## GATE Mission & Vision

The **mission** of GATE CoE is to develop Big Data applied research, innovation and education in collaboration with government, industry and entrepreneurs. Based on this, it will generate well educated professionals, new business opportunities and societal impact in Bulgaria and Europe.

The **vision** is that GATE is the heart of the fastest growing Big Data ecosystem in Europe. GATE CoE is complementary and equal to the top Big Data centres in Europe.

## GATE Objectives

The GATE CoE is a purpose-built institute, established as a joint initiative between Sofia University - the most prestigious educational and scientific hub in Bulgaria, Chalmers University of Technology, Sweden – an outstanding European institution with extensive experience in research, education and innovation in Big Data area, and Chalmers Industrial Technology, Sweden – a leader in innovation management, university-industry collaboration and technology transfer.

1. Institutionalize GATE CoE as a global competitive ecosystem for Big Data research and innovation
2. Strengthen the human potential of scientists and technology developers in the Big Data Value chain areas
3. Strengthen the innovation potential of the CoE through University-Government-Industry-Society collaboration
4. Create a motivating entrepreneurship environment
5. Develop advanced research integrated and interoperable with strategic national and EU infrastructures
6. Integrate with European Research Area and achieve high worldwide recognition

## Project Data

### GATE: Big Data for Smart Society

**Funding programme**
Horizon 2020 WIDESPREAD-2018-2020 TEAMING Phase 2 programme

**Acronym**
GATE

**Start date**
1 September 2019

**Duration**
7 years

**Project partners**
Sofia University "St. Kliment Ohridski"
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CHALMERS
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CHALMERS
INDUSTRITEKNIK

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# GATE

# Big Data for Smart Society

Spreading excellence for Society

# GATE Concept

## Research

The GATE Big Data research is governed by the principles of applied orientation, innovation and multidisciplinarity. The aim of the centre is to achieve a sustainable critical mass of researchers able to address challenging scientific and technological problems in the whole Value Chain by building excellence in the three technology areas: Data Insight, Data Analytics and Data Management, and in the cross-cutting area of Big Data Engineering and Development.

## Innovation

GATE will apply its research and will focus its Big Data innovation activities in four main application directions, called Strategic Application Themes (Future Cities, Digital Health, Intelligent Government and Smart Industry), which have very high economic and societal impact. The CoE will make significant contributions to competitiveness and productivity by promoting and providing Big Data solutions to private and public organizations in Bulgaria, EU and globally.

## Knowledge transfer

People are the main capital of the centre. Key enablers for creating excellent researchers are the attractive and equal opportunity working environment and capacity building through knowledge transfer. GATE is a focal point for Big Data knowledge, accumulated through transfer from its research network and distributed to the stakeholders' community and society. Knowledge transfer from partners and collaborators by means of mobility and training strengthens GATE research, innovation and overall capacity to reach excellence. Training and involvement in ongoing work of partners facilitate the adoption and further development of knowledge in the centre. The knowledge transfer to GATE ecosystem and society plays a strategic role for reaching maximum impact of GATE outcomes, as well as for creation of conditions for their implementation in economy and society.

## Business development

GATE is building an international ecosystem of collaborators and stakeholders mainly in Bulgaria and EU. GATE will drive the process of turning business opportunities into technical solutions by conducting market-oriented research, by new domain models and standards, new innovation ideas and value propositions, proof of concepts, viable products and commercial prototyping as well as IPR policy benefits. This will result in competitive business models for long-term stability and growth of the centre. Unique GATE "Intellectual Assets" such as data sets and models, analytical methods, algorithms and techniques, methodologies and tools are the fundamental output of the CoE. They bring value to its collaborators and stakeholders, enabling commercialization of GATE results.

