

CURE

Beyond
CIRM 2.0
CALIFORNIA'S STEM CELL AGENCY

now it's personal

Strategic and Operational Review

C. Randal Mills, Ph.D.
President and Chief Executive Officer



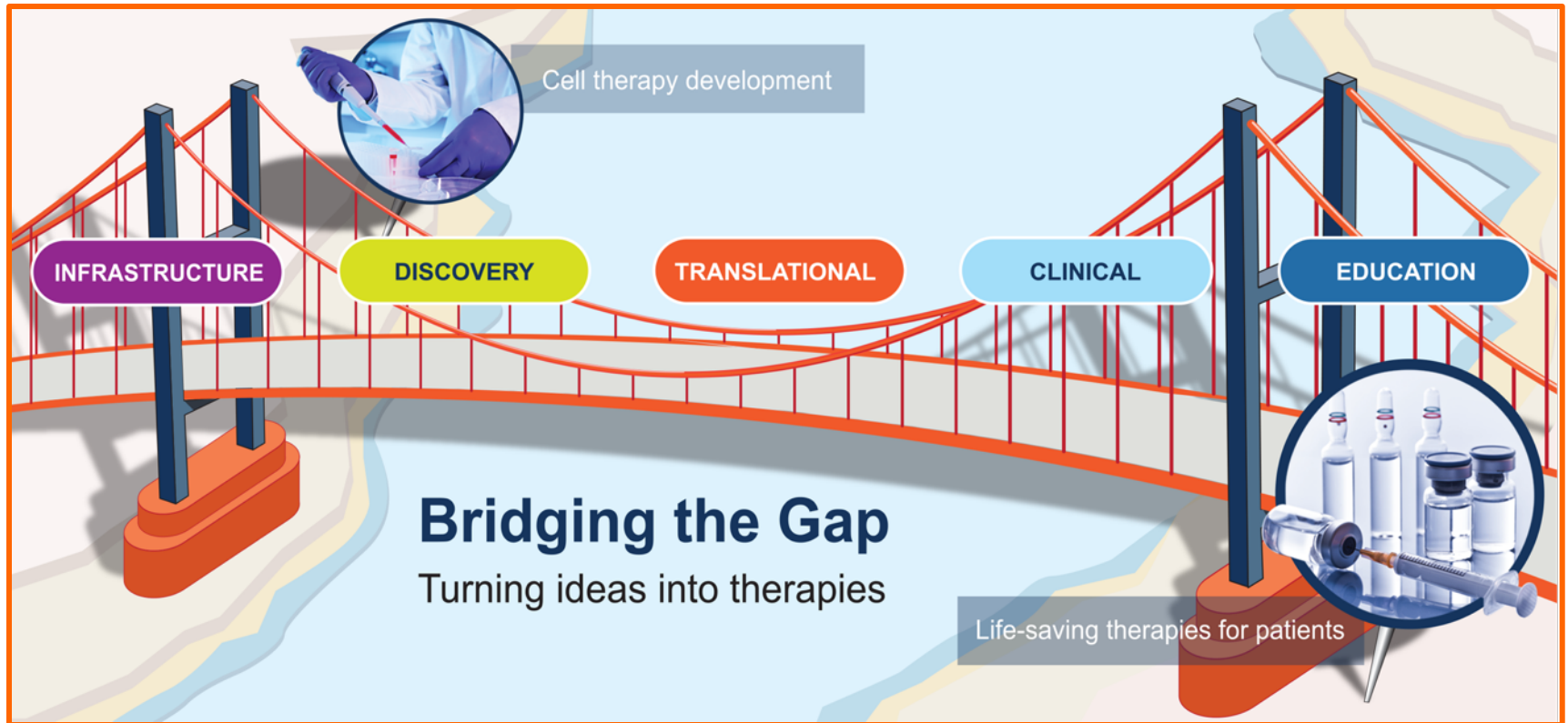
HOPE

CIRM's Mission

Accelerate stem cell treatments to patients with unmet medical needs.

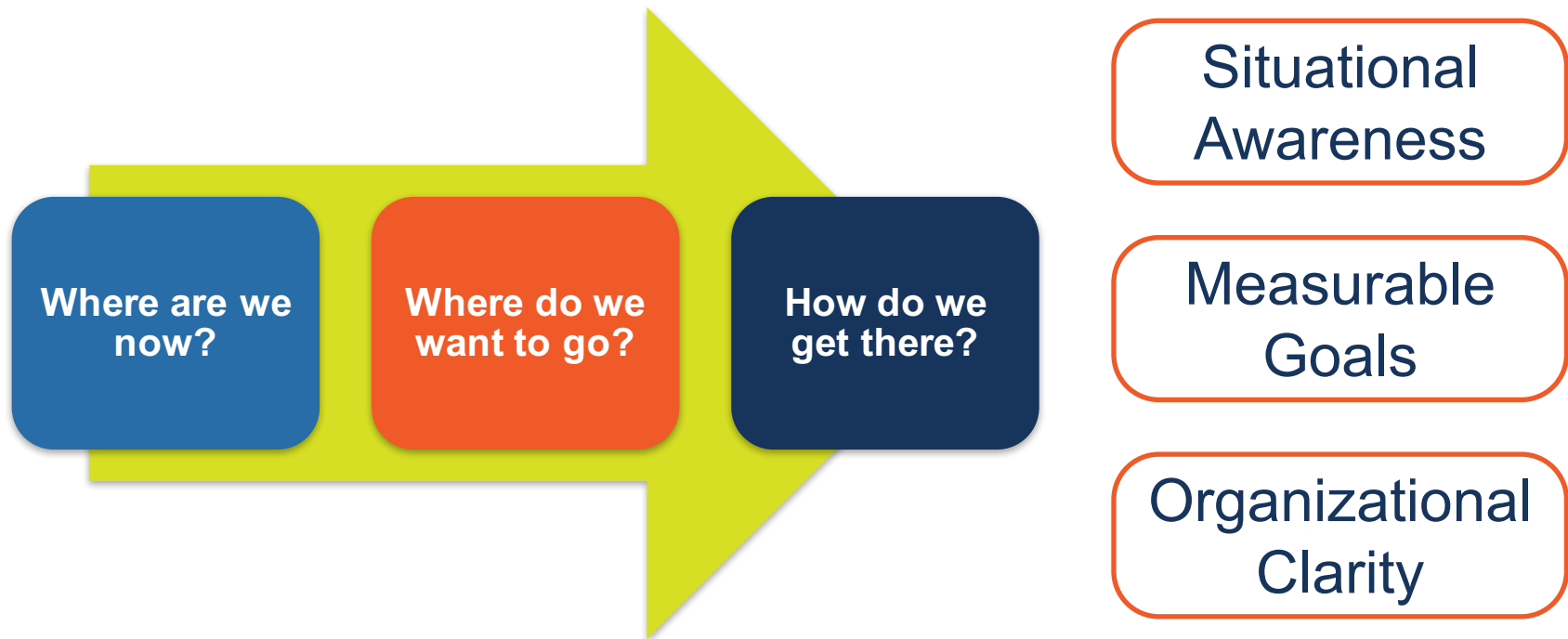
The CIRM Spectrum

Five basic pillars of investment



The Strategic Plan Process

A methodical approach to create a plan that yielded three valuable outcomes



Understanding Where We Are

Multiple methods to get an honest assessment of the agency and the environment



- CIRM existed as an initiative (vs. systems) based agency
- Most priorities are aligned among stakeholders
- The translation stage represents a significant opportunity
- Stem cell therapies continue to face tough industry environment
- The regulatory environment is seen as a major impediment

