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Manufacturing Network Concept Plan Presentation

ICOC Science Subcommittee Meeting

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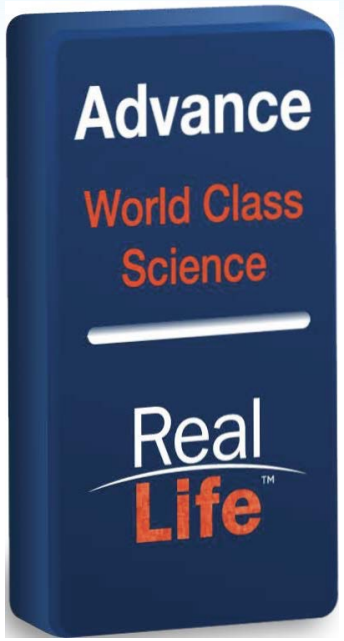
CIRM
CALIFORNIA'S STEM CELL AGENCY

Mission Statement

OUR MISSION

Accelerating world class science to deliver transformative regenerative medicine treatments in an equitable manner to a diverse California and world

5-Year Strategic Summary



- Develop Competency Hubs
- Build Knowledge Networks

- Advance therapies to marketing approval
- **Create a manufacturing partnership network**
- Expand Alpha Clinics Network
- Create Community Care Centers of Excellence

- Build a diverse and highly skilled workforce
- Deliver a roadmap for access and affordability

Cell/Gene Therapy Manufacturing Bottlenecks

- **Academic Institutions are the center of technology innovation and initial process development and GMP manufacturing** but don't have sufficient capacity, resources or processes for late-stage manufacturing.
- **Industry Contract Development & Manufacturing Organizations (CDMOs) or in-house operations are best positioned to industrialize manufacturing processes** for later-stage clinical trials and commercialization but don't always have expertise in emerging technology platforms arising from academia.
- The complexities of the products and processes create various technical bottlenecks.
- There is an ever-growing demand for a trained manufacturing and quality workforce.

CGT Manufacturing Landscape in CA*

Academic GMP Manufacturing Facilities
(utilized by majority of CIRM-funded projects)

- Cedars Sinai
- City of Hope
- Stanford
- UC Davis
- UC Irvine
- UC Los Angeles
- UC San Diego
- UC San Francisco
- USC/CHLA

Industry GMP Manufacturing Facilities
(capable of accepting external projects)

CDMOs (fee for service/partnerships)

- Allele Bio
- Cellipont
- Fujifilm Diosynth
- Millipore Sigma
- Miltenyi
- Minaris
- Resilience
- Thermo Fisher
- Synthego

Biopharma (partnerships)

- Bayer
- Novo Nordisk

*Not intended to be an exhaustive listing

California CGT Manufacturing Network

CIRM-Funded Academic GMP Facility Network

Industry Partners

- Manufacturing services
- Resources
- Investment and Partnerships

INDUSTRY ALLIANCE PROGRAM

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- **Accelerate**
  and de-risk path to commercialization
- **Advance**
  standards and quality by design
- **Build**
  manufacturing leadership and workforce

Potential Functions of the Cell & Gene Therapy Manufacturing Network

- World-class expertise across range of manufacturing and analytical technology platforms
- Support manufacturing of therapies for rare and ultra-rare diseases
- Accelerate and de-risk late-stage and commercial manufacturing of therapies
- Establish standards for quality or accreditation of manufacturing facilities
- Build inclusive workforce entry and advancement opportunities in technical and leadership career pathways in partnership with EDUC programs and industry stakeholders

Funding Academic Facilities to Build Network

Bi-Phasic Funding Opportunity

Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7

Phase 1

Program Budget: $20M
Award Amount: $2M
Applicant: Academic GMP Manufacturing Facility
Collaborators: Optional
Goal: Individual facility enhancements

