

# Digital trends monitoring



# More than 6 million materials from different sources were analyzed

## Scientific publications



**3,2**  
million of scientific  
publications

**10** thousand  
organizations

**100**  
countries

## Patents



**2,5**  
million patents

**10** thousand  
organizations

**100**  
countries

## Investments



**\$800** billion

**100** thousand  
contracts

**100**  
countries

## Mass media



**100** thousand  
publications

**50**  
specialized media

## Research Benefits



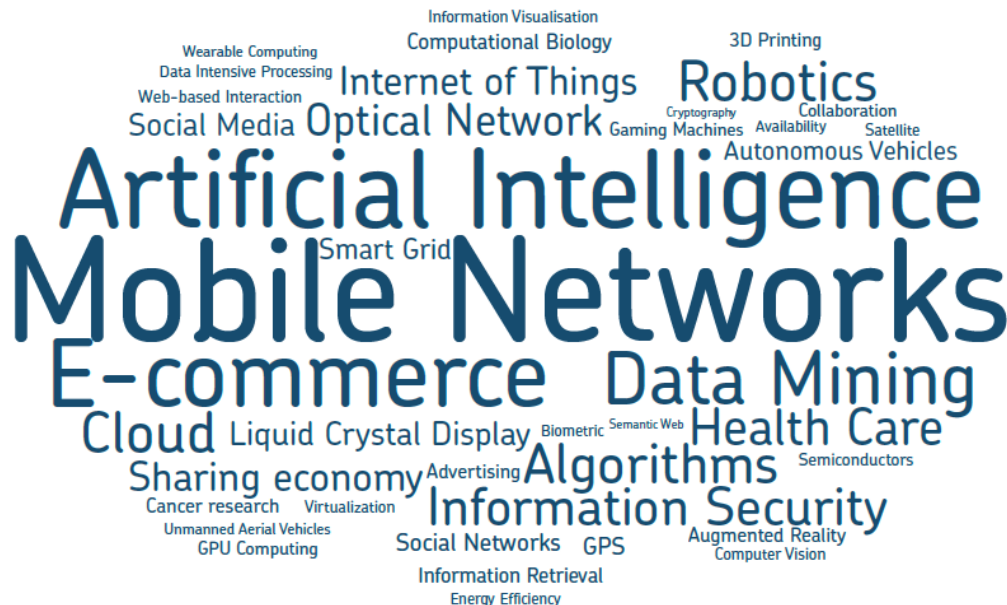
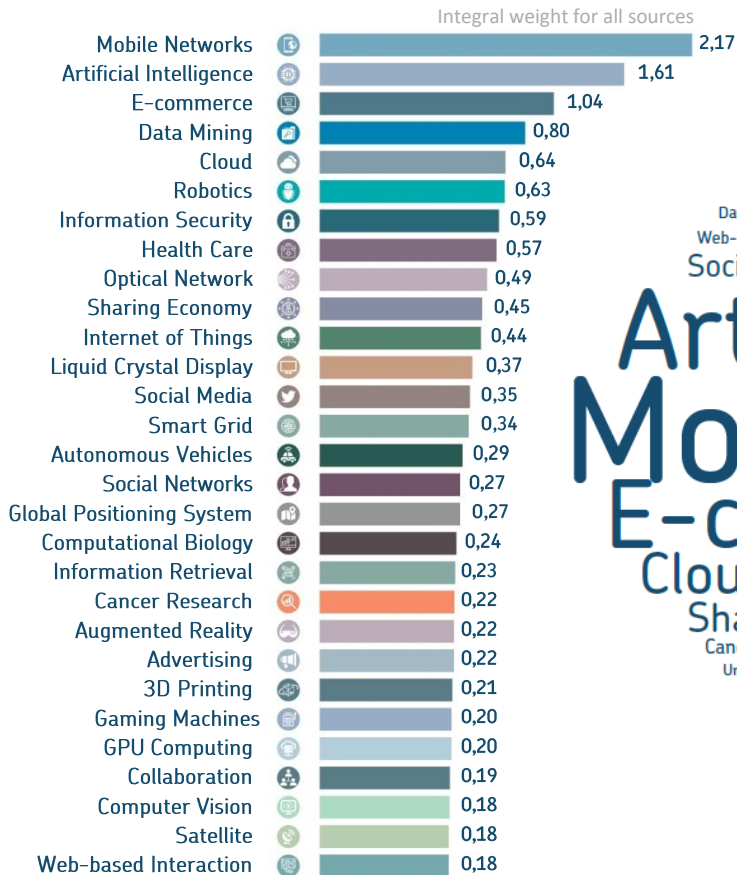
- ✓ Objective picture
- ✓ Quantitative analysis
- ✓ Machine learning, data mining
- ✓ Minimal participation of experts

