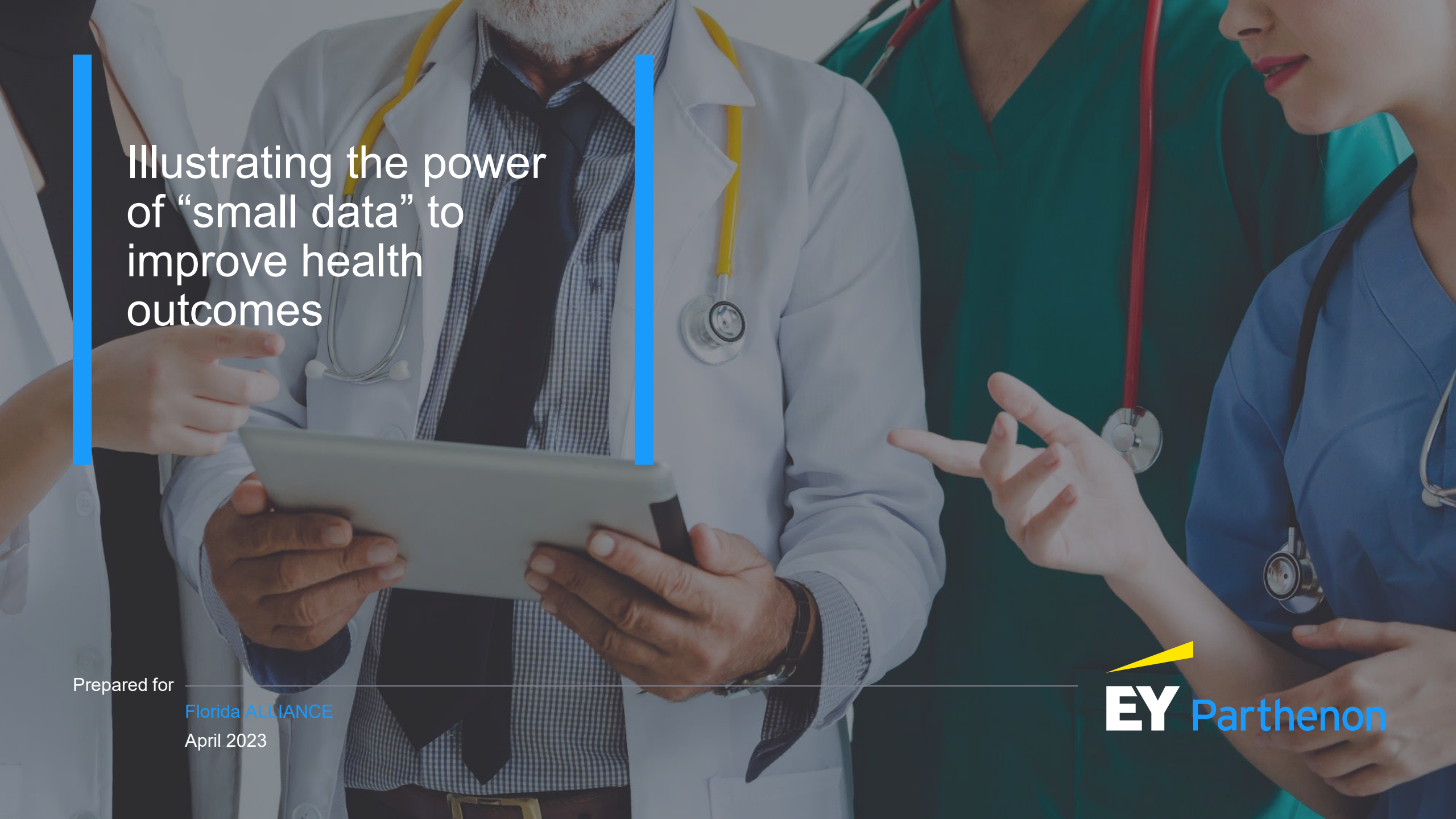


Illustrating the Power of “Small Data” to Improve Health Outcomes



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