

Methodology “Europe in the Data Protection Ranking”

The aim of the study is to evaluate the performance of data protection measures and the data protection competence of consumers in Europe and to compare them at the national level. The study covers all member states of the European Union, with a few exceptions, as well as the United Kingdom and Norway.

Bulgaria, Croatia, Malta, Portugal, Cyprus, Romania, the Czech Republic and the Slovak Republic had to be excluded from the study due to insufficient data and in order to allow a fair comparison between all nations.

For the study, all of the above-mentioned nations were evaluated in the five fields of investigation: "Enforcement of laws," "Companies," "Private individuals," "Data protection competence" and "Social mood." A total of 24 influencing factors, which are described below, contribute to the final results of the study. All influencing factors were selected on the basis of their significance in terms of the performance of data privacy measures or the data privacy literacy of consumers.

The result is a ranking of the leading nations in terms of data protection. The study was completed on May 15, 2021.

Fields of investigation, influencing factors and sources

Field of investigation 1: Enforcement of laws

In the course of growing digitalization, the need for more data protection - specifically, protection against improper processing of personal data and protection of the right to informational self-determination - has grown steadily. For this reason, the European Union (EU) implemented the General Data Protection Regulation (GDPR) in 2018. The regulation is also applicable law in Norway and was also applied in the United Kingdom until it left the EU in 2021. This field of investigation allows an assessment of the implementation of the GDPR, in which data protection breaches, especially in the pandemic year 2021, and their criminal sanctions were analysed. Data protection violations are usually punished with severe fines. For example, a German mail order company for computer technology received a fine of more than ten million euros.

- **Data breaches:** The number of reported breaches of the European Union's General Data Protection Regulation (period 05/2018-01/2021) was taken from the report "[GDPR fines and data breach survey: January 2021](#)" by the legal experts at DLA Piper. For better comparability of countries, a value per 100,000 was used to calculate the ranking.

- **Data breaches in the pandemic year:** the percentage change in the number of reported breaches of the European Union's General Data Protection Regulation starting in 2019 compared to 2020 was calculated based on data on data breaches from the report "GDPR fines and data breach survey: January 2021" by legal experts at DLA Piper.
- **Fines:** Information on the amount of fines imposed due to violations of the European Union's General Data Protection Regulation (period 05/2018-01/2021) was taken from the report "GDPR fines and data breach survey: January 2021" by the legal experts at DLA Piper. For better comparability of the countries, a value per 100,000 was used to calculate the ranking.

Field of investigation 2: Companies

The GDPR obliges every company operating in the European Union to protect data. The measures used by companies to meet this responsibility can vary widely. This field of investigation was therefore used to analyse factors that allow an assessment of the data protection competence of companies. These include the prevalence of up-to-date data privacy strategies, professional data privacy teams, voluntary and mandatory offerings for further training in data privacy, and the proportion of companies with insurance coverage in the event of data privacy incidents. A further assessment of the data privacy competence of companies was made possible by looking at statistics on data leaks and incidents that led to a loss of data.

The following factors were taken from Eurostat [statistics](#) on "Security problems and their consequences".

- **Data protection strategy:** The percentage of companies with a current data protection strategy (not older than 12 months)
- **Data protection team:** The percentage of companies that outsource data protection-related measures to a professional external service provider
- **Further training, voluntary:** The percentage of companies that offer employees voluntary further training in ICT security
- **Further training, mandatory:** The percentage of companies that require employees to undergo further training in ICT security
- **Data loss:** The percentage of companies that recorded at least one data protection incident in which data was lost during the period under review
- **Data leakage:** The percentage of companies that recorded at least one data protection incident in the period under review in which sensitive data was publicly viewable
- **Insurance coverage:** The percentage of companies insured against data protection incidents

Field of investigation 3: Private individuals

Data misuse and identity theft can cause considerable damage to private individuals. The most widespread forms of misuse include malware on smartphones and computers, fraudulent payment demands, and phishing emails. An analysis of the number of cases in the area of data misuse and identity theft allows an assessment of how enlightened a nation is when it comes to data protection. The less frequently private individuals suffer data protection incidents, the better known the topic of data protection is to the general public.