CREATURE

DEVELOPMENT

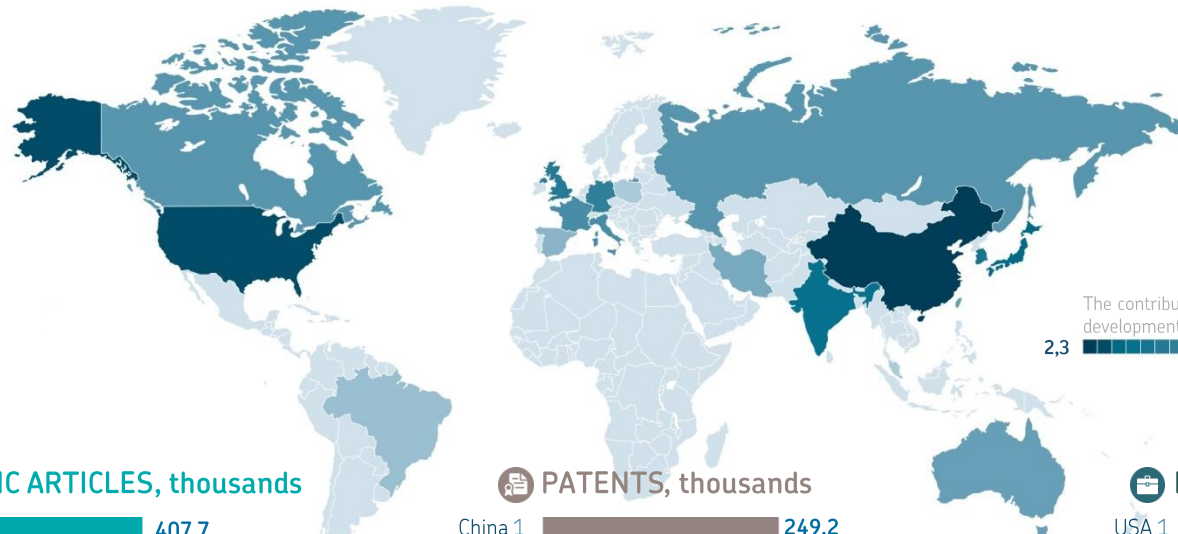
EXPLOITATION

# Overall trend ranking

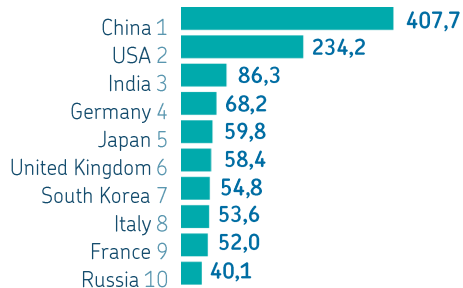


# China and the US are leading with a large margin on the contribution of countries to the development of digitalization

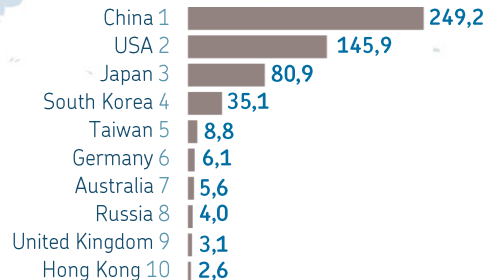
1 China 2 USA 3 Japan 4 India 5 South Korea 6 United Kingdom 7 Germany 8 France 9 Italy 10 Canada 11 Russia