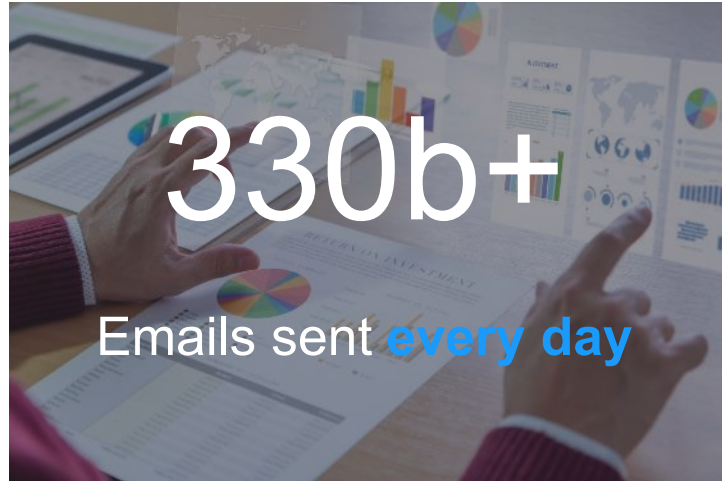
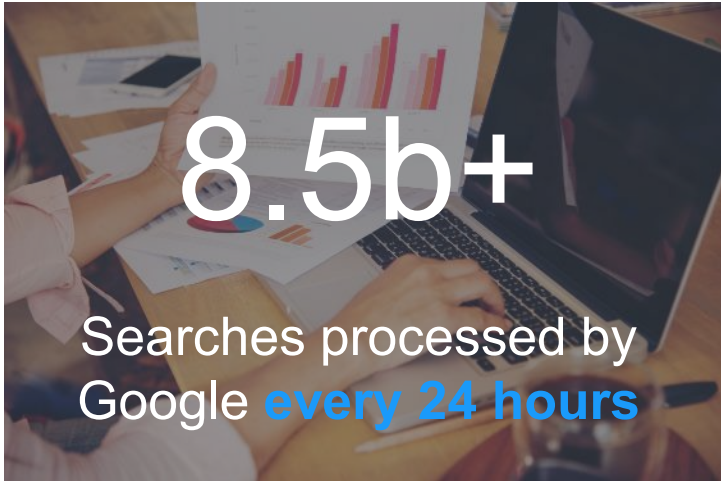
Illustrating the power of “small data” to improve health outcomes

