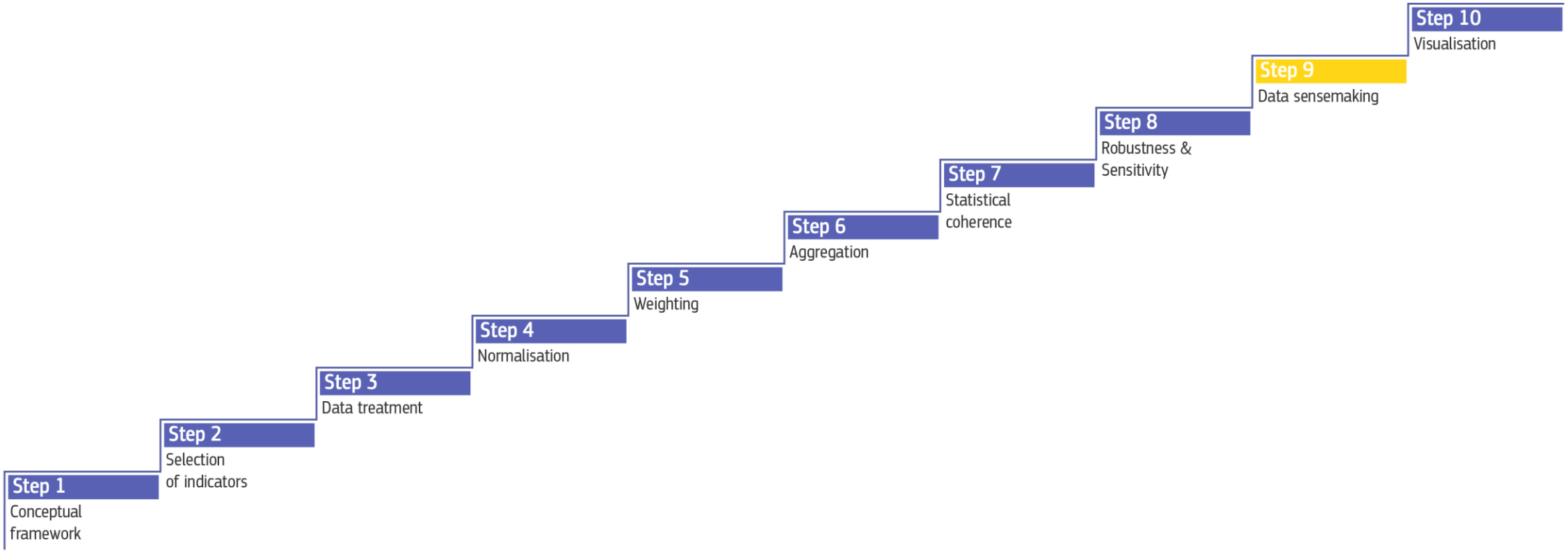
Step 9
Data sensemaking

19th JRC Annual training on Composite Indicators and Scoreboards

Ana Rita Neves

European Commission

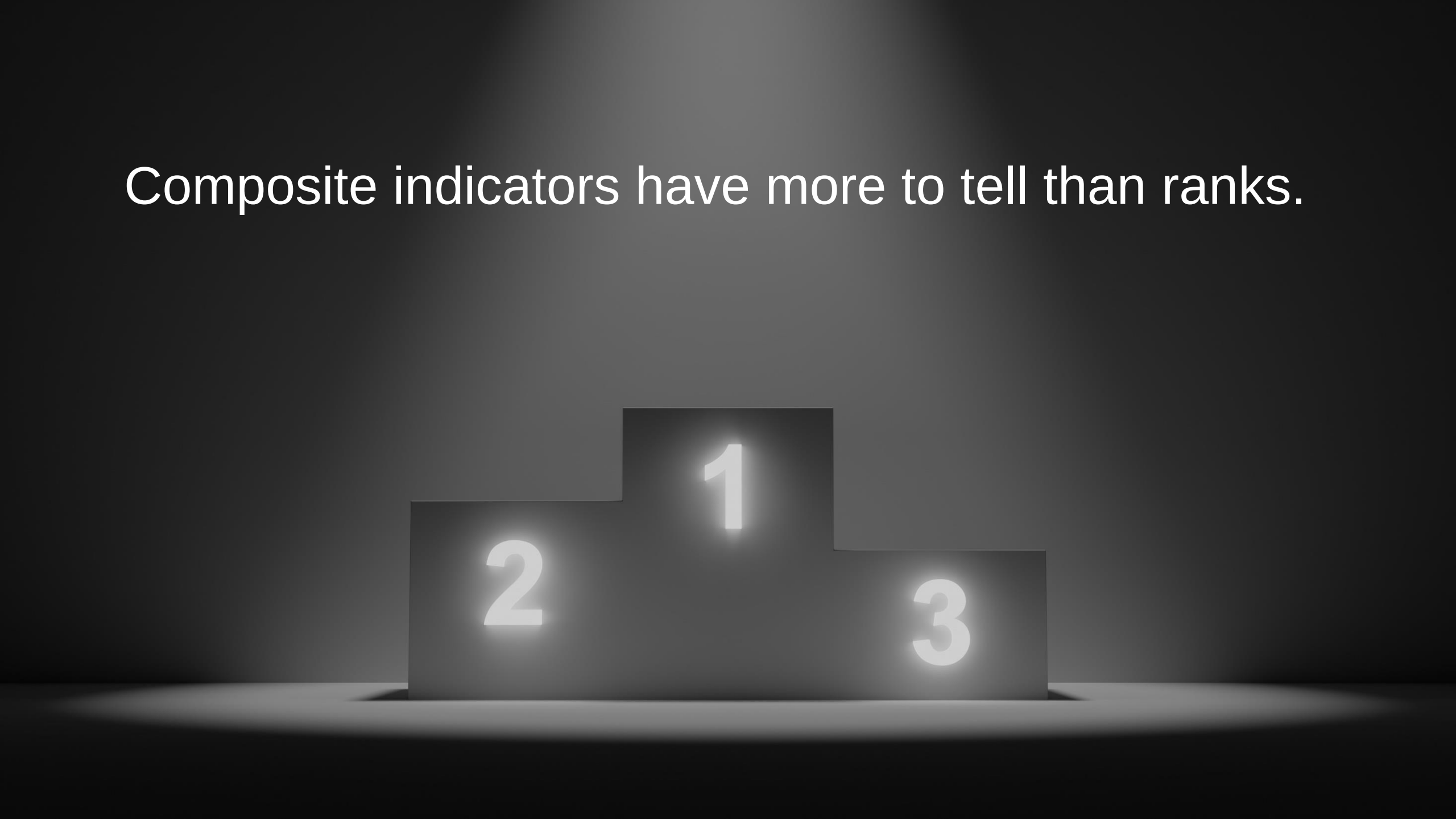
10 STEPS to build a Composite Indicator

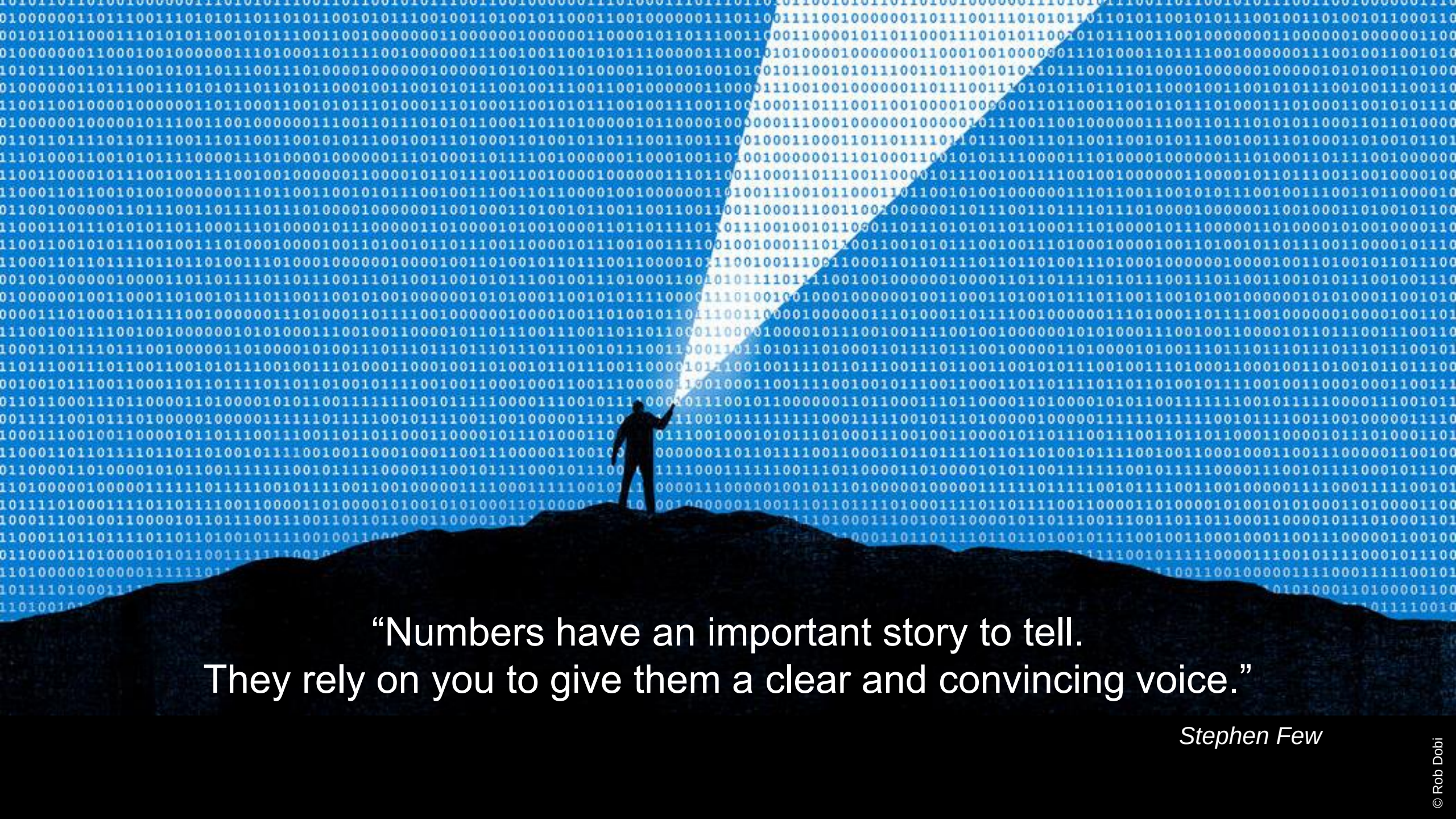


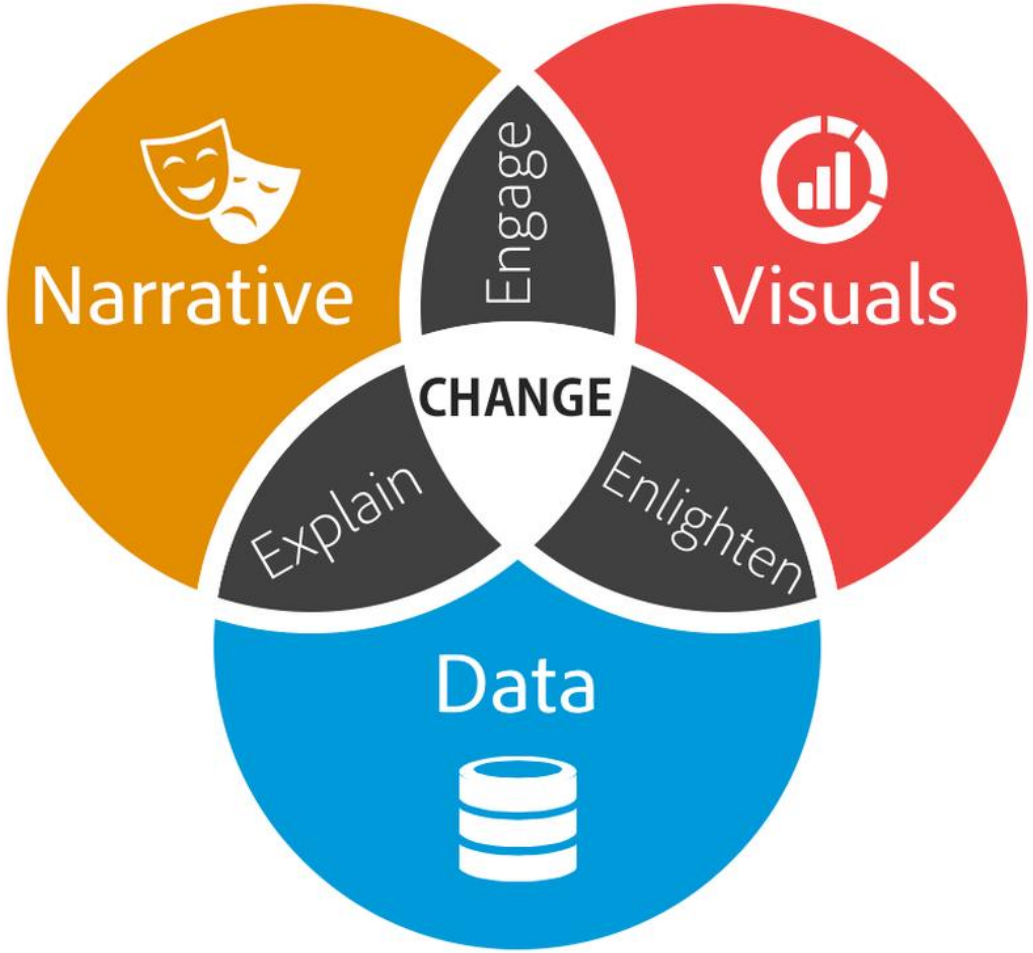
European Commission

41.9	32.6	28	30.3	11.7	54	78.8	88.3	83.9	96.2	35.6	37.1	34.5	58.7	58.7	24.1	8.6	17.4	61.7	37.9	12.1	16.9	16.9	0	2.1	0	8.4	43.1	80.8	NA
46.3	55.4	51.4	53.7	51.2	64.6	26.8	51.4	68.2	22.3	66.2	82.5	55.3	53.1	53.1	52.5	77.5	5.4	49.5	46.4	68.5	99.1	98.1	24.3	66.6	73	54.4	41.3	22.9	17.7
47.5	47.9	50.6	62.7	39.8	59.7	41.7	56.2	77.5	42.3	49.7	55.1	46	47.6	47.6	28.6	34	25.7	20.7	35.1	46.1	58.9	69.3	15.1	37.5	95.7	38.3	38.1	19.2	8
58	73.8	68.3	97	52.7	36.5	45.5	38.5	67.3	40.9	94	97.4	91.7	68.6	68.6	58.9	82.4	17.6	53.4	54.2	78.3	100	100	85.2	33.4	0	87.5	35.5	32.5	21.8
59.9	63.5	53.3	74	42	43.4	13	40.2	48.3	54.4	76.5	93.5	65.2	75.5	75.5	74.9	93.7	37.3	NA	64.5	83.3	100	100	NA	52.5	87.1	89.4	38.6	19.1	1.8
62.4	82	75.2	100	65.5	49.3	13.4	60.1	56.3	59.6	99.1	100	98.6	89.8	89.8	69	98.5	49.8	29.5	66.8	88.5	100	100	100	64.3	86.2	89.4	36.2	17.9	11.5
47.5	21.6	19.6	25	6.4	40.7	42.9	62.2	59.7	56.8	18.3	18.6	18.2	45.6	45.6	16.9	3.3	14.9	46.3	36.2	10.8	7.8	7.8	1.8	5.6	90.9	5.3	37.6	100	NA
77.9	85.5	80.5	100	74.6	45.8	24.1	66.4	65.2	81.2	97.5	99.9	95.8	100	100	68.3	99.4	35.4	39.1	61.3	76.9	84.8	84.8	100	37.5	93.5	76	34.4	16.4	10.3
42.2	33	33.5	37.7	26.4	67.1	20.5	57.3	62.5	29.6	39	44.7	35.2	29.5	29.5	18.2	21.1	11.6	18.9	51.8	80.7	91.5	99	100	49.6	64.8	51.2	38.5	16.9	9.5
29.6	42	39.4	78.4	12.1	35.6	8.2	27.6	39.9	30.7	53.3	59.6	49.1	38.3	38.3	32	53.2	11	10.5	31.6	22.7	7.1	29.2	0.2	8	80.8	74.4	59.7	23.7	5.1
46.5	46.9	44.1	49.7	38.8	69.8	27.2	69.9	47.8	14.5	50.3	55.6	46.7	62.3	62.3	38.5	49.3	28	27.5	49.2	75.2	91	77.4	100	43.1	74.4	40.2	49.6	25.8	21
35.5	31.5	34.6	84.4	0	26.8	0.9	4.6	15.1	39	36.7	36.7	36.7	13.1	13.1	19.8	24.2	26.6	4.3	43.7	42.5	75.4	42.4	10.3	18.9	97	41.4	63.5	55.1	48.3
