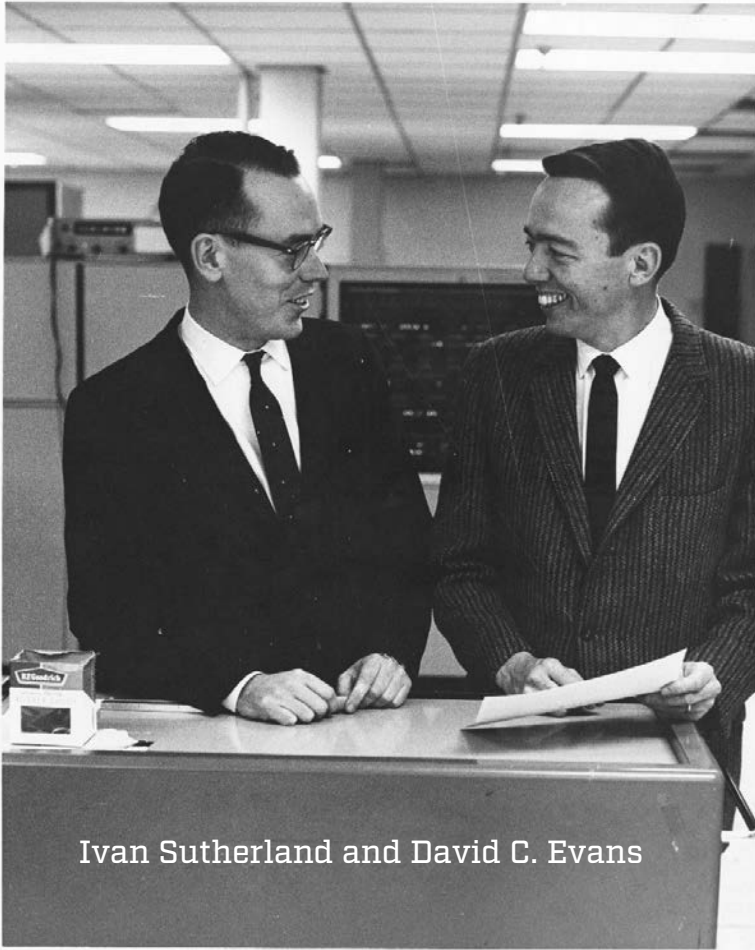




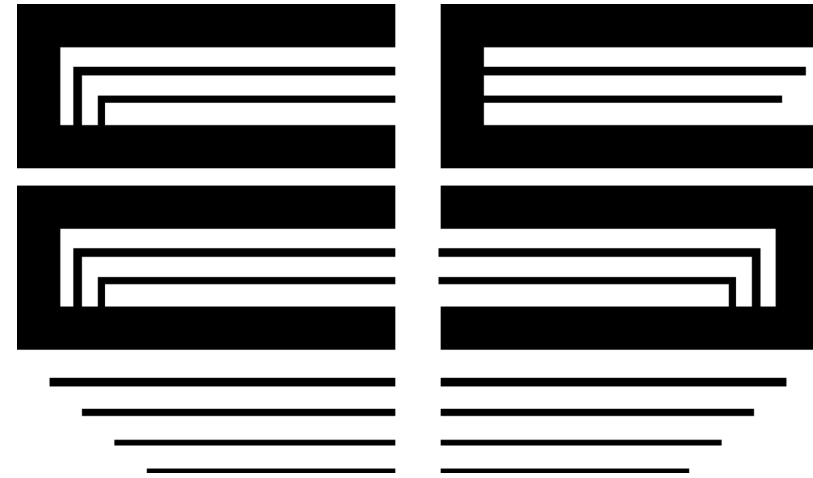
Higher Education Appropriations Subcommittee
IMPACTS OF RESEARCH

University of Utah
President Taylor Randall
January 30, 2024

Evans & Sutherland.



