

Brain Health and Aging: A View Across the Lifespan

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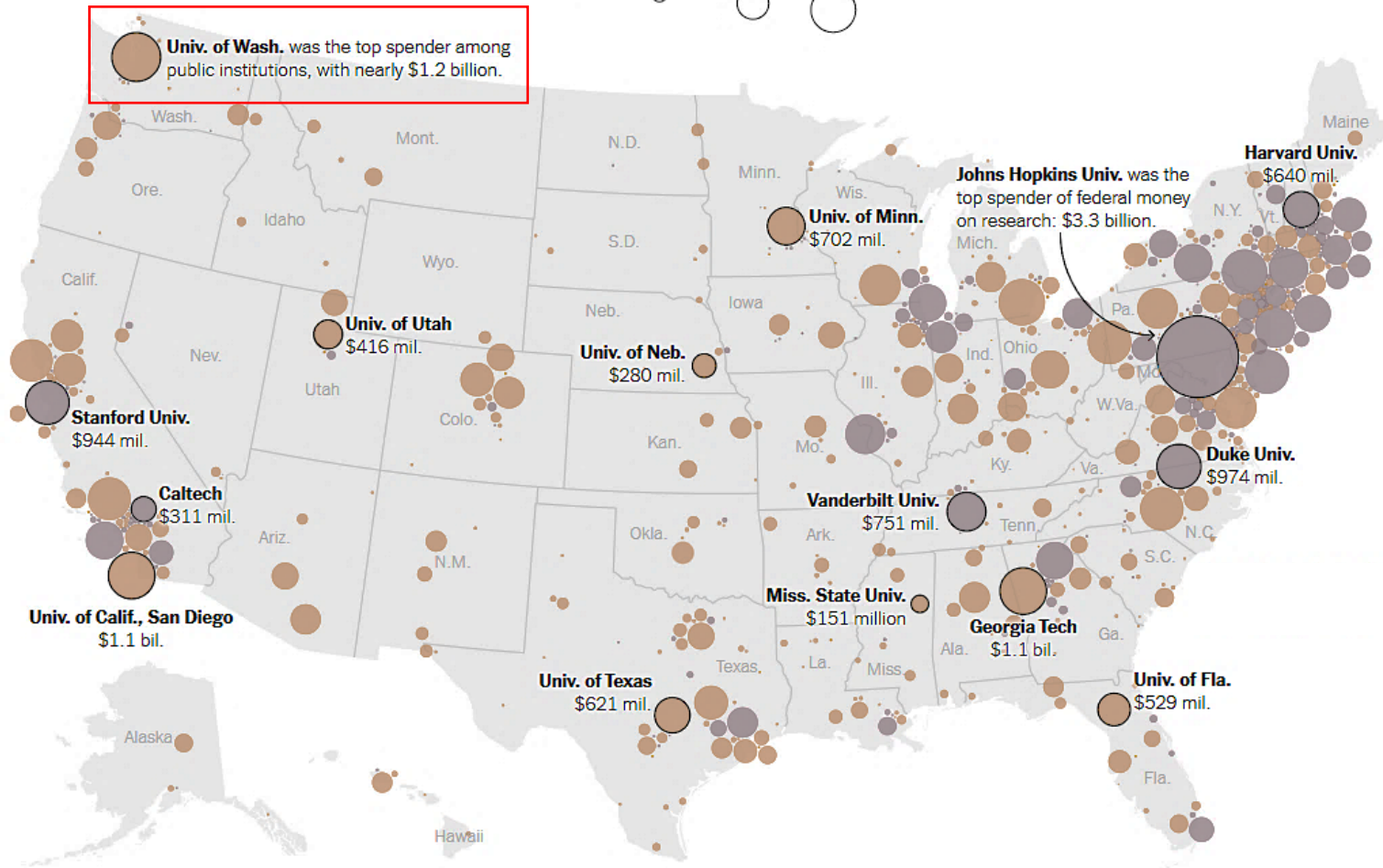
Co-Director, Neurosciences Institute

Department of Neurology | **UW Medicine**

Federal funding for research and development in 2023

Each circle is a university: ● Public ● Private

\$10 mil. \$100 mil. \$500 mil. \$1 bil.



