

The Imperative to Increase **Data Literacy**

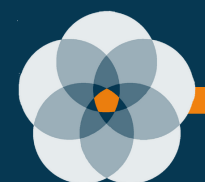


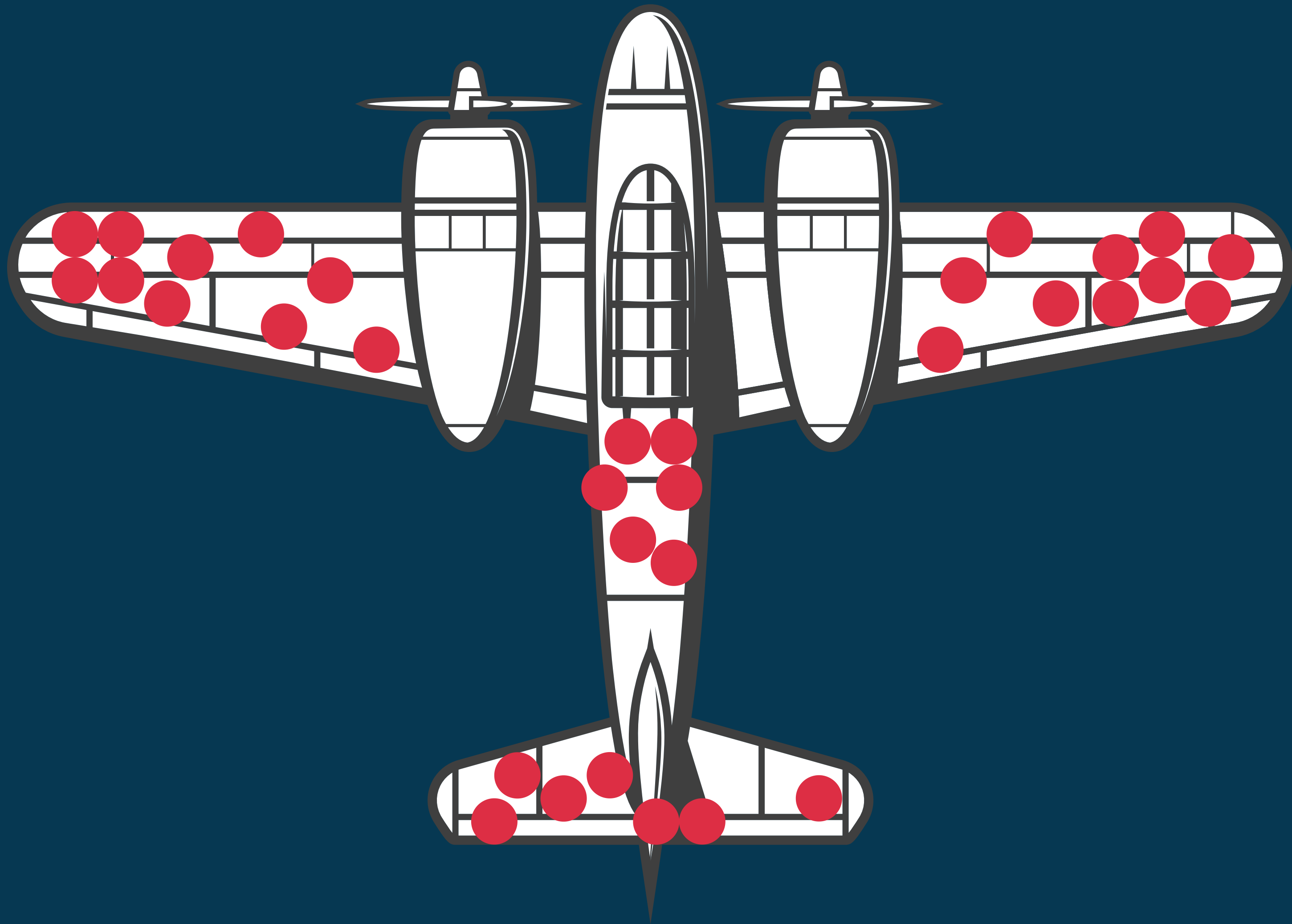