Prepared for

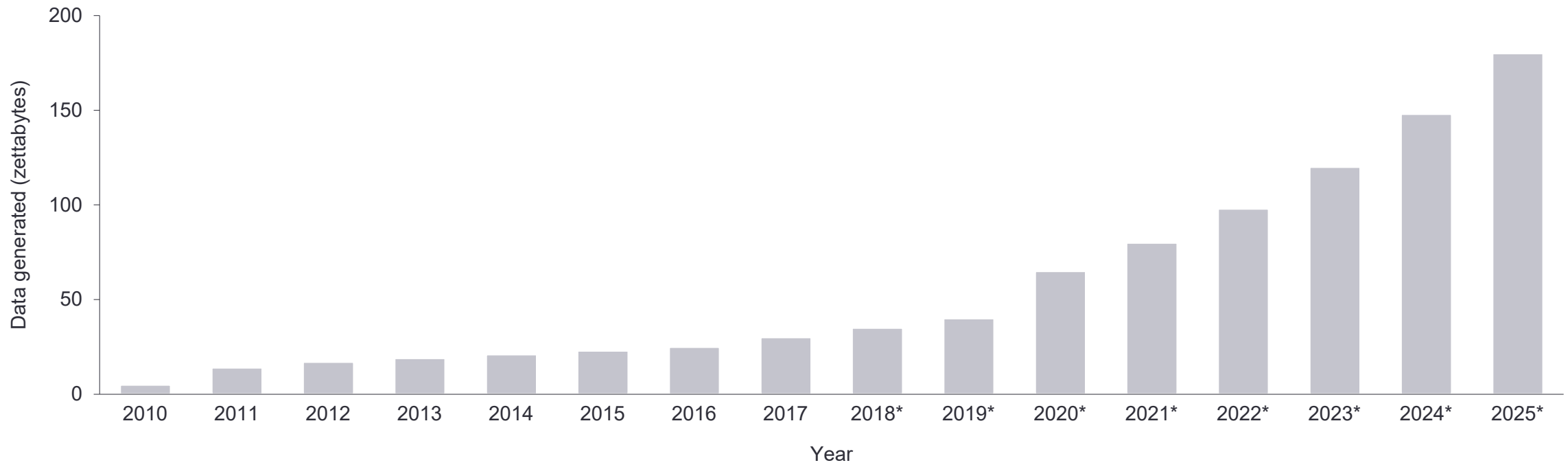
Florida ALLIANCE

April 2023



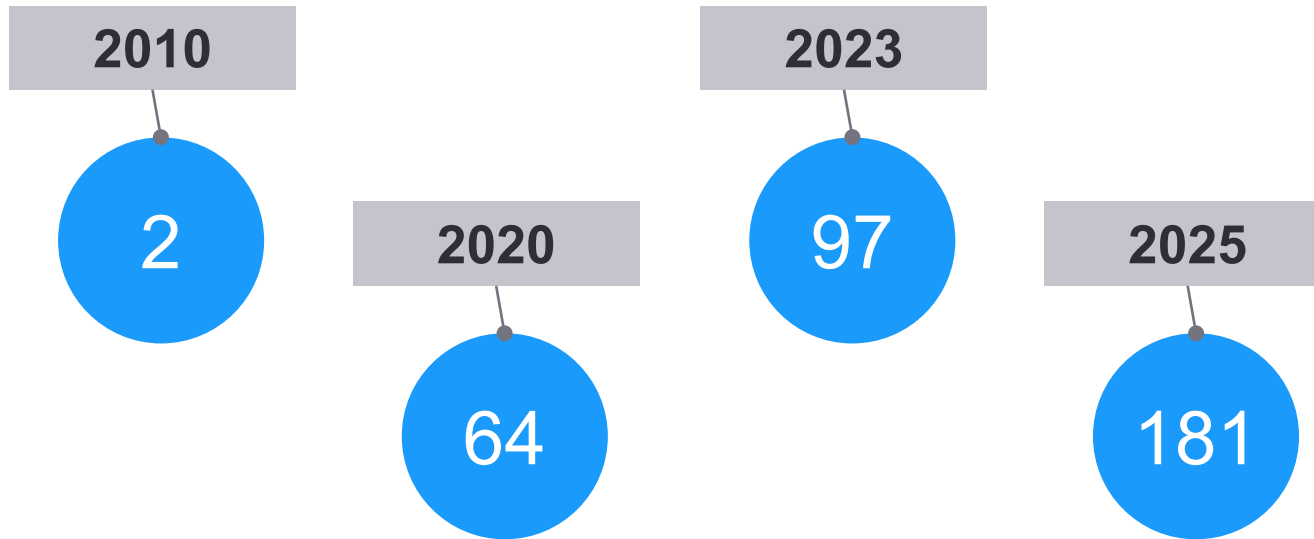


Global data generated annually



Are people and organizations better off?

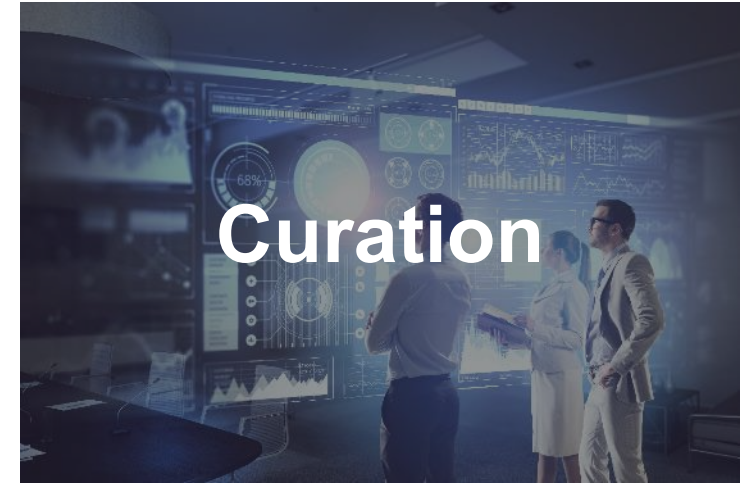
Size (zettabytes) of global data created annually



