

The National Innovation System and Regional Hotspots

Eigerlab

Rockford, Illinois

January 16, 2005

Egils Milbergs

Center for Accelerating Innovation

www.innovationecosystems.com

emilbergs@msn.com





CHINA★INC

HOW THE RISE OF THE NEXT SUPERPOWER CHALLENGES AMERICA AND THE WORLD

TED C. FISHMAN

EXPORTING AMERICA



LOU DOBBS

Why Corporate Greed is Shipping American Jobs Overseas

THREE BILLION NEW CAPITALISTS

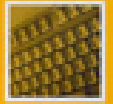
CLYDE PRESTOWITZ **THE**

Author of ROGUE NATION

GREAT SHIFT OF WEALTH AND POWER TO THE EAST

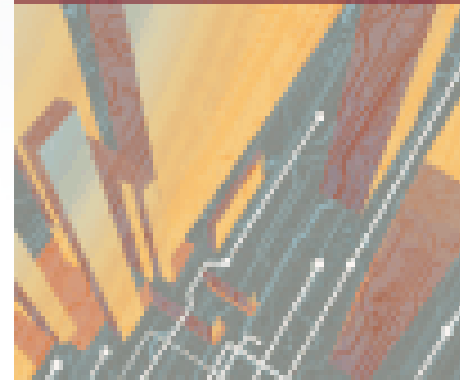
The Past and Future of America's Economy