Alexandra Mannerings, PhD

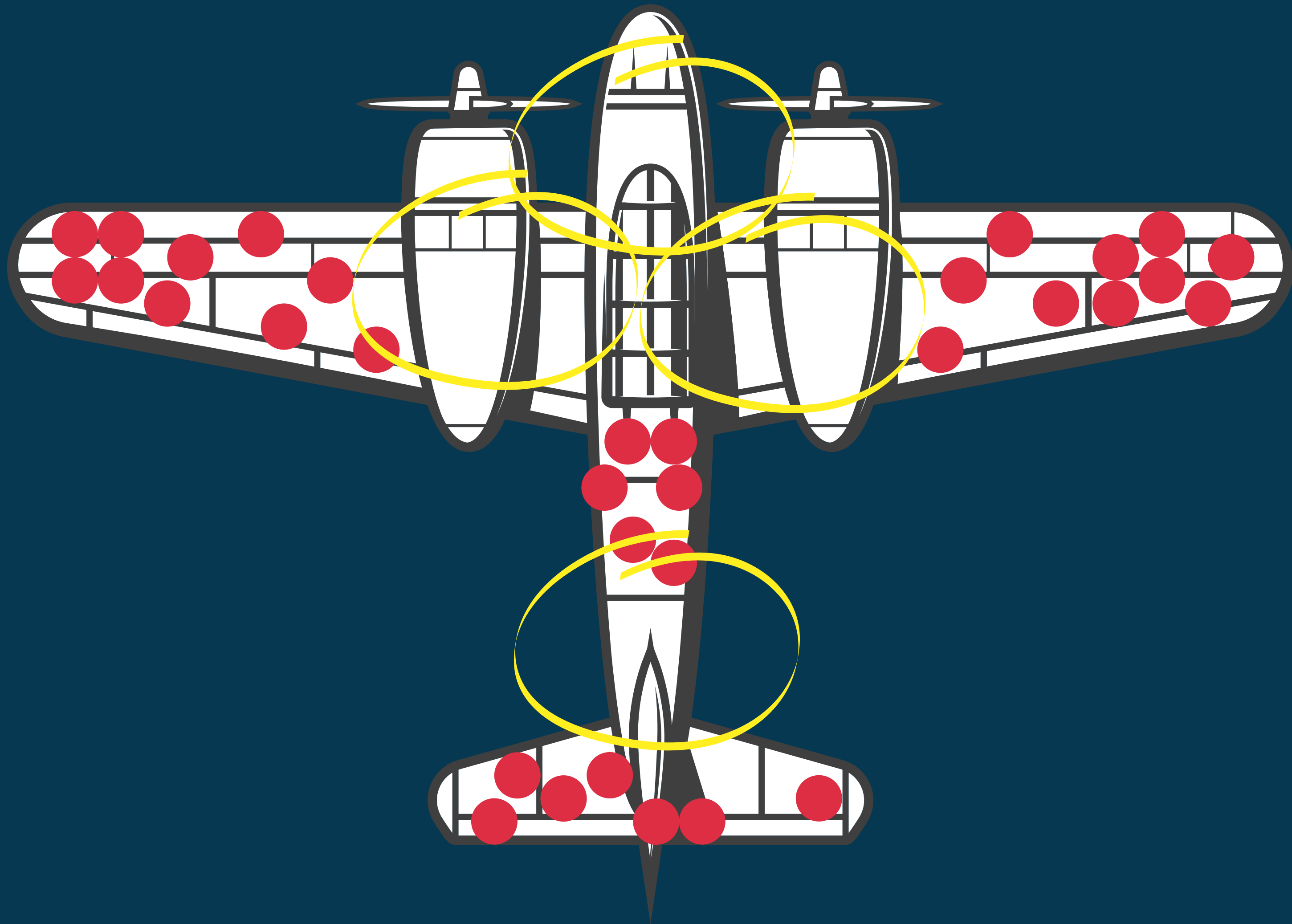




**How do we better
protect our planes?**







Wald didn't have to:

- collect the data
- do complicated math
- use fancy computer programs





Who I Am



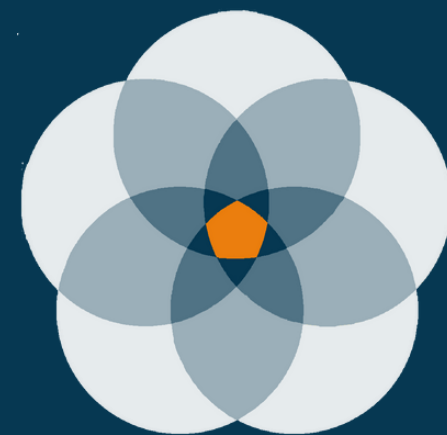
SCHOLAR

PhD from the University of Cambridge, UK



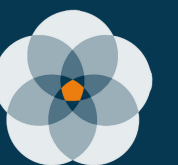
SCIENTIST

Researching across multiple continents



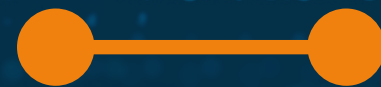
ENTREPRENEUR

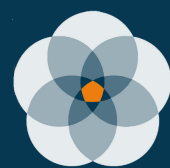
Founded and run [Merakinos](#), an analytics education and data services company





So what is Data Literacy...?



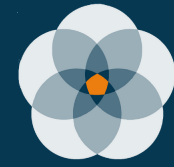


literacy

['lidərəsē, 'litrəsē]

NOUN

- 1. the ability to read and write.**
- 2. competence or knowledge in a specified area.**



The ability to ***create,***
understand, and ***apply***
analytics.



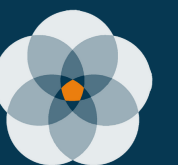
Data literacy isn't:

- "being a numbers person"
- only for technical staff
- unattainable





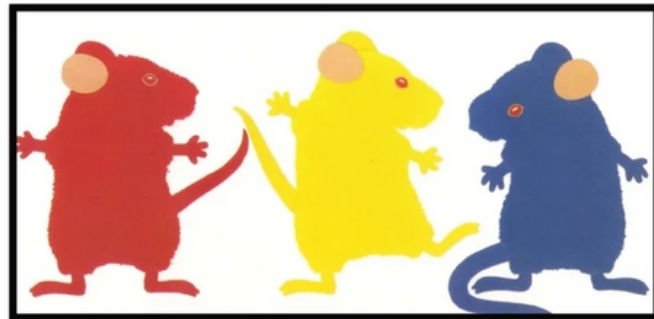
Data literacy is a subset of literacy, and just as important.



TYPES OF LITERACY

Fundamental

Then one was red, one was yellow,
and one was blue.



Technical/Specialist

"The appendix it is a concentrate of lymphoid tissue resembling Peyer's patches. It produces immunoglobulin A, regulates intestinal flora, and hosts commensal bacteria."

Contextual, Cultural

*"In the end, the shadow
is but a passing thing."*



TYPES OF DATA LITERACY

FOUNDATIONAL

Fundamental skills to find, read, and interpret data.

Confident Shopper
Informed Citizen
Frontline Worker

USER

Ability to interact with and apply data to complex decisions; synthesize data across multiple sources.

Information Worker
Manager/Leader

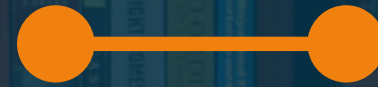
CREATOR

Data production knowledge; technical & specialist skills

Analyst
Report Builder
Data Scientist
Data Manager



So why do we need data literacy...?



EVERYDAY DATA LITERACY

2 Liter Bottle

<p>Old El Paso TORTILLAS, CHILIES TACO SHELLS, SAUCE OR REFRIED BEANS Selected Varieties, 4.5-16 oz.</p> <p>\$1</p>	<p>Jif PEANUT BUTTER Selected Varieties, 15.5-16 oz.</p> <p>\$2</p>	<p>Ragú PASTA SAUCE Selected Varieties, 45 oz.</p> <p>2/\$5</p>	<p>Betty Crocker HAMBURGER HELPER Selected Varieties, 4.7-7.6 oz.</p> <p>\$1</p>
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 **piggly wiggly**

Prices Effective: Wednesday, July 26, 2017 through Tuesday, August 1, 2017
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WARNING

This product contains
a chemical known to
The State of California
to cause cancer.