- **Smartphone malware:** The percentage of private individuals who have recently lost sensitive data, such as information, photos or documents, due to malware on their smartphone was taken from Eurostat [statistics](#).
- **Computer malware:** The percentage of private individuals who have recently suffered damage from malware on a computer was taken from [data from the OECD](#) (ICT Access and Usage by Households and Individuals: IA3).
- **Payment fraud:** The percentage of individuals who have recently suffered financial loss due to payment fraud, such as fraudulent payment requests, was taken from [data from the OECD](#) (ICT Access and Usage by Households and Individuals: I3D).
- **Phishing:** The percentage of private individuals who have recently suffered damage from phishing, such as the loss of private data through fake websites and emails, was taken from [data from the OECD](#) (ICT Access and Usage by Households and Individuals: I3C).

Field of investigation 4: Data protection competence

In many areas of the Internet, private individuals can independently regulate which data they want to share with third parties and thus minimise data traces. The prerequisite for this is the appropriate competence and knowledge of corresponding functions. These functions include, for example, the security and privacy settings of browsers, social networks, apps and smartphones, limiting cookies, actively objecting when activity data is to be shared with advertisers, and using anti-tracking software and cloud services. The more these features are used, the higher the privacy literacy, the thesis goes.

- **Advertising:** The percentage of private individuals who last actively objected to the use of personal data by advertisers was taken from [OECD data](#) (ICT Access and Usage by Households and Individuals: section I7C).
- **Browser:** The percentage of individuals who changed their browser privacy settings was taken from [OECD data](#) (ICT Access and Usage by Households and Individuals: section H1J).

- **Cookies:** The percentage of individuals who have made browser settings to prevent or limit cookies at least once was taken from [OECD data](#) (ICT Access and Usage by Households and Individuals: section I8).
- **Tracking:** The percentage of individuals using anti-tracking software to encrypt activities on the Internet was taken from [OECD data](#) (ICT Access and Usage by Households and Individuals: section I9).
- **Social Media:** The percentage of individuals who have restricted the visibility of their profile on one or more social networks was taken from [OECD data](#) (ICT Access and Usage by Households and Individuals: section I9).
- **Apps:** The percentage of private individuals who most recently objected to access to personal data when installing or using an app was taken from [Eurostat data](#).
- **Smartphone:** The percentage of private individuals who have set up or subscribed to a security system on their smartphone independently was taken from [Eurostat data](#).
- **Cloud:** The percentage of private individuals using cloud services to store private files such as documents, videos and photos was taken from [Eurostat](#).

Field of investigation 5: Social mood

The collection, processing and use of personal data is enormously complex and difficult for the majority of consumers to understand. News about the misuse of data also stirs up justified fears. In the long term, only education, the strengthening of data protection competencies, and legal protection will help. In order to assess the social mood regarding the use of data and data privacy, the following two survey results were evaluated as a proxy.

- **Fear of data misuse:** The percentage of private individuals who are concerned about the misuse of data by official bodies and private companies was taken from the ["Data protection" report](#) (page 69) by the EU Directorate-General for Justice and Consumers. For Denmark, Finland and Sweden, the EU average was used.
- **Authority over data:** The percentage of individuals who feel they have no control over private information shared online was taken from the report ["Data protection"](#) (page 172, T36) by the EU Directorate-General for Justice and Consumers. For Denmark, Finland and Sweden, the EU average was used.

Calculation and scoring

In order to calculate a ranking, all results of the influencing factors examined were standardised. Points on a scale between 0 and 100 were used for this purpose. The nation that was particularly advanced in terms of data protection measures in the respective influencing factor was given a score of 100. The nation that was least advanced in terms of data protection measures in the respective influencing factor was given a score of 0. All other nations were ranked according to their result with a score in between.