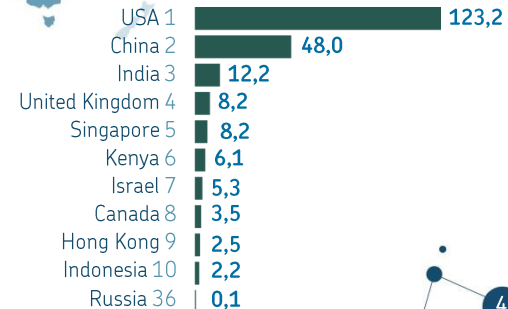
## 🔬 SCIENTIFIC ARTICLES, thousands



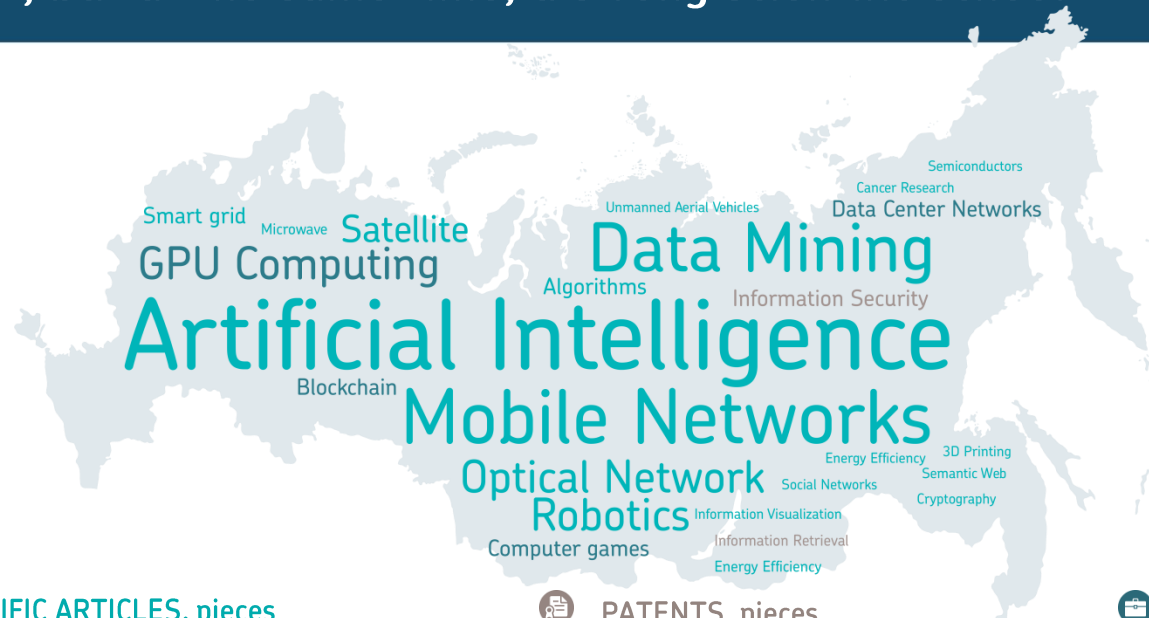
## 📄 PATENTS, thousands



## 💰 INVESTMENTS, \$ billion



# In Russia, there is the complexity of protecting intellectual property and investment, but at the same time, a strong scientific school