Long Waves of Innovation that Power Cycles of Growth



Building the Next American Century

The Past and Future of American Economic Competitiveness



Fast Track



THE FLIGHT of the CREATIVE CLASS

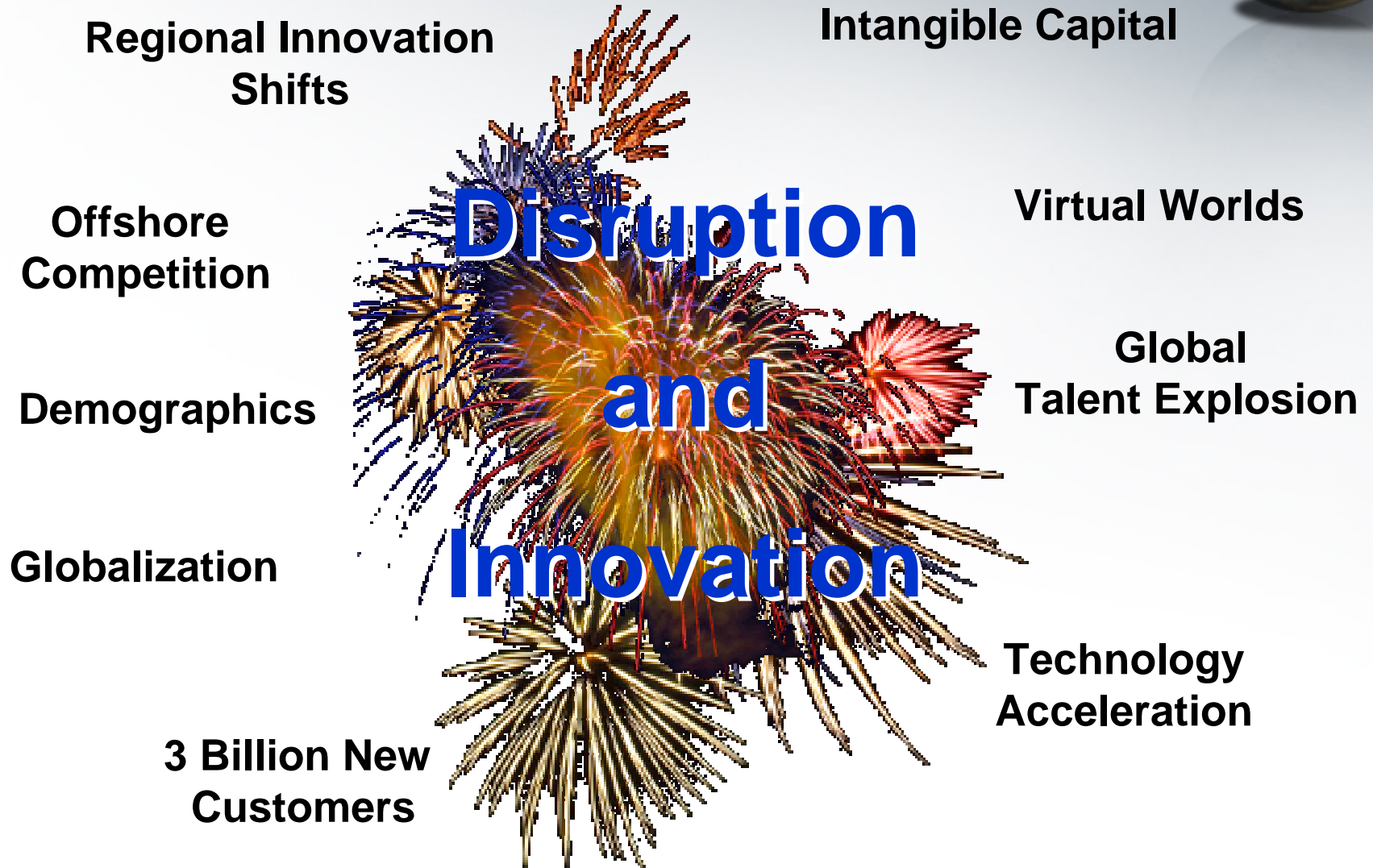


The New Global Competition for Talent

RICHARD FLORIDA

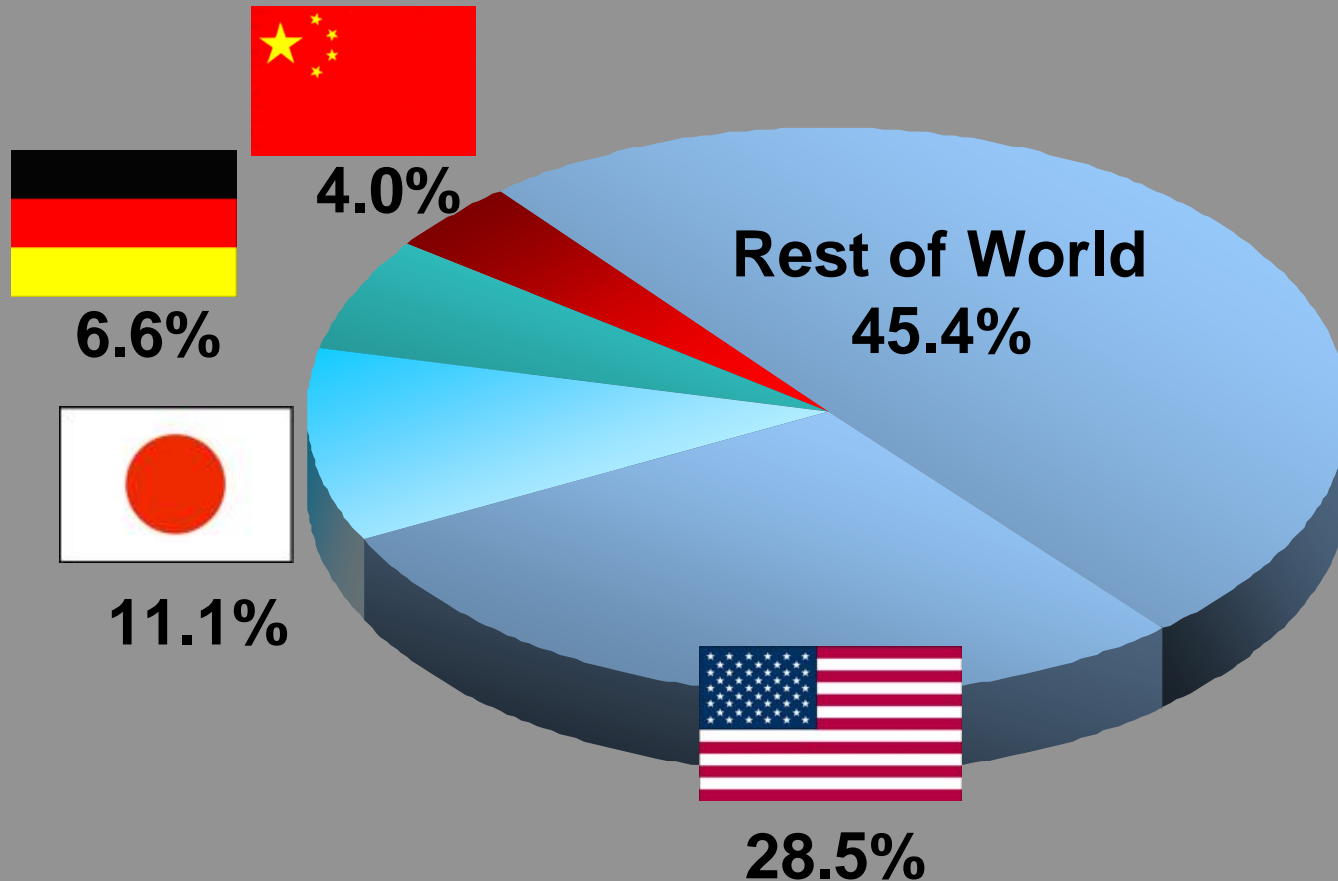
Bestselling author of *The Rise of the Creative Class*

Change, Uncertainty and Complexity



USA: Today's World Economic Superpower

(shares aggregate GDP)



Source: World Bank

Growth Competitiveness Index



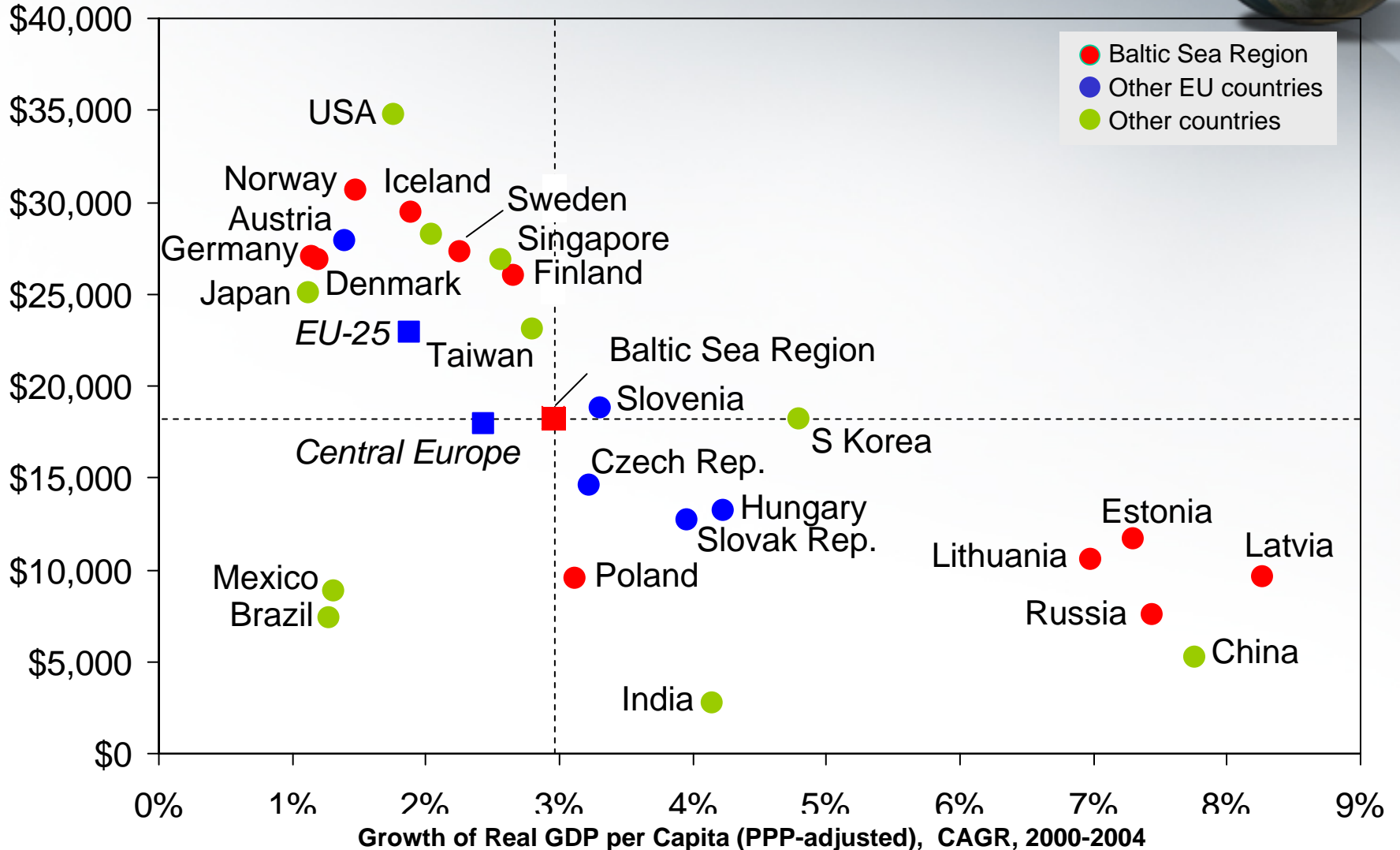
Country	GCI 2005 Rank
Finland	1
United States	2
Sweden	3
Denmark	4
Taiwan	5
Singapore	6
Iceland	7
Switzerland	8
Norway	9
Australia	10