**1 zettabyte is equivalent to
~3,000,000 times the content
of the Library of Congress**



Data can be difficult and expensive to utilize and manage



Most organizations struggle to leverage the influx of available data

Only 11%

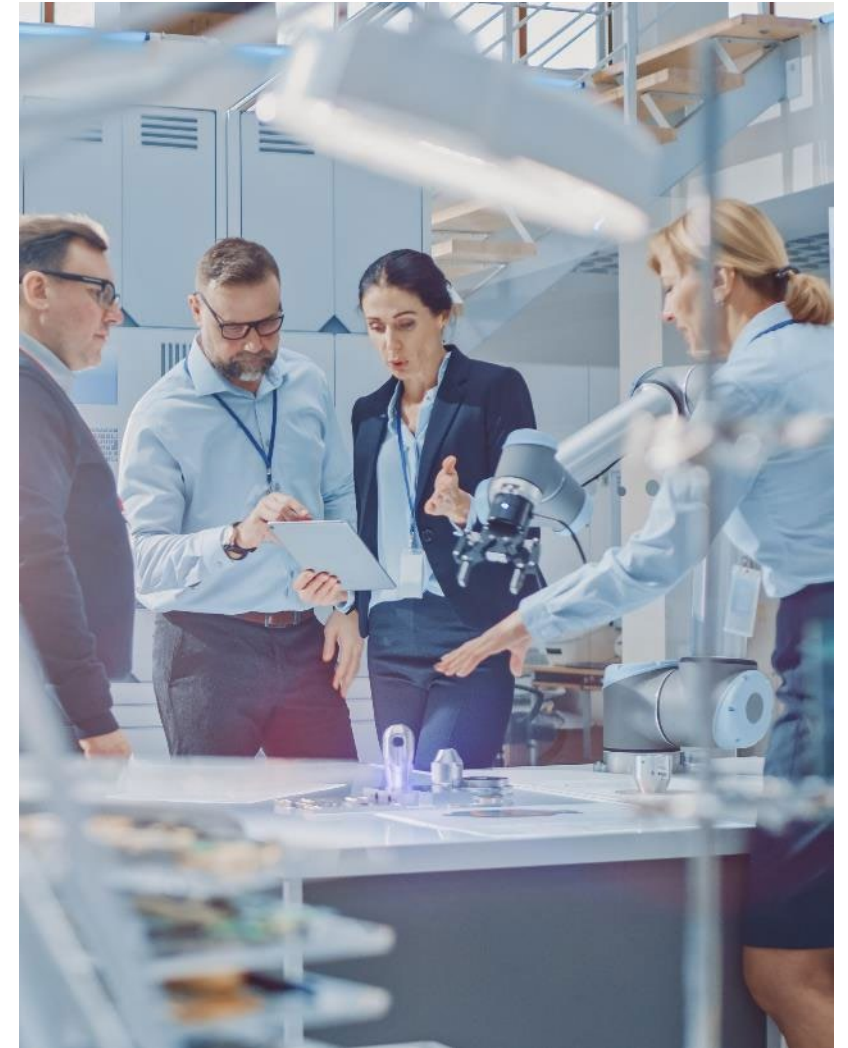
of organizations **believe they are industry leaders** in leveraging the value of corporate data.

Health care and transportation organizations perform even worse.

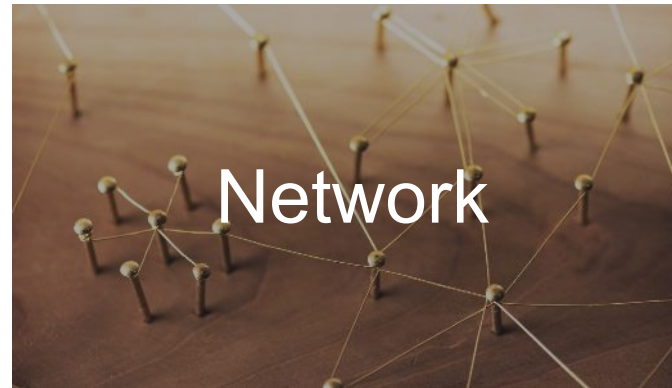


As data increases, ROI is unclear to executives given complexity and expectations for data as observed with notable shifts in sentiment among Fortune 1000

	2022	2023
Fortune 1000s increasing investment in corporate data/analytics initiatives:	92%	84%
Fortune 1000s that have created a data-driven organization :	38%	24%
Fortune 1000s managing data as a business asset :	50%	40%



For executives, data should be treated as an asset to deliver insights and inform business (or policy) priorities and decisions



Where do you start?

A small data approach optimizes a discrete set of questions using high-quality data to realize actionable insights with confidence and efficiency

What is small data?

- ▶ Datasets small enough (volume and format) to be **comprehensible by humans**
- ▶ Data of very **high quality** (rather than a large quantity)

What is a small data approach?

- ▶ An **approachable method** to analyze complex, multi-causal scenarios
- ▶ A **data-centric approach** (rather than model-centric) to data analysis



Why use a small data approach?

- ▶ Efficiently produces **understandable and actionable** insights
- ▶ Manageable and **implementable by all organizations**
- ▶ Can be **complementary to Big Data approaches**

Small Data overcomes (or addresses) some of the challenges put forward with Big Data initiatives and efforts

Benefits of small data over big data



Increase data quality



Maximize data investment



Limit data proliferation



Eliminate the data noise



Effectively allocate people resources



Improve data management

To get started with a small data approach, leaders should focus on specific steps to quickly progress an effort to outcome

Identify core strategic questions within your organization

Route priorities where tech (e.g., predictive modeling) can improve operations and decision-making

Bring in the relevant people, resources, and capabilities to work out solution(s)