Source: National Center for Science and Engineering Statistics - Note: Numbers are for fiscal year 2023.



UW Medicine

UNIVERSITY *of* WASHINGTON

\$10 Billion system of care
Destination academic center for WA state
(pop. 8million)



WWAMI



27% of US landmass
4% of US population

Today's Goals

1. Introduce **Brain Health** as a concept
2. Show the impact of framing with Brain Health on two areas of everyday life:
 - I. **The Built Environment**
 - II. **The Economy**



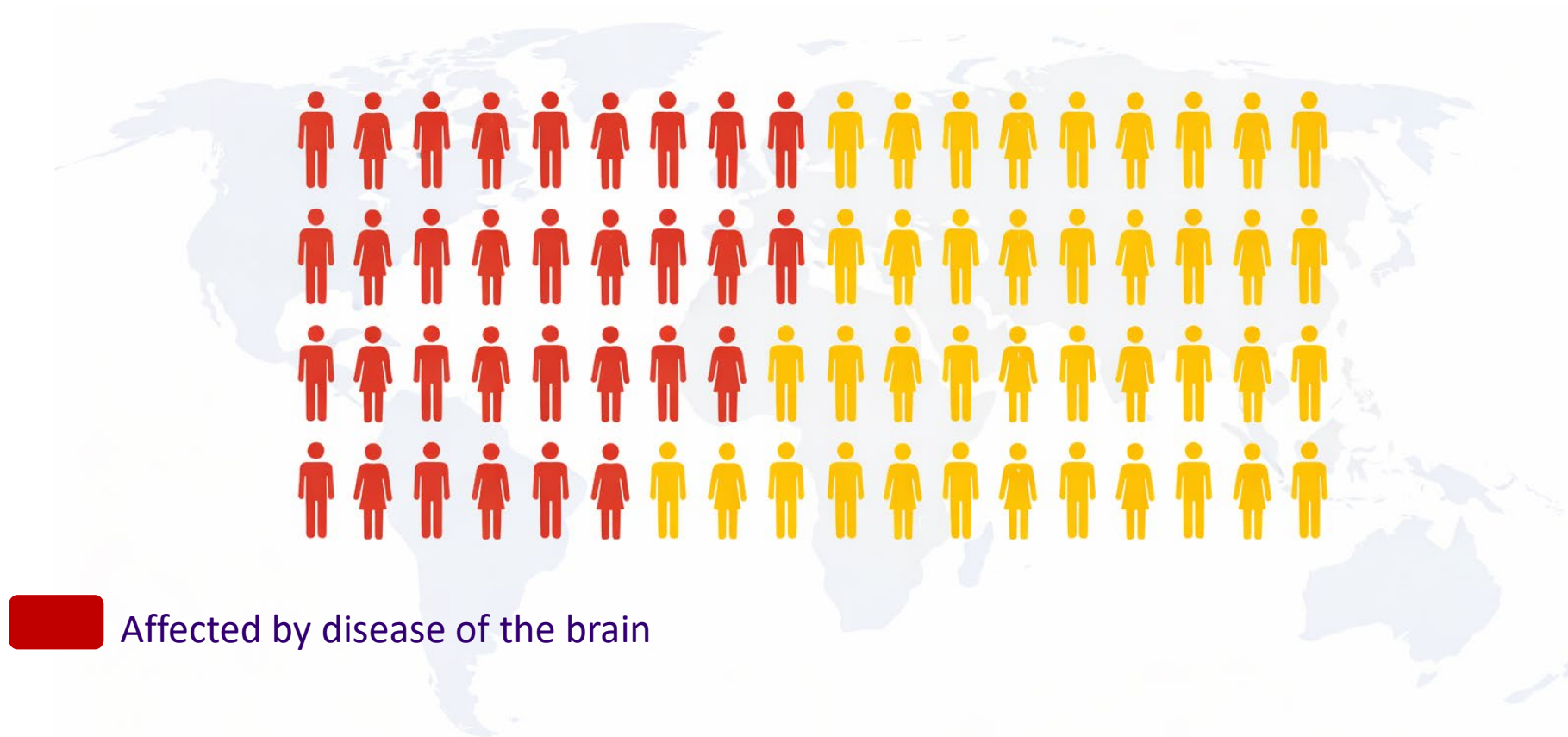