All the points from all the influencing factors in a field of investigation were then added together. The sum resulted in the investigation field result. Finally, all five study field results were added together and this final result was also standardised on a point scale between 0 and 100. The standardised final result corresponds to the communicated final ranking. The calculation was performed using the following normalisation formula:

$$x_{new} = \frac{x - x_{min}}{x_{max} - x_{min}}$$

Complete data set

Field of investigation 1: Enforcement of laws									
Ranking	Points	Country	Data privacy breaches per 100,000 inhabitants		Data protection violations in the pandemic year		Fine per 100,000 inhabitants		Result field 1
1	100.0	IRE	345	90.2	-1.5 %	74.7	14.402 €	12.4	80.6
2	80.3	GER	93	23.8	76.2 %	0.0	83.068 €	71.5	74.6
3	73.6	NED	382	100.0	-2.4 %	75.6	14.591 €	12.6	88.8
4	64.8	UK	46	11.1	-27.9 %	100.0	65.976 €	56.8	52.1
5	59.5	DEN	325	85.0	36.2 %	38.5	9.811 €	8.4	73.1
6	58.9	FIN	187	48.6	1.6 %	71.7	3.755 €	3.2	38.9
7	44.3	BEL	22	4.8	26.0 %	48.3	7.251 €	6.2	5.3
8	41.2	SWE	119	30.4	1.6 %	71.7	111.352 €	95.8	100.0
9	38.5	ITA	6	0.6	23.4 %	50.8	116.242 €	100.0	79.0
10	37.3	AUT	28	6.5	-18.3 %	90.8	797 €	0.7	2.2
11	31.0	FRA	8	1.2	-10.6 %	83.4	80.862 €	69.6	54.5
12	27.8	LVA	14	2.9	-13.7 %	86.4	4.869 €	4.2	2.1
13	27.4	LUX	147	37.9	8.7 %	64.9	0 €	0.0	27.4
14	23.0	POL	42	10.3	63.6 %	12.1	4.494 €	3.9	7.9
15	18.6	ESP	7	0.9	54.7 %	20.7	30.613 €	26.3	18.7
16	17.3	EST	25	5.6	14.0 %	59.7	31 €	0.0	0.9
17	16.1	GRC	3	0.0	-14.2 %	86.9	6.951 €	6.0	1.2
18	15.7	SVN	168	43.5	52.3 %	23.0	0 €	0.0	32.1
19	12.9	NOR	91	23.1	3.5 %	69.9	15.432 €	13.3	26.2
20	0.8	LTU	11	2.0	62.7 %	13.0	2.890 €	2.5	0.0
21	0.0	HUN	16	3.3	72.4 %	3.6	10.031 €	8.6	6.1