Meet the Buckets

Two separate funding sources



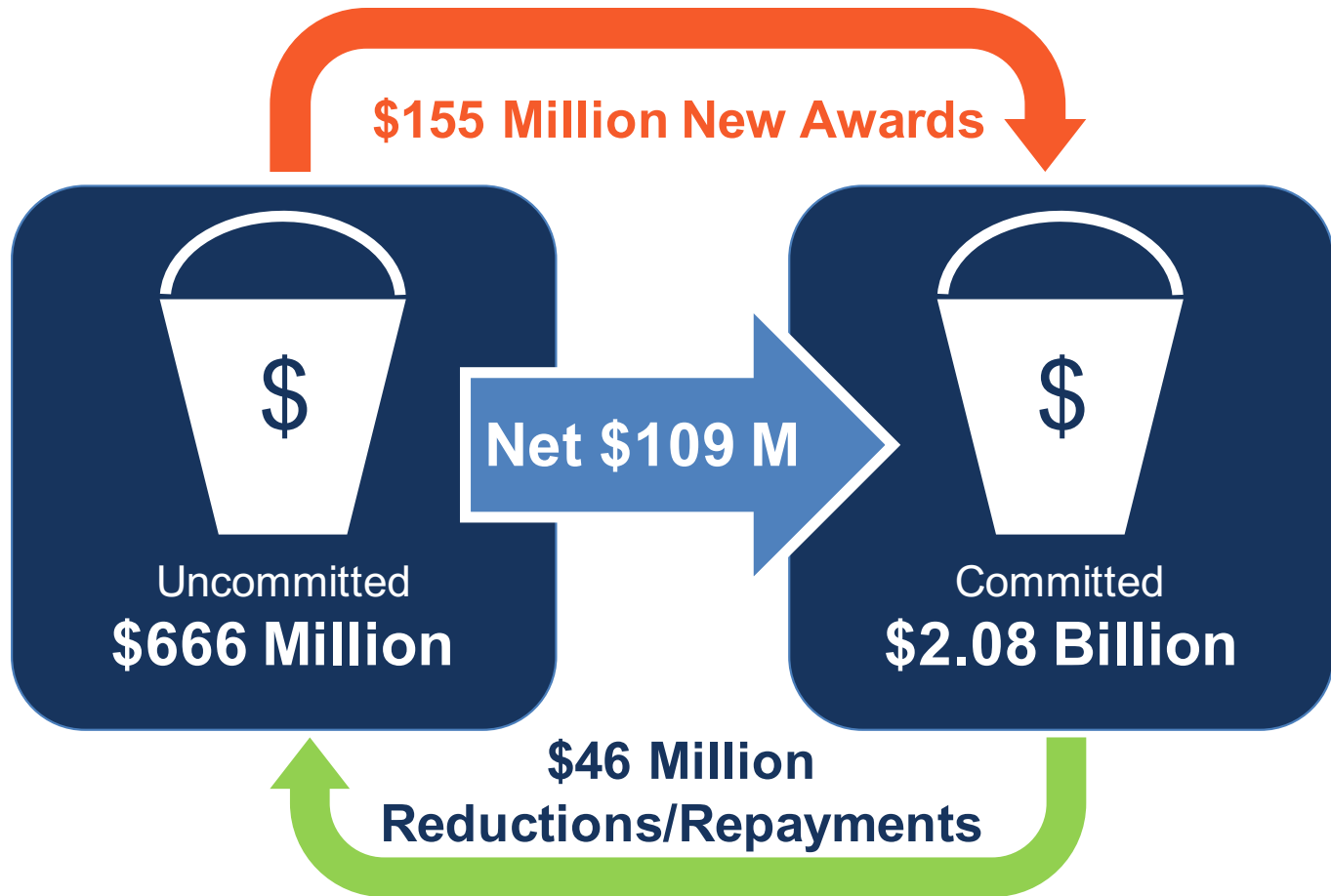
Award Budget
\$2.75 Billion



Administrative Budget
\$180 Million

Fund Flow is a Two Way Street

FY2015/16 disbursements and reduction / repayments



Maximizing CIRM's Impact

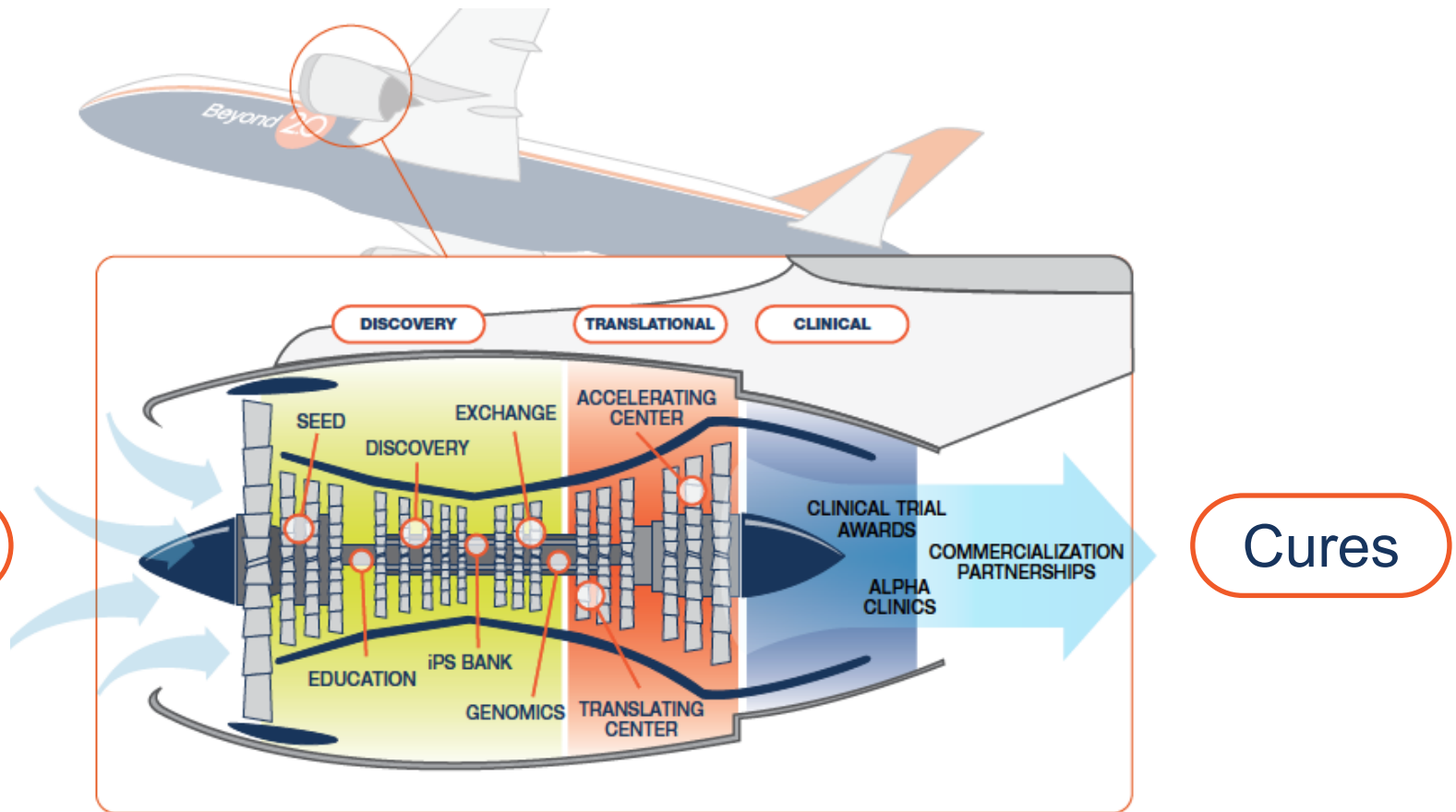
With ~\$800 million in new awards to be issued, CIRM still has the opportunity to dramatically improve patients' lives