EVERYDAY DATA LITERACY



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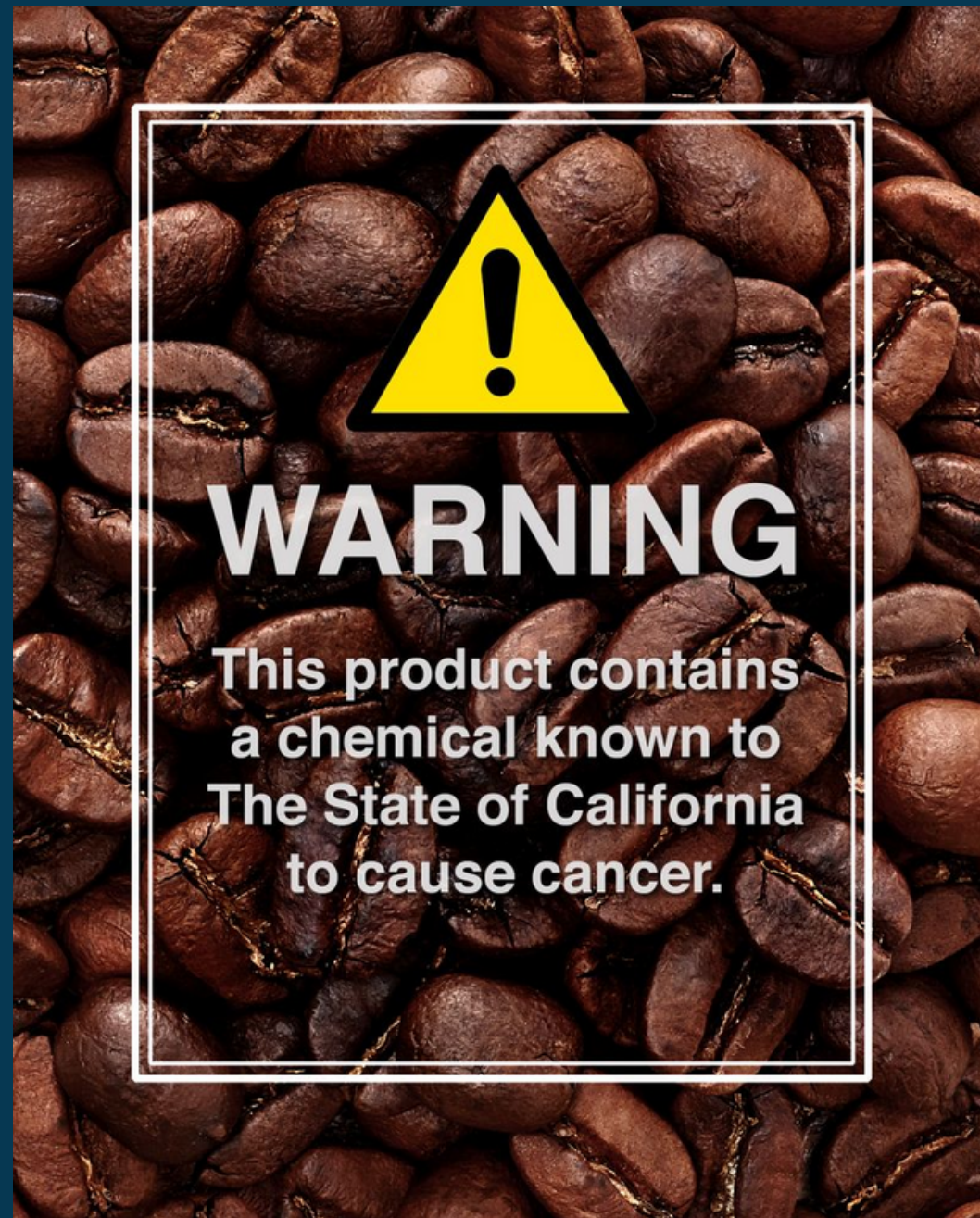
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EVERYDAY DATA LITERACY



EVERYDAY DATA LITERACY

How does probability work?

