ESCP BUSINESS SCHOOL

EUROPEAN CENTER FOR DIGITAL COMPETITIVENESS

BY ESCP BUSINESS SCHOOL

PRESS RELEASE

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Autonomous Machines:
Europe lags significantly behind in key technology

- **Business and political leaders attach great importance to autonomous machines**
- **However, Europe is significantly lagging behind the United States and China in terms of development**
  - **Europe is falling behind the United States in the field of autonomous driving**
  - **China is the technological leader regarding autonomous drones**
- **Leaders consider more investment necessary, especially in the German army (Bundeswehr)**
- **Production and data sovereignty should be in Europe. Open source solutions and open standards are crucial to this.**

82 per cent of top business leaders and 79 per cent of top political leaders are convinced that autonomous machines are of great importance for the future of the German economy. At the same time, however, they fear that Europe is significantly lagging behind the United States and China in this key technology: only 12 per cent of top executives consider Europe a leader in the field of autonomous driving, and even fewer, at 5 per cent, think the same for self-controlling drones. This is the result of the Spotlight Study on autonomous machines, carried out by the European Center for Digital Competitiveness of the ESCP Business School Berlin and the Allensbach Institute. The study is based on the results of a survey of around 500 top executives from business and politics.

Autonomous machines will profoundly change the economy and society – as well as military applications – in the coming years and decades. They are fundamentally different from special devices utilised by Industry 4.0, as they are also used outside of factories and perform everyday tasks, such as transporting goods and people.

Top business and political leaders in Germany have recognised the relevance of this key technology, with 82 per cent of business representatives convinced that autonomous machines are of great importance for the future of the German economy. 79 per cent of top politicians share a similar view (Graph 1).

Europe is significantly lagging behind in the field of autonomous machines

At the same time, the vast majority are convinced that it is not Europe but the United States and China that are leading in autonomous machines. In the field of autonomous driving, for instance, 58 per cent of business representatives consider the United States to be the leader in this field, whilst 48 per cent of political respondents also agree with this statement. Only 12 per cent of the top executives from business and an equal 12 per cent of politicians consider Europe to be the leader in this particular sector (Graph 2).

In the case of autonomous drones, 40 per cent of the top business leaders see China as global leaders, while the 41 per cent of top politicians cite the United States as the leader. Consequently, there are significant differences in the assessment of which country is leading in this key technology. In contrast, there is agreement between business and politics that Europe is lagging behind in the field of autonomous drones, with only 3 per cent of business leaders and 5 per cent of politicians attribute a leading position to Europe in this regard (Graph 3).

Leaders consider more investment necessary, especially for the Bundeswehr

There seems to be a great need to catch up: "Despite the great importance of autonomous machines for Germany and Europe, business and political leaders believe that there is still too little investment", says Professor Renate Köcher of the Allensbach Institute.

The overwhelming majority (71 per cent) of business and political leaders consider Europe's investment in the field of autonomous machines insufficient (Graph 4). The situation is even more glaring when taking a look at the Bundeswehr. In the business sector, 92 per cent are convinced that the Bundeswehr is less well-equipped or not well-equipped at all with drones, whilst in politics, 88 per cent share this assessment. Therefore, 87 per cent of business and political leaders are convinced that more should be invested in this field (Graph 5).

Germany and Europe need strategic autonomy in key technologies

"Germany and Europe are in danger of losing out on autonomous machines, similar to other digital areas", says Professor Philip Meissner from the European Center for Digital Competitiveness at the ESCP Business School Berlin.

"Europe needs clear strategic political support for autonomous machines, as they represent enormous potential as a key technology of the future. As a critical infrastructure for preserving digital sovereignty, the German state should additionally protect autonomous machines from sabotage and espionage. Open source solutions and open standards for the field of autonomous machines should also receive more attention at the German and European level, as they do in the United States", says Dr Christian Poensgen from the European Center for Digital Competitiveness at the ESCP Business School Berlin.

Autonomous machines as part of the critical infrastructure

The vast majority of top executives attach great importance to autonomous machines – not only due to their concerns about the economy and military operations, but also because they are convinced that autonomous machines, like communication and power grids, are part of the critical infrastructure. 61 per cent of top executives are convinced of this statement (Graph 6).

This contributes to the fact that the vast majority deem it important or very important that autonomous machines are also manufactured in Europe, with 89 per cent of business leaders and 93 per cent of politicians supporting this statement (Graph 7).