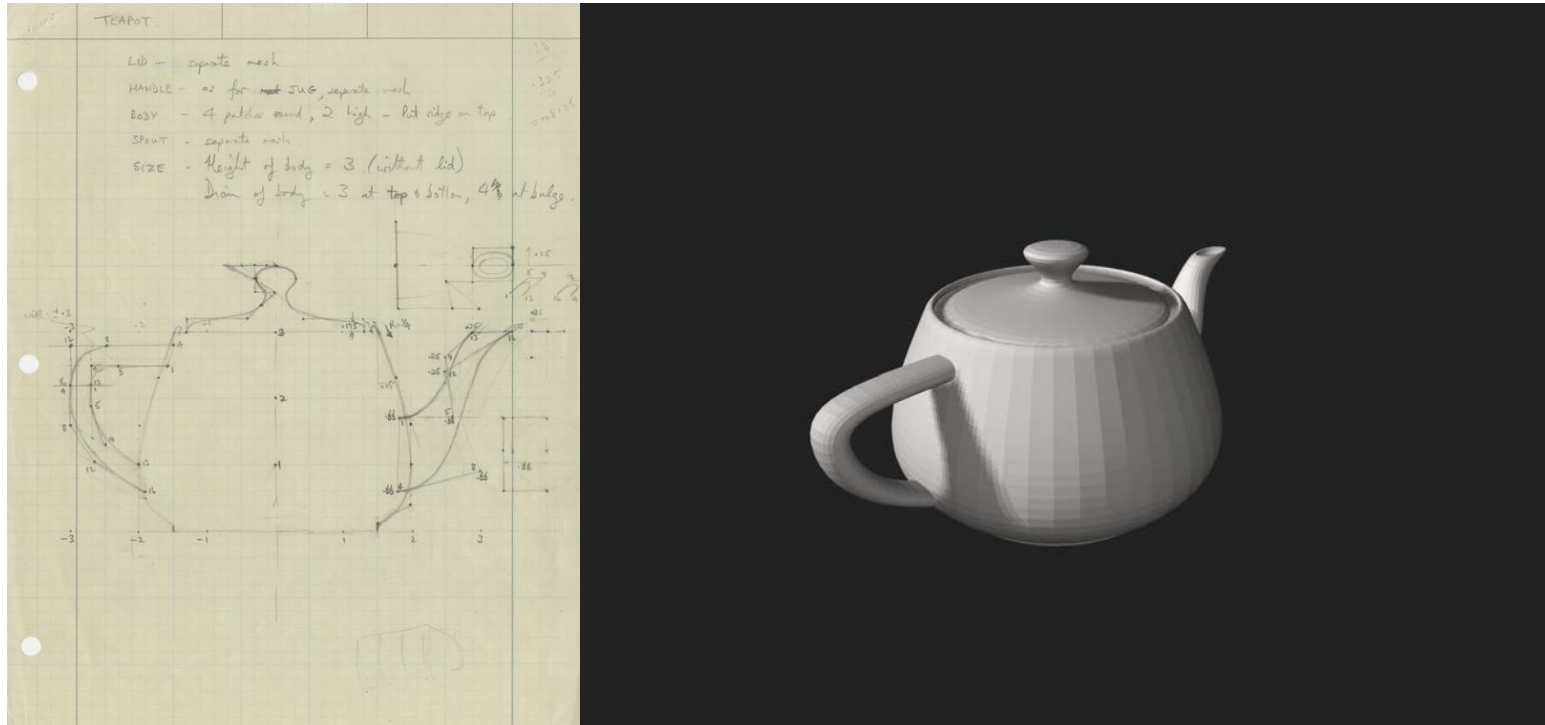
Ivan Sutherland and David C. Evans



First Evans & Sutherland graphic logo mark

Founded in 1968, by David C. Evans and Ivan Sutherland, professors in the Computer Science Department at the University of Utah, who were **pioneers in computer graphics technology.**

The Utah Teapot.