WARNING
This product contains
Relative vs
The State of California
absolute risk

Numerical comparisons

Avoiding tricks like anchoring

Old El Paso TORTILLAS, CHILIES TACO SHELLS, SAUCE OR REFRIED BEANS Selected Varieties, 4.5-16 oz. \$1

Jif PEANUT BUTTER \$2

Betty Crocker HAMBURGER HELPER Selected Varieties, 4.7-7.6 oz. \$1

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EVERYDAY DATA LITERACY

How does probability work?

WARNING
This product contains
**Relative vs
absolute risk**



Can I recognize manipulated data?

Correlation vs.
causation

PROFESSIONAL DATA LITERACY

? How likely is a donor to respond to different kinds of appeals?

? Did this new program move us closer to our mission? (Fewer hungry, fewer homeless, more cat adoptions...)

? Are we sustainable? Can we last?



WHY SHOULD ORGS DO DATA LITERACY?

- Retain and support staff
- Survive the rise of "Impact Investing"
- Steward your data resources
- Accomplish your mission





THE IMPERATIVE

Retain Your Staff

- The Great Resignation is hitting hard
- Resource limits squeeze salaries
- Investing in your staff shows they matter
- Data literacy strengthens both job skills and life skills





THE IMPERATIVE

Leverage Impact Investing

- Impact investing grew over 40% in the last year
- Biggest foundations are requiring program evaluation
- Successful evaluation - and implementation of findings - requires organizational data literacy



THE IMPERATIVE

Steward Your Data

- You have data
- It's valuable
- Some of it belongs to others
- Responsibly managing data requires organizational data literacy





THE IMPERATIVE

Accomplish Your Mission

- Give yourself a navigational compass
- Reduce decision friction
- Honor the investments you and donors make



How can you **increase** literacy?





INCREASING LITERACY

Take a Data Inventory

- What data do you have?
- Where does your data live?
- Where does your data come from?
- How is your data managed?
- Who is in your data?
- Who "owns" and who uses your data?





Per Database:

Field Name	Type	Source/Calc	Description
Birthdate	Date	student select from calendar	YYYY-MM-DD
Age	Integer	[Today's date] - [Birthdate]	real-time age of student
Retention	Yes/No	If [last_enrolled]="Y" and [enrolled]="Y" then "Y" else "N" endif	Did a previously enrolled student stay on?



INCREASING LITERACY

Socialize Data

- "Data & Donuts Day", lunch & learns
- Formally set aside time in key decision-making meetings for data discussions
- Create reference cards with recurring analytic questions around your topics





INCREASING LITERACY

Include in Onboarding & Regular Training

- Share data manuals and maps
- Create a shared vocabulary and understanding
- Update staff as new data develop
- Avoid "I didn't know that data existed!"



INCREASING LITERACY

Bring in a Trainer

- Self-education takes time and effort
 - Does your team have extra...?
- A coach or trainer can be more efficient and reduce frustration
- Share the investment across the org





Resources

HEART, SOUL & DATA

A podcast for community organizations getting started with data.
On all the platforms or www.heartsouldata.com.

GET THE SLIDES & MORE

www.merakinos.com/events/ntc22

MERAKINOS

Visit me and my company at www.merakinos.com

EMAIL

aokm@merakinos.com

SKILLS OF DATA LITERACY

FOUNDATIONAL

- Arithmetic
- Comparisons
- Contextualization
- Reading graphs
- Ask questions

USER

- Critical questioning
- Reapplication
- Drilldowns, filters
- Extrapolation
- Recombination
- Generate simple data
- Basic manipulation

CREATOR

- Advanced data generation
- Visualizations
- Analysis
 - Algorithms
 - Statistics
- Data quality control