Since autonomous machines collect large amounts of data and image information, the overwhelming majority (84 per cent) of leaders also consider it important or very important that data collected in Europe may only be stored and analysed within the EU (Graph 8). The politicians surveyed attach even greater importance to European data sovereignty (88 per cent) than the top executives from business (81 per cent).

About the study

The study was developed by the European Center for Digital Competitiveness at the ESCP Business School Berlin. On its behalf, the Institut für Demoskopie Allensbach (IfD) conducted a survey of around 500 top executives from politics and business, including CEOs and board members from the business sector as well as leading politicians such as ministers, state secretaries and parliamentary group leaders. The survey was conducted between November 24 and December 21 2020. The study was led by Professor Dr Renate

Köcher, from the IfD Allensbach, and Professor Dr Philip Meissner, Professor Dr Klaus Schweinsberg and Dr Christian Poensgen from the European Center for Digital Competitiveness at the ESCP Business School Berlin.

Further results can be found at:

www.digital-competitiveness.eu/spotlight

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About the European Center for Digital Competitiveness by ESCP Business School

The European Center for Digital Competitiveness was founded at ESCP Business School in Berlin with the goal of bringing digital competitiveness to the political and public debate, where it currently only plays a minor role. Given the digital revolution that our economy and society currently face, digital competitiveness must take center stage in debates to secure our prosperity for the future. Similarly, in this increasingly dynamic environment, we want to support the initiative to position Europe as a global leader for the responsible application of technology for the benefit of society.

About the ESCP Business School

ESCP Business School was founded in 1819. The School has chosen to teach responsible leadership, open to the world and based on European multiculturalism. Six campuses in Berlin, London, Madrid, Paris, Turin and Warsaw are the stepping stones that allow students to experience this European approach to management.

Several generations of entrepreneurs and managers were thus trained in the firm belief that the business world may feed society in a positive way.

This conviction and ESCP's values - excellence, singularity, creativity and plurality - daily guide our mission and build its pedagogical vision.

Every year, ESCP welcomes 7100 students and 5000 managers from 120 different nationalities. Its strength lies in its many business training programmes, both general and specialised (Bachelor, Master, MBA, Executive MBA, PhD and Executive Education), all of which include a multi-campus experience.

The Institut für Demoskopie Allensbach

The Institut für Demoskopie Allensbach (IfD Allensbach), often referred to more simply as the "Allensbach Institute", was founded in 1947 by Professor Dr. Dr. h.c. Elisabeth Noelle-Neumann (1916-2010). It is one of the most well-known and respected opinion and market research institutes in Germany today. The institute is directed by Professor Dr Renate Köcher, and it is owned by the Allensbach Foundation for Survey Research (Stiftung Demoskopie Allensbach).

It all starts here.