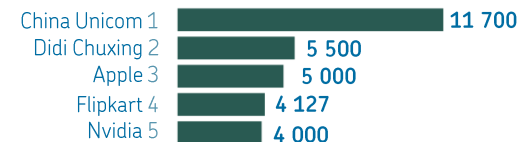
## SCIENTIFIC ARTICLES, pieces



## PATENTS, pieces

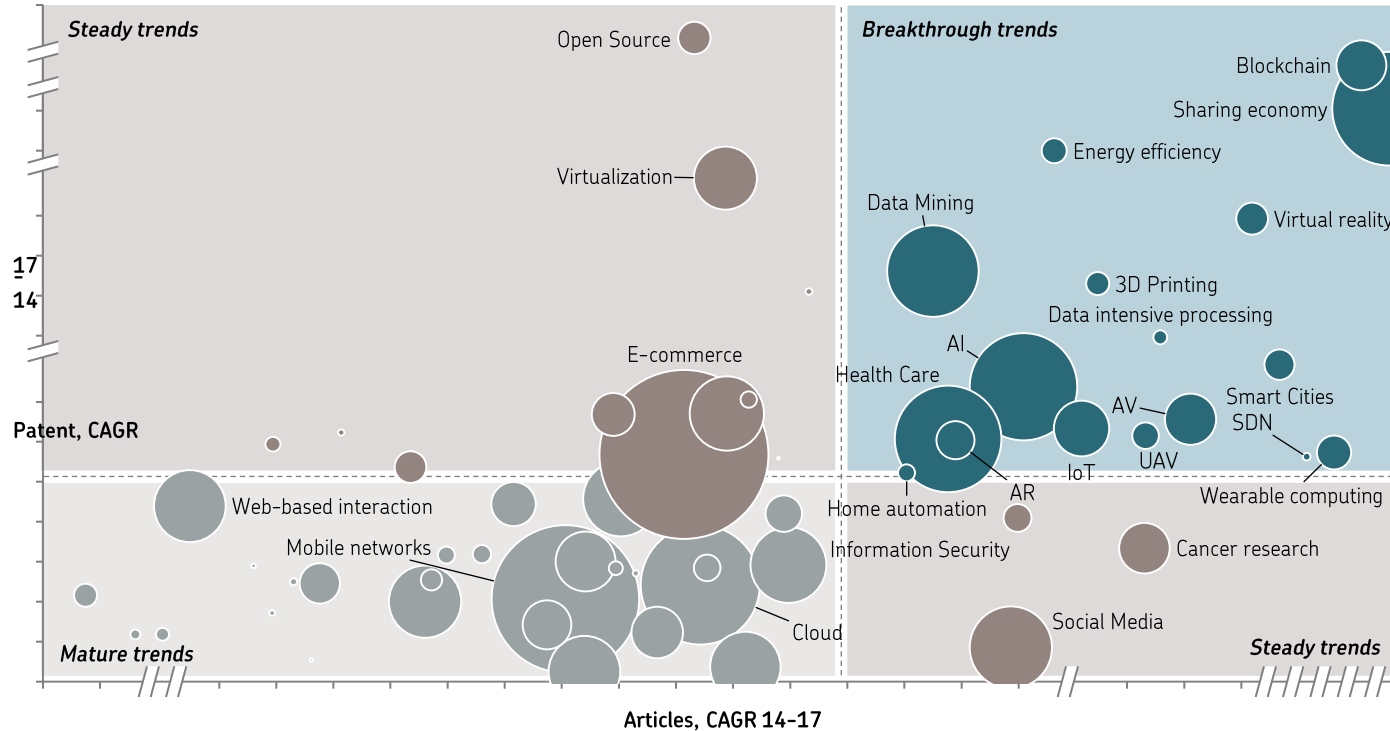


## INVESTMENTS, \$ millions



# The interest of the scientific community today is a significant increase in investment activity in the near future

Life cycle matrix of trends

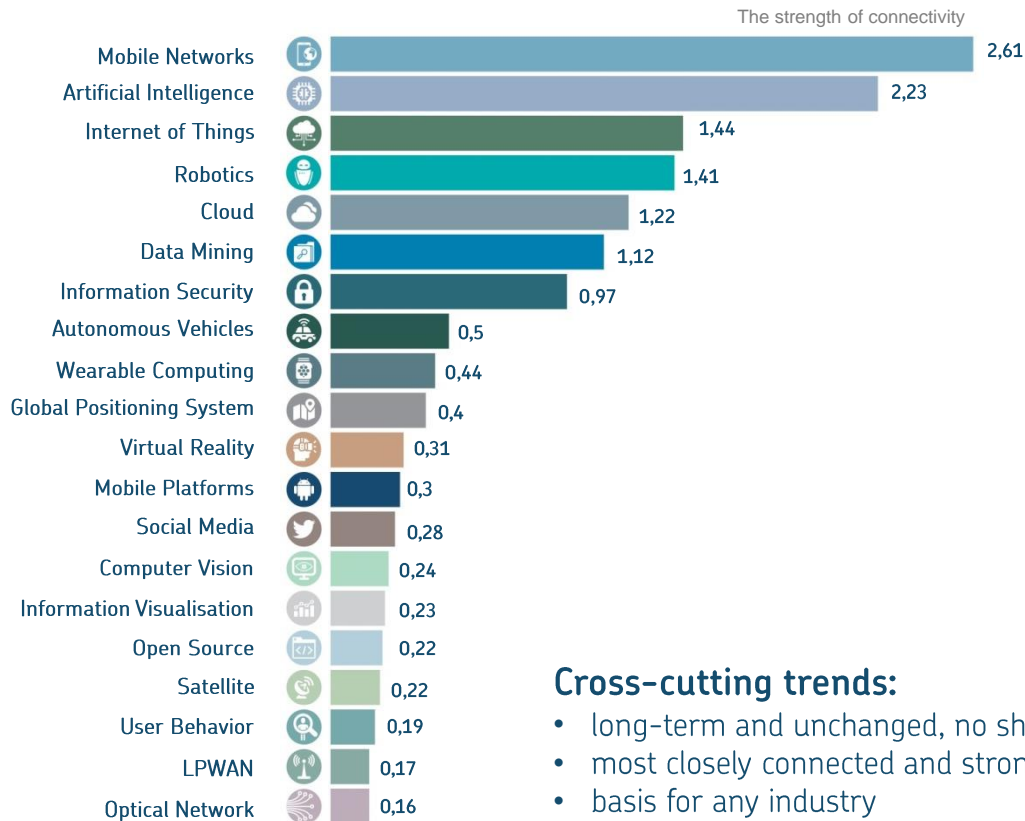


- Breakthrough trends** – Significant increase in investment activity is expected
- Steady trends** – Moderate increase in investment activity is expected. Characterized by high rates of growth in the number of scientific publications or registered patents
- Mature trends** – Growth of investment activity is expected at the level of the overall growth of investments. Trends from this category have already found their application in everyday life