31.7	17.5	19.3	10.5	21	32.8	34.9	65.2	39.9	22.4	6.4	6.3	6.4	37.8	37.8	15.3	0.1	6.8	54.4	30.6	8.8	0	0	0	11.9	97.3	18.2	34.6	90.1	100
56.6	78.1	74	80.8	79.6	40.2	21.3	44.1	63	45.5	96.9	100	94.8	70.5	70.5	61.4	94	27.7	29.7	60.3	85.8	100	100	100	51.7	90.2	80.8	32.8	13.4	8.6
61.4	71.8	74.6	59.8	93.2	76.2	25.8	37.9	59.1	72	61.9	66.1	59.2	86.5	86.5	66.7	90.3	39.1	47.2	65	86	100	100	100	42	78.3	86.6	49	15.2	3
31.8	25.3	33.7	10.7	52.2	35.9	30.2	70.6	24.4	13	11	10.6	11.3	35.2	35.2	5	1	12.8	NA	45.6	59.2	77.3	64.6	NA	30.2	95.5	52.6	39.6	27.6	25.1
76.5	93.4	93.5	100	100	79.6	13.1	68.6	64.5	77.6	100	100	100	100	100	69.6	98.3	35.4	46.5	62	71.1	73.3	73.4	100	26.2	61.8	70.3	60.8	20.1	4.6
31.3	36.3	30.3	22.6	22.7	78.1	76.2	64.1	100	50	34.7	38.8	32	76.1	76.1	34	36.2	16.1	47.6	21	16.4	14.4	9	9.5	0	88.7	7.1	72.3	22.7	22.7
62.5	83.9	82	100	78.4	61.5	18.1	60.1	56.7	57.1	96.3	100	93.8	83.1	83.1	63.8	96.9	31.6	29.6	64	86.5	100	100	100	60	88.7	72.5	36.6	21.5	15.7
37.4	31.9	31.6	17.4	22.2	100	100	100	95.8	100	35.5	39.4	33	40.9	40.9	14.9	2.8	15.2	39.1	29.4	3.6	0	0	0.1	2.9	NA	0	37.3	100	100
49.7	29.4	25.7	42.1	5.8	52.6	49.9	71	42.3	8	27.7	28.4	27.2	53.4	53.4	30.5	28.1	22.4	43.5	53.3	85.1	89.9	95.2	100	45.2	96.6	87.4	65.9	37.7	28.3
77.7	83.9	78.6	100	71	68.3	10.8	48.6	62	71.5	100	100	100	93.6	93.6	62.6	96	34.2	24.4	62.3	81.5	98.4	97.9	100	53.1	92.1	31.8	36.8	23.6	11.1
39.1	37.5	27.9	29.2	23.1	40	30.3	44.9	61.9	36.7	51.7	50.8	52.3	49.3	49.3	43.1	49.5	19.6	53.7	35.7	40.4	64.3	64.9	0	26.6	95.4	25.4	38.7	51.2	54.4
27.7	20.5	15.3	17.8	6.9	31.4	39	62.1	32.8	18.9	20.9	21.5	20.4	54.6	54.6	13.6	4.9	13.3	31.5	34.7	52.9	76.9	82.8	1.1	37.5	84.5	77.2	38.1	10.3	1.8
31.6	19.5	21	6.3	29.6	32.2	33.3	61.7	24.9	4.9	11.3	11.7	11	32.3	32.3	18.9	3	23.9	45.9	38.7	60.6	99.7	88.2	0	54	83.2	59.8	48.4	13.9	0
36.4	21.3	20.7	10.6	24	35.6	37.8	28.5	49.1	31.7	19.2	19.6	19	36.5	36.5	14.5	0.6	13	43.7	34.6	42.2	42.8	90.8	0	34.1	90.2	34.9	28.7	28.5	14.2
40.2	16.6	19.4	6.6	24.2	31.3	45.2	51.1	45.9	14.2	6.8	7	6.6	28	28	14.3	0.4	10.1	46.2	51.2	76.2	100	100	53.1	51.8	69.5	81.6	48.3	28.3	4.4
44.8	29.5	22.9	32.7	7.5	39.3	59.2	65.1	48.4	16.9	33.2	38.6	29.6	39.5	39.5	46.5	49.5	23.9	63.1	44.1	62.5	100	100	1.9	31.8	82.2	70	61	29.1	18.1