The Utah teapot has been the **symbol of computer graphics**. It was originally created by Martin Newell in 1975, when he was a Ph.D. student at the University of Utah.

Digital U Companies.



EVANS & SUTHERLAND

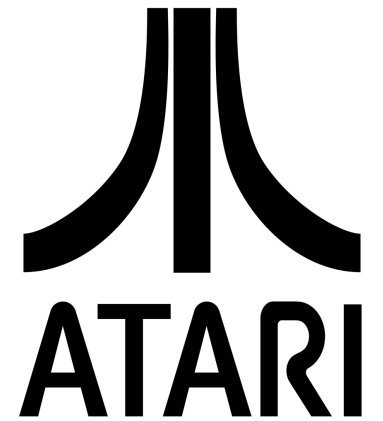


SiliconGraphics
Computer Systems

WordPerfect
CORPORATION



Adobe



P  X A R



Netscape

BioTech U Companies.



Recursion®

ARUP®
LABORATORIES

 **Cephalon**®

 **Echelon**
Biosciences

Myriad genetics

BIO  FIRE® >>>



Serendipity.

OLD MODEL

Individual faculty members making discoveries and those breakthroughs are commercialized.

Versus Strategy.

NEW MODEL

Teams of faculty members from different colleges work together on key societal problems, the university invests resources. If positive results, the state, federal govt. and industry help with continued funding.

New Models.

Higher education R&D expenditures funded by state and local governments, ranked by all R&D expenditures, by R&D field: FY 2022.

Texas



#1 University of Texas
#2 Texas A&M

Florida



#3 University of Florida

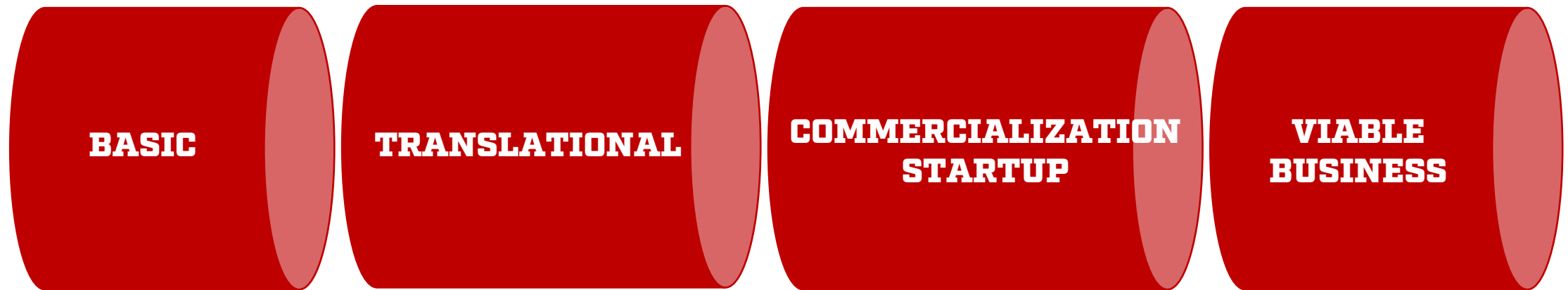
Arizona



#7 Arizona State University

Source: HERD State and Local Government Funding FY22

Overhaul Innovation Pipeline.



ECONOMIC RESEARCH MULTIPLIER

3x to 5x



ECONOMIC STARTUP MULTIPLIER

10x to 20x



Source: University of Utah, Office of the Vice President for Research

Basic Research Reorganization.



ECONOMIC RESEARCH MULTIPLIER
3x to 5x



Source: University of Utah, Office of the Vice President for Research

Faculty Economics.

	TEACHING FACULTY	RESEARCH FACULTY
Salary:*	1x	2x
Courses Taught:	8	4
Teaching Productivity:	1	1/3 - 1/4
Research/Commercialization Grants:	\$0 per year	\$500K - \$1M per year
Graduate Students Funded:	0 per year	2 per year
Overall Economic Effect:**	~\$265,000	~\$1M - \$1.5M

* Salary numbers may vary, multipliers are approximate.