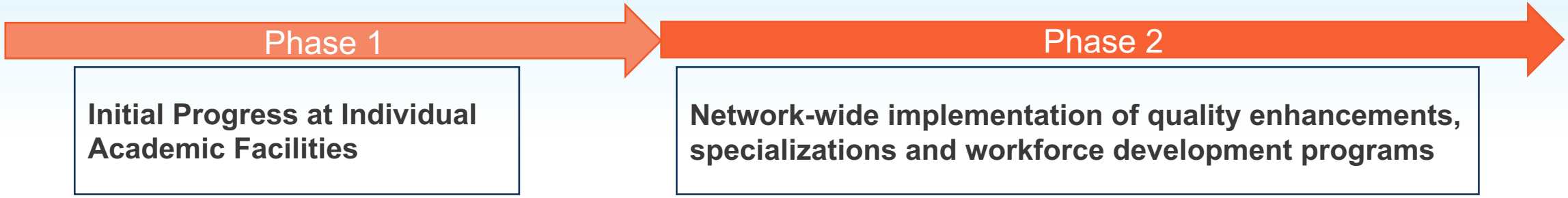
Phase 2

Program Budget: $60M
Award Amount: $5M
Applicant: Academic GMP Manufacturing Facility
Collaborators: Required
Goal: Network-wide scaling of enhancements, specializations, and training programs

CIRM-Coordinated Steering Committee of Awardees & External Participants

CIRM-Funded Academic GMP Facility Network ⟷ **Industry Partners**

Potential Award Activities



De-Risk & Accelerate Manufacturing

- Implement quality-driven operational enhancements that de-risk process development, GMP manufacturing and technology transfer from pre-IND through to commercialization.
- Actively mitigate capacity & expertise gaps by coordinating project execution across the network.

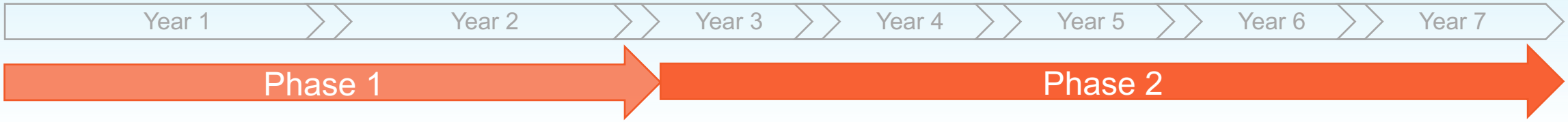
Specialized Offerings

- Build network-wide specialization in areas such as technology platforms, analytical methods, quality-by-design, automation, N-of-1 manufacturing, etc.

Workforce Development

- Develop and implement training programs for technical and leadership positions in partnership with EDUC and industry stakeholders.

Example: De-Risking Manufacturing



Individual Awardees:

- Quality system improvements
- Implementation of Quality-by-Design principles
- Hiring and/or training of staff

Potential Outcome Metrics:

- Impact of quality-driven improvements on project execution compared to historical performance.

Awardees & Collaborators:

- Scale quality improvements across the network
- Operationalize partnerships to effectively transition projects for late-stage/commercial manufacturing

Potential Outcome Metrics:

- Success rate of partnership-driven progression of projects to late-stage and commercial manufacturing.
- Application of network-wide quality standards, protocols and best practices.

Potential Award Outcome Metrics

Phase 1

- Impact of quality-driven improvements on project execution compared to historical performance.
- Demonstrate competency in specialization areas by executing pilot project(s).
- Enroll first trainee cohorts for technical and leadership training programs.

Phase 2

- Success rate of partnership-driven progression of projects to late-stage and commercial manufacturing.
- Utilization rate of specializations by collaborating facilities.
- Application of network-wide quality standards, protocols and best practices.
- Sustained enrollment in training programs and success rate of trainee job placement.

Diversity, Equity, Inclusion

Must Include Plans to Address DEI

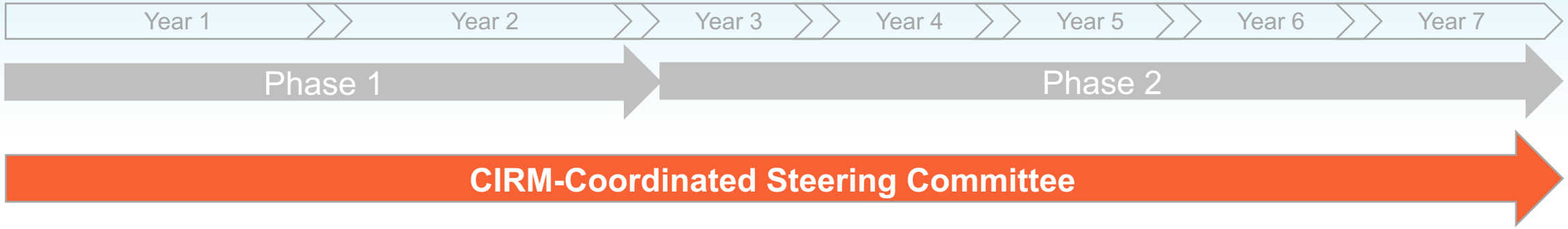
- Participation in workforce development programs by underserved populations
- Project team represents diverse and inclusive perspectives and experiences