56.2	71.5	62	83.4	51.4	46.2	25	36.5	59.8	45.6	98.2	95.4	100	68.6	68.6	59.9	90.5	22.4	36.3	53.9	69.1	100	100	40.5	33.7	89.7	68.8	33.5	28.1	23.5
47.9	45	43.5	53.9	22.5	84.3	79.1	86.5	89.8	91.6	47.1	51.2	44.4	41.3	41.3	51.1	59.5	15.1	70.4	33.1	29	48.1	14.6	1.2	67.1	NA	12.5	43.8	35.8	25.1
28	28.1	29.1	21.7	33.3	62.8	18.7	38.6	32.6	1.1	28.3	29.9	27.2	30.1	30.1	20.6	21.8	10.4	28.4	29	41.3	76.7	50.6	0.2	50.1	0	29.9	42.2	12.3	4.2
38.5	32.3	32.1	39	10.7	100	87.5	97	81.5	21.2	35.3	39.4	32.6	24.4	24.4	33.7	35.2	23	41.5	40.2	46.1	48.9	56.5	0	81.6	94.5	36.1	69	31.5	30
36.5	30	31.3	19.5	39.6	38.1	31.7	54.5	52.6	0	31.8	33.2	30.9	20.2	20.2	28.4	35.3	10.3	32.8	40.9	60.7	77.5	77.9	43.8	56.2	24.7	51	44.3	22.7	3.6
60.2	55.7	45.8	58	39.1	41.6	20.8	40.4	50.3	35.4	70.3	80.7	63.3	74.2	74.2	55.3	77.3	20	46.7	65.6	81.5	100	100	79.4	47.8	89	90.1	33.5	34.4	20.8
26.1	21.1	28.2	8	40.3	39.7	29.1	75.2	54.9	32.4	14.1	14.4	13.9	11.7	11.7	9.4	4.5	9.1	19.5	26.9	35.4	43.6	58.6	6.9	40.4	44.4	14	37.3	20.4	9.8
55.1	47.6	38.2	43.5	35.3	35.8	18.5	30.4	53.1	48.8	62.2	64.7	60.6	67.4	67.4	43.4	49.6	31	NA	65	78	100	100	NA	33.1	88.6	84.4	25.2	28	11.1
28.2	25.3	21.5	23.4	19.6	36.3	17.9	20.7	17.4	12.2	28.5	33.9	24.9	34	34	29.5	51.4	15.2	0	34.1	51.2	66.2	83.3	29.6	15.9	47.1	42.6	51.5	13.6	8.2
18.9	12.5	7.8	18.6	0	0	3.3	9.5	0	19.4	19.5	21.4	18.3	20.6	20.6	12.9	17	17.8	0	19.3	5.8	1.2	2.1	0.3	0.5	86	0.3	30.5	25	17.2
57.4	88.3	89.1	100	88	84	34.4	59.6	71	84.7	97.4	93.5	100	81.8	81.8	67.9	93.9	42.4	41.4	50.9	59.6	82.9	82.9	21.3	42.5	96.9	72.7	40.2	17.4	7.8
34.5	41.9	41.6	82.2	17.2	31.6	0	7.4	6.9	22	53.7	60.9	48.8	26.9	26.9	28.7	39.2	16.8	19.4	40.6	27.3	40.9	35.2	1.2	10.6	95.8	27.3	44.8	67	62.6
27.8	35	31.8	75.2	0	42.7	4	12	19.7	22.9	49.7	55.5	45.9	29.1	29.1	21.1	23.9	15.4	NA	41.6	28.3	8.6	49.8	NA	4.3	98.1	17.8	50.6	70.2	77.7
62.8	94.7	96	100	100	65.8	63.8	84.5	73.7	95.6	100	100	100	95.1	95.1	73.9	91.9	55.5	56.4	53.4	57	81	81	4	53.6	100	44.8	74	77.4	NA
48.2	76	68	99.8	56.9	44	0	0	13.7	41	92.9	91.5	93.8	91.1	91.1	62.7	92	30.4	36.6	42.5	39.7	76.9	51.1	0.3	17.7	77	39.9	39.4	42.2	23