**Source: Kem C. Gardner Policy Institute Analysis of student, research and commercialization impact.

Innovation Ecosystem.

Working Groups & Hubs

Short lifespan, interdisciplinary, currently 400+ faculty engaged in Working Groups & Hubs.

Examples:



Centers of Excellence

for future state collaboration and industry partnerships

Funded through state, federal and industry grants.



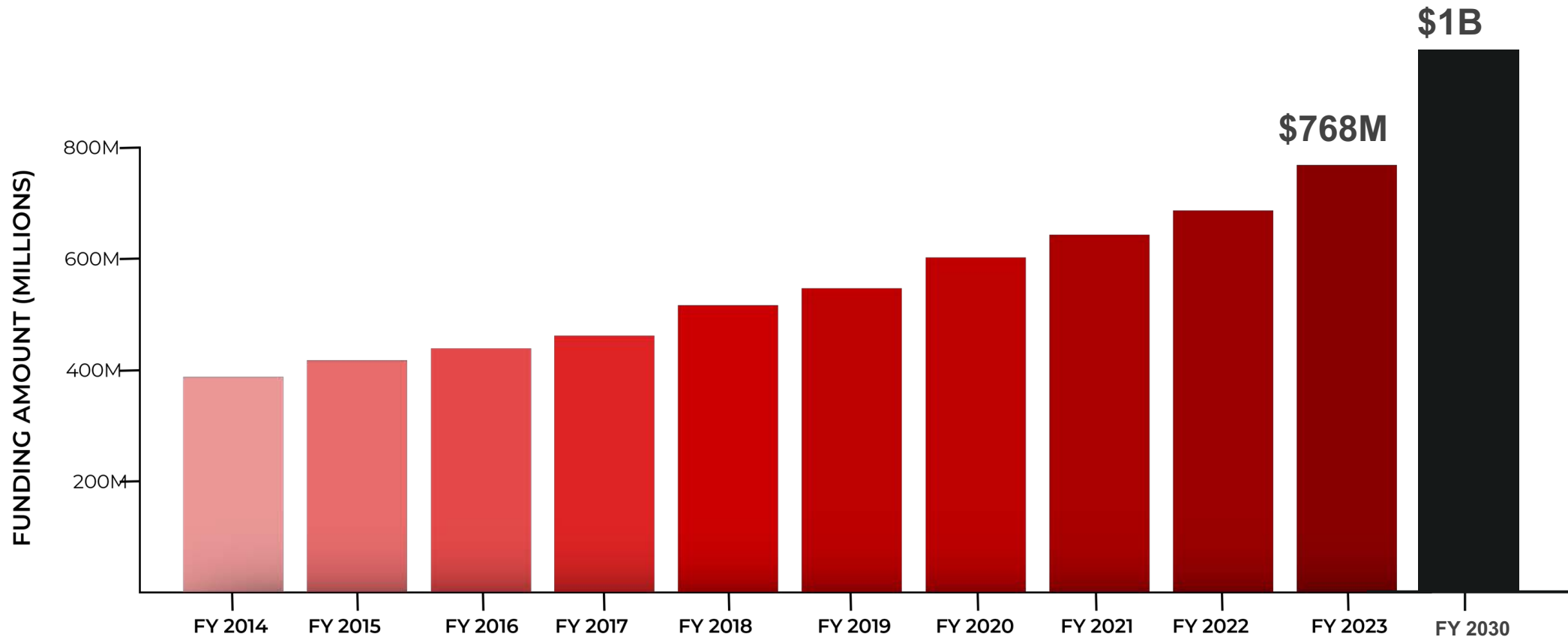
Institutes

Sustained public and private funding for national societal priorities and impact.