The amount of new awards CIRM estimates it will issue through 2020

A Vision for Accelerating Success

All parts of CIRM must work in concert to get more treatments to patients faster and with greater success



Volume • Speed • Quality

Pushing Hard

Historically, CIRM has been pushing the field forward with individual initiatives



First step, build upon our past success with systems based operational excellence

Four Key System Changes

The improvements having the biggest impact on operational excellence

Standardize Recurring Program Offerings

Increase Speed and Cycle Frequency

Implement Milestone Based Disbursements

Establish Objective Goals and Metrics

Frequent and Standardized Offerings



DISCOVERY



TRANSLATION



CLINICAL

New Idea



Single Product Candidate



Pre-IND Meeting or Equivalent



Approved Therapy



2/Year



3/Year

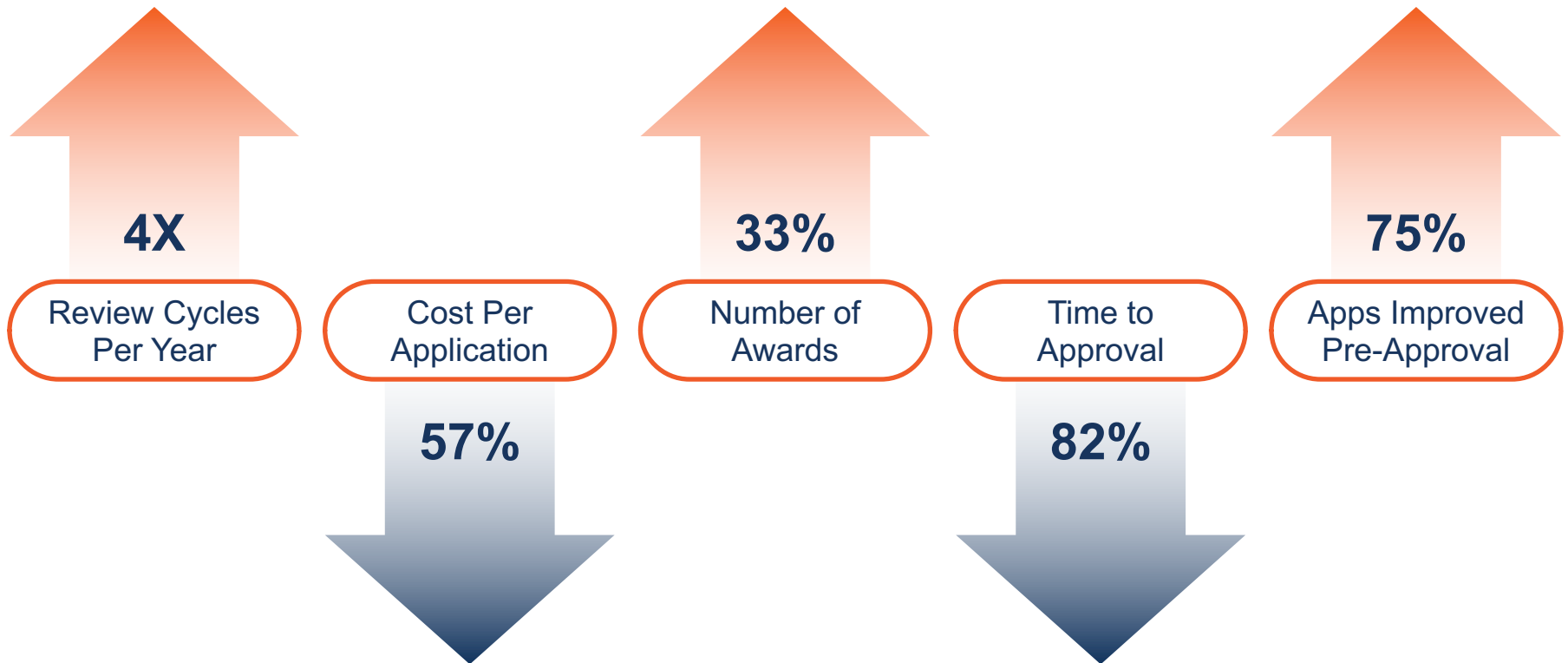


12/Year

Program Offerings Per Year

Benefits of Frequent Repetition

Volume, speed, quality and productivity improved