57.7	76.9	69.4	89.8	63.4	43.9	12.5	50.4	48.9	43.8	98.3	99.1	97.8	80.6	80.6	60.6	91.3	39.9	19.9	57.2	76.5	100	100	66.7	48	89.2	65.9	31	26.1	16.6
45.6	41.8	39.8	42.5	36.1	52.6	29.1	40.7	67.1	44.1	49.4	52.4	47.3	48.2	48.2	28	32.4	15	32.4	39.8	53.2	86.1	96.9	1.5	37.3	53.8	27.3	39	30.1	19.7
43.6	52.2	50.7	100	20.1	43	1	0	23	36.3	62.7	75.2	54.4	46.1	46.1	40	52.7	14.6	NA	40.3	24.1	21.6	14.5	NA	15.2	92.1	17.8	54.3	63.2	50.9
57.2	82.5	78.9	100	73.8	63.8	13.4	33.5	51.6	43.5	95.1	100	91.8	100	100	52.8	92.7	11.5	14.2	59.6	80.8	100	100	100	24.2	68.8	62	44.2	26.8	23.7
40.9	37.5	28.6	40.5	17.4	23.9	25.1	33.3	60.2	53.3	55.2	54	56	52.2	52.2	27.7	39.6	3.8	NA	48.1	48.6	56.3	52.8	NA	15	97.2	56.1	48.9	40.1	42.5
30.8	26.2	30	14	42.9	41.8	22.3	48.8	13.8	16.6	13.7	13.7	13.7	49.9	49.9	13.3	7.3	19.9	18.9	34.6	46.4	70.1	67.5	3.7	34.9	85.4	56.6	37.2	17.7	14.1
35.7	29.1	23.5	26.8	18.7	20.7	18.7	40	59.3	46	45.6	42.9	47.3	40.2	40.2	7.2	3.4	14.6	NA	40.4	28.5	20.7	22.3	NA	33.9	93.5	16.8	47.1	61.7	65.4
30.1	27.6	25.9	11.4	35.5	39.9	29	45.4	36.9	6.8	34.3	35.8	33.3	34.5	34.5	13.7	3.8	12.4	34.8	37.5	65.8	100	100	9.6	57.9	26.9	89.7	35.8	9.7	2.3
49	27.2	32.1	6.7	38.8	26.1	100	100	100	100	16.3	17.5	15.6	36.5	36.5	18.2	0.8	15.4	55.7	52.7	72.6	100	100	100	0	NA	0	46.8	NA	NA
46.9	73.3	62.9	100	47.2	44.4	0	0	0	19.9	90.8	100	84.6	88.4	88.4	72	97.9	67.1	24.9	48.8	61	98.3	98.3	17.2	19.7	78.8	61.1	41.6	17.7	16.4
42.4	51.5	47	97.9	14.7	46.9	0	0	18.3	11.2	67.5	82.9	57.2	56.1	56.1	32.3	49.5	15.4	14.6	47.1	60	98.4	98.4	1.2	15.2	91.7	82.6	53.2	29	NA
30.7	24.2	22.6	9.5	33.5	28	23.9	46.1	0	0	26.6	27.2	26.1	34.1	34.1	16.7	17.5	15.1	NA	46.9	74.9	100	100	NA	30.5	7	65.4	47	17.2	0.8
32.2	46.3	41.2	79.7	15.6	41.3	2.7	9.4	20.8	45	59.8	79.4	46.8	43	43	44.4	65.7	15	31.1	20.4	12.8	11	11	2.2	13.8	84.7	5.6	32.5	26.4	14.2
24.9	22.9	28.3	11.6	36.2	48.6	47.4	76.2	39.3	15.9	9.9	10.5	9.5	36.7	36.7	11.9	0.5	7.9	38.7	20.9	26.8	21.3	55.7	1	24.1	42.3	15.9	43.9	2.4	0
49.4	47.3	46	53.4	27.8	100	73.4	76.8	90.8	87.4	45.4	50.3	42.2	51.2	51.2	55.4	73.8	13.3	60.9	36.4	36.7	59.6	29.5	1.8	66.6	NA	24	51.1	38.9	28.9