The size of the circle corresponds to an investment of \$ 5 billion in 2017

# Investments in cross-cutting trends are the most reliable

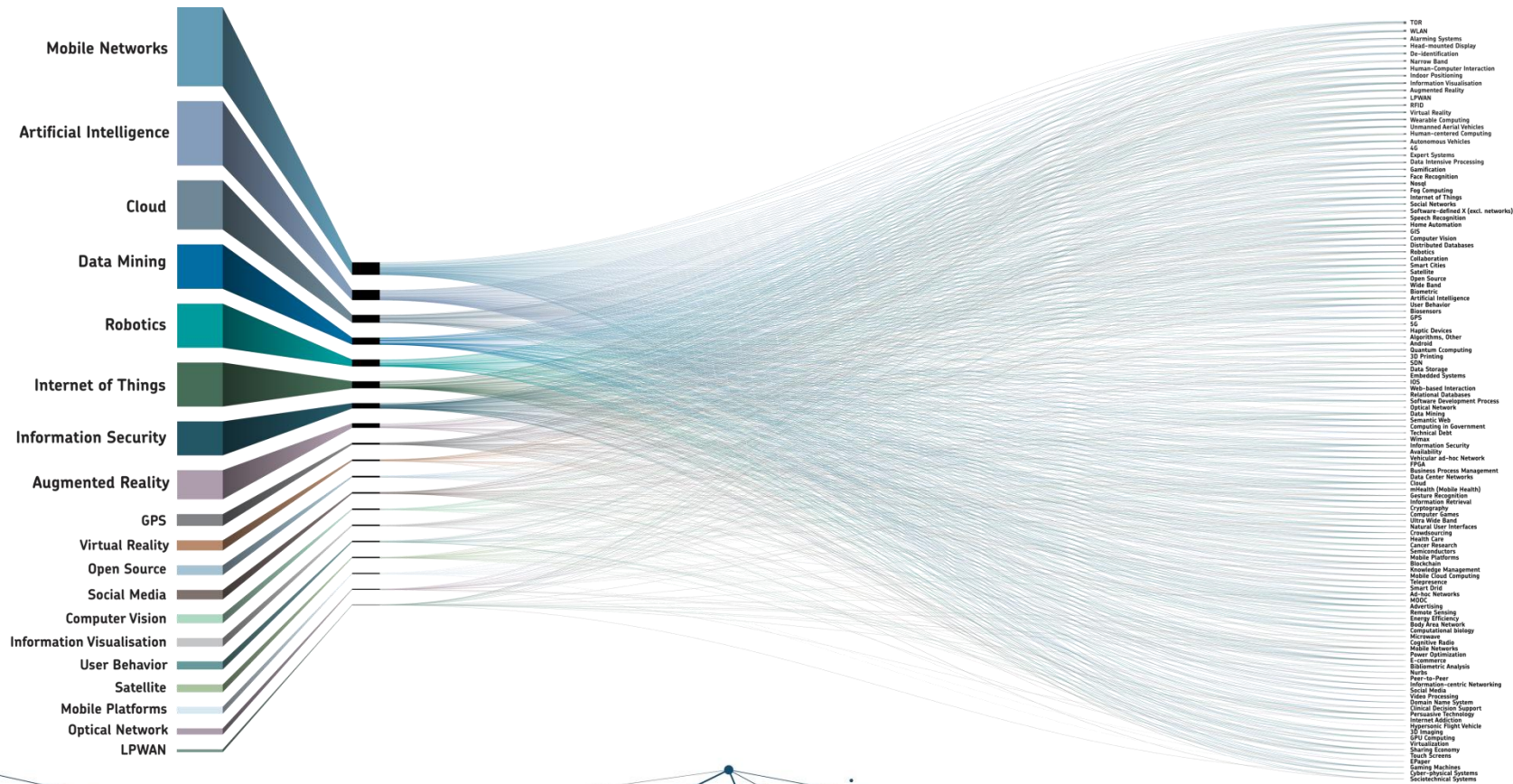
## Rating of cross-cutting trends



### Cross-cutting trends:

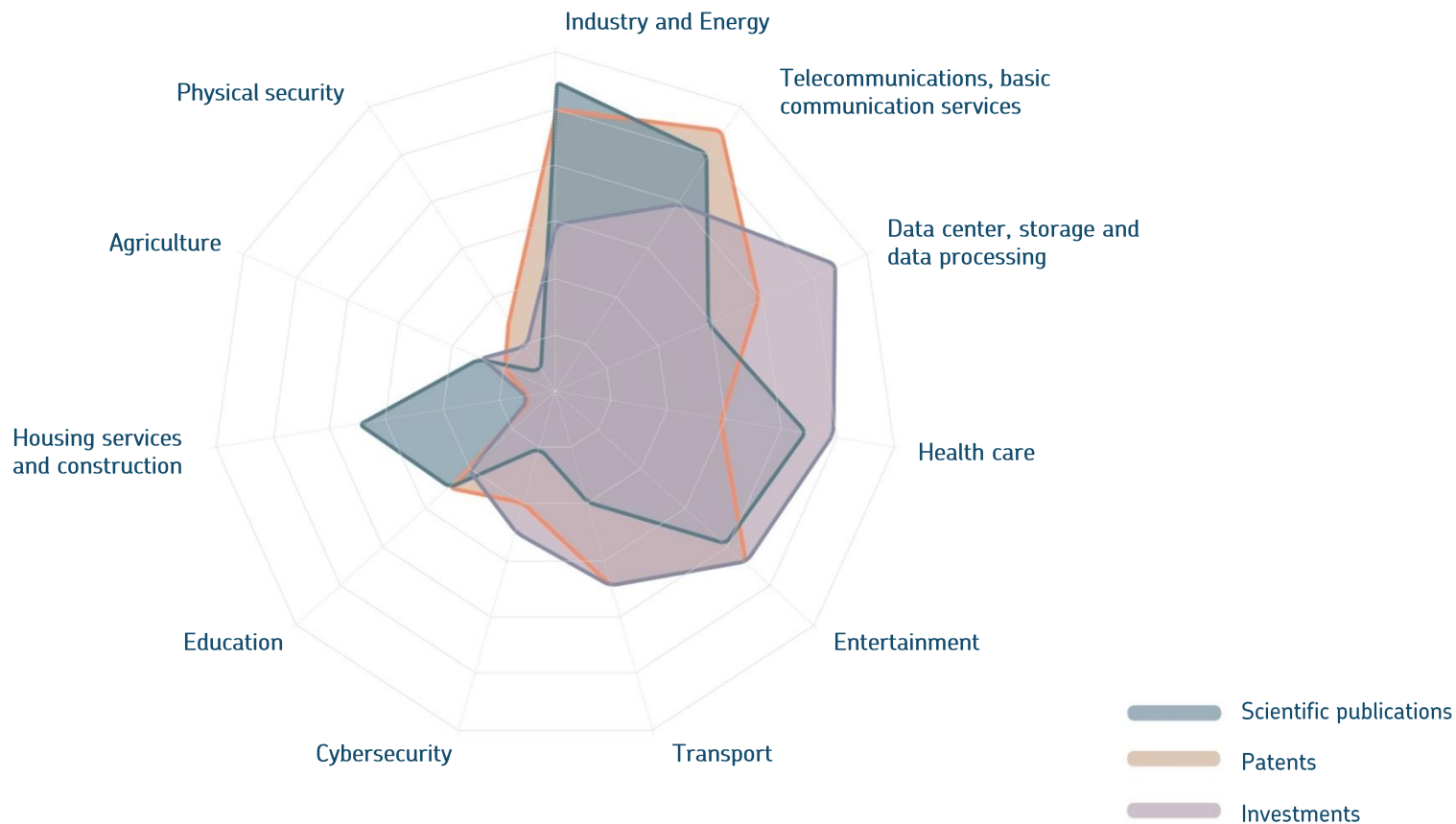
- long-term and unchanged, no sharp fluctuations
- most closely connected and strongly influences other trends
- basis for any industry

# Interdependence of trends

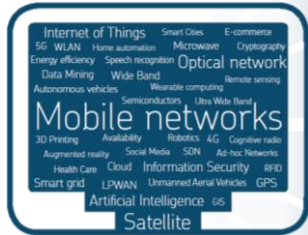




# In a number of industries, the effect of digitalization is only expected



# Industry Trends: Telecommunications, Basic Communication Services



## Satellite

- Reducing the cost of production and launching satellites
- Increase network bandwidth



## Artificial Intelligence

- Use of flexible software network management using AI-technologies



## Optical Network

- Increase network bandwidth
- Increasing the proportion of "heavy" content



## 5G

- Increase the density of installation of base stations
- Increase in the share of communications through OTT services



## Internet of Things

- The growth in the number of IoT device connections
- Growth of the amount of generated and transmitted data



## LPWAN

- Mass use of cheap sensors for monitoring the state of objects and the environment