			Field of investigation 2:Companies														
Ranking	Points	Country	Data protection-Strategy		Data Protection Team		Continuing education -voluntary		Further training -mandatory		Data loss		Data leak		Insurance protection		Result Field 2
1	100.0	IRE	42 %	100.0	61 %	50.0	59 %	97.2	35 %	78.1	5 %	57.1	2 %	50.0	39 %	67.3	85.1
2	80.3	GER	27 %	53.1	68 %	71.9	49 %	69.4	17 %	21.9	5 %	57.1	1 %	100.0	20 %	30.8	60.9
3	73.6	NED	32 %	68.8	74 %	90.6	35 %	30.6	18 %	25.0	5 %	57.1	2 %	50.0	26 %	42.3	50.9
4	64.8	UK	40 %	93.8	45 %	0.0	60 %	100.0	37 %	84.4	2 %	100.0	1 %	100.0	46 %	80.8	100.0
5	59.5	DEN	42 %	100.0	69 %	75.0	52 %	77.8	35 %	78.1	4 %	71.4	2 %	50.0	56 %	100.0	98.3
6	58.9	FIN	35 %	78.1	62 %	53.1	54 %	83.3	25 %	46.9	5 %	57.1	3 %	0.0	28 %	46.2	51.0
7	44.3	BEL	27 %	53.1	77 %	100.0	42 %	50.0	20 %	31.3	6 %	42.9	2 %	50.0	25 %	40.4	51.7
8	41.2	SWE	39 %	90.6	59 %	43.8	44 %	55.6	26 %	50.0	8 %	14.3	1 %	100.0	39 %	67.3	65.3
9	38.5	ITA	28 %	56.3	66 %	65.6	47 %	63.9	35 %	78.1	4 %	71.4	1 %	100.0	13 %	17.3	73.2
10	37.3	AUT	28 %	56.3	60 %	46.9	39 %	41.7	22 %	37.5	5 %	57.1	2 %	50.0	18 %	26.9	38.7
11	31.0	FRA	18 %	25.0	67 %	68.8	36 %	33.3	19 %	28.1	6 %	42.9	2 %	50.0	39 %	67.3	38.5
12	27.8	LVA	25 %	46.9	74 %	90.6	60 %	100.0	20 %	31.3	7 %	28.6	1 %	100.0	12 %	15.4	63.1
13	27.4	LUX	22 %	37.5	63 %	56.3	39 %	41.7	21 %	34.4	6 %	42.9	2 %	50.0	26 %	42.3	35.9
14	23.0	POL	18 %	25.0	69 %	75.0	26 %	5.6	32 %	68.8	8 %	14.3	1 %	100.0	11 %	13.5	35.1
15	18.6	ESP	25 %	46.9	67 %	68.8	41 %	47.2	21 %	34.4	7 %	28.6	1 %	100.0	33 %	55.8	55.2
16	17.3	EST	18 %	25.0	54 %	28.1	44 %	55.6	42 %	100.0	3 %	85.7	2 %	50.0	7 %	5.8	47.3
17	16.1	GRC	10 %	0.0	57 %	37.5	24 %	0.0	10 %	0.0	4 %	71.4	1 %	100.0	25 %	40.4	21.8
18	15.7	SVN	26 %	50.0	61 %	50.0	44 %	55.6	15 %	15.6	8 %	14.3	1 %	100.0	4 %	0.0	30.9
19	12.9	NOR	22 %	37.5	52 %	21.9	41 %	47.2	29 %	59.4	4 %	71.4	2 %	50.0	33 %	55.8	45.5
20	0.8	LTU	22 %	37.5	64 %	59.4	42 %	50.0	21 %	34.4	9 %	0.0	1 %	100.0	4 %	0.0	29.9
21	0.0	HUN	13 %	9.4	45 %	0.0	33 %	25.0	10 %	0.0	7 %	28.6	1 %	100.0	4 %	0.0	0.0