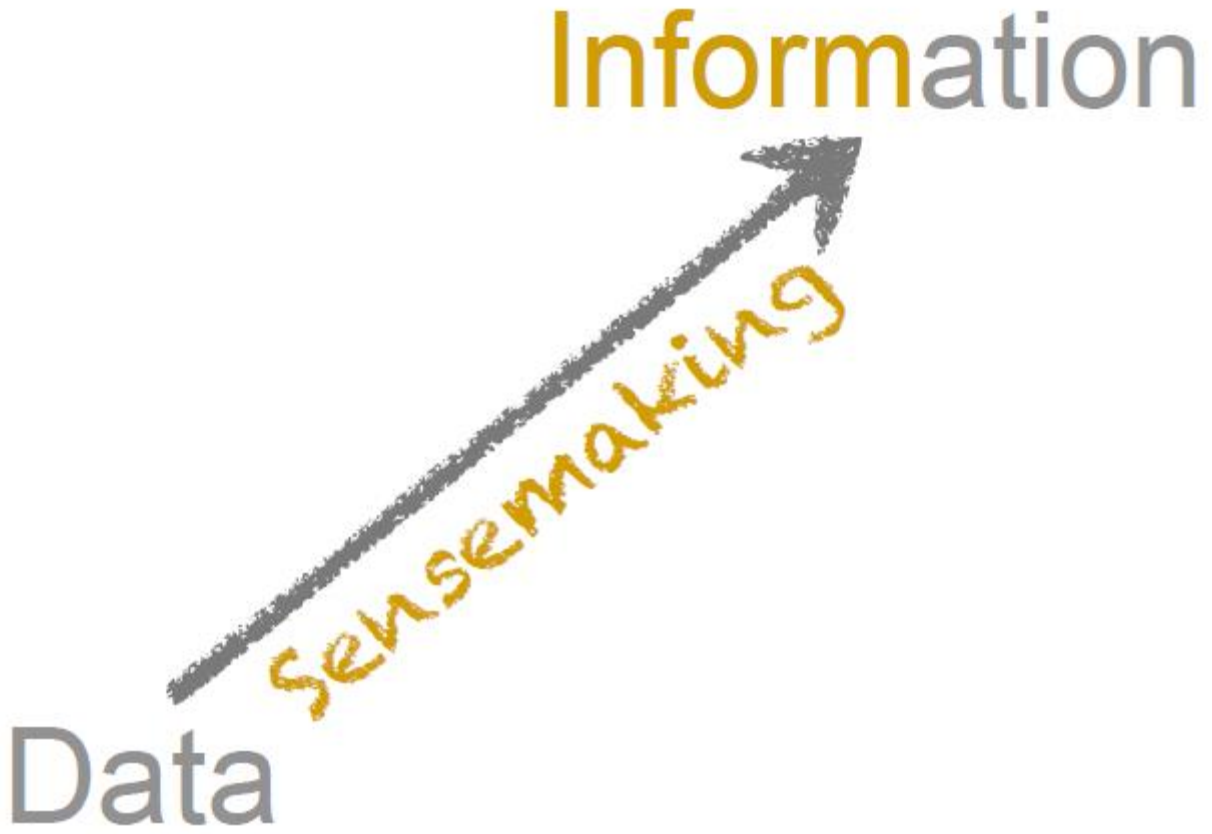
Composite indicators have more to tell than ranks.




“Numbers have an important story to tell.
They rely on you to give them a clear and convincing voice.”
Stephen Few
© Rob Dobi



Source: Bren Dykes, 2019.



Source: Stephen Few, 2013.