Prioritize urgent business decision support needs

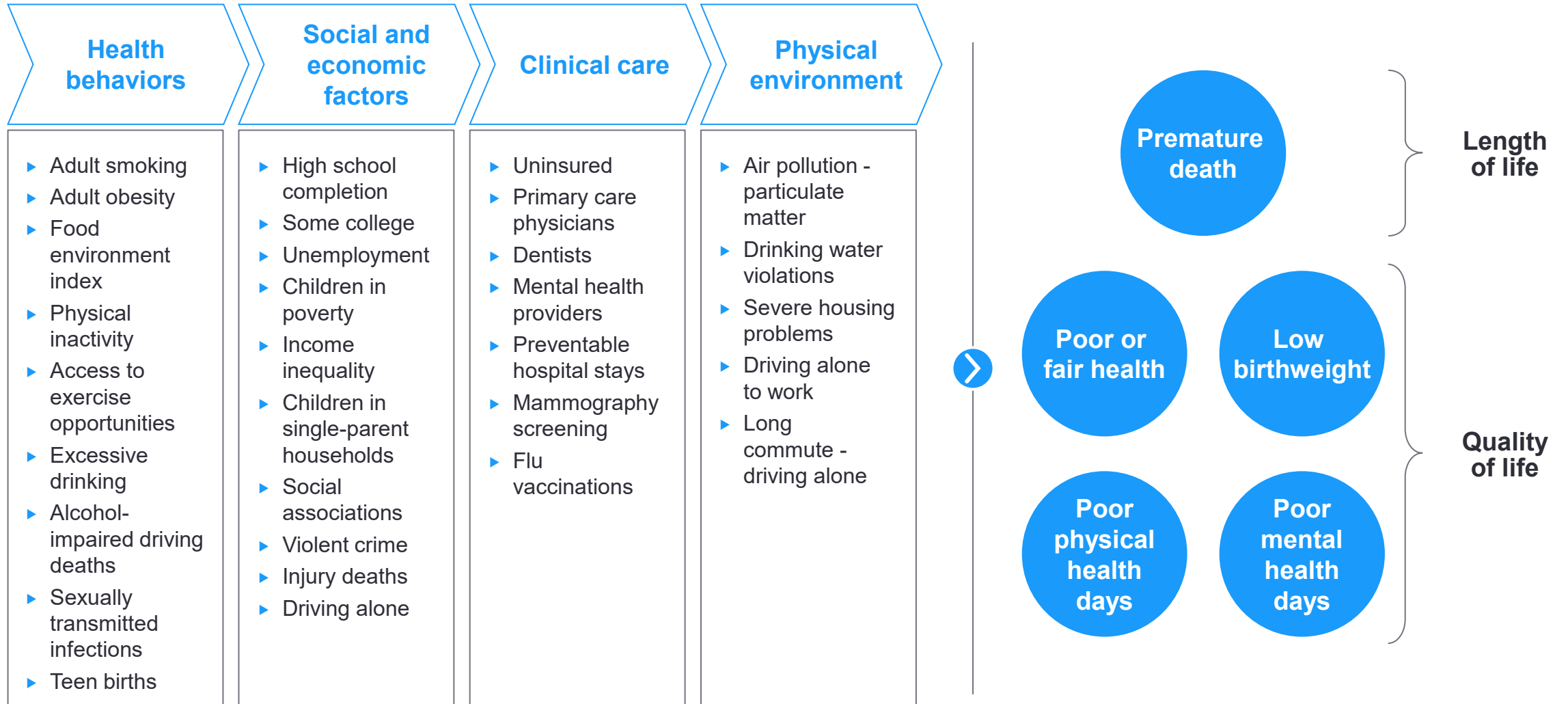
Identify available data and what data is required, and if it can potentially answer the strategic question

An example in public health:

improving health outcomes and equity



How a “small data” approach helps understand the contribution of health factors on health outcomes