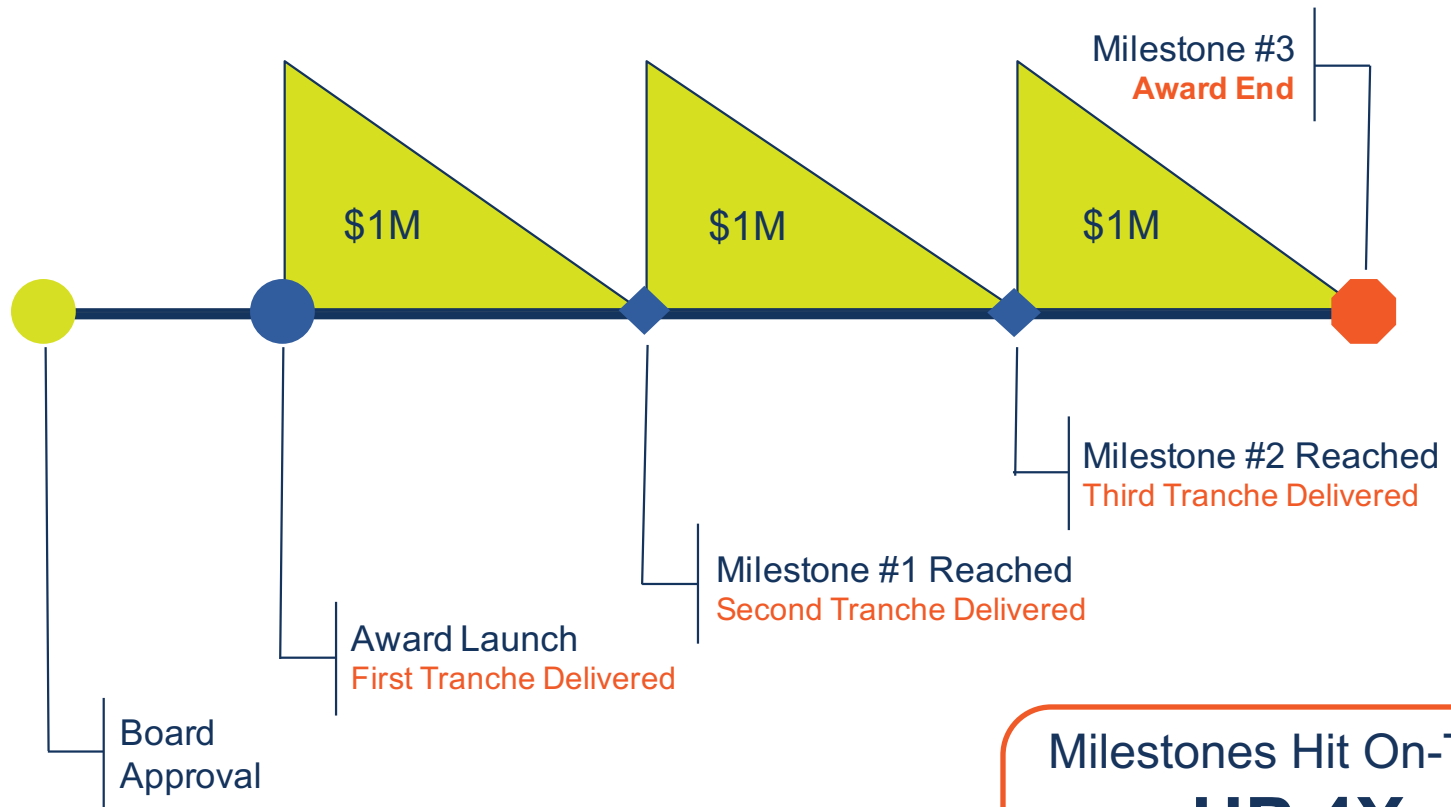


Volume • Speed • Quality

Milestones & Disbursements

Example for a \$3M Award

Disbursements are made only upon achieving the milestones



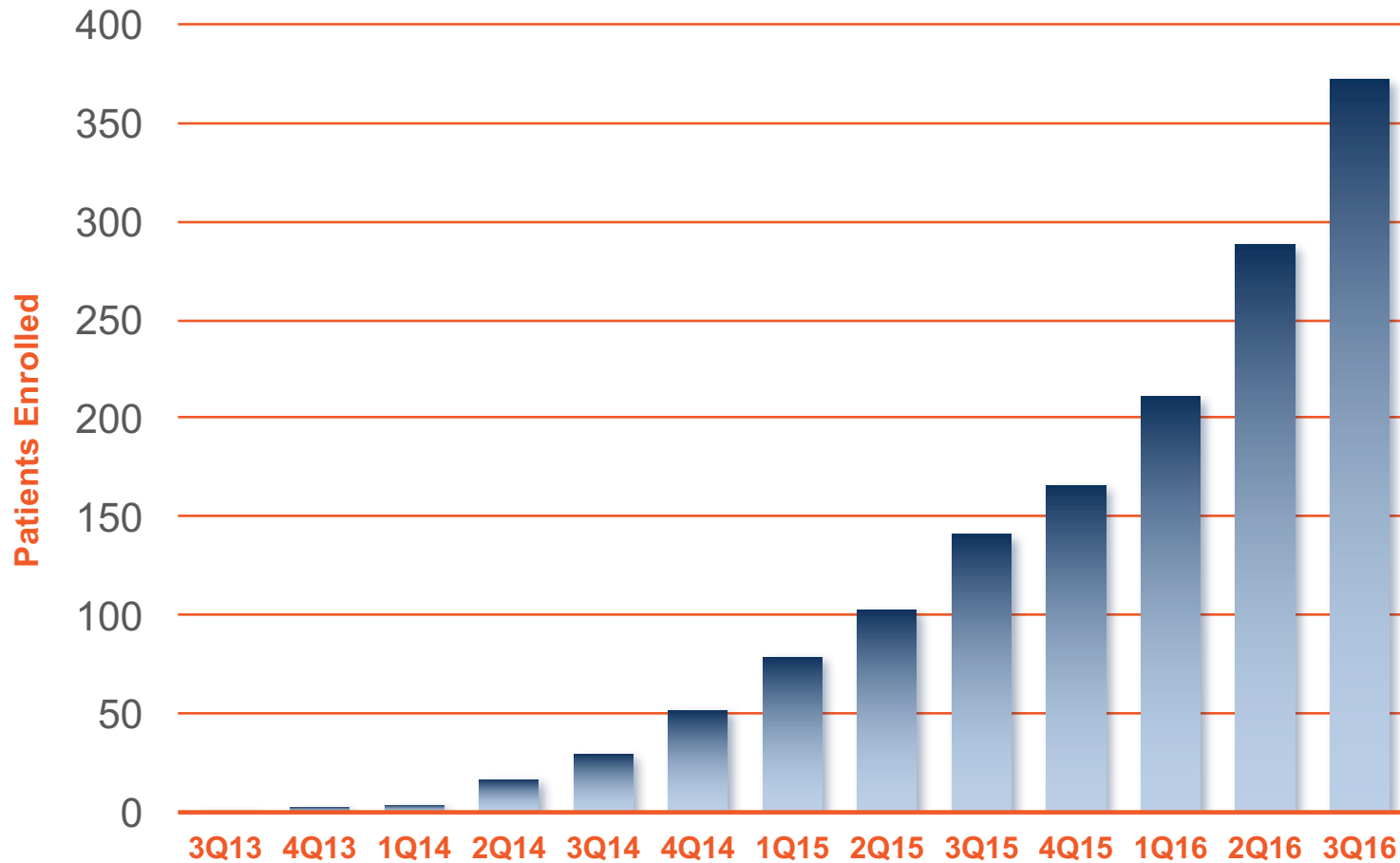
Milestones Hit On-Time
UP 4X

CIRM 2.0 Performance



The system is driving results with our partners

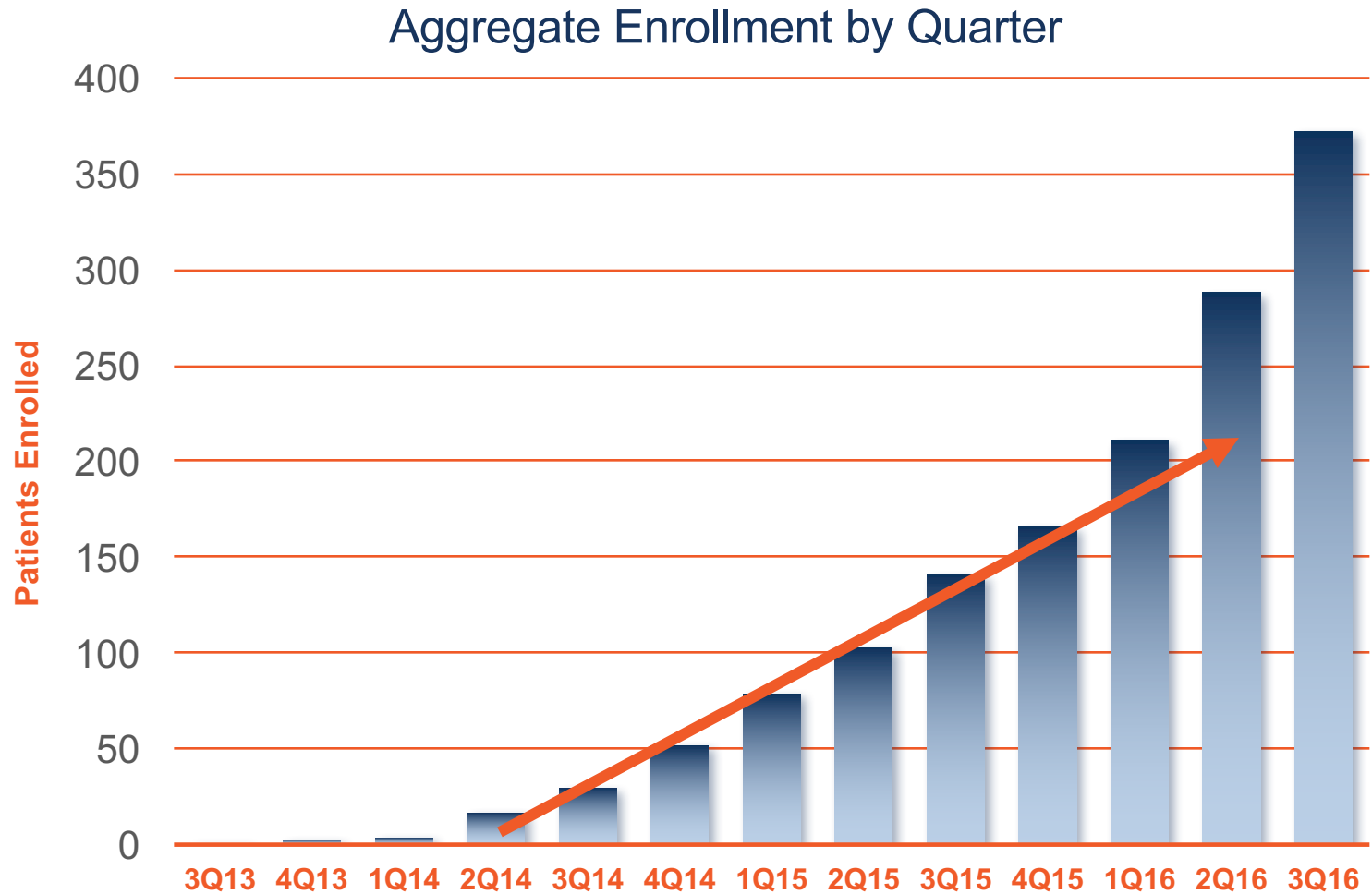
Aggregate Enrollment by Quarter



CIRM 2.0 Performance



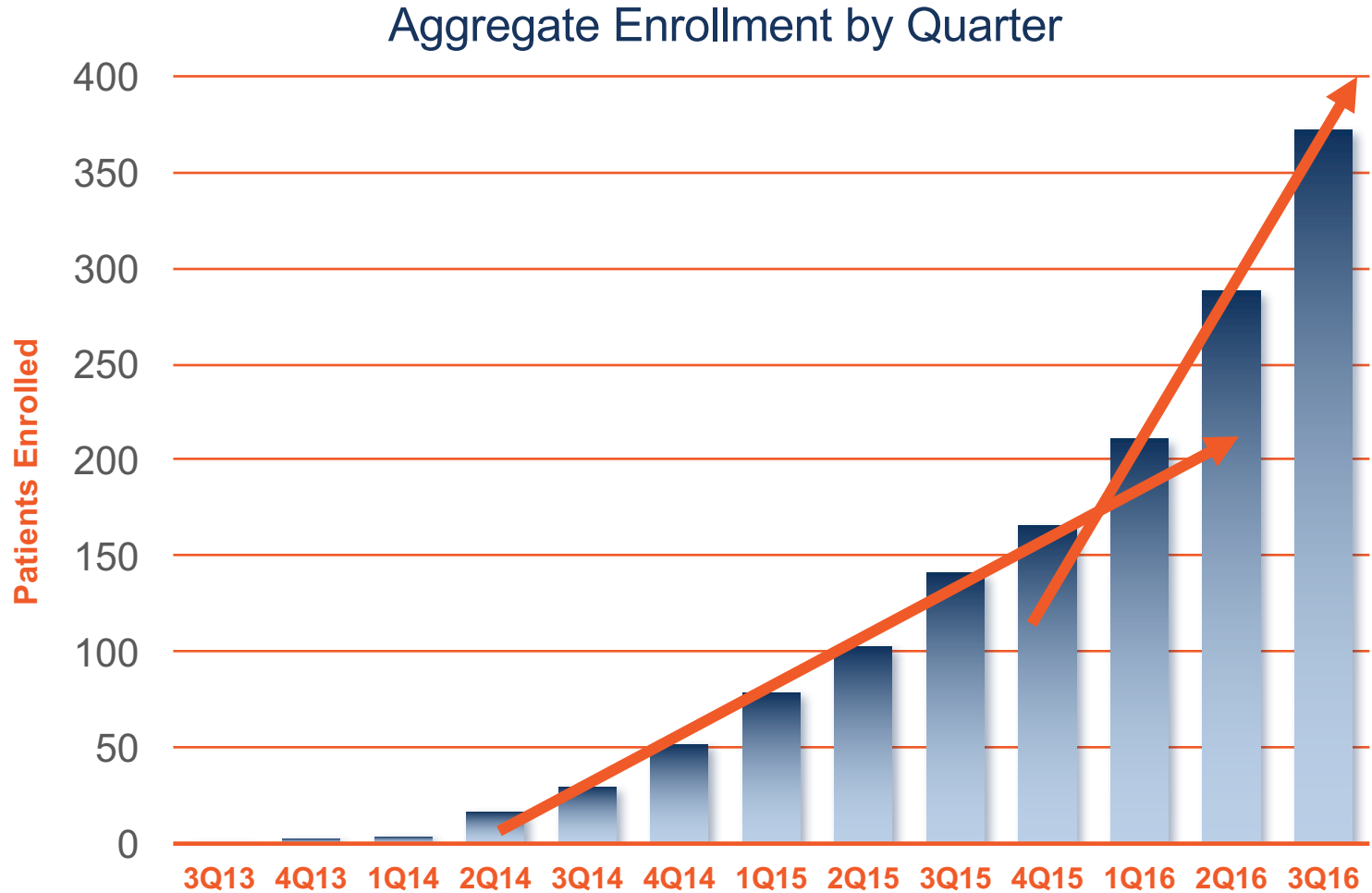
Enrollment rate for mostly CIRM 1.0 programs