“Data sensemakers”

Deep Work

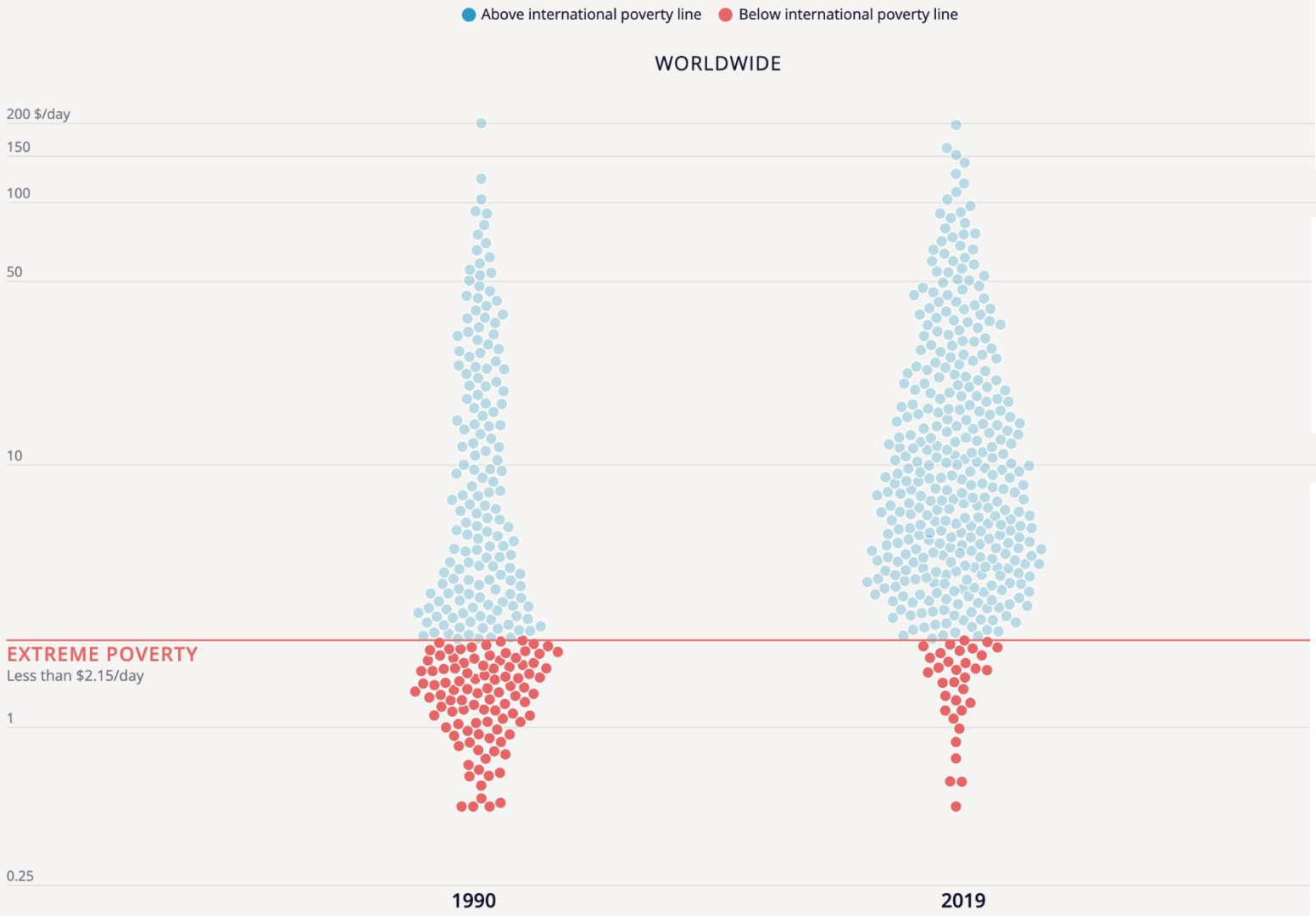
Context

660 million

people worldwide in extreme poverty in 2019

Progress in ending extreme poverty

Distribution of income ($/day). Each dot represents 20 million people

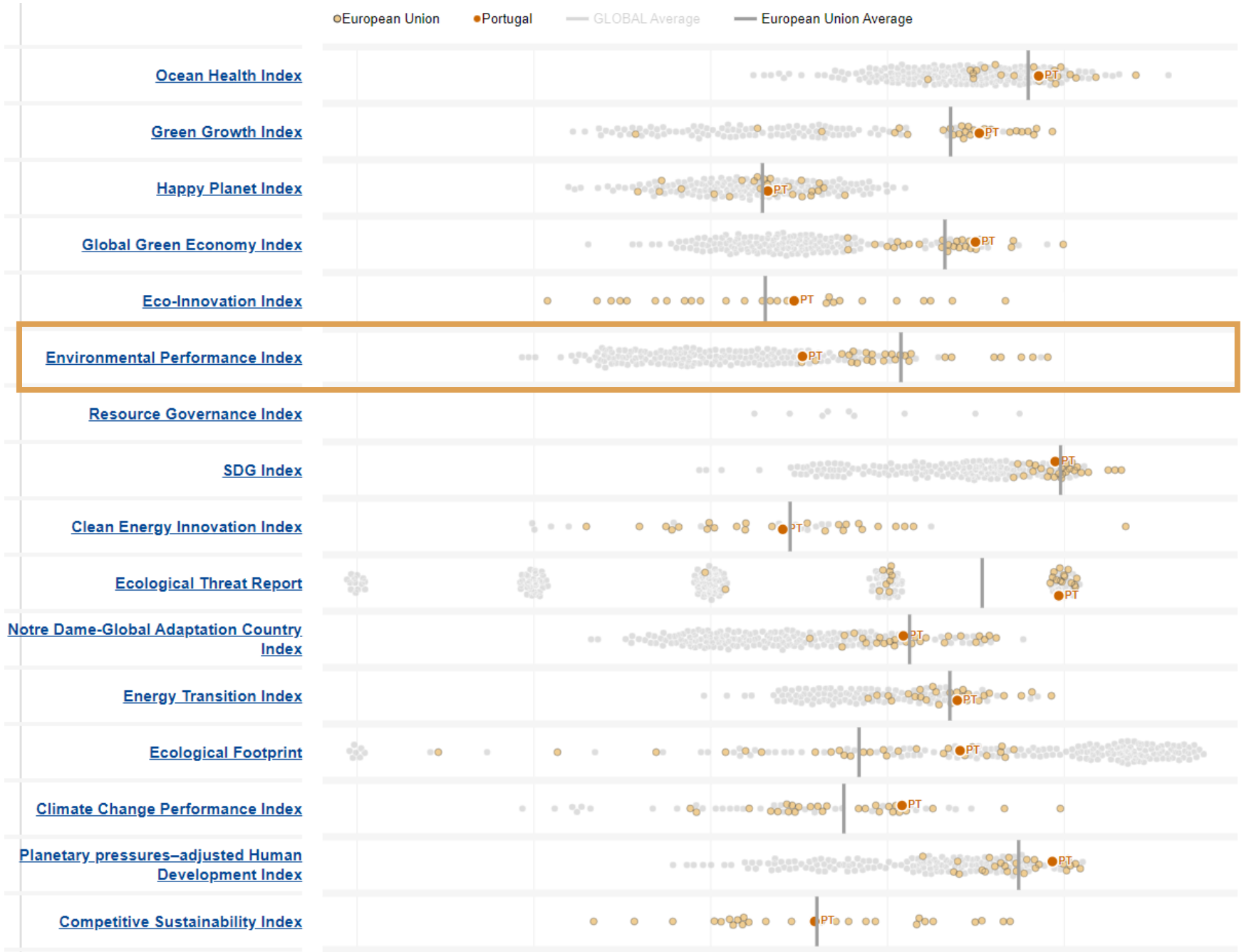


In 1990, nearly **2 billion people** worldwide lived in extreme poverty – in other words, on less than $2.15 per day.