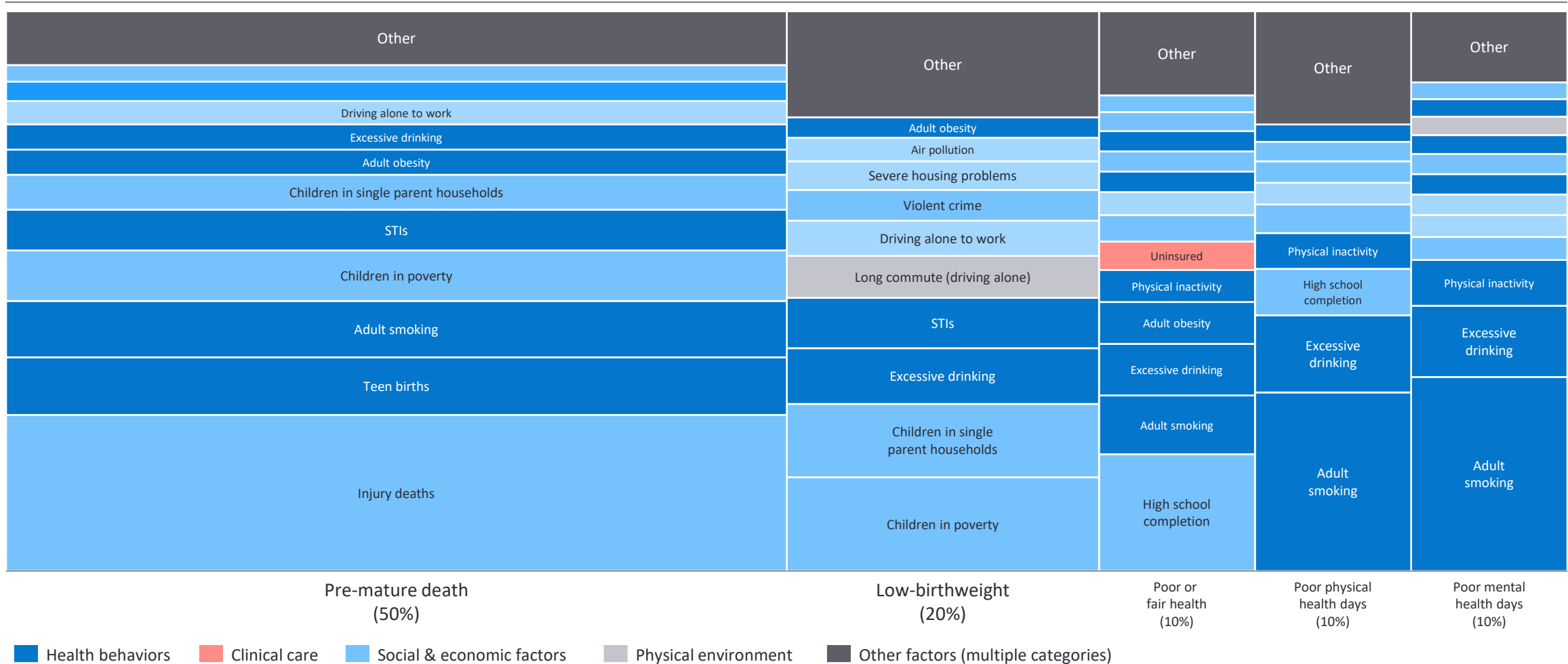
The 30 health factors that contribute differentially to health outcomes

Custom Weights >>>	Premature-death Years of potential life lost before age 75 per 100%	Poor or fair health % of adults reporting fair or poor health	Poor mental health days Avg # of mentally unhealthy days reported in past 30	Poor physical health days Avg # of physically unhealthy days reported in	Low-birthweight % of [??] with low birthweight (<2.5kg)
	50%	10%	10%	10%	20%
Adult smoking	10.1%	10.5%	34.7%	31.9%	2.5%
Adult obesity	4.5%	7.5%	2.0%	0.0%	3.7%
Food environment index	0.0%	3.7%	3.6%	2.7%	0.0%
Physical inactivity	0.0%	5.7%	8.2%	6.4%	0.0%
Access to exercise opportunities	0.0%	0.3%	0.0%	0.1%	0.7%
Excessive drinking	4.5%	9.2%	12.7%	13.8%	9.9%
Alcohol-impaired driving deaths	0.0%	0.1%	0.5%	0.7%	0.8%
Sexually transmitted infections	7.3%	0.0%	3.1%	3.1%	9.0%
Teen births	10.3%	3.6%	5.4%	0.0%	1.1%
Uninsured	0.0%	5.1%	1.1%	0.0%	0.7%
Primary care physicians	0.7%	0.0%	0.9%	0.0%	0.6%
Dentists	0.0%	0.1%	0.0%	0.2%	1.4%
Mental health providers	0.1%	0.0%	0.3%	0.5%	0.4%
Preventable hospital stays	0.7%	0.4%	0.6%	0.1%	1.6%
Mammography screening	3.4%	4.0%	0.7%	2.4%	0.0%
Flu vaccinations	0.0%	1.2%	0.6%	2.1%	0.6%
High school completion	0.0%	20.9%	0.1%	8.3%	0.0%
Some college	3.0%	3.4%	3.0%	3.8%	2.1%
Unemployment	0.0%	3.6%	2.7%	1.1%	2.0%
Children in poverty	9.0%	4.7%	4.1%	5.1%	16.8%
Income inequality	1.8%	1.8%	1.2%	2.0%	2.7%
Children in single-parent households	6.2%	3.0%	0.0%	0.2%	13.1%
Social associations	0.4%	1.2%	1.6%	3.5%	1.0%
Violent crime	2.0%	1.2%	3.6%	2.5%	5.5%
Injury deaths	27.9%	0.8%	0.0%	0.1%	0.0%
Air pollution - particulate matter	0.3%	1.8%	3.7%	2.3%	4.2%
Drinking water violations	1.2%	1.2%	0.4%	1.0%	0.5%
Severe housing problems	0.0%	4.1%	0.0%	3.9%	5.1%
Driving alone to work	4.2%	1.1%	3.9%	1.7%	6.3%
Long-commute – driving alone	-2.3%	0.0%	3.3%	0.3%	7.5%
	100.0%	100.0%	100.0%	100.0%	100.0%