BRAIN HEALTH

Concepts

A person is sitting on a dark rock in the foreground, looking up at a vast night sky filled with stars and the Milky Way galaxy. The galaxy is a bright, orange and white band of light stretching across the sky. The background is a deep blue and black, with numerous individual stars visible. The overall scene is serene and contemplative.

Every human experience is a **brain** event.





Brain Disease Affects Humans Deeply





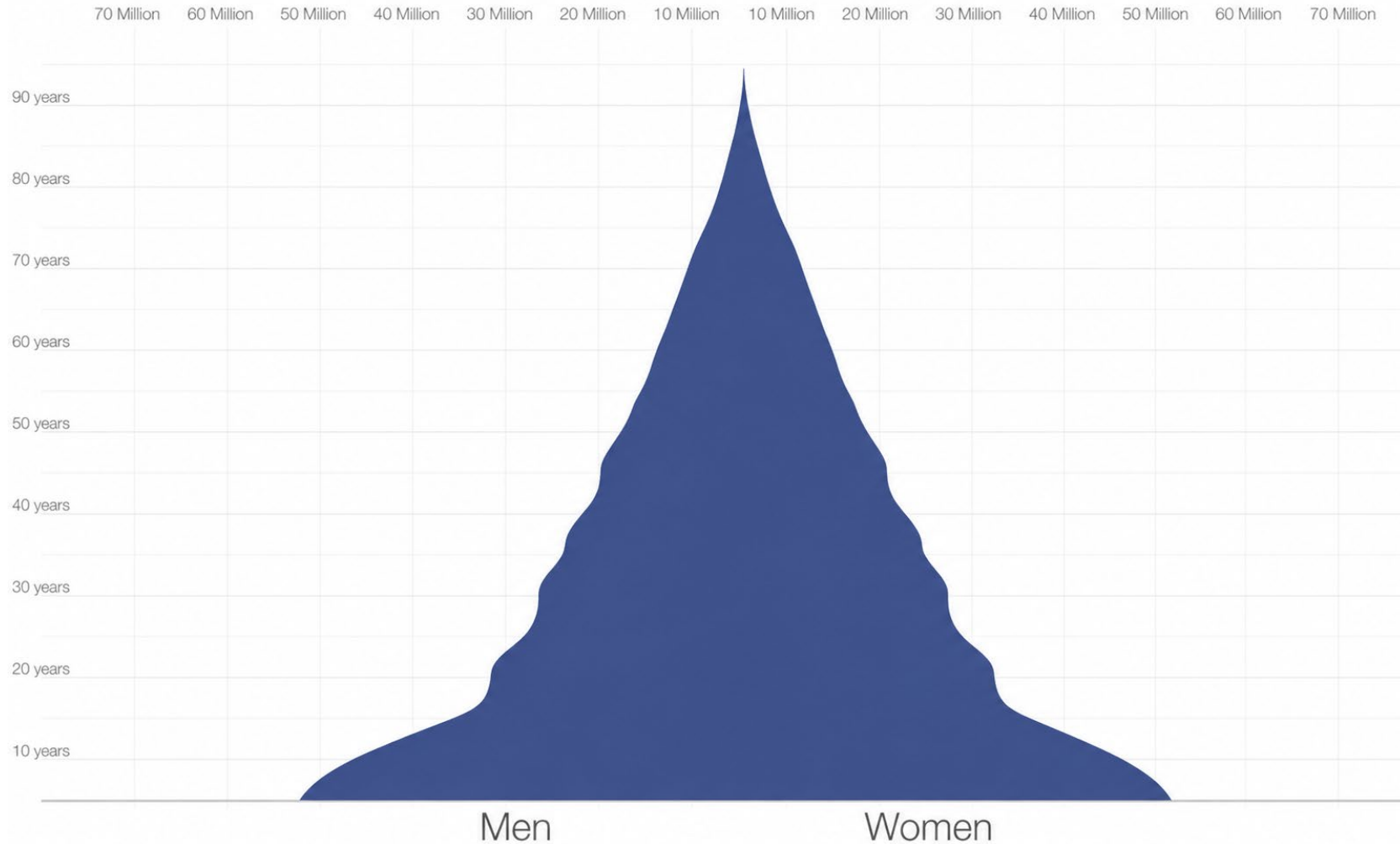
What *is* Brain Health?