CIRM 2.0 Performance

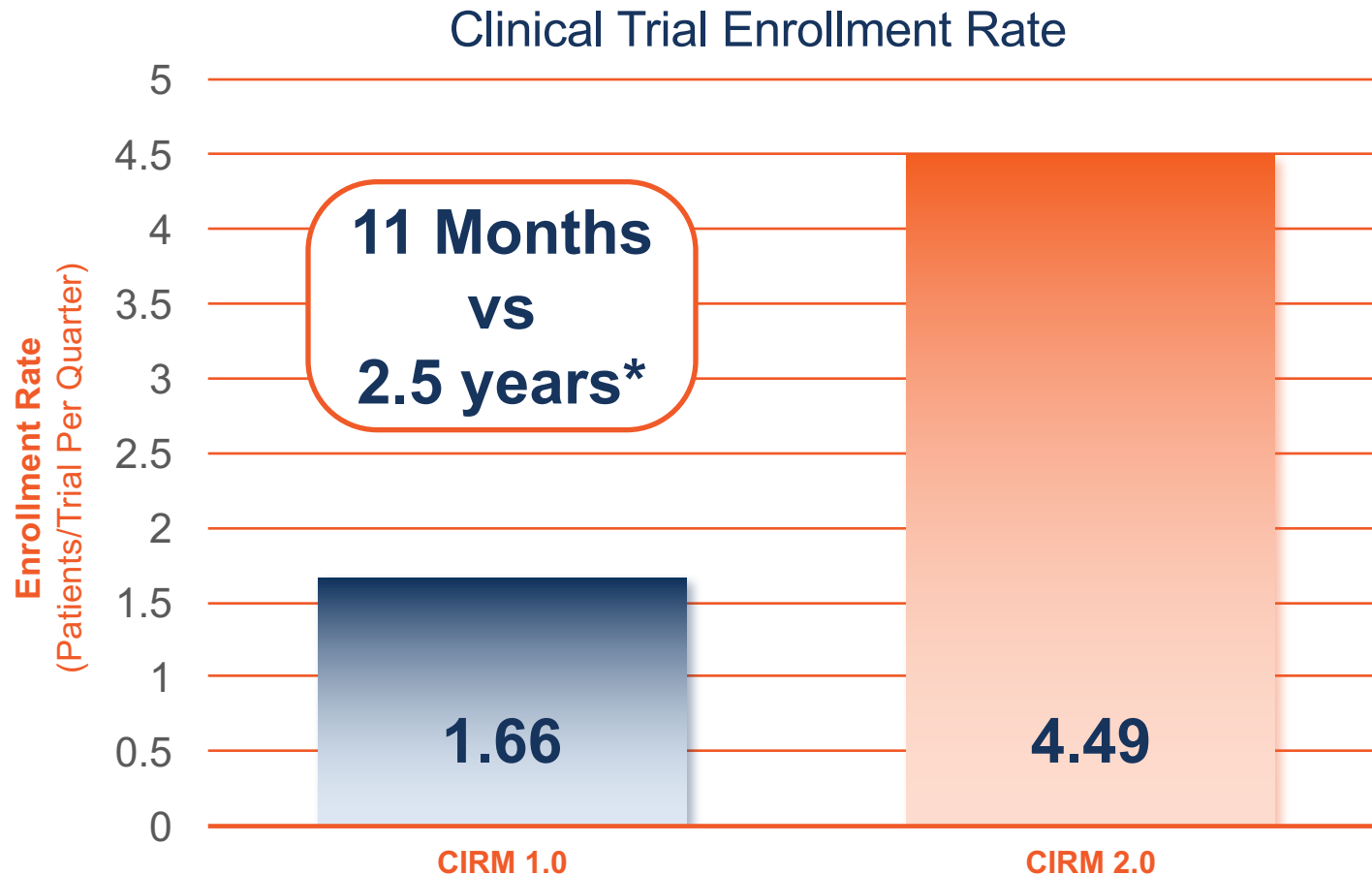


Enrollment rate for CIRM 2.0 programs is significantly faster



How Much Faster?