Source: World Economic Forum

Global Innovation Hotspots



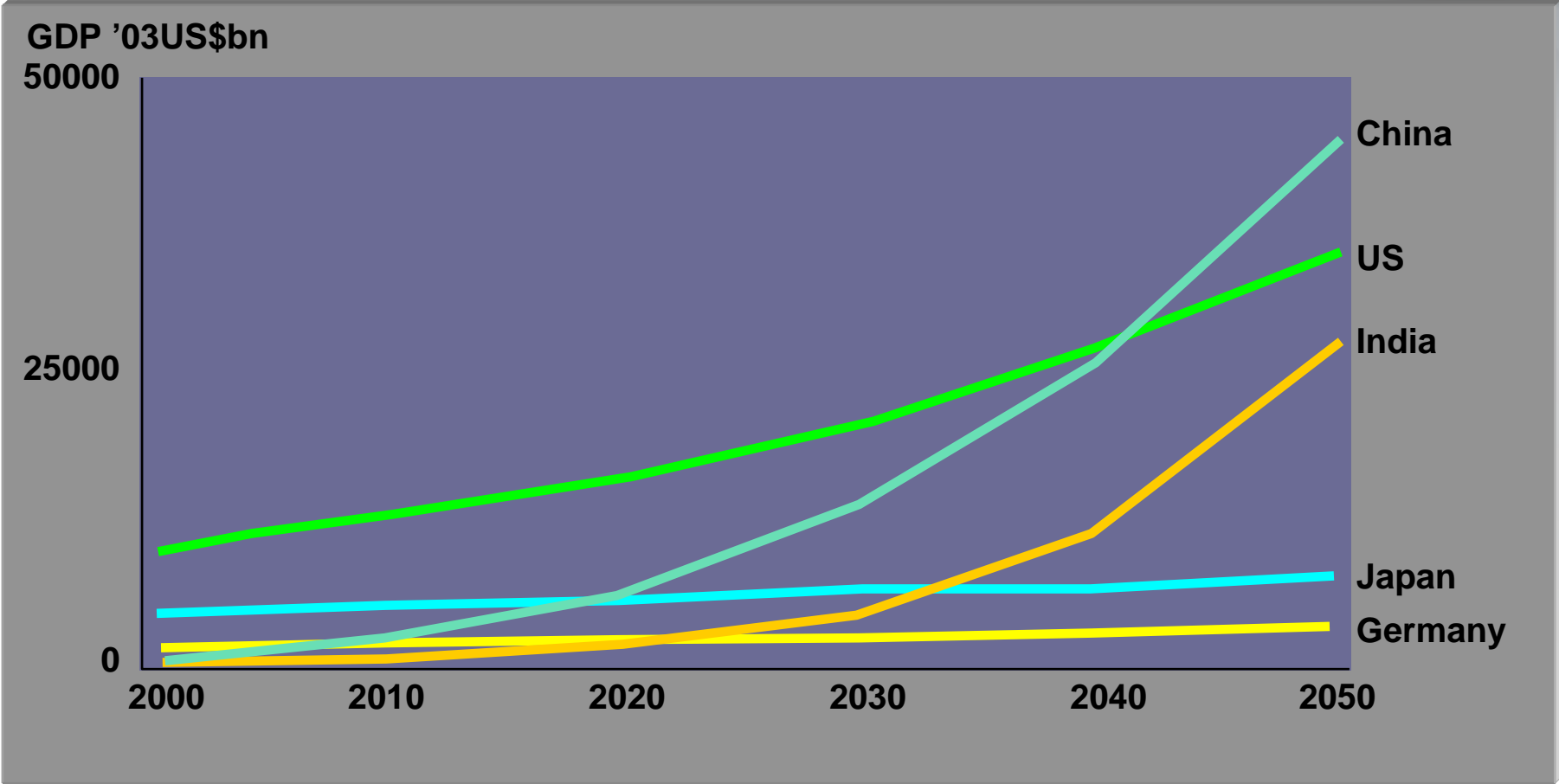
Real GDP per Capita 2004,
PPP-adjusted, \$-US (2002)



Source: EIU (2005), Christian Ketels, Harvard and Stockholm School of Economics

New Economic Superpowers in 2050?