Field of investigation 3: Private individuals

Ranking	Points	Country	Smartphone-Malware		Computer-Malware		Payment fraud		Phishing		Result Field 3
1	100.0	IRE	2 %	85.7	1.6 %	88.8	0.1 %	100.0	0.93 %	68.9	100.0
2	80.3	GER	3 %	71.4	1.1 %	94.4	1.0 %	87.6	0.63 %	81.4	81.9
3	73.6	NED	3 %	71.4	1.5 %	90.2	2.2 %	71.0	0.80 %	74.4	50.0
4	64.8	UK	1 %	100.0	2.0 %	84.2	7.3 %	0.0	1.88 %	30.6	9.2
5	59.5	DEN	4 %	57.1	1.8 %	86.5	5.6 %	23.2	2.63 %	0.0	0.0
6	58.9	FIN	3 %	71.4	2.4 %	79.8	1.7 %	77.6	0.94 %	68.8	64.8
7	44.3	BEL	4 %	57.1	1.2 %	93.0	1.9 %	74.2	0.96 %	68.0	72.1
8	41.2	SWE	3 %	71.4	2.3 %	81.0	3.3 %	55.8	2.47 %	6.5	9.2
9	38.5	ITA	5 %	42.9	1.8 %	86.8	1.9 %	75.0	1.04 %	64.7	33.4
10	37.3	AUT	3 %	71.4	0.6 %	100.0	2.1 %	72.6	0.37 %	91.9	85.0
11	31.0	FRA	5 %	42.9	2.8 %	74.8	5.4 %	26.4	1.50 %	45.9	12.9
12	27.8	LVA	4 %	57.1	0.7 %	98.7	1.0 %	87.4	0.28 %	95.8	64.2
13	27.4	LUX	5 %	42.9	5.4 %	45.4	3.1 %	58.4	0.92 %	69.4	9.8
14	23.0	POL	4 %	57.1	0.7 %	99.1	0.4 %	95.6	0.17 %	100.0	69.9
15	18.6	ESP	8 %	0.0	2.4 %	79.2	3.1 %	58.0	0.98 %	67.3	4.6
16	17.3	EST	1 %	100.0	2.7 %	76.0	1.3 %	82.5	0.74 %	76.7	88.1
17	16.1	GRC	4 %	57.1	2.4 %	79.8	0.6 %	93.0	0.55 %	84.7	93.1
18	15.7	SVN	4 %	57.1	1.3 %	92.1	1.9 %	74.9	0.56 %	84.3	50.6
19	12.9	NOR	4 %	57.1	2.1 %	83.5	4.4 %	40.8	2.09 %	21.9	4.2
20	0.8	LTU	3 %	71.4	0.6 %	99.9	0.3 %	96.5	0.21 %	98.5	76.2
21	0.0	HUN	7 %	14.3	9.3 %	0.0	4.9 %	33.7	0.43 %	89.4	9.0

Field of investigation 4: Data protection competence

Ranking	Points	Country	Advertisements	Browser	Cookies	Tracking	Social Media	Apps	Smartphone	Cloud	Results-Field 4
1	100.0	IRE	50.4 % 56.0	15.3 % 4.5	29.6 % 35.9	9.9 % 9.1	42.7 % 57.7	51 % 57.5	13 % 47.1	55.3	43.9
2	80.3	GER	62.8 % 80.5	30.7 % 55.5	49.1 % 97.1	18.2 % 28.0	40.1 % 52.0	65 % 92.5	17 % 70.6	33 % 10.5	70.9
3	73.6	NED	72.6 % 100.0	41.4 % 90.9	46.8 % 89.7	29.7 % 54.2	62.7 % 100.0	64 % 90.0	14 % 52.9	51 % 57.9	95.6
4	64.8	UK	55.2 % 65.4	28.9 % 49.4	33.7 % 48.8	27.4 % 48.8	45.3 % 63.1	44 % 40.0	10 % 29.4	54 % 65.8	58.4
5	59.5	DEN	63.5 % 81.9	44.2 % 100.0	32.6 % 45.3	25.7 % 45.1	48.8 % 70.6	61 % 82.5	11 % 35.3	65 % 94.7	82.3
6	58.9	FIN	69.7 % 94.2	41.5 % 91.2	50.1 % 100.0	22.2 % 37.1	56.7 % 87.3	67 % 97.5	22 % 100.0	50 % 55.3	100.0
7	44.3	BEL	40.9 % 37.1	15.1 % 3.8	31.4 % 41.5	49.9 % 100.0	27.8 % 25.9	50 % 55.0	9 % 23.5	49 % 52.6	46.6
8	41.2	SWE	43.6 % 42.6	41.5 % 91.1	29.3 % 35.1	26.0 % 45.7	40.4 % 52.6	68 % 100.0	10 % 29.4	66 % 97.4	72.1
9	38.5	ITA	22.1 % 0.0	27.3 % 44.3	18.1 % 0.0	5.9 % 0.0	15.6 % 0.0	28 % 0.0	5 % 0.0	34 % 13.2	0.0
10	37.3	AUT	60.3 % 75.6	42.2 % 93.4	36.9 % 59.0	12.1 % 14.0	53.8 % 81.1	53 % 62.5	16 % 64.7	38 % 23.7	68.8
11	31.0	FRA	43.8 % 43.0	25.7 % 38.9	32.8 % 46.1	19.3 % 30.5	34.6 % 40.3	53 % 62.5	10 % 29.4	34 % 13.2	40.7
12	27.8	LVA	32.0 % 19.5	15.1 % 3.6	23.6 % 17.3	10.6 % 10.6	31.2 % 33.1	40 % 30.0	7 % 11.8	34 % 13.2	13.5
13	27.4	LUX	38.4 % 32.2	36.0 % 73.1	40.4 % 69.7	20.3 % 32.7	29.6 % 29.8	63 % 87.5	12 % 41.2	46 % 44.7	58.4
14	23.0	POL	36.2 % 27.9	15.4 % 4.9	26.3 % 25.8	19.5 % 30.9	30.5 % 31.7	46 % 45.0	9 % 23.5	29 % 0.0	21.9