Clinical trials are now enrolling more than twice as quickly



* Projected enrollment duration for a hypothetical 50 patient clinical trial

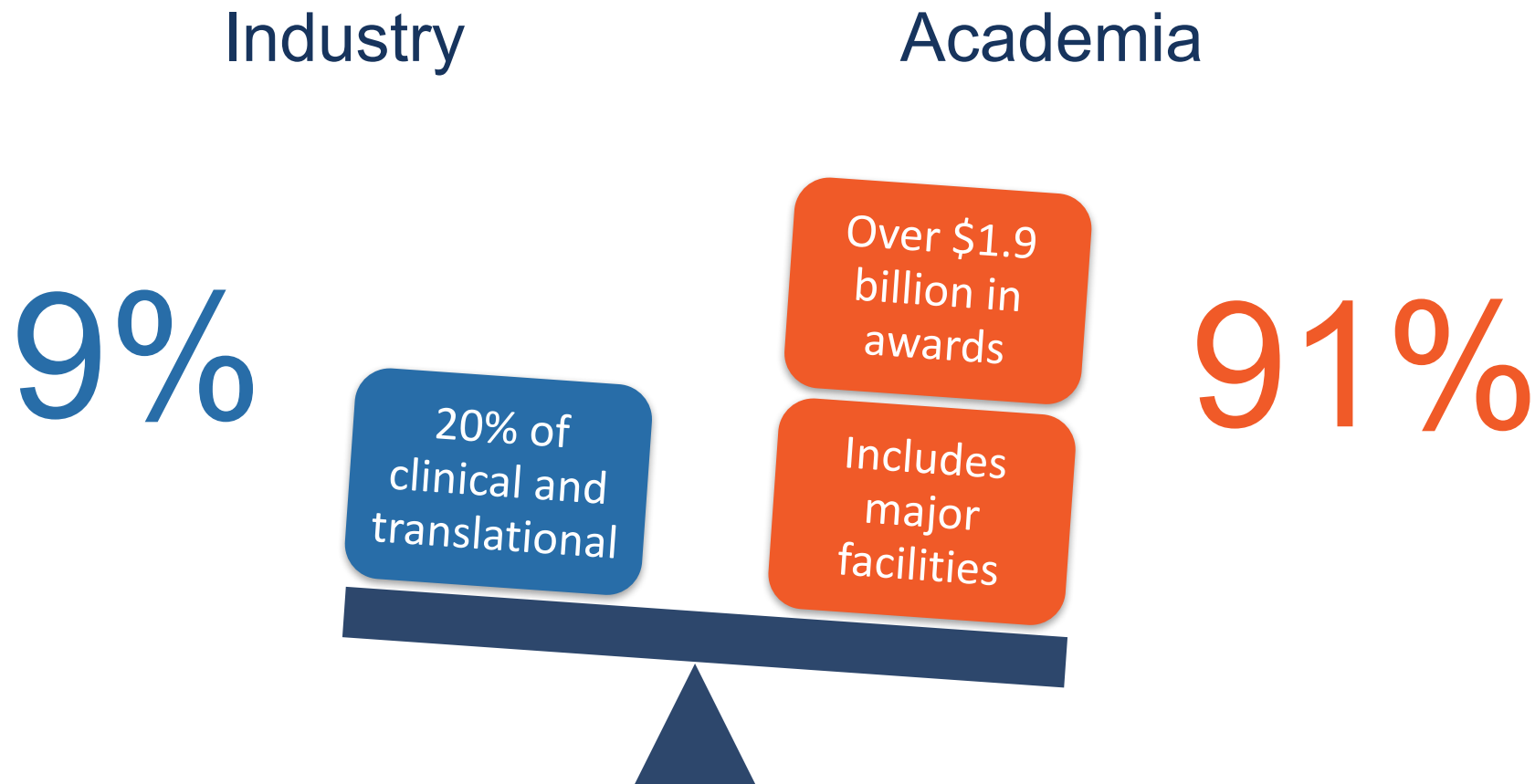
Pushing Hard

Pushing the field forward with a systems approach to operational excellence



Not Enough Industry Involvement

Industry involvement is necessary to fully realize our mission



Becoming Easier to Work With

These things cost CIRM nothing and make us much easier to do business with

Available When Needed

Clear



Fast

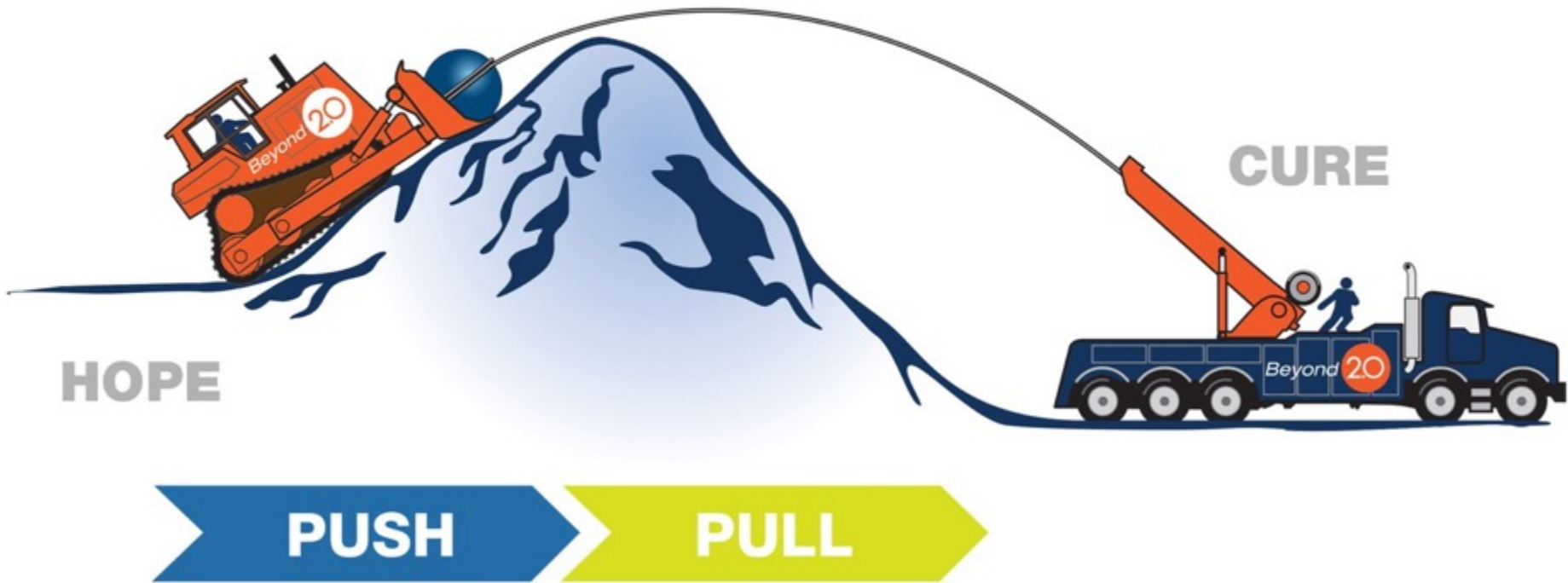
Not Overly Onerous

Accelerating Therapies: Public-Private Partnership (ATP3)



Demand Pull

Creating innovative ways of engaging downstream demand for stem cell technology



Regulatory Realities Today

The current regulatory environment is not conducive to CIRM's mission

- Most investigators lack experience with the regulatory process for a cell therapy
- Stem cell therapies take ~8 years to go from bench research into clinical trials (vs. 3.2 years for non-cell therapies)
- The current (binary) regulatory paradigm for stem cells has been in place for 15 years without a single approval
- Stem cell therapies that have little or no data to support their use are flourishing and unregulated

The “Pitching Machine”

Beyond
CIRM_{CALIFORNIA STEM CELL AGENCY}**2.0**
now it's personal

Designed to help efficiently move great ideas into clinical trials

Goal
Discovery to Clinic
in <4 years.



Translational Research

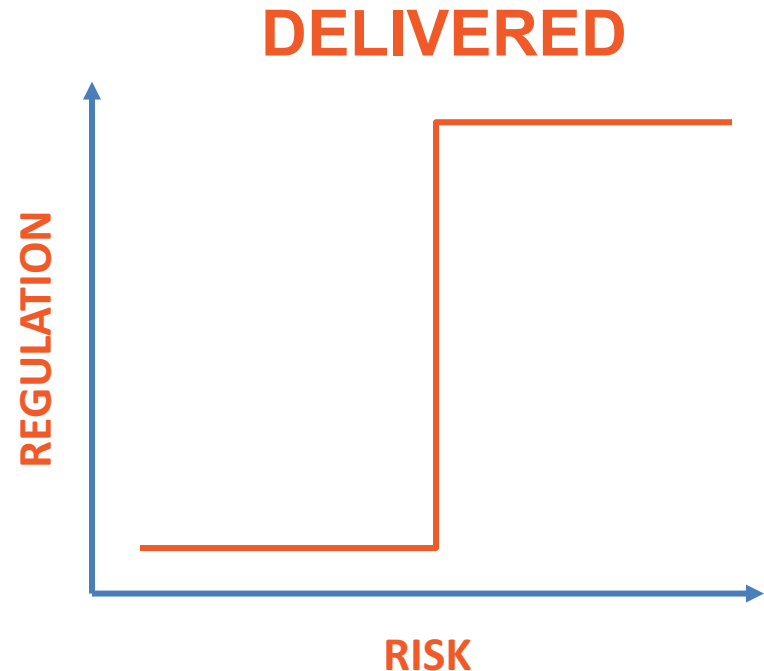
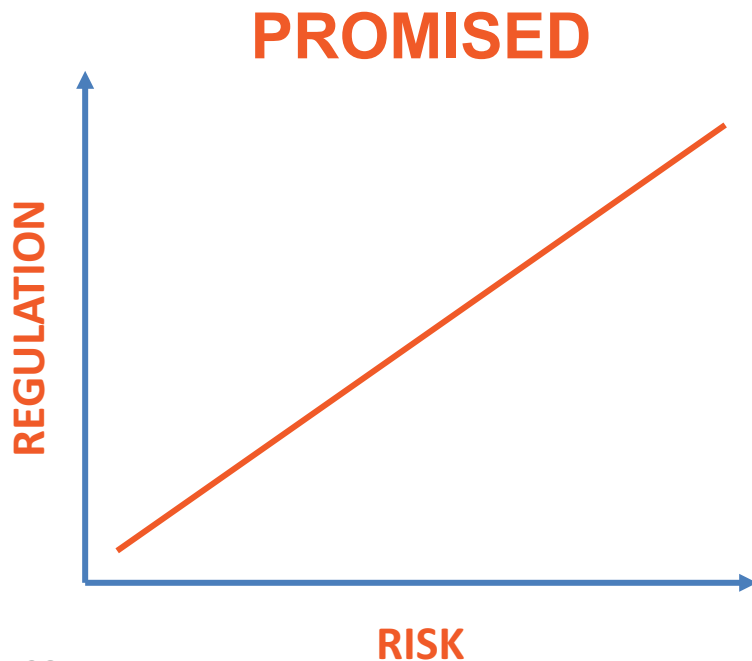