China Overtakes the G3; India is Close Behind

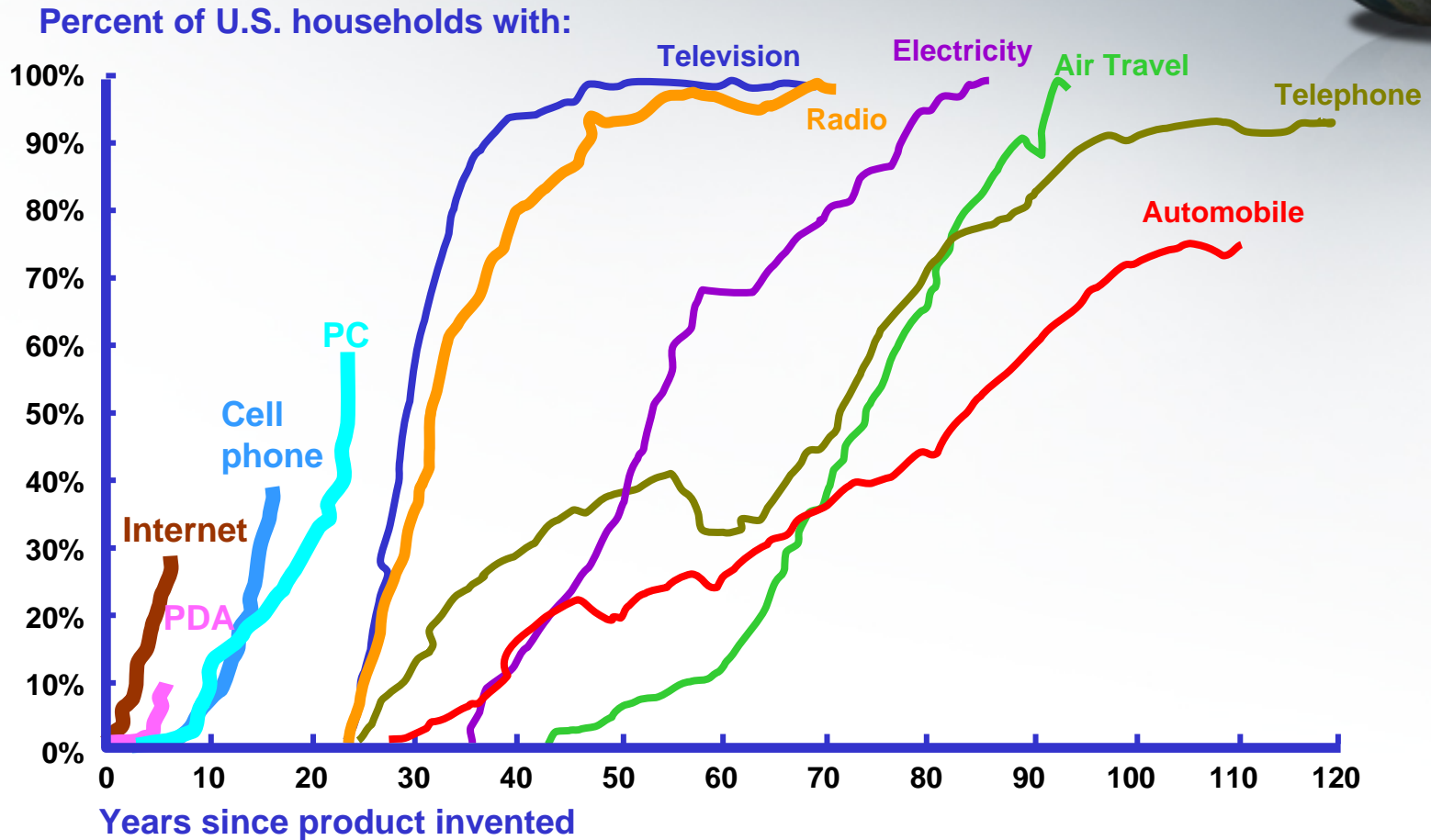


Source: Goldman Sachs, Report 99

The Next Innovation Wave



Innovation occurs faster for today's technologies

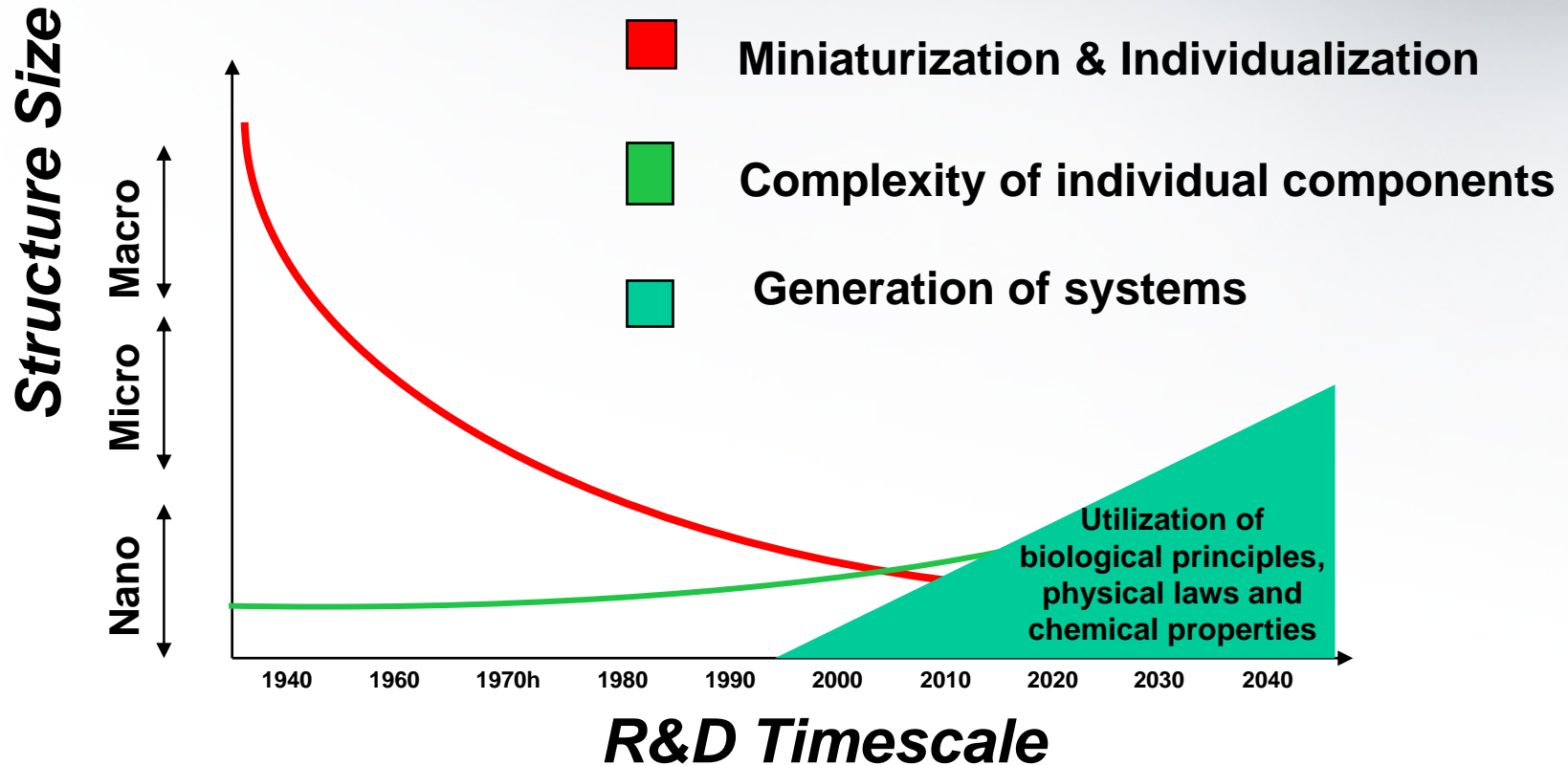


Sources: J. Gerry Purdy's presentation "The Next 50 Years in Mobile and Wireless" at Silicom Ventures, Trade press, Industry sources

Innovation Requires Wider Collaboration and Multidisciplinary Approaches



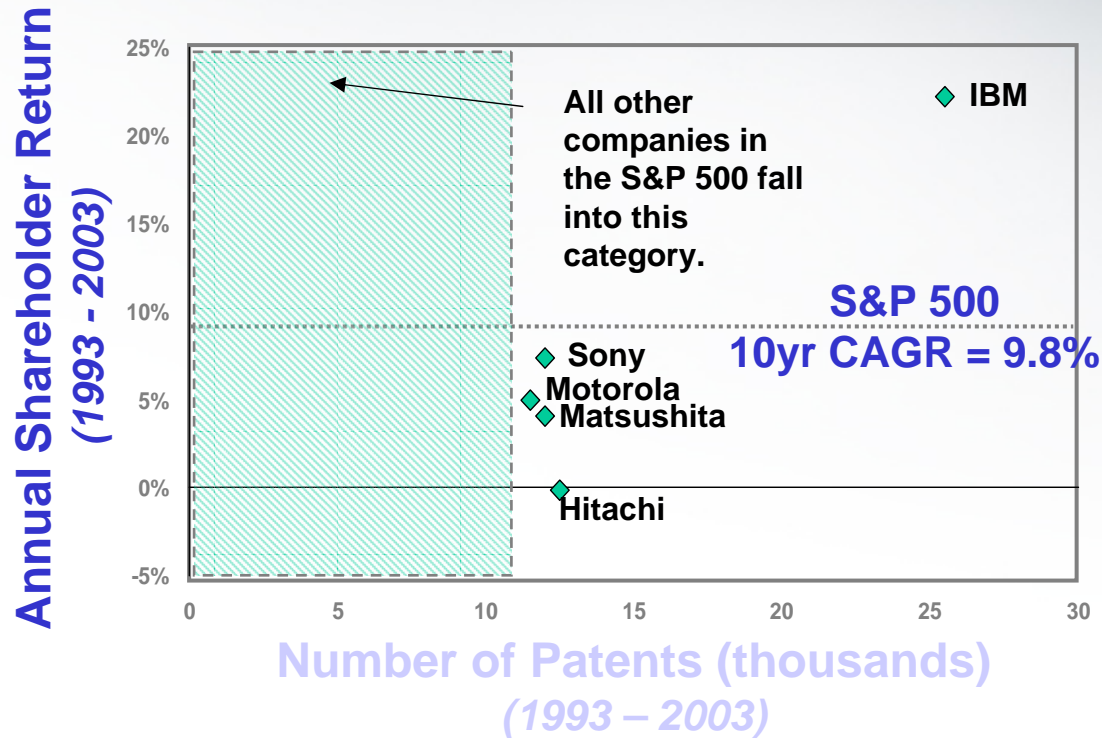
Example: Nanotechnology



Intellectual Property Concepts Outdated



Patent Creation vs. Total Shareholder Return



Note: Cannon, NEC, Toshiba, Mitsubishi, and Samsung round out the top ten largest patent generating companies, but no shareholder data was available.