Organization	Definition
 <p>American Heart Association®</p>	<p>Optimal capacity to function adaptively in the environment.</p>
 <p>American Academy of Neurology™</p>	<p>Continuous state of attaining and maintaining optimal neurologic function that best supports one's physical, mental, and social well-being through every stage of life.</p>
 <p>U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION</p>	<p>A healthy brain is one that can perform all the mental processes that are collectively known as cognition, including the ability to learn new things, intuition, judgment, language, and remembering.</p>
 <p>World Health Organization</p>	<p>State of brain functioning across cognitive, sensory, social-emotional, behavioral and motor domains, allowing a person to realize their full potential over the life course, irrespective of the presence or absence of disorders.</p>

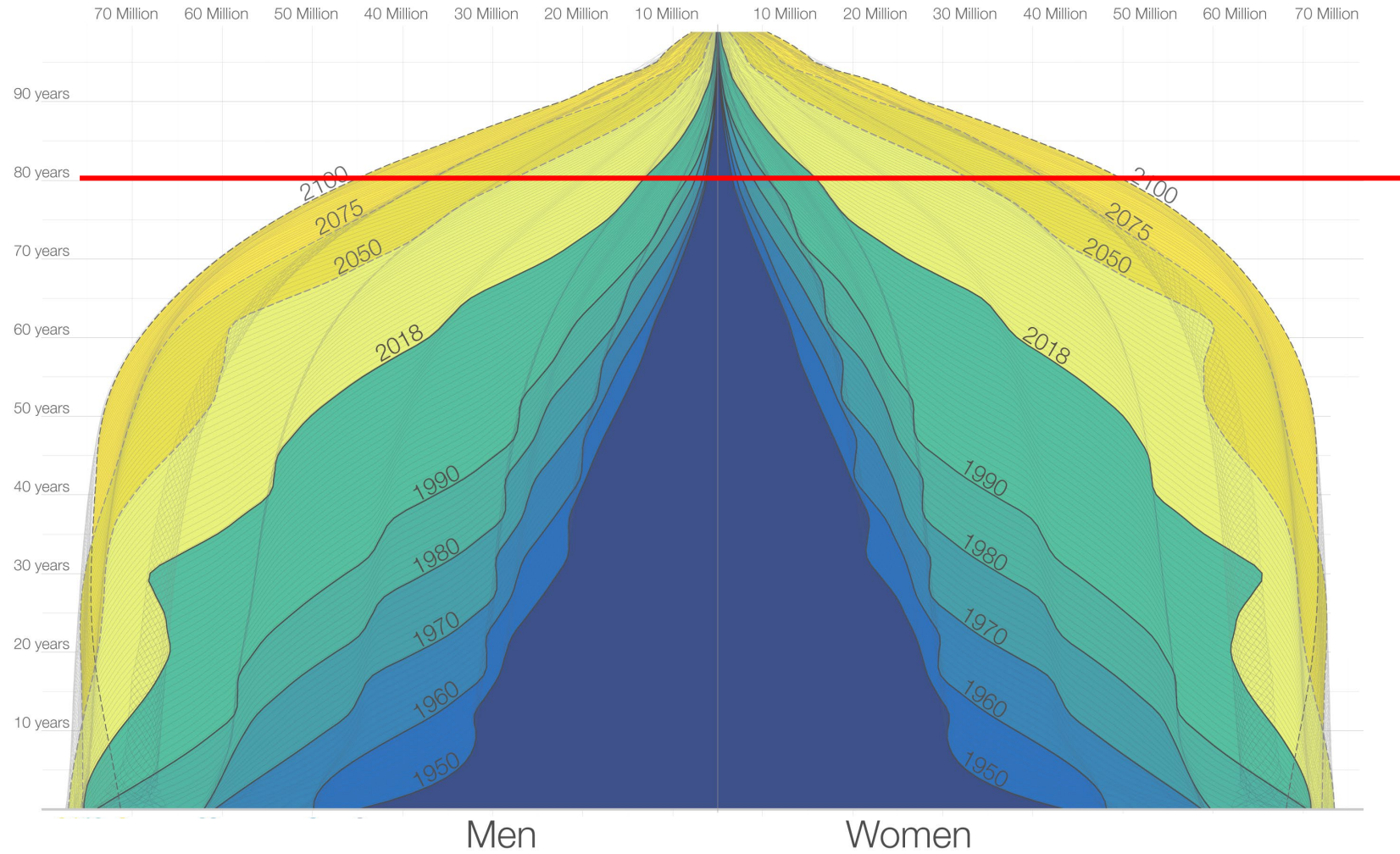


Our World is Aging



Demographics
of the World
Population:
1950-2100

Our World is Aging



Demographics of the World Population: 1950-2100

Health | Disease

Brain Health for You



PLUS...

- ✓ staying mentally active
- ✓ preventing hearing and vision loss
- ✓ treating depression
- ✓ limiting alcohol consumption
- ✓ avoiding traumatic brain injury
- ✓ minimizing air pollution
- ✓ avoiding social isolation