Stem Cell Accelerator Center | **QUINTILES**

The Current Regulatory Paradigm

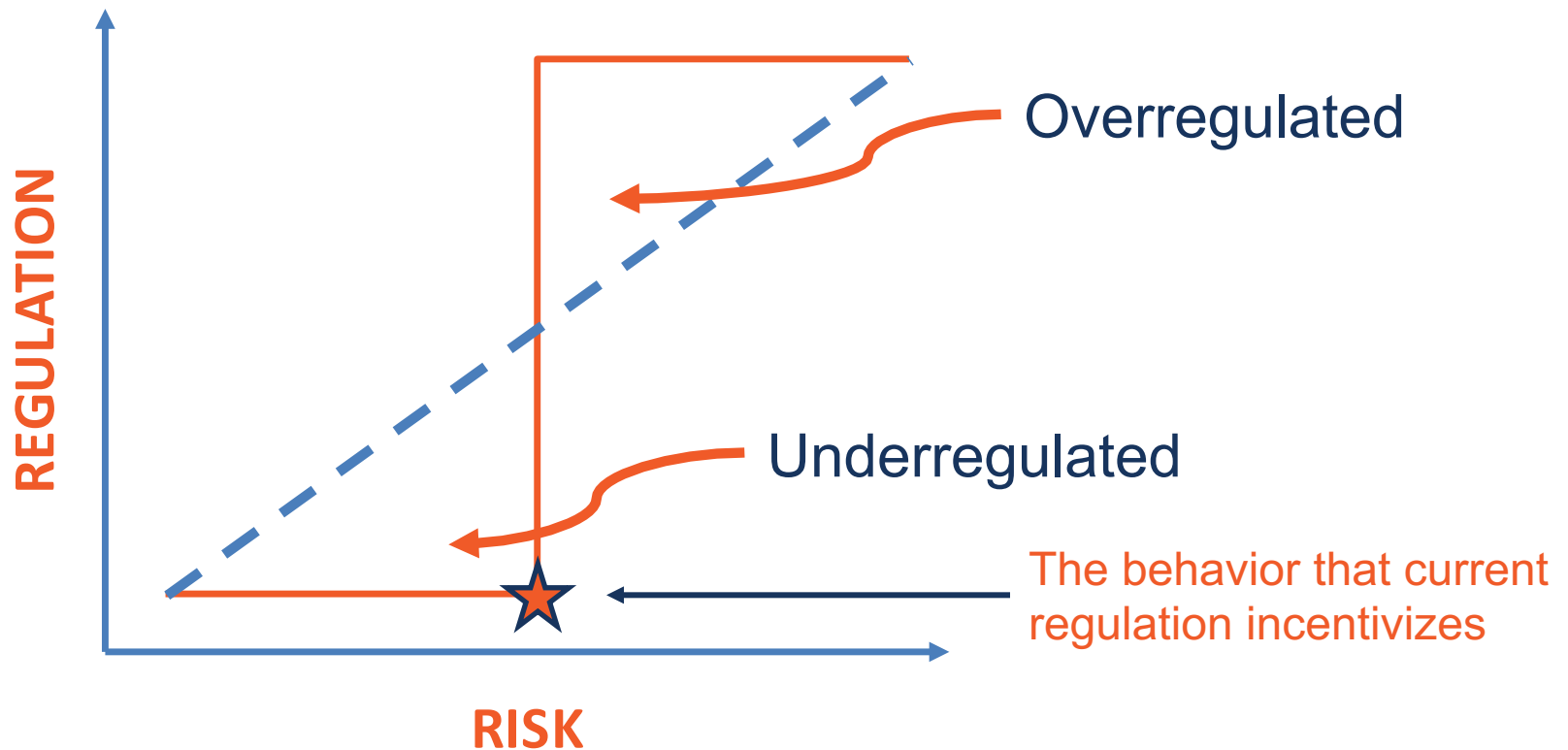
When first introduced in the late 90's, FDA proposed a progressive regulatory approach to cell therapy

Instead, a binary approach was implemented
It is either **OFF** or **ON**



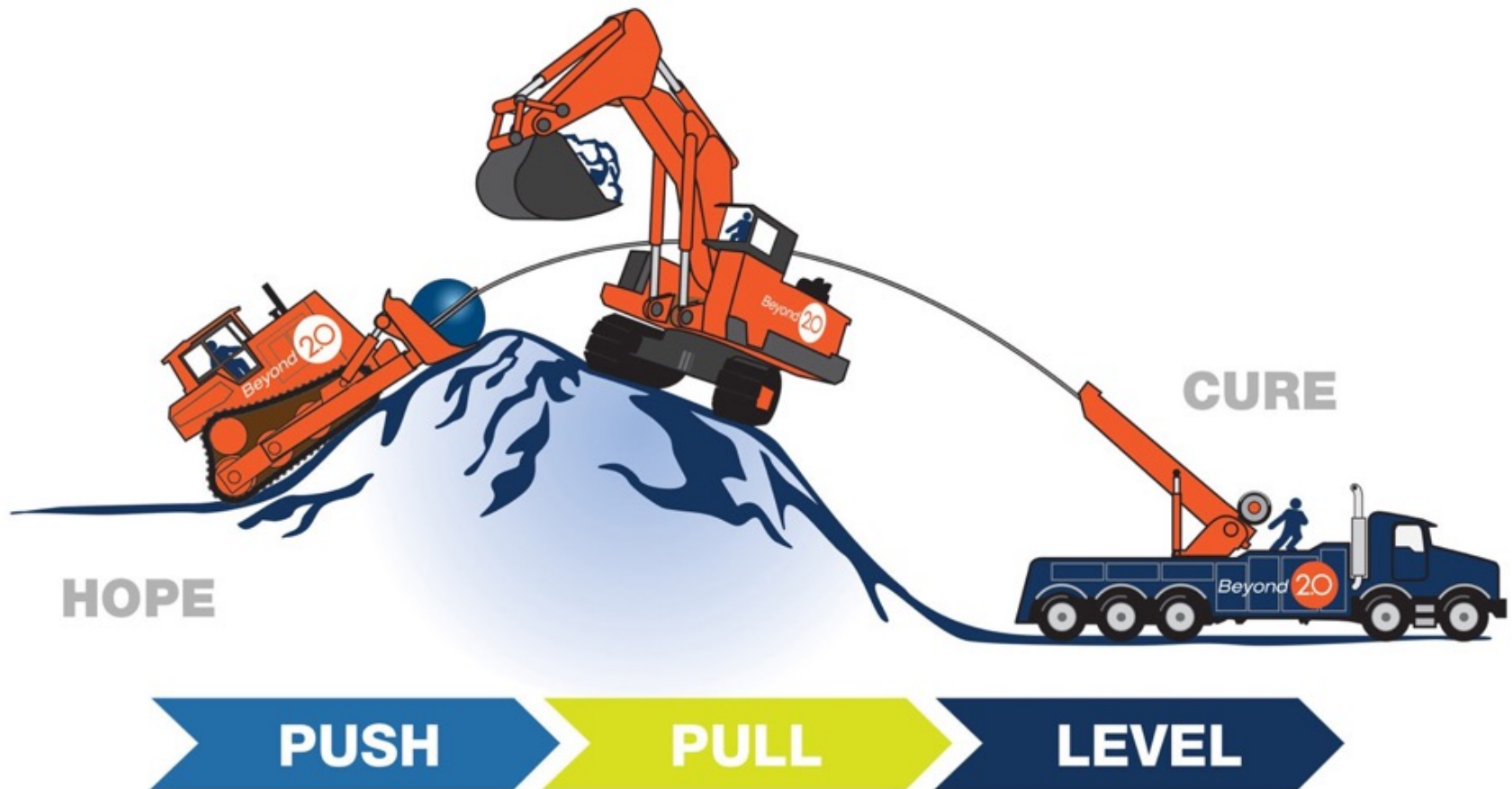
This is A Real Problem

It leads to both Under and Over regulation and incentives stagnation



Push, Pull, Level

CIRM's bold plan to accelerate the field of stem cell therapies



Objective Measures of Success

CIRM 2.0

CALIFORNIA'S STEM CELL AGENCY

2020 VISION



DISCOVER

NEW
CANDIDATES
INTO DEVELOPMENT



CLINICAL
PROGRAMS
WITH COMMERCIAL
PARTNERS



INCREASE
PROGRESSION
EVENTS

ADVANCE



ENACT
NEW REGULATORY
PARADIGM



REDUCE
TRANSLATION TIME



NEW
CLINICAL
TRIALS

Key Risks to the Plan

Risks factors include but are not limited to the following

- Insufficient number of meritorious therapeutic candidates
- Insufficient interest from qualified applicants to participate in key competitions
- Limited funding life could affect the ability to retain or attract personnel
- Investors may be uninterested in stem cell therapies
- The FDA may be unwilling to improve the regulatory environment

2.0 is Really More Like 2.8



Since its launch in January of 2015, the program has been modified multiple times to fix bugs and improve outcomes

CIRM 2.0 Modifications:

- Revised the scoring system to provide clarity to the review recommendations
- Added a process to evaluate the rigor and fairness of the review
- Made past performance information available to reviewers
- Eliminated indirect costs for for-profit institutions
- Established project milestones for DISC and TRAN programs

We will never stop getting better

The Team

The “why” behind the progress CIRM is making

- ✓ Embracing Change
- ✓ Aligning Around the Mission
- ✓ Owning the Goals
- ✓ Objectively Performing

Questions?