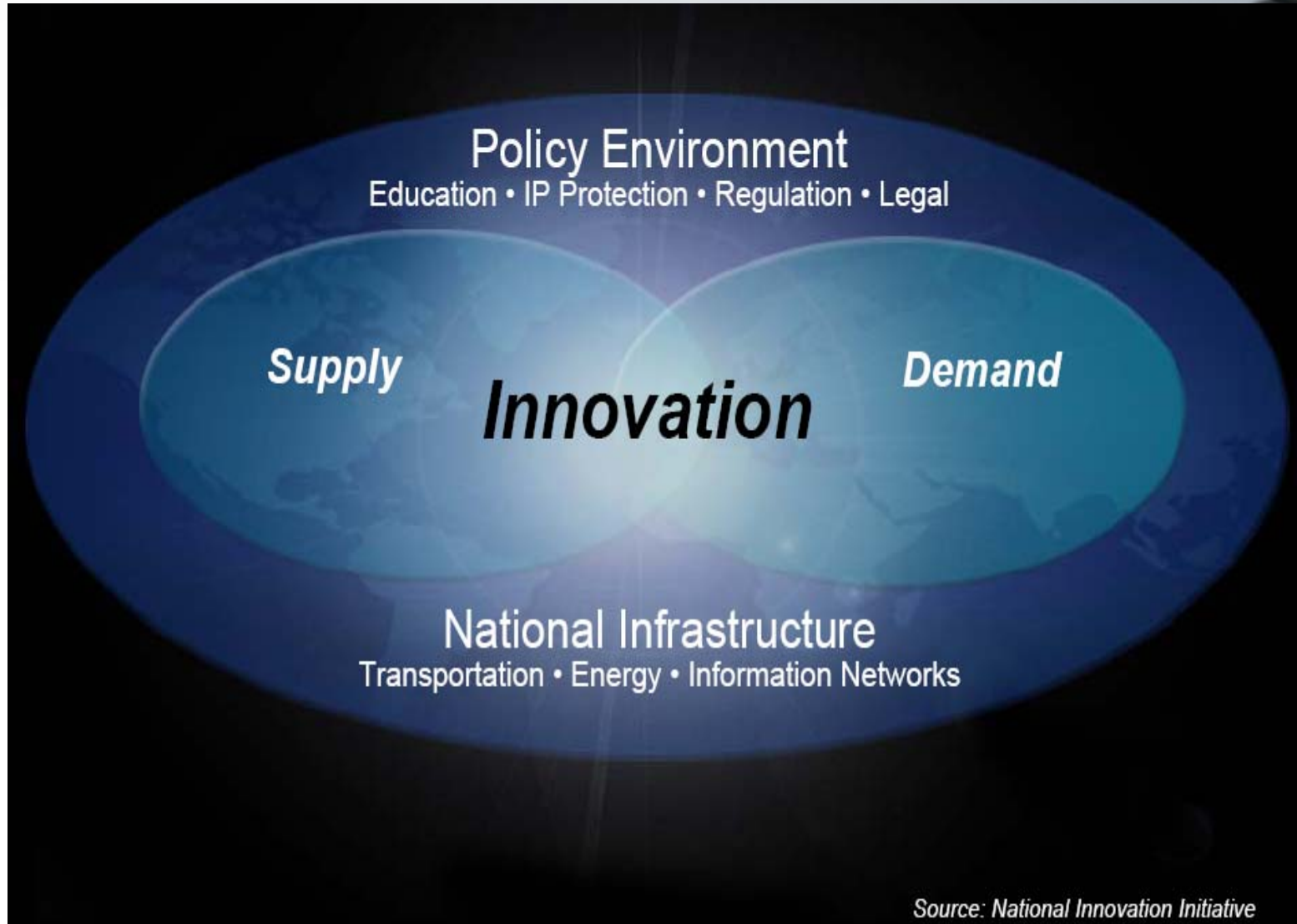
Source: IBM

(5 of The Top 10 Largest Patent Generating Companies)

Service Sector Innovation



So What is Innovation?



Source: *National Innovation Initiative*

**The Technology Industry
at an Innovation Crossroads**



EXECUTIVE SUMMARY
Prepublication Copy

**RISE ABOVE
THE GATHERING
STORM**

*Energizing and
Employing America
for a Brighter
Economic Future*



NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES



**LOSING THE COMPETITIVE ADVANTAGE?
THE CHALLENGE FOR SCIENCE AND TECHNOLOGY
IN THE UNITED STATES**

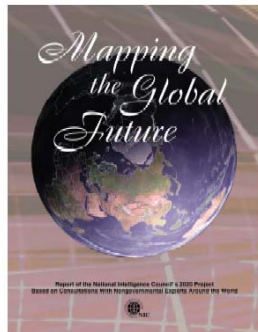


Access to Investors
State, Federal & International Lobbying
Investment
Access
Location

TAPPING AMERICA'S POTENTIAL
The Education for Innovation Initiative

Science Roundtable
Science-Higher Education Forum
Computer Systems Policy Project
Council on Competitiveness
Innovation Technology Association of America
Innovation Technology Industry Council
Industry Business Roundtable
National Association of Manufacturers
National Defense Industrial Association
Semiconductor Industry Association
Science & Information Industry Association
Technet
Telecommunications Industry Association
U.S. Chamber of Commerce

GOAL:
Double the number of science, technology,
engineering and mathematics graduates by 2015



Report of the National Intelligence Council's 2003 Project
Based on Consultations with International Leaders Across the World

**THE KNOWLEDGE ECONOMY:
IS THE UNITED STATES LOSING IT'S
COMPETITIVE EDGE?**



BENCHMARKS OF OUR INNOVATION FUTURE

February 16, 2006

THE REPORT OF THE TASK FORCE
ON THE FUTURE OF AMERICAN INNOVATION

www.knowledgework.com

Alfred P. Sloan Foundation, AEA, American Chemical Society, American Electroplating Association, American Mathematical Society, American Physical Society, Association of American Universities, Computing Research Association, Computing Technology Industry Association, Computing Systems Policy Project, Council on Competitiveness, Howard Packard, Intel, Lucent, Materials Research Society, Microsoft, National Association of Manufacturers, NAEF/ACC, The Science Culture, Semiconductor Industry Association, Southern Universities Research Association, Texas Instruments

**OFFSHORE OUTSOURCING AND
AMERICA'S COMPETITIVE EDGE:
LOSING OUT IN THE HIGH
TECHNOLOGY R&D AND SERVICES
SECTORS**



OFFICE OF SENATOR
JOSEPH I. LIEBERMAN
May 11, 2004

**Keeping America
Competitive**

How a Talent Shortage Threatens
U.S. Manufacturing



INNOVATE AMERICA

December 2004

**Report on Industry Views Towards:
Categories of Innovative and Potentially
Disruptive Advanced Manufacturing
Technologies**

April 2005

Prepared by:
The National Council for Advanced Manufacturing
NACFAM

2000 L Street, NW
Suite 807
Washington, DC 20036
www.NACFAM.org

National Innovation Act



Title 1 – Innovation Promotion

- President's Council on Innovation
- Innovation Acceleration Grants
- Basic Research Commitment
- Regional Economic Development
- Advanced Manufacturing Systems
- Study on Service Science