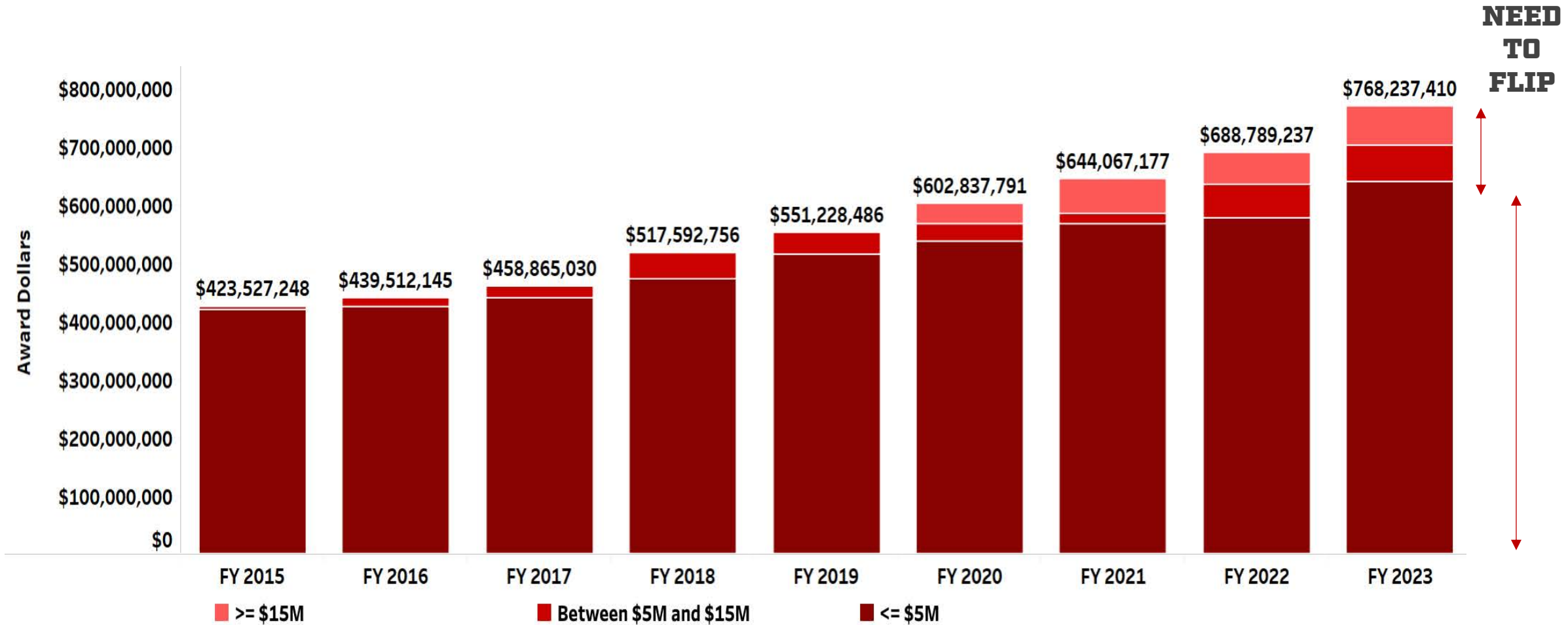
UTAH

Research Growth.



