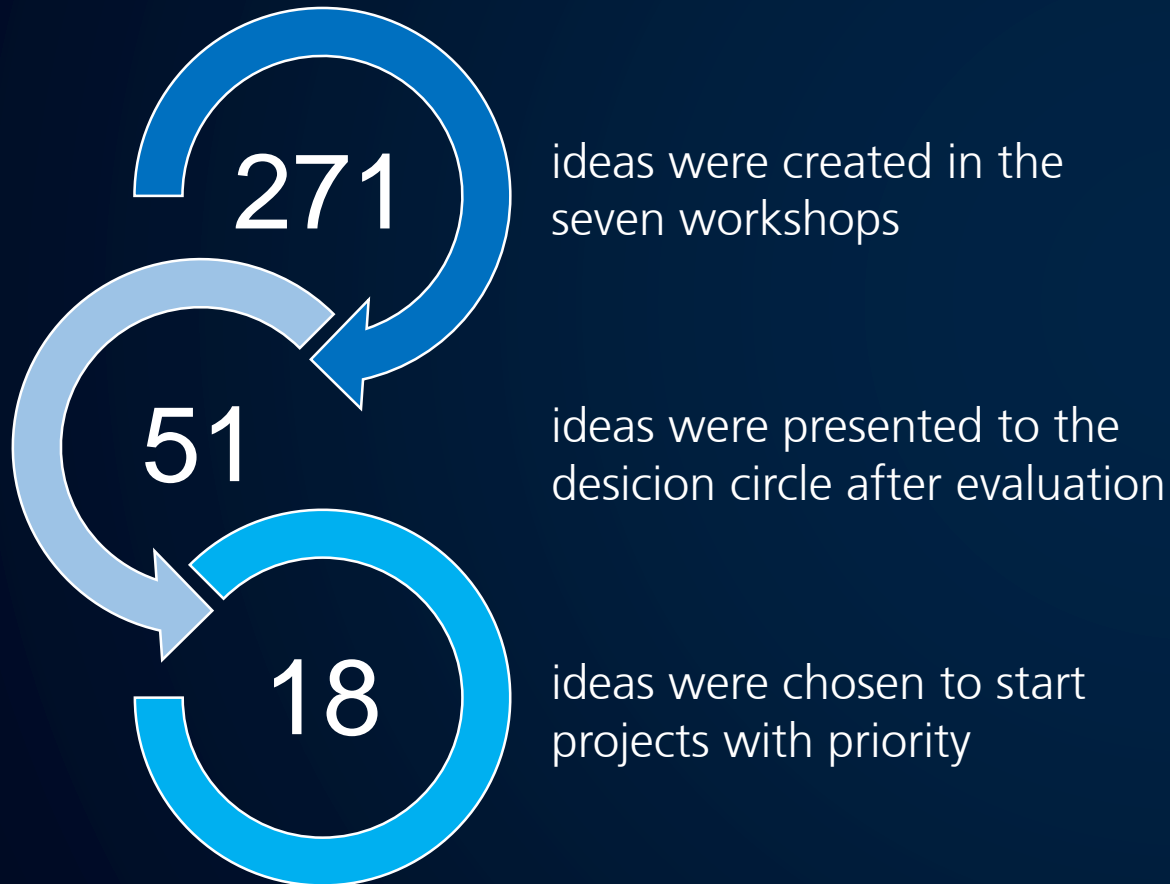




# After gathering and evaluating the ideas, the realization of projects has started



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## Continuous innovation process

- » Everyone can send new ideas via [duisburgsmartcity.de](https://duisburgsmartcity.de). New ideas are included in the idea backlog.
- » The smart city team constantly evaluates the backlog and suggests to initiate new projects.



## Project example 1: Drone for fire brigade

In cooperation with the German Aerospace Center, the city of Duisburg put in use an Unmanned Aerial Vehicle (UAV) for fire brigade responses:

### Vertical Take-Off and Landing UAV

Started in  
january  
2019



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Flight time:  
minimum 90 min

Speed:  
minimum 60 km/h

Payload:  
minimum 2 kg

Save flight use  
out of sight

Automatic flight  
and manual control

# Project example 1: Drone for fire brigade

## Several use cases for drone missions

- » Area scouting
- » Early scouting of site of operation
- » Scouting of approach roads
- » People search
- » Smoke detection and spread
- » High tide
- » Major events with crowds of people



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Video available on Youtube:  
<https://youtu.be/1ed1jGud-u4>

## Project example 2: Portal for voluntary activities

New portal on duisburg.de

- » Organizations and non-profit associations can offer voluntary activities
- » Citizens can search for specific activities (district, kind of activity etc.)