# Industry Trends: Data Center, Data Storage and Processing



## Data Intensive Processing

- Growth of the volume of stored and processed information
- Development of data processing technologies



## Data Center Networks

- Transition to the architecture of data center networks, divided into several levels



## Energy Efficiency

- Expansion of data center construction sites
- Reduction of the cost of operation of data centers



## Virtualization

- Going to the XaaS model
- Translating IT infrastructure companies into the clouds



## Data Storage

- Improving the technical characteristics of storage facilities
- Using SSD and NAND memory



## Fog Computing

- Using cloud computing power as close as possible to the data generation locations

# Industry Trends: Cybersecurity



## Artificial Intelligence

- Automate part of the work of analysts and reduce the number of false calls of cybersecurity systems



## Cloud

- Using cloud security services (MSS), transition to a service model and outsourcing (MSSP)



## Internet of Things

- Increase in the number of incidents on critical infrastructure and the cost of eliminating their consequences



## Cryptography

- Strengthening the importance of cryptographic protection of information



## Blockchain

- Increasing the complexity of data compromise and enhancing the cyber-resistance of information systems



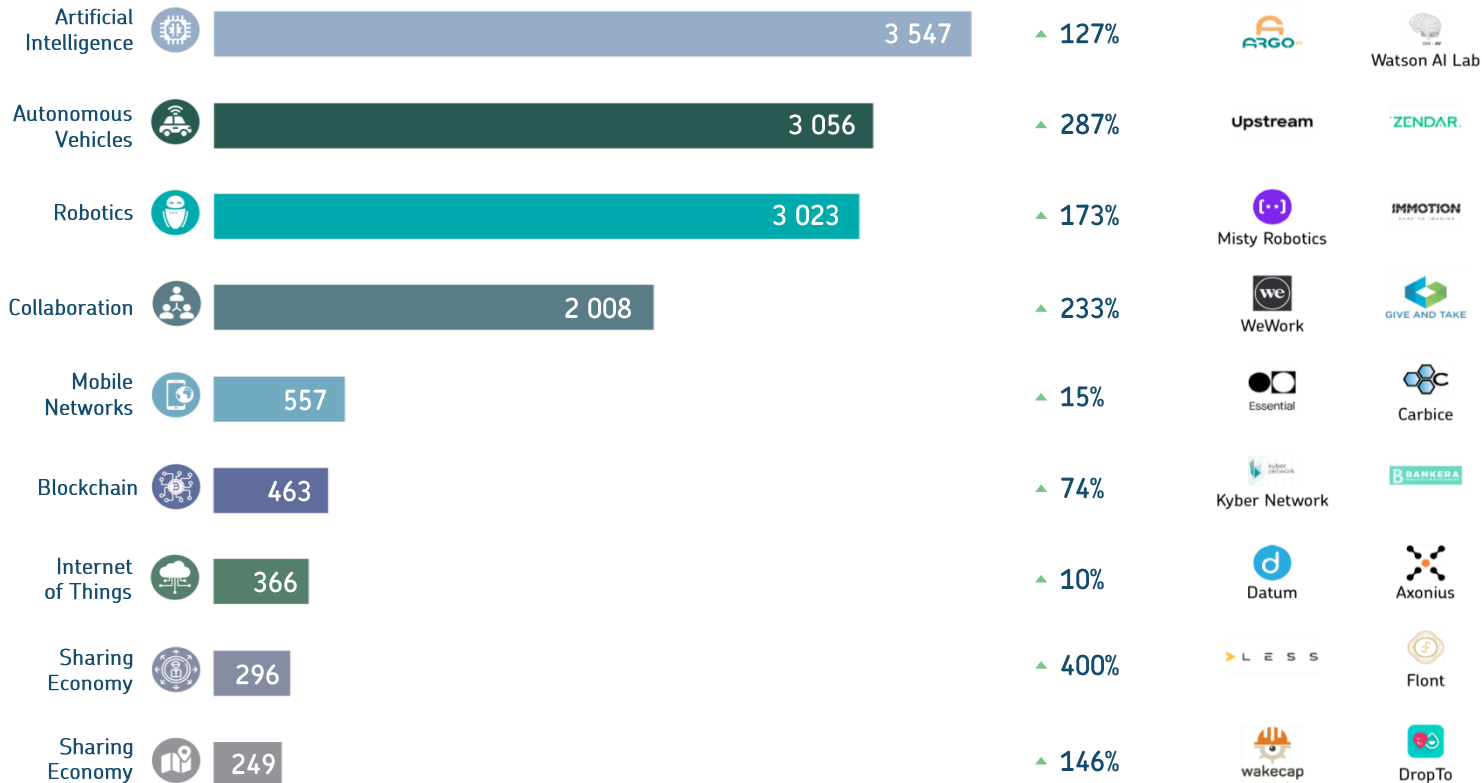
## Mobile Platforms

- Displacement of attacks on user devices, increased control and protection of the organization's perimeter