Between 1990 and 2019, the number of people living in extreme poverty was reduced by around 66 percent, from 2 billion to around **660 million**.

Over the same period, the world's population increased by around 2.4 billion people and the number of people with incomes above the international poverty line **increased from 3.3 billion to 7 billion**. As a result, the share of the global population living in extreme poverty was reduced from about 38 percent to 8.5 percent.

Data: World Bank Poverty and Inequality Platform, World Development Indicators (SI.POV.DDAY; SP.POP.TOTL), and 2022 Poverty and Shared Prosperity Report.



Source: Composite Indicators & Scoreboards Explorer, 2023.

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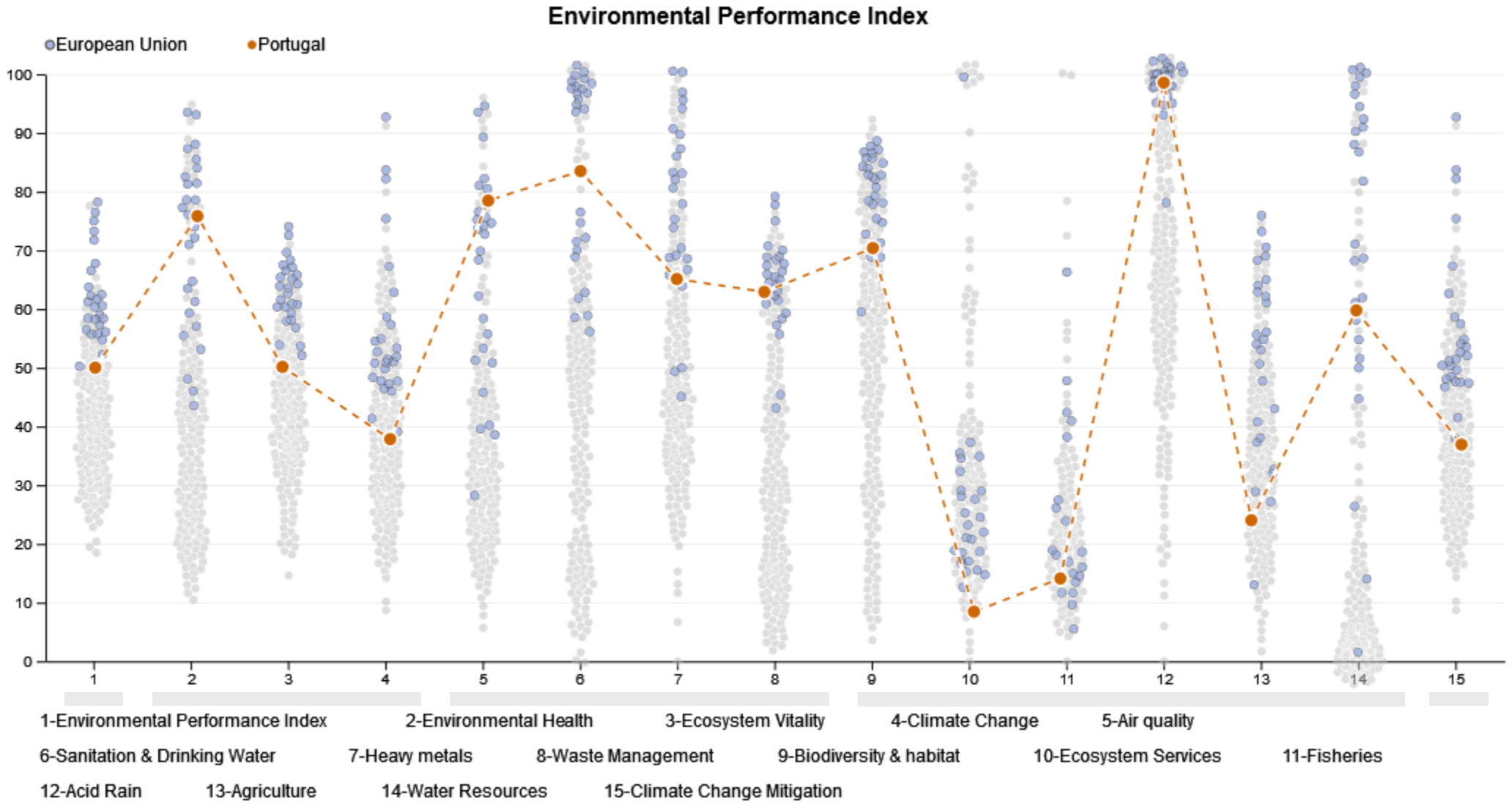