Started in  
may 2019



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Nach Angeboten suchen

Volltextsuche

Regionale Zuordnung

Bitte wählen



Erreichbarkeit

Bitte wählen



Thema

Bitte wählen



Zielgruppe

Bitte wählen



SUCHEN

## Project example 3: Open Data Portal

The city provides various data for everyone on [opendata-duisburg.de](http://opendata-duisburg.de).

### Goal:

- » Raise attractiveness for economy and startups
- » Transparency
- » Efficient information handling
- » Partner organizations are asked to provide their data too.

Started in  
march 2019



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The screenshot shows the homepage of the SmartCity Duisburg Open Data portal. At the top left is the logo for 'DUISBURG am Rhein'. To the right is a search bar with the text 'Suchen'. Below the logo is a navigation menu with the items 'DATEN', 'BETEILIGTE', and 'DATEN ANFRAGEN'. The main content area features a large, colorful network diagram on the left and the text 'SMARTCITY DUISBURG Open Data' in large blue letters on the right. Below this is a grid of seven data categories, each with an icon, a title, and the number of datasets available:

BEVÖLKERUNG	BILDUNG UND WISSENSCHAFT	GEO	GESUNDHEIT	INFRASTRUKTUR, BAUEN UND WOHNEN	KULTUR, FREIZEIT, SPORT UND TOURISMUS	VERWALTUNG, HAUSHALT UND STEUERN
11 DATENSÄTZE	3 DATENSÄTZE	25 DATENSÄTZE	2 DATENSÄTZE	2 DATENSÄTZE	4 DATENSÄTZE	5 DATENSÄTZE

At the bottom of the page, there are three icons: a checkmark, a heart, and a leaf.

## Project example 4: Online Appointments

- » Pilot project in two citizen's administration office from January 2019 to April 2019.
- » Since May 2019, appointments for all services in Duisburg's citizen's administrations offices can be booked online.
- » Soon: Extend the service to the Road Traffic Licensing Department

Started in  
January  
2019



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Willkommen auf der Online-Terminbuchungsseite der Bürger- Service- Stationen. Bitte wählen Sie Ihre gewünschte Dienstleistung und Termin aus.

**Pass- und Ausweiswesen**

<input type="checkbox"/>	1 ▾	Personalausweis beantragen	<a href="#">Link zu Informationen</a>
<input type="checkbox"/>	1 ▾	Reisepass beantragen	<a href="#">Link zu Informationen</a>
<input type="checkbox"/>	1 ▾	Kinderreisepass (beantragen / Gültigkeit verlängern)	<a href="#">Link zu Informationen</a>
<input type="checkbox"/>	1 ▾	Ausstellung eines vorläufigen Personalausweises Reisepasses	<a href="#">Link zu Informationen</a>
<input type="checkbox"/>	1 ▾	Abholung von Personalausweisen und Reisepässen	

**Meldeangelegenheiten** >

**KFZ- /Führerscheinangelegenheiten** >

**Gewerbemeldeangelegenheiten** >

## Project example 5: Landstrom

„Land electricity“ is comparable to charging station for ships.

- » Ships in the Duisburg harbour used to leave the diesel engine running during their stop.
- » Six new electricity stations in the harbour are already available, an extension is planned
- » Booking and payment via a mobile app
- » Less CO2-emission

Started in  
march 2019



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# Further prioritized ideas



Wifi in bus, tram and stations



Real time bus



Optimised control of traffic flow



Smart street lightning



Portal for Startups



IoT Network (LoRaWan)



3D scan of municipal buildings



Construction site viewer



Online approval portal for buildings



Portal for commercial areas



„Serviceportal“ (online end-to-end processes for administration services)



to be continued





# SMARTCITY DUISBURG

Thank you!

Contact us via  
[smartcity@stadt-duisburg.de](mailto:smartcity@stadt-duisburg.de)

or visit our Social Media channels:



@duisburgsmartcity



@DUsmartcity