Title II – Modernization of Science, Education and Healthcare

- Graduate Fellowships and Traineeships
- Professional Science Master Degree Programs
- Science Education
- Innovation Based Experiential Learning
- 21st Century Healthcare System

National Innovation Act



Title III – Incentives for Encouraging Innovation

- Permanent Extension of Research Credit
- Increased Rates of Alternative Research Credit
- Alternative Simplified Credit for Research
- Study on Catastrophic Healthcare
- Life Long Learning Accounts
- Private Foundation Support of Innovation
- Valuation of Intangibles

Title IV – Department of Defense

- Frontier and Multidisciplinary Research
- Enhancement of Education
- Manufacturing R&D
- Transformational Mfg. Processes
- Manufacturing Technology Strategies
- Planning for Strategic Innovation
- \$300 million authorization

National Innovation Act



Title V – Judiciary and other Matters

- Retaining high tech talent
- Study on barriers to Innovation
- Patent Reform

Major Advocacy Effort Underway

Innovate America



WHERE IN THE WORLD WILL THE NEXT BIG IDEA COME FROM?

The United States has long been the acknowledged world leader in innovation, a strength that is the foundation of America's national security and economic growth. But today, other countries are building world class research and educational institutions and are graduating increasingly qualified science and engineering students at a faster pace than ever before.

Make no mistake: The search for scientific breakthroughs and new technologies will go on whether we lead or follow. To remain at the vanguard in that quest, our country must increase investments in science research, provide incentives for research and development, and increase support for math and science education.

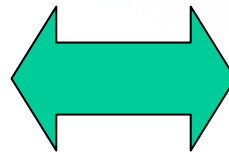
We support the President's State-of-the-Union (name) initiatives and ask Congress to help keep America the world leader in innovation.



***Macro Policies for
Innovation***

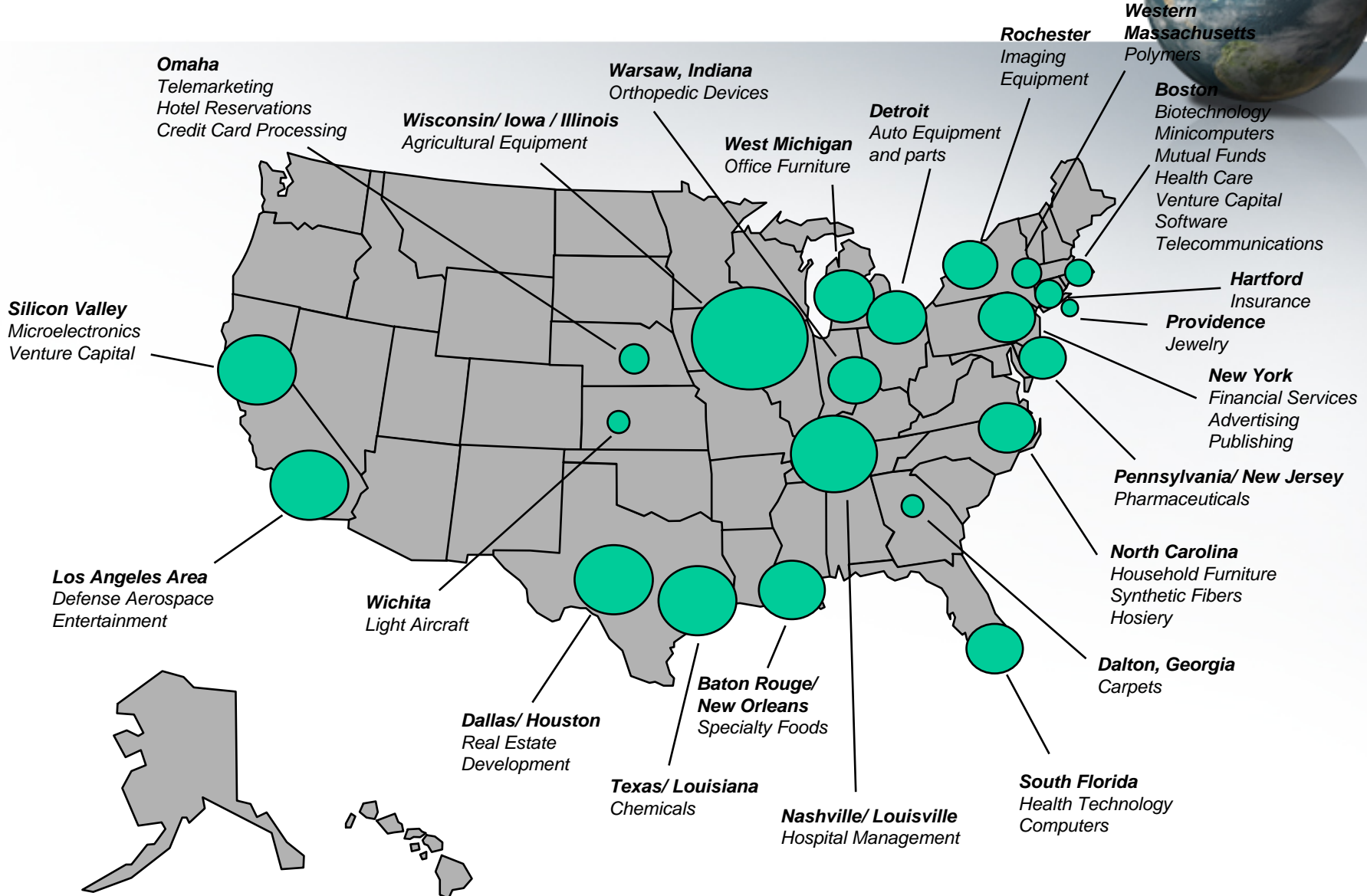
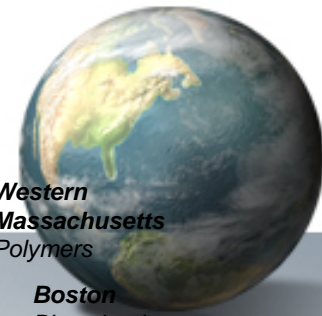