15	18.6	ESP	62.2 %	79.5	18.3 %	14.4	28.9 %	33.9	13.9 %	18.2	53.8 %	81.1	57 %	72.5	12 %	41.2	46 %	44.7	54.2
16	17.3	EST	35.8 %	27.1	25.4 %	38.0	34.5 %	51.3	20.5 %	33.1	27.4 %	25.1	50 %	55.0	12 %	41.2	44 %	39.5	41.8
17	16.1	GRC	28.6 %	12.8	14.0 %	0.0	23.3 %	16.4	14.3 %	19.0	24.4 %	18.8	33 %	12.5	7 %	11.8	33 %	10.5	7.3
18	15.7	SVN	34.8 %	25.2	22.7 %	29.0	23.3 %	16.4	18.1 %	27.6	24.9 %	19.8	49 %	52.5	8 %	17.6	40 %	28.9	26.4
19	12.9	NOR	47.0 %	49.3	38.8 %	82.2	27.3 %	28.8	24.5 %	42.3	36.8 %	45.1	67 %	97.5	10 %	29.4	56 %	71.1	64.2
20	0.8	LTU	32.8 %	21.2	21.0 %	23.3	19.9 %	5.8	13.8 %	18.0	27.7 %	25.8	33 %	12.5	5 %	0.0	41 %	31.6	13.3
21	0.0	HUN	40.2 %	35.8	25.6 %	38.4	27.2 %	28.4	17.5 %	26.3	35.6 %	42.5	46 %	45.0	8 %	17.6	67 %	100.0	45.7

Field of investigation 5: Social Mood

Ranking	Points	Country	Fear of data abuse		Authority over data		Result Field 5
1	100.0	IRE	83 %	100.0	26 %	65.5	100.0
2	80.3	GER	70 %	66.7	45 %	0.0	66.7
3	73.6	NED	64 %	51.3	30 %	51.7	51.3
4	64.8	UK	80 %	92.3	26 %	65.5	92.3
5	59.5	DEN	61 %	43.6	26 %	65.5	43.6
6	58.9	FIN	60 %	41.0	16 %	100.0	41.0
7	44.3	BEL	75 %	79.5	33 %	41.4	79.5
8	41.2	SWE	44 %	0.0	31 %	48.3	0.0
9	38.5	ITA	65 %	53.8	23 %	75.9	53.8
10	37.3	AUT	60 %	41.0	31 %	48.3	41.0
11	31.0	FRA	72 %	71.8	34 %	37.9	71.8
12	27.8	LVA	70 %	66.7	31 %	48.3	66.7
13	27.4	LUX	74 %	76.9	26 %	65.5	76.9
14	23.0	POL	68 %	61.5	21 %	82.8	61.5
15	18.6	ESP	64 %	51.3	36 %	31.0	51.3
16	17.3	EST	45 %	2.6	21 %	82.8	2.6
17	16.1	GRC	65 %	53.8	22 %	79.3	53.8
18	15.7	SVN	58 %	35.9	25 %	69.0	35.9
19	12.9	NOR	55 %	28.2	24 %	72.4	28.2
20	0.8	LTU	50 %	15.4	17 %	96.6	15.4
21	0.0	HUN	72 %	71.8	26 %	65.5	71.8