



Table of Contents

I. Executive Report	1
1.1 Science and Technology Are Foundational to the American Way of Life	2
1.2 Research Is a National Investment	3
1.3 A Global Reorganization of Research Is Happening.....	5
1.4 Universities Are Becoming Central Hubs of the Innovation Ecosystem	6
1.5 Actions Are Needed to Preserve the U.S. Innovation Advantage.....	7
1.6 Guide to the Report	8
1.7 Summary of Key Opportunities and Supporting Sets of Actions	11
II. Science and Technology are Central to U.S. World Leadership	13
2.1 Science and Technology Are Foundational to the American Way of Life.....	14
Science and the American national character	14
Health and medicine for healthier, longer lives.....	15
National and homeland security.....	15
Resiliency in an uncertain world	17
Protecting the planet and feeding humanity.....	17
The value of discovery-driven science	18
Education about science strengthens democracy	18
2.2 The Direct Economic Benefits of Research Are Substantial.....	19
Research investments fuel economic growth.....	19
Federal support of research responds to a well-understood market failure	20
In a competitive, globalized economy, Federal policies on research support matter more.....	21
2.3 Transformational Benefits from Research Are Rare, But World-Changing	23
Basic research creates platforms for new industries.....	24
The rationale for investment in unpredictable opportunities.....	25
Public support for science.....	25
The value of the potentiating evolutionary research.	26
III. A Global Reorganization of Research Is Happening.....	29
3.1 U.S. Intellectual Capital: Universities, Federal Laboratories, and Industry	29
World's leading universities.....	30
World's leading National Laboratories.	31
U.S. industry.....	32
3.2 Research in Industry Has Shifted Dramatically	34
The classic corporate research labs are gone.	35
Increased competition leads to underinvestment in basic and early applied research.	35
Globalization leads to migration of R&D offshore.....	38
Consequences of these changes.....	39