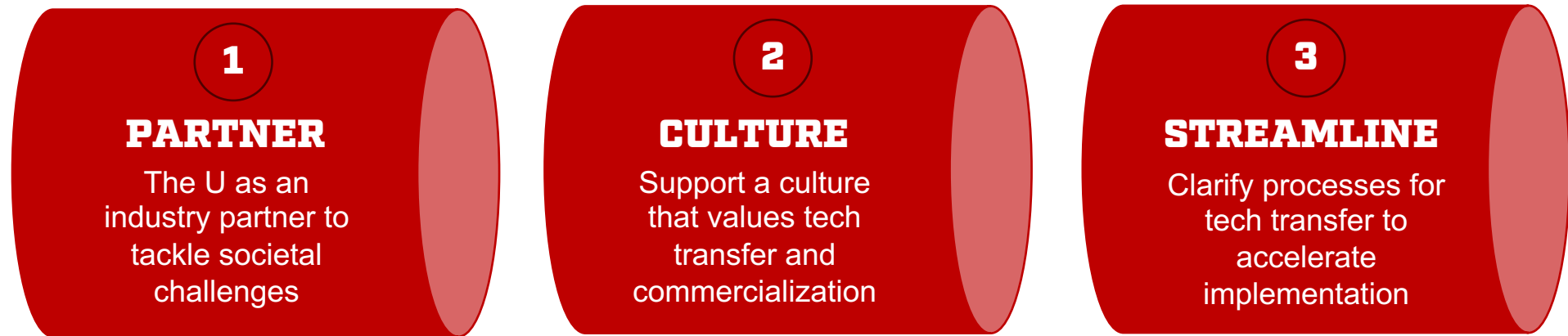
Source: University of Utah, Office of the Vice President for Research

Deeper Look.



Source: University of Utah, Office of the Vice President for Research

Commercialization Reorganization.



ECONOMIC STARTUP MULTIPLIER
10x to 20x



Source: University of Utah, Office of the Vice President for Research

In The Pipeline.

TikkunLev Therapeutics – discovered CBIN1 a molecule lost in heart failure. A gene therapy company, announced a new partnership in March 2023 to accelerate innovative heart-failure gene therapy.

Utah Bionic Leg – Time’s list of *Best Inventions 2023*. A motorized prosthetic for lower-limb amputees.

LUKE Arm – U Research Foundation licensee since 2022. BIOS provides a novel neural interface for prosthetic limbs to move with natural, intuitive coordination.

MUSE Breast Cancer Treatment – The first patient in the U.S. was treated with the MUSE non-invasive treatment system in February 2023 in a novel clinical trial.

3Helix – U Research Foundation startup since 2020. 3Helix is developing prognostic tests for fibrotic diseases, and tissue regenerative products based on a proprietary collagen targeting platform.

Blackrock Neurotech – U Research Foundation startup since 2009. A leader in brain-computer interface technology.

TikkunLev Therapeutics.

Cardiovascular Research

The Nora Eccles Harrison Cardiovascular Research and Training Institute (CVRTI) provides groundbreaking science that leads to discoveries in new diagnostics and therapies for cardiovascular diseases.

The **discovery of CBIN1**, a molecule lost in heart failure led to a pursuit of gene therapy to regain the heart's organization and function.



Research To Market.

Technologies developed by University of Utah faculty and students from research have contributed to the launch of **more than 330 companies**. The U ranks among the top-10 public universities for **issued patents and revenue generation**.

FY 2023



7

Startups



265

Invention
Disclosures



74

Patents
Filed



\$23.3m

Licensing
Revenue



25

Licenses



145

Patents
Issued

U-nicorn Likelihood.

Universities with Highest Likelihood of Unicorns



Higher numbers mean better odds

— Odds

Data covers 1,110 US-based VC-backed companies that became unicorns in 1997 and 2021 as well as 1,028 randomly selected US-based VC-backed companies matched only by year of first VC round. We identified universities, where founders of 1,081 unicorns and 961 random sample companies either studied or worked. The odds ratio represents the ratio of the percentage of unicorns to the percentage of random sample companies with at least one founder who studied or worked at this university. This chart includes top 12 universities that are associated with at least 10 unicorns, ranked by the odds ratio of producing a unicorn. The sizes of circles are not to scale with the odds ratios they represent.

SOURCE: Ilya Strebulaev, Venture Capital Initiative, Stanford Graduate School of Business (01/2024)

@IlyaSTREBULAEV

Let's Innovate.

**How can we engage
with you to be more
strategic about
research that lifts
Utah's economy?**

Thank You.