Knowledge Sharing

Must Include Knowledge Sharing Plans

- Describe plan to capture and disseminate relevant know how, operational data, processes, expertise and guidance within network
- Describe any knowledge sharing plans critical to achieving award objectives
- Describe data management processes that will support CIRM TRAN/CLIN awardees to execute on their respective data management & sharing plans

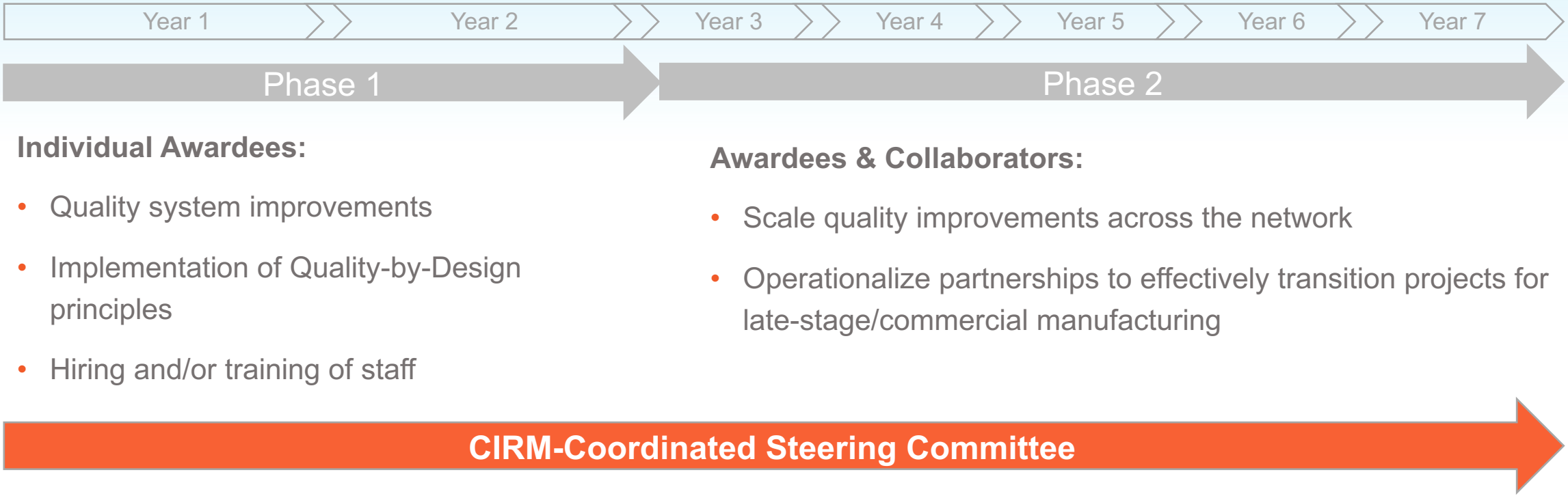
Steering Committee Drives Network Functions



CIRM will coordinate Steering Committee of awardees, California industry partners & national stakeholders to facilitate:

- Identification and adoption of standards, protocols and best practices across the network and potential criteria for facility accreditation
- Mitigation of capacity and expertise gaps across participating sites
- Collaborative planning for Phase 2 proposals
- Development of systems and processes for sharing information and resources between network participants
- Collaborative development and implementation of workforce training programs

Example: De-Risking Manufacturing



Concept Plan Summary

Program Budget

- **$80M Total.** Phase 1 - $20M; Phase 2 - $60M

Awards

- **Award Caps:** Phase 1 - $2M; Phase 2 - $5M
- **Allowable costs:** Direct Project Costs & Direct Facilities Costs.
- **Co-Funding:** 20% both phases

Who can apply?

- California non-profit GMP manufacturing facilities with track record of cell and gene therapy project support.

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