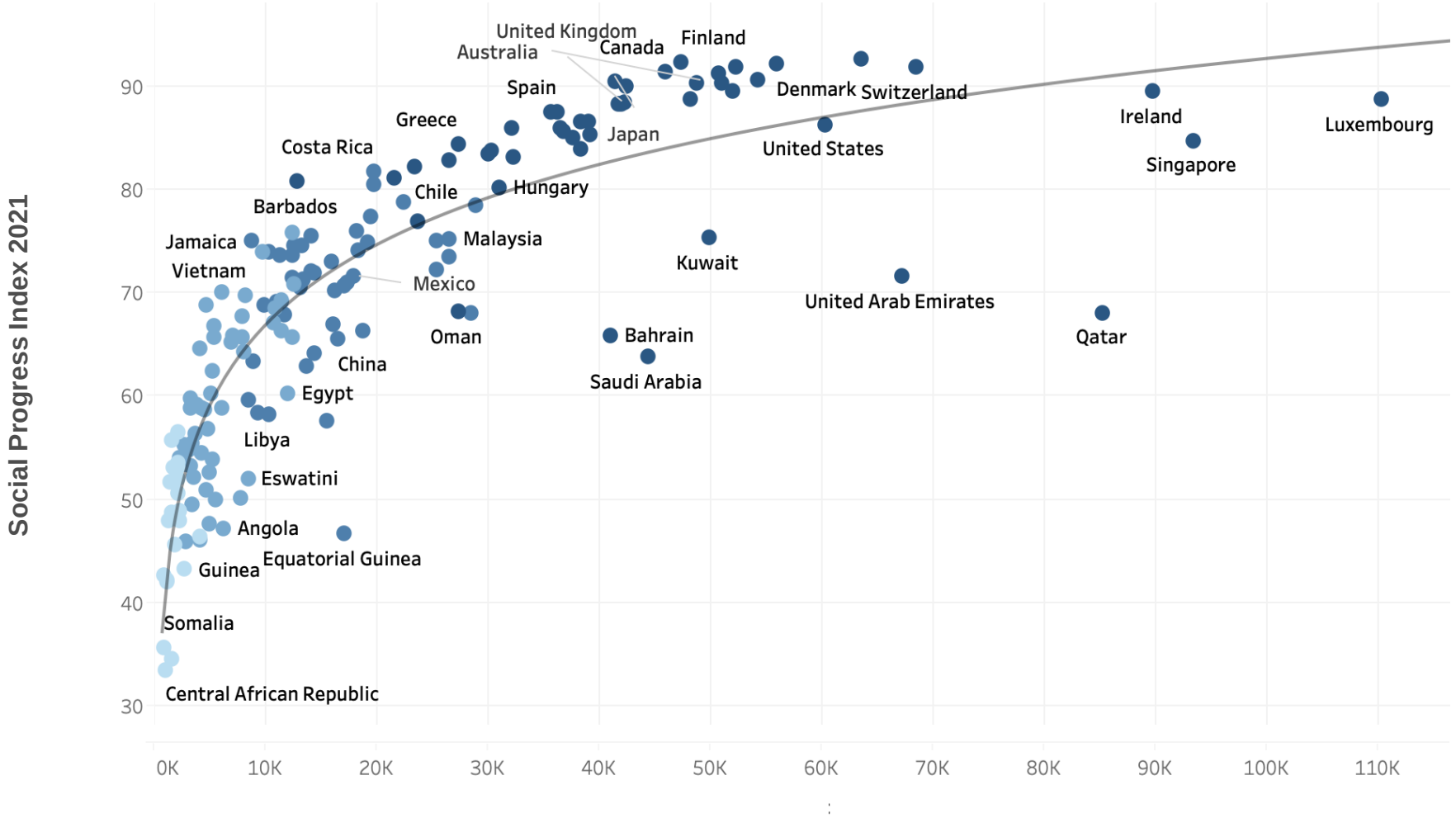
Source: Composite Indicators & Scoreboards Explorer, 2023.

Context

- “Nothing can be properly understood independent of its context”.
- Essential question: “Compared to what?”
- Place data in context visually > easier to perceive patterns.
- Context not always comes from our datasets > read and talk to people.
- Detect possible mistakes in the data.

Relationships

Social Progress Index vs GDP/capita



Source: Social Imperative, 2021.

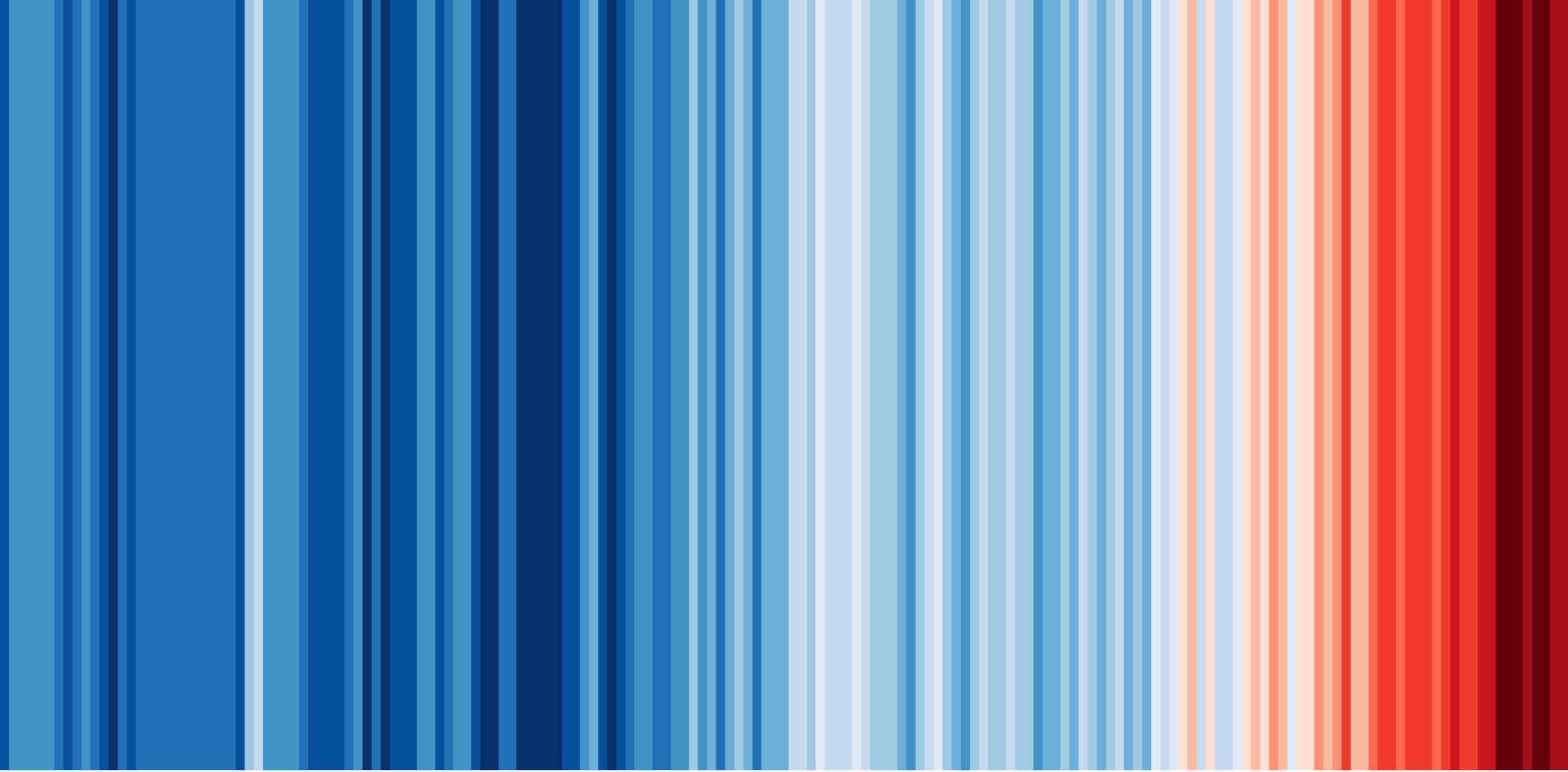
European Commission

Exploring relationships

- Plotting two variables in a scatterplot is an easy way to examine and gain insights on a correlation
- Correlation is a signal > something more to be explored: “Why is this happening?”
- The Composite Indicators & Scoreboards Explorer allows you to explore correlation between 150 indices.

“The world cannot be understood without numbers. But the world cannot be understood with numbers alone.”

Hans Rosling



Source: Ed Hawkins, #ShowYourStripes

Thank you

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https://knowledge4policy.ec.europa.eu/composite-indicators_en

European Commission

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