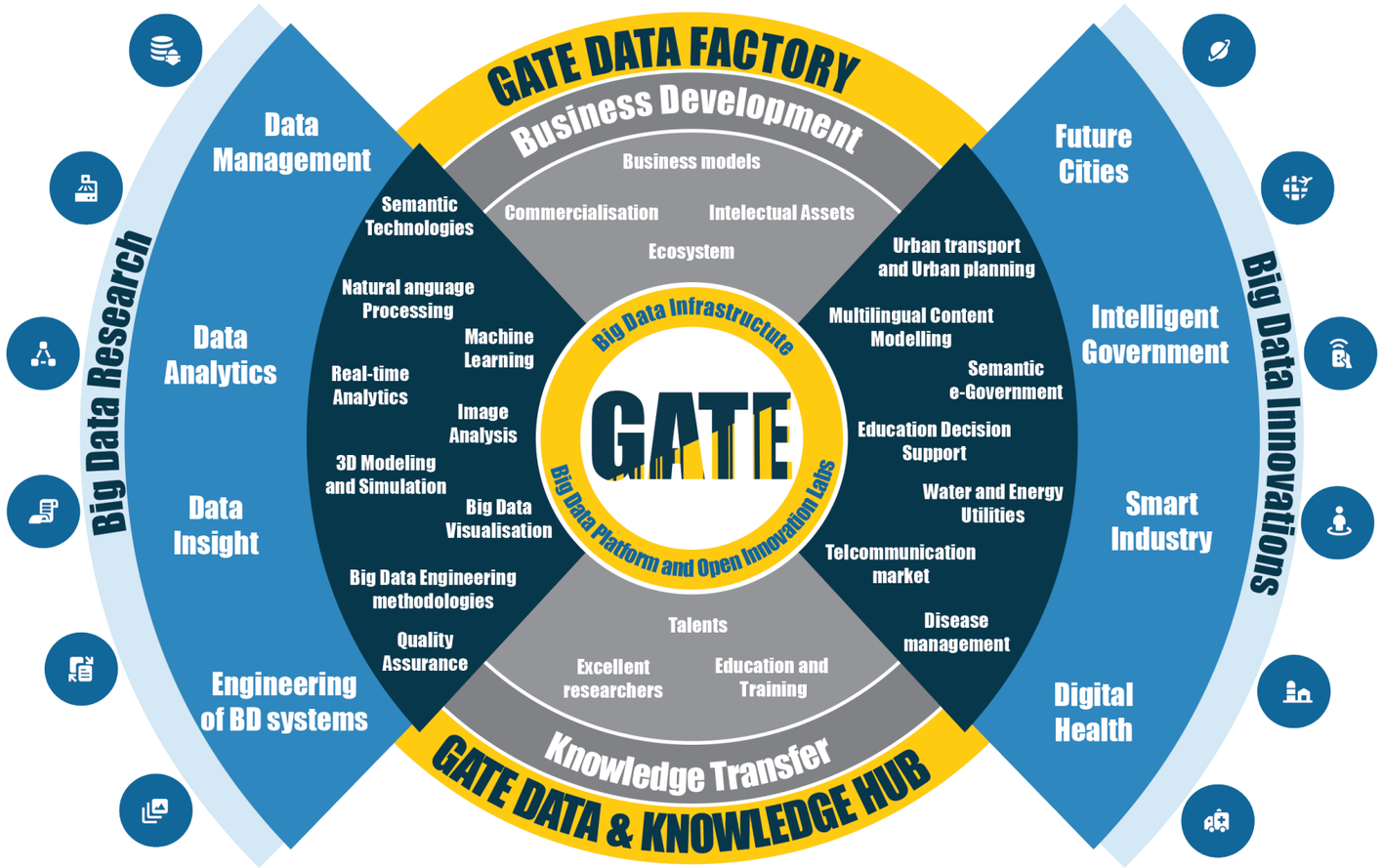
## Research Infrastructure

GATE will develop and establish an advanced Research Infrastructure:

- GATE platform will be designed in a modular fashion, with a degree of segregation of duties, and a focus on open standards. It can be customized to position a mix of products and tools from different providers;
- GATE Open Innovation Labs are planned for supporting research and innovation in the strategic application themes - the City Living Lab, the Visualisation Lab and the Digital Twin Lab.

## Data Hub & Data Factory

GATE Data & Knowledge Hub provide high quality pre-processed and curated data sets, aggregated structured, semi-structured or unstructured data combined from heterogeneous sources, metadata stored in a central catalogue with information on available datasets like size, schema, format, access control, etc. GATE will realize a Data Factory as a holistic interoperable platform to provide for data modelling, data management and orchestration, and facilitated access through open APIs.




# Interdisciplinary Research Approach

The following have been outlined by RIS3 and selected by the project team as particularly promising sectors in Big Data and GATE strategic application themes:

### 1 Intelligent Government

**Public services based on Open Data**

The collection and exploitation of real-time data from people, public authorities, public registries, etc. is the basis for creation of new ICT services and networks. The advanced value-added Open Data services facilitate access, navigation, searching and reuse of data for citizens and will increase efficiency in public administrations processes.

### 2 Smart Industry

**Manufacturing and Production**

To be competitive companies are pushed to transform into "Intelligent Enterprises" – capable of using data, people, and enterprise assets in aggregated and unique ways enabled by advanced technologies. GATE aims to overcome the low level of implementation and use of ICT by SMEs and low level of investments in ICT by enterprises that is outlined as a major challenge by Industry 4.0 strategy of Bulgaria

### 3 Future Cities

**Smart and Sustainable Cities**

GATE provides innovative solutions enabling the city to use technology, data and IoT to facilitate effective planning of infrastructure and services in order to improve the quality of life of the citizens. What is beyond the smart city is the information-rich city presented with intelligent models that support planning, design and analysis of all city dimensions and thus share the vision for a future city.

### 4 Digital Health

**New Generation e-Health services**

GATE team sees a lot of opportunities for contributing with advanced Big Data technologies to e-Health system in Bulgaria in order to early diagnose and further manage health disorders and help to deliver better living environment.

# GATE Research & Innovation Excellence

GATE provides excellent research and goes beyond state-of-the-art in the focus research areas:

1. Semantic Technologies
2. Real-Time Data Analytics
3. Artificial Intelligence
4. Digital Twin
5. Big Data engineering methodologies and Quality Assurance