***Improving the
innovation
process and
ecosystem***



***Driving job
creation
through powerful
regional strategies***

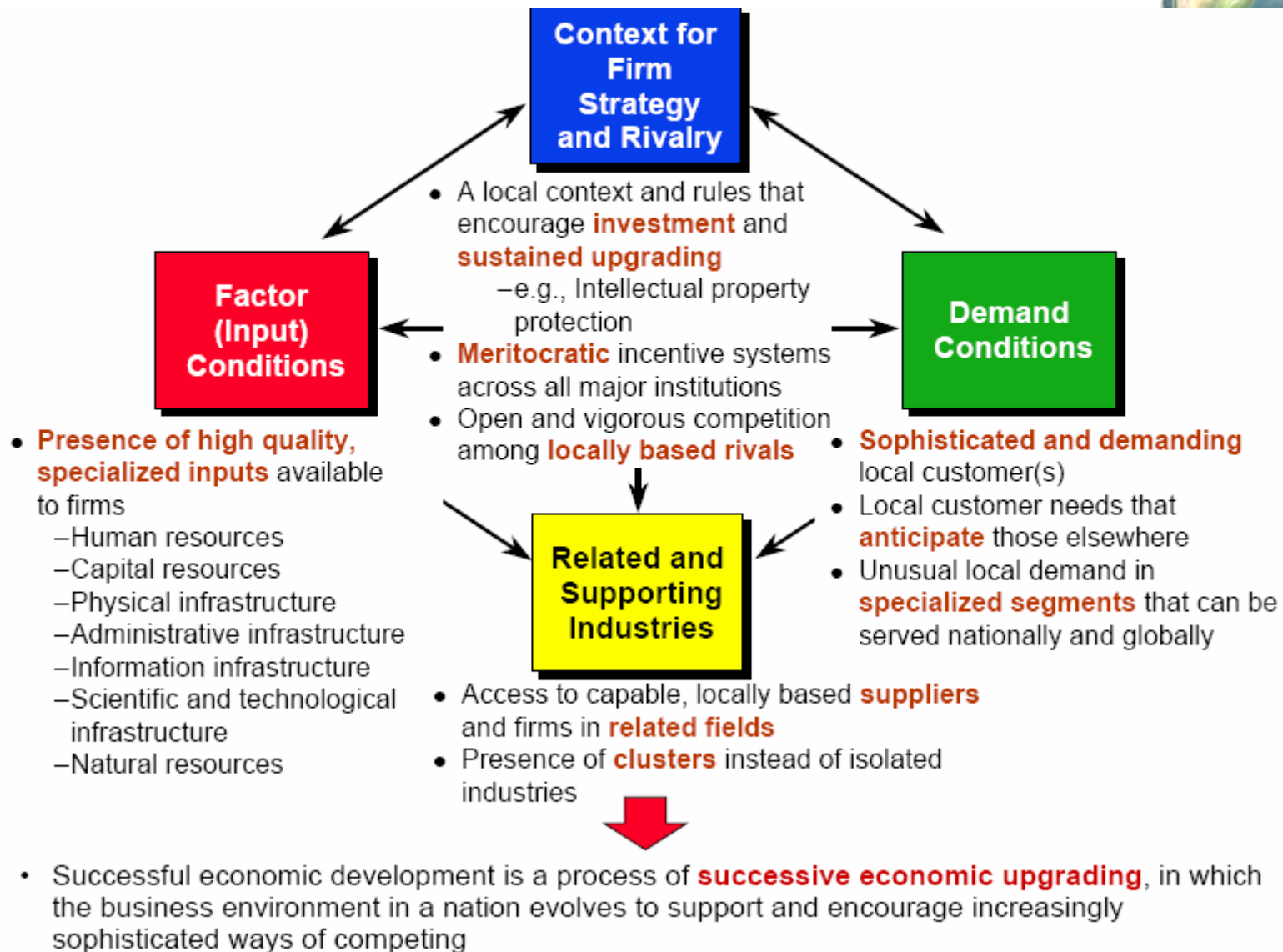
Selected Regional Clusters of Competitive Industries



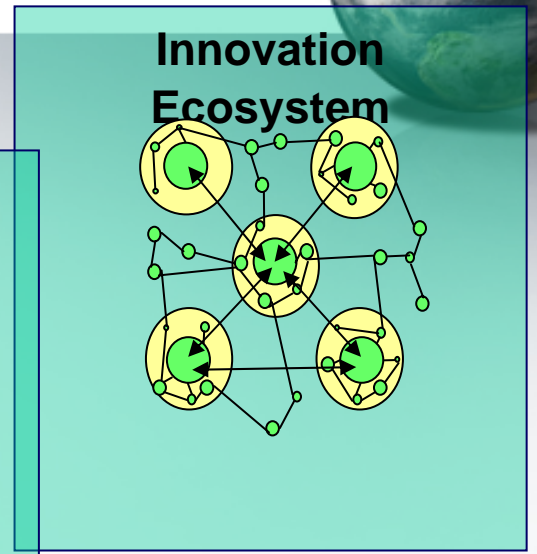
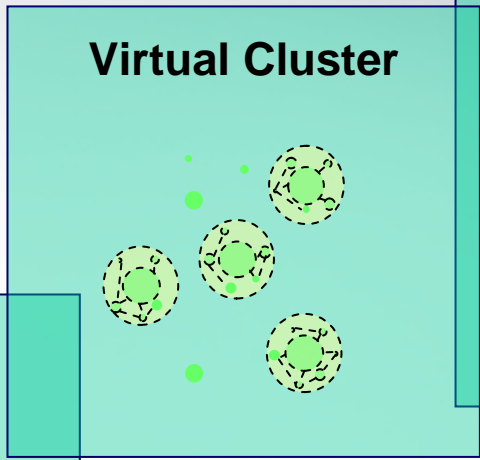
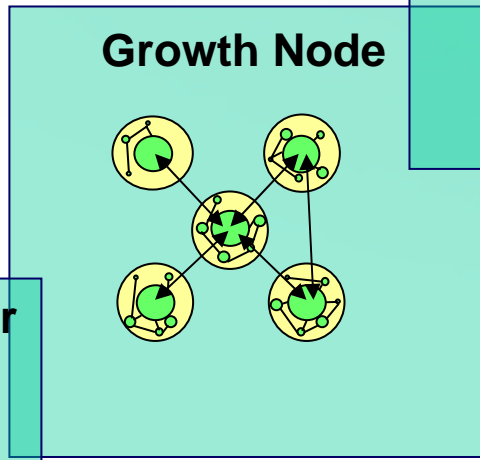
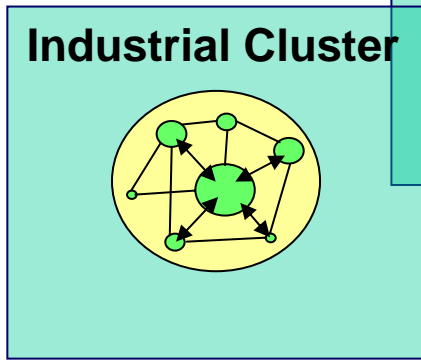
Silicon Valley Region