# The focus of entrepreneurs and investors indicates the rapid mass introduction of high-tech products and services

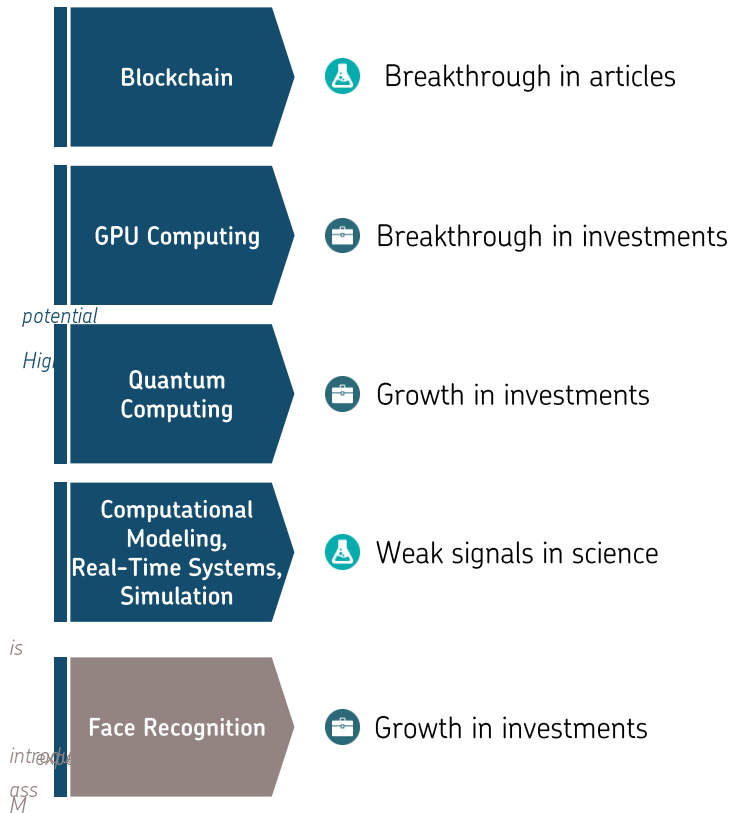
## Rating of investment attractiveness

Investments in companies created in 2017 (million \$)

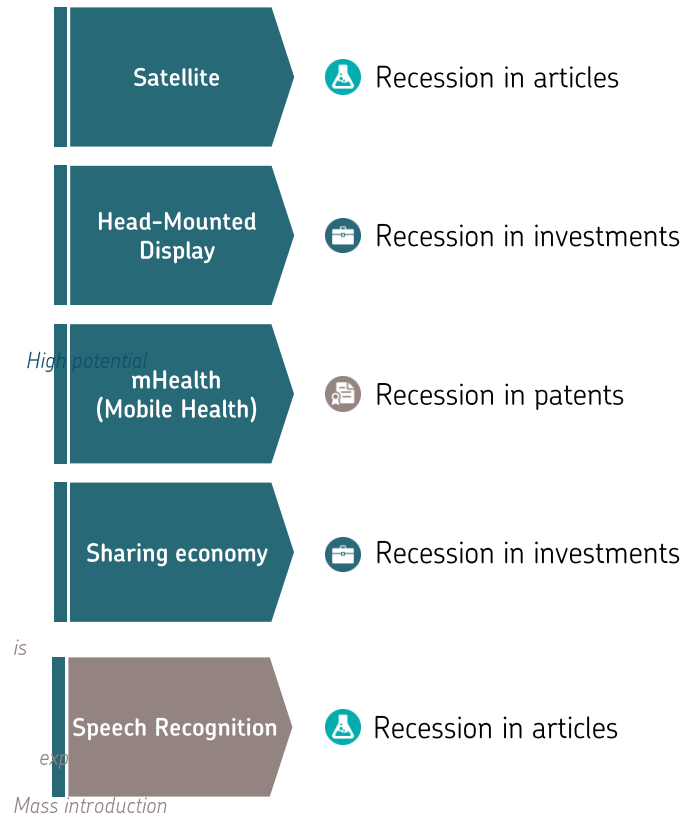


# During the study, anomalies were identified

## Growth according to one of the sources



## Decline according to one of the sources





Thank you for attention!