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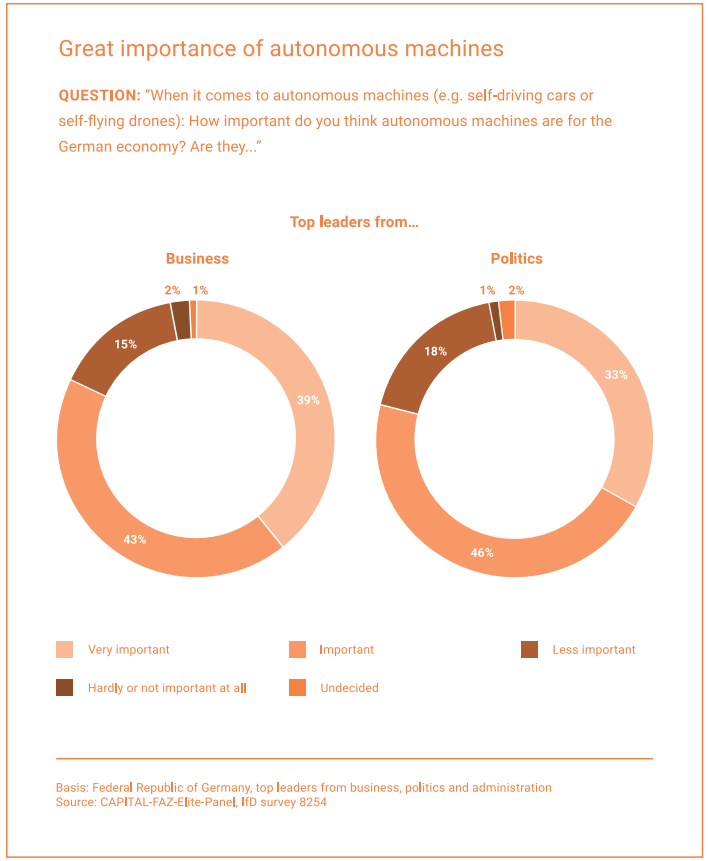
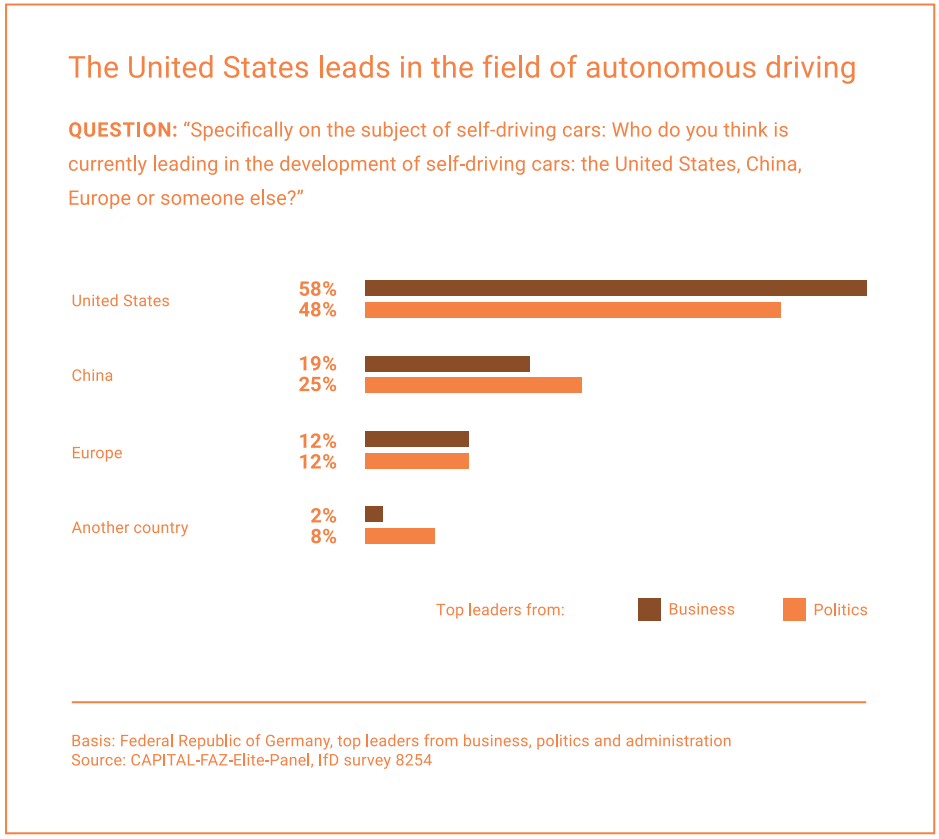
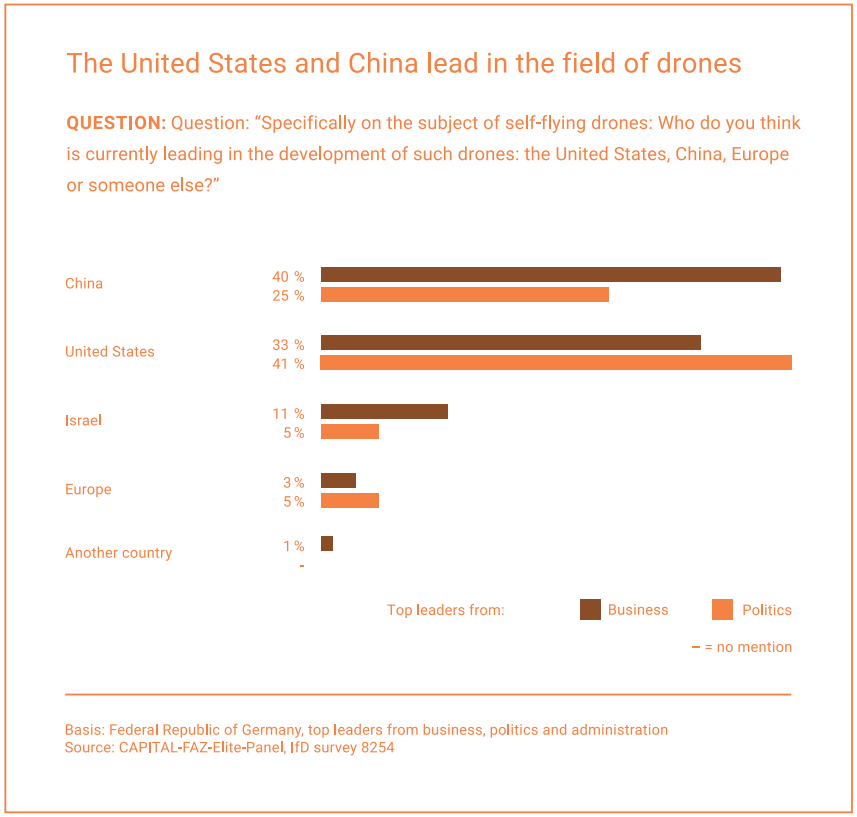
Graph 1:


Great importance of autonomous machines
QUESTION: "When it comes to autonomous machines (e.g. self-driving cars or self-flying drones): How important do you think autonomous machines are for the German economy? Are they..."
Top leaders from...
Business
2%
1%
15%
39%
43%
Politics
1%
2%
18%
33%
46%
Very important
Important
Less important
Hardly or not important at all
Undecided
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

Graph 2:


The United States leads in the field of autonomous driving
QUESTION: "Specifically on the subject of self-driving cars: Who do you think is currently leading in the development of self-driving cars: the United States, China, Europe or someone else?"
United States
58%
48%
China
19%
25%
Europe
12%
12%
Another country
2%
8%
Top leaders from:
Business
Politics
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

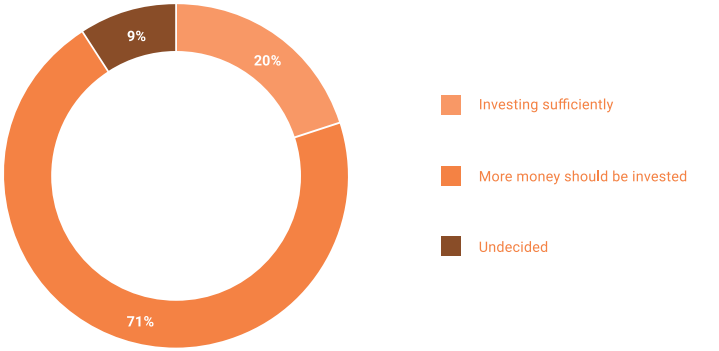
Graph 3:


The United States and China lead in the field of drones
QUESTION: Question: "Specifically on the subject of self-flying drones: Who do you think is currently leading in the development of such drones: the United States, China, Europe or someone else?"
China
40 %
25 %
United States
33 %
41 %
Israel
11 %
5 %
Europe
3 %
5 %
Another country
1 %
-
Top leaders from:
Business
Politics
– = no mention
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

Graph 4:

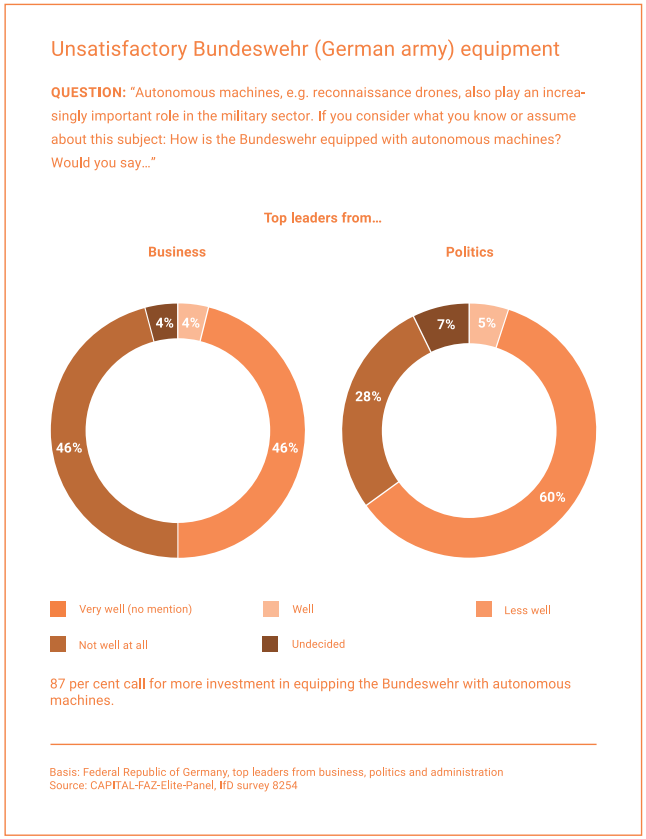
More investments necessary

QUESTION: "What is your opinion: Is Europe investing sufficiently in the research and development of autonomous machines compared to the United States and China, or should more money be invested in this field?"