Brain Health is a powerful way to engage people more in **preventive** healthcare...



What does our world
look like if our brains are
central?

We Will Approach the Lifespan Differently

Intervention

Early-Life Brain Development (ROI 1:13)

Education That Builds Cognitive Reserve

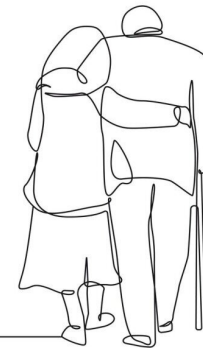
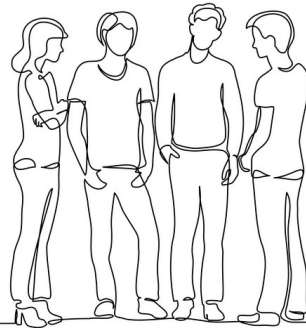
Mental Health as Infrastructure (ROI 1:4)

Social and Environmental Brain Health

Prevention-Focused Brain Healthcare

Brain-Focused Research, Data, and Innovation

Life



BRAIN HEALTH: EXAMPLE 1

The Built Environment

Traditional framing:

Is this environment efficient, affordable, and economically productive?

Brain-centric framing:

Does this environment help people think, move, connect, feel safe, sleep, navigate, and age with dignity?



★ ★ ★ ★ ★
ELECTRIFYING & EXHILATING
A SHEER TRIUMPH!
SPRING
awakening

MARQUEE
CASHIERS
VORNADO

A BIG, FAT HIT!
SOMETHING
ROTTEN!
SCHOOL
Rock

BIG BUS NEW YORK

7
4TDK

THE LEGEND
CIRCLE OF LIFE
THE

Evaluating the Spaces You Are In

Natural light?

Natural world?

Noise?

Air?

Lines of sight?

Spatial connectivity?

Visual and sensory complexity?





LUNDER BUILDING

MASSACHUSETTS GENERAL HOSPITAL

ENTRANCE

LUNDER BUILDING





ONE LANE
BRIDGE



BRAIN HEALTH: EXAMPLE 2

The Brain Economy

What is the Brain Economy?