**World's
Technology
Capital**





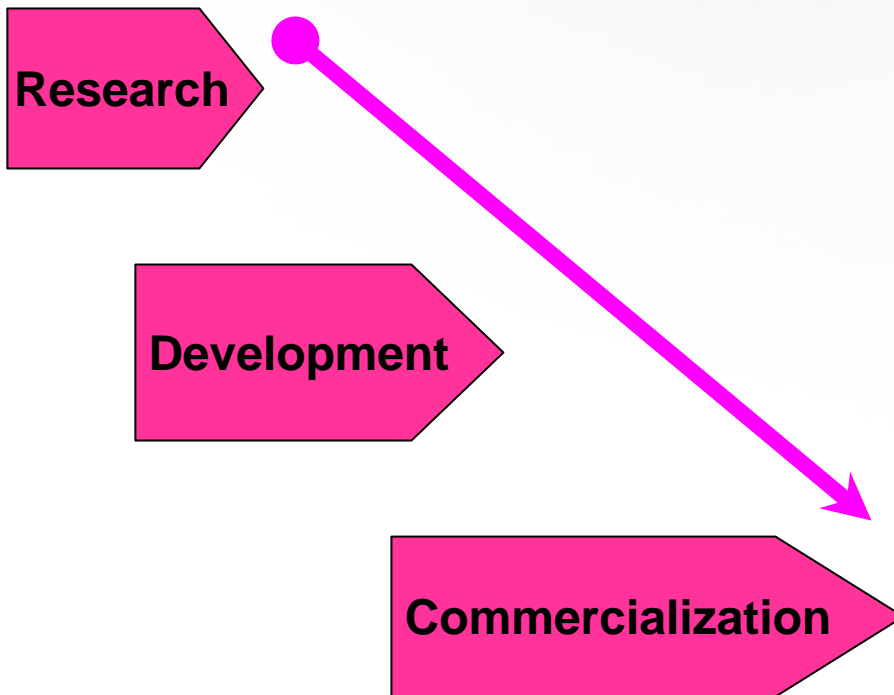
Evolution of Innovation Networks



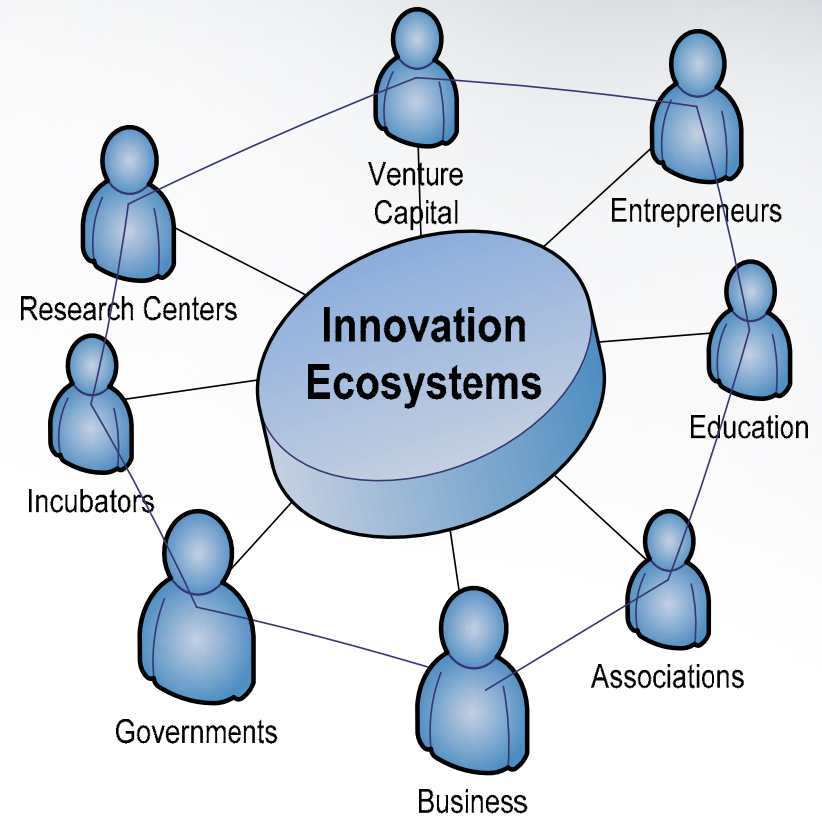
Toward a New Innovation Model

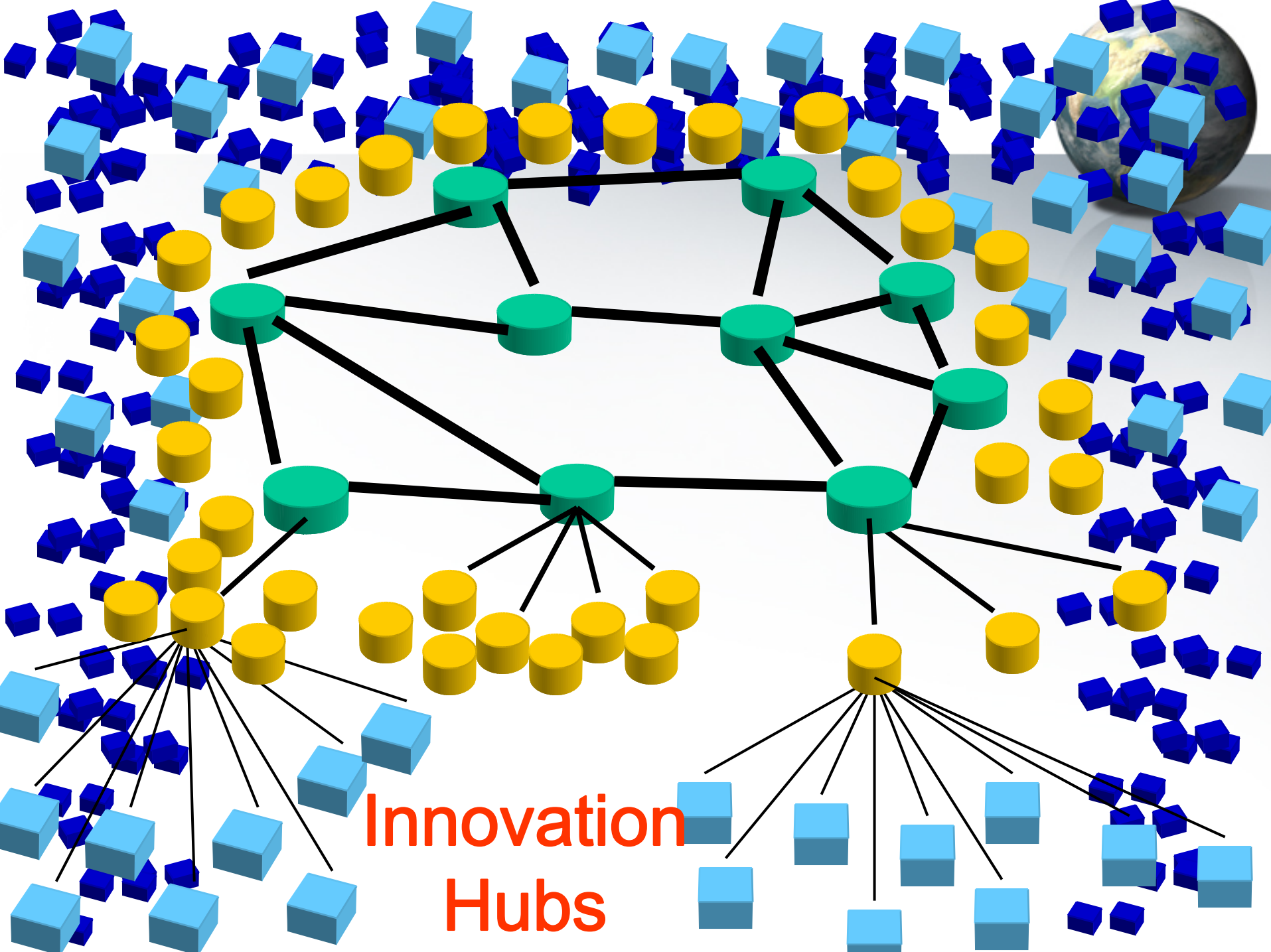


Linear Model