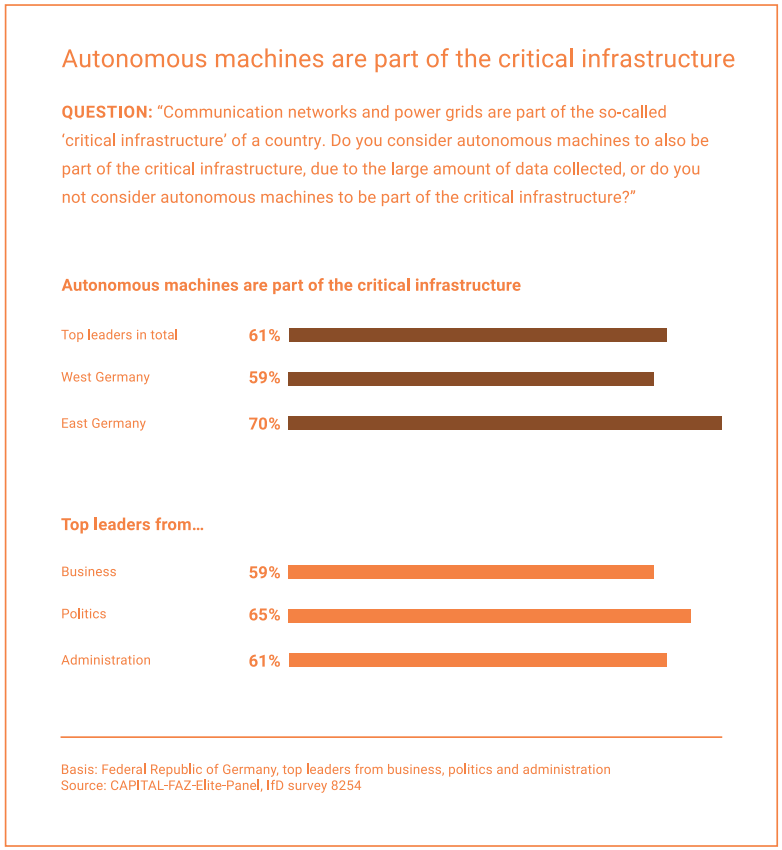


Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

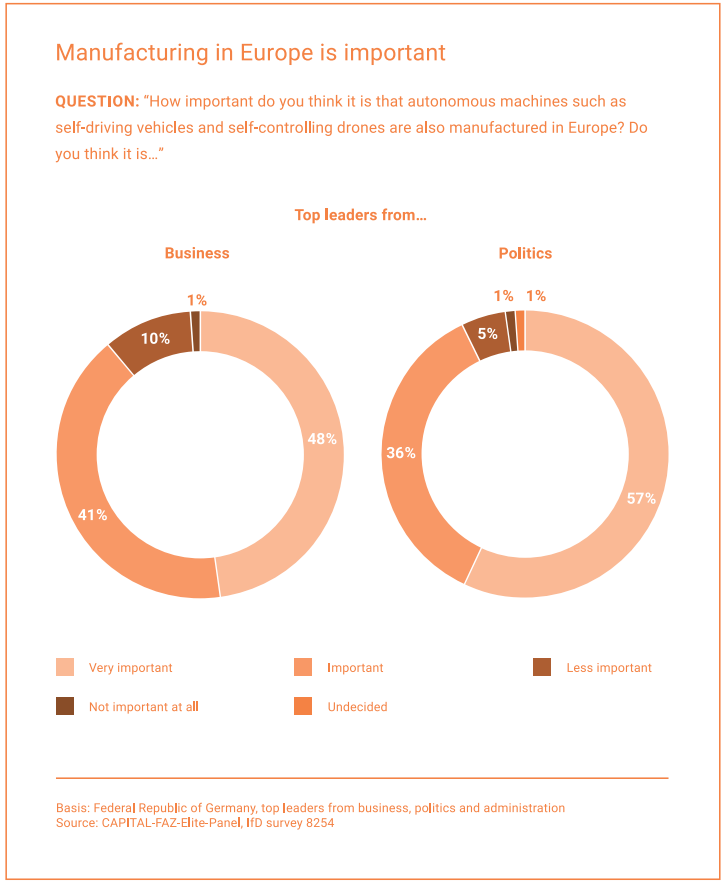
Graph 5:


Unsatisfactory Bundeswehr (German army) equipment
QUESTION: "Autonomous machines, e.g. reconnaissance drones, also play an increasingly important role in the military sector. If you consider what you know or assume about this subject: How is the Bundeswehr equipped with autonomous machines? Would you say..."
Top leaders from...
Business
Politics
4%
4%
46%
46%
7%
5%
28%
60%
Very well (no mention)
Well
Less well
Not well at all
Undecided
87 per cent call for more investment in equipping the Bundeswehr with autonomous machines.
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

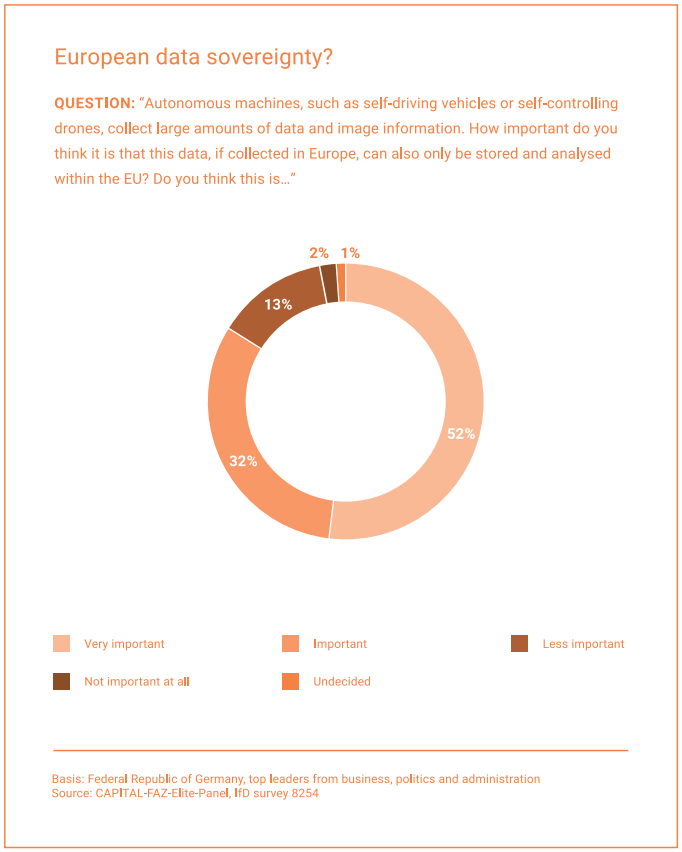
Graph 6:


Autonomous machines are part of the critical infrastructure
QUESTION: "Communication networks and power grids are part of the so-called 'critical infrastructure' of a country. Do you consider autonomous machines to also be part of the critical infrastructure, due to the large amount of data collected, or do you not consider autonomous machines to be part of the critical infrastructure?"
Autonomous machines are part of the critical infrastructure
Top leaders in total 61%
West Germany 59%
East Germany 70%
Top leaders from...
Business 59%
Politics 65%
Administration 61%
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

Graph 7:


Manufacturing in Europe is important
QUESTION: "How important do you think it is that autonomous machines such as self-driving vehicles and self-controlling drones are also manufactured in Europe? Do you think it is..."
Top leaders from...
Business
Politics
1%
10%
48%
41%
1%
1%
5%
36%
57%
Very important
Important
Less important
Not important at all
Undecided
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254

Graph 8:


European data sovereignty?
QUESTION: "Autonomous machines, such as self-driving vehicles or self-controlling drones, collect large amounts of data and image information. How important do you think it is that this data, if collected in Europe, can also only be stored and analysed within the EU? Do you think this is..."
2%
1%
13%
52%
32%
Very important
Important
Less important
Not important at all
Undecided
Basis: Federal Republic of Germany, top leaders from business, politics and administration
Source: CAPITAL-FAZ-Elite-Panel, IfD survey 8254