The net economic and societal value of the human brain.

Health | Disease

The Direct Cost of Brain Disease in 2025

\$1,800,000,000,000



In addition to Direct expense, there are
Indirect expenses

\$5,000,000,000,000

With better brain health:

80% of stroke

45% of dementia

30% of depression

can be **prevented!**

What an **economic** opportunity...

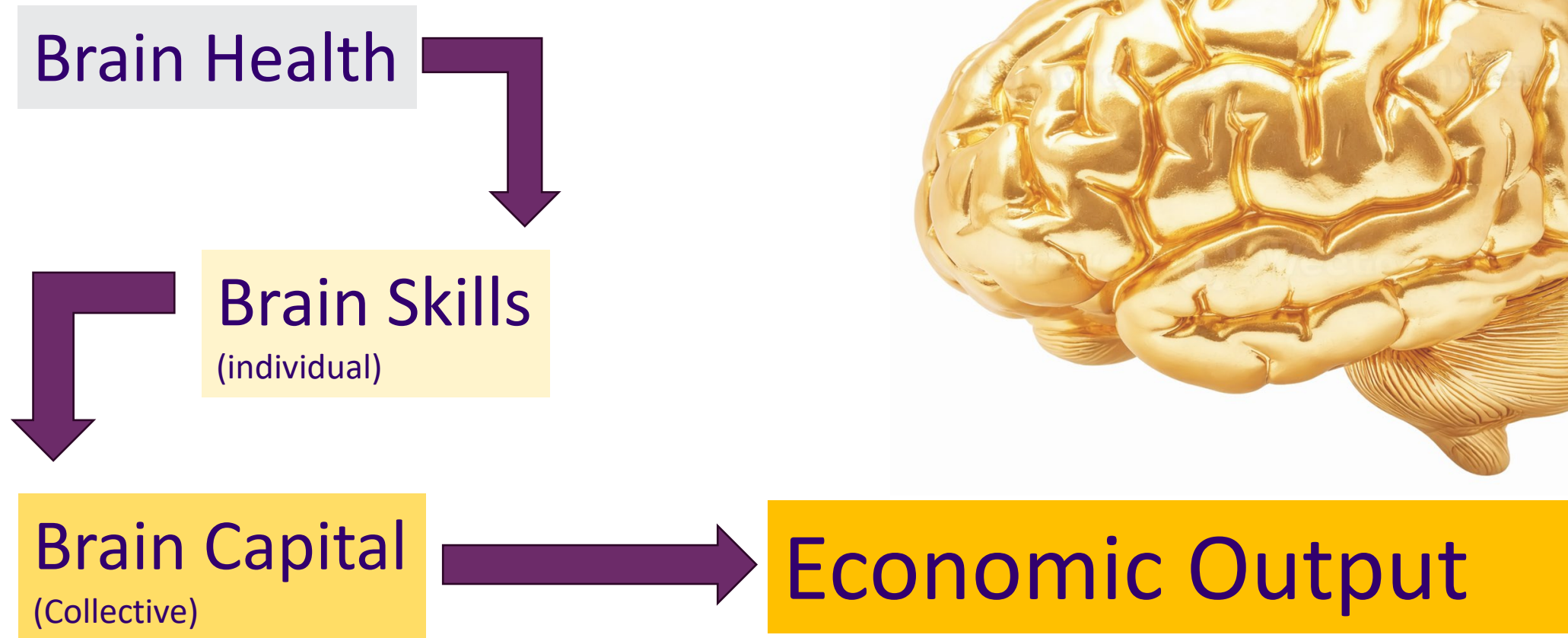
Revenue | Cost
Health | Disease

Assigning Value to Our Brains

Brain Capital: a framework treating
brain health as a core economic asset
analogous to physical capital or financial capital