 Top factors driving outcomes

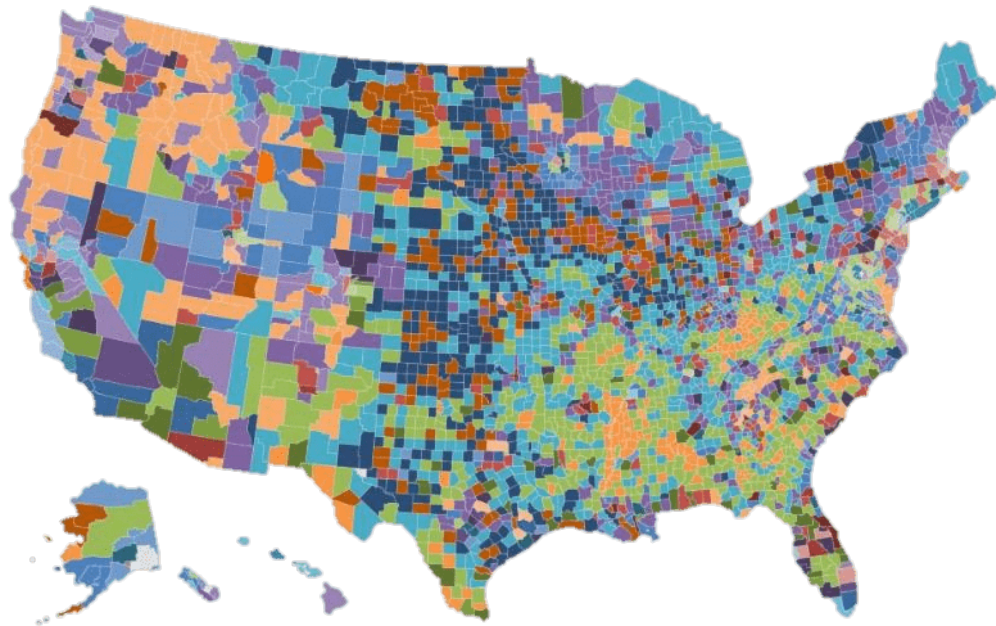
Visualized differently, we can understand the concentration and type of factors for each of the outcomes

Health factors and contribution to health outcomes



But how do I know if my performance is good or bad? And what can I do to improve?

Statistically clustering counties by socioeconomic and demographic features ...



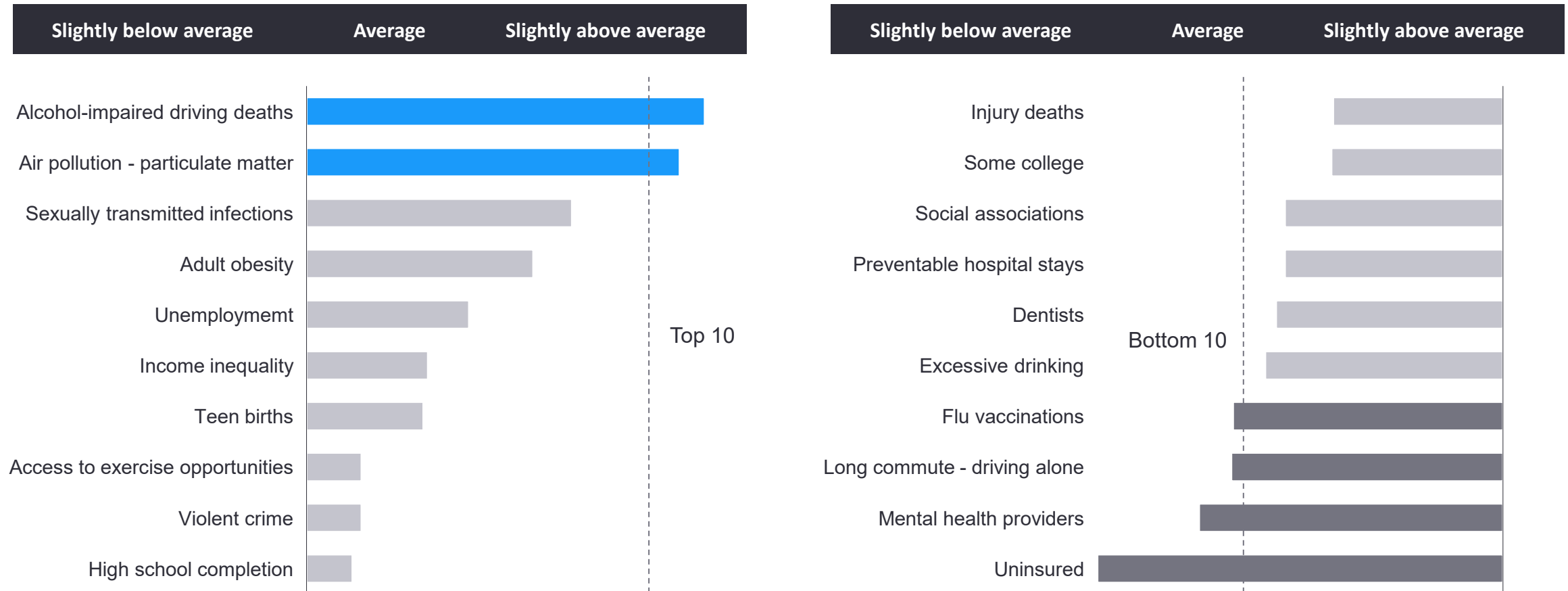
... allows for like-to-like geographical performance comparison, with health factor weights explaining