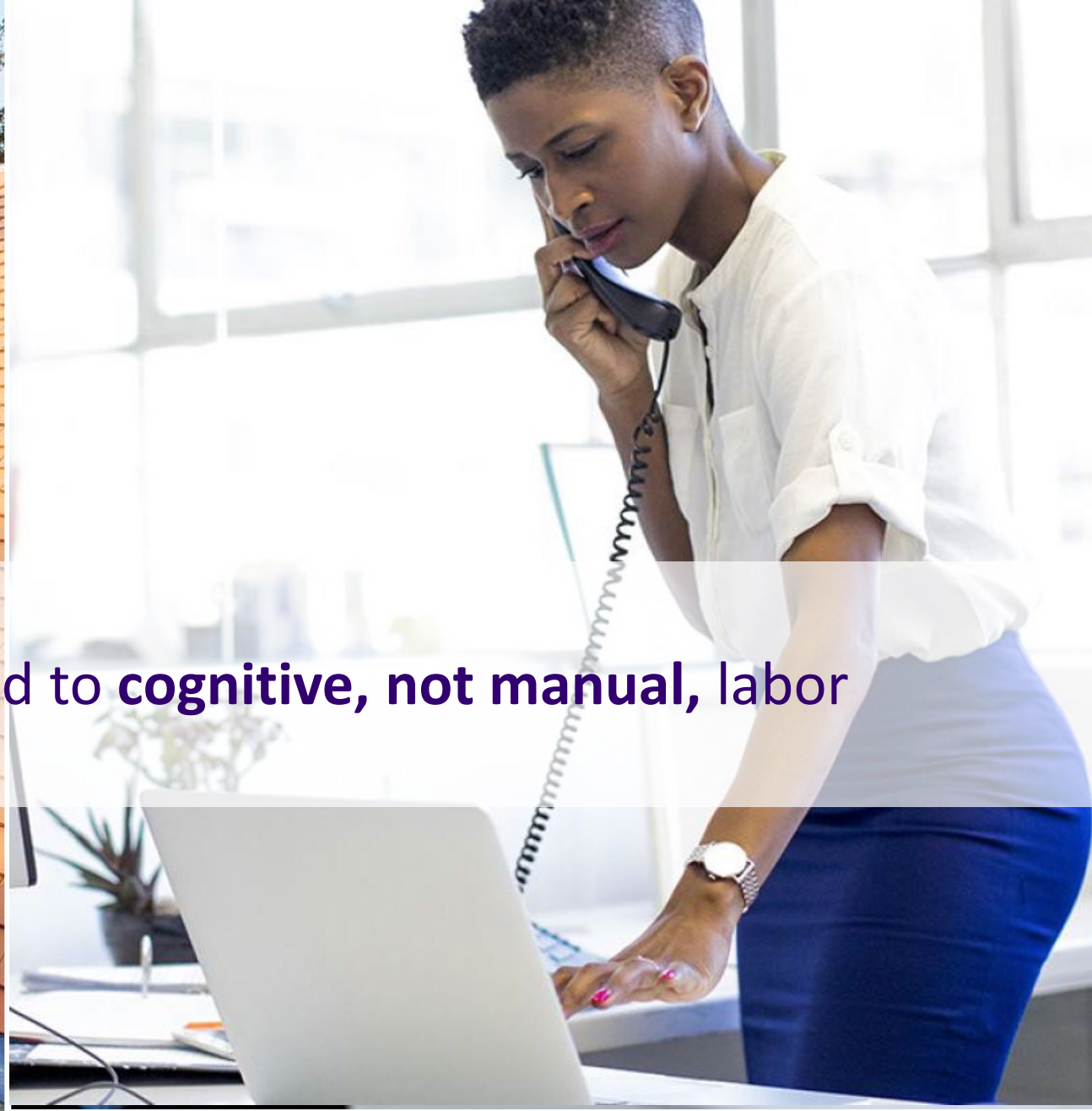


Health = Revenue





Over 80% of GDP growth is linked to **cognitive, not manual, labor**



amazon

Microsoft

Fred Hutch
Cancer Center

Seagen®

Juno
THERAPEUTICS

BENAROYA
RESEARCH INSTITUTE

PATH

+ a b | e a u

smartsheet

f5

ExtraHop

CONCUR

Zillow®

REDFIN

Rover®

Avvo®

BLUE ORIGIN

PACCAR

FLUKE®

KYMETA®

CRAY®

VALVE®

BUNGIE®

Nintendo®
of America

WIZARDS®
OF THE COAST

PERKINScoie

Davis Wright
Tremaine LLP

slalom

avanade

MOSSADAMS

Russell
Investments

W UNIVERSITY of WASHINGTON

The Economically Healthy Brain



RESILIENT

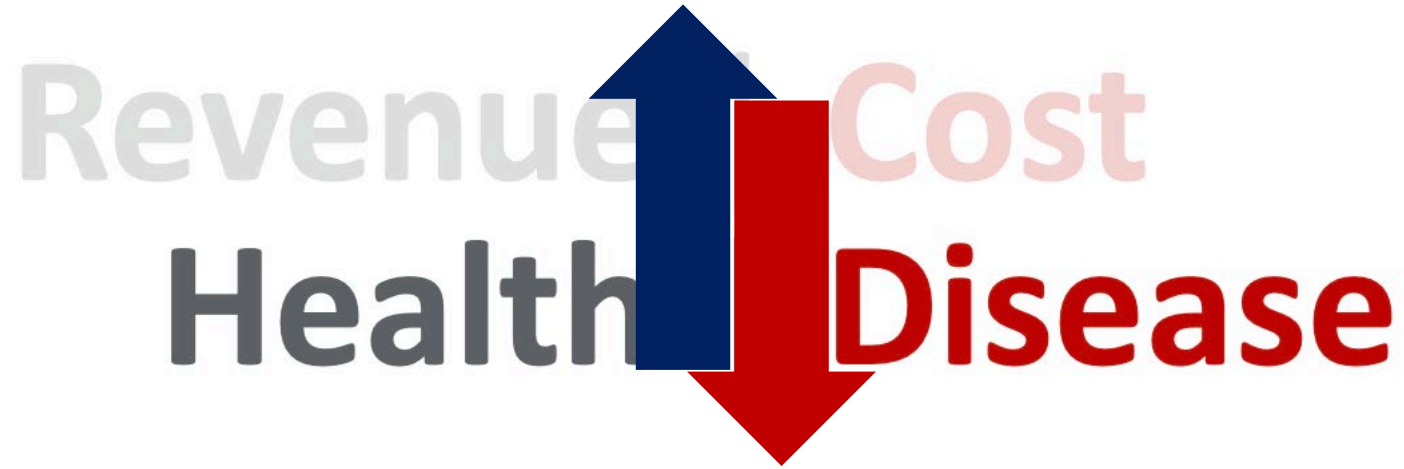


ADAPTABLE



INNOVATIVE

What is the Economic Return?

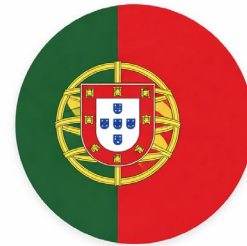


The Elderly



The Elderly

Elderly adults make many “invisible” economic contributions



Brain health converts longevity from an economic liability to an asset

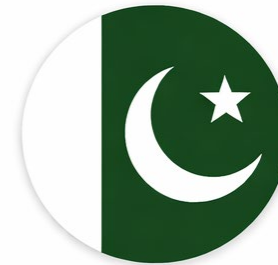
The Young



Hannah Reyes Morales for The New York Times

The Young

Where are the workers of the future from?



Brain health converts population growth into economic prosperity.

Some Concluding Thoughts

Strong brains means more than the absence of disease.

“Supermentia”, not just prevention of dementia

We are currently underinvesting in brains.

This limits both personal and collective progress. This is changing fast...

When we place our brains at the center of our decision making, the world looks different.

As evidenced by the examples of the built environment and the brain economy



American
Heart
Association®



American Academy
of Neurology™



Your University is front and center....





UW Medicine

Thank you for your attention!