85%
of health outcomes

Using Florida as an example, informing priorities based on data and evidence can influence funding and focus for policy and programming decisions

Florida relative performance¹ on health factors²

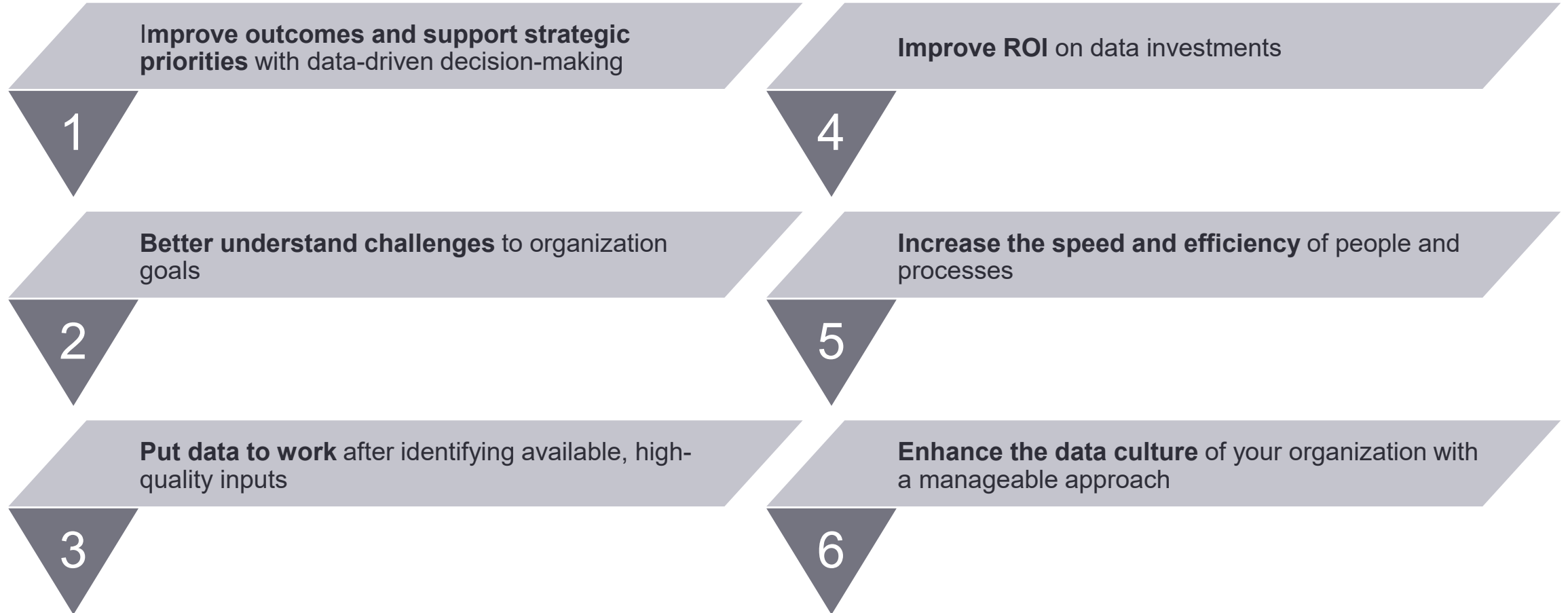


1. Florida state performance is based on comparison to EY peers and is population-adjusted.

2. Graphic only includes the 10 highest and 10 lowest performing factors for the state (excludes children in poverty, food environment index, drinking water violations, driving alone to work, children in single-parent households, mammography screening, severe housing problems, physical inactivity, adult smoking, and primary care physicians).

With the proper approach structure and execution, Small Data can transform your organization

When well executed, small data approaches offer power to:



EY-Parthenon

Talk to us about reimagining your strategy and realizing your transformation plans.

To learn more, please visit ey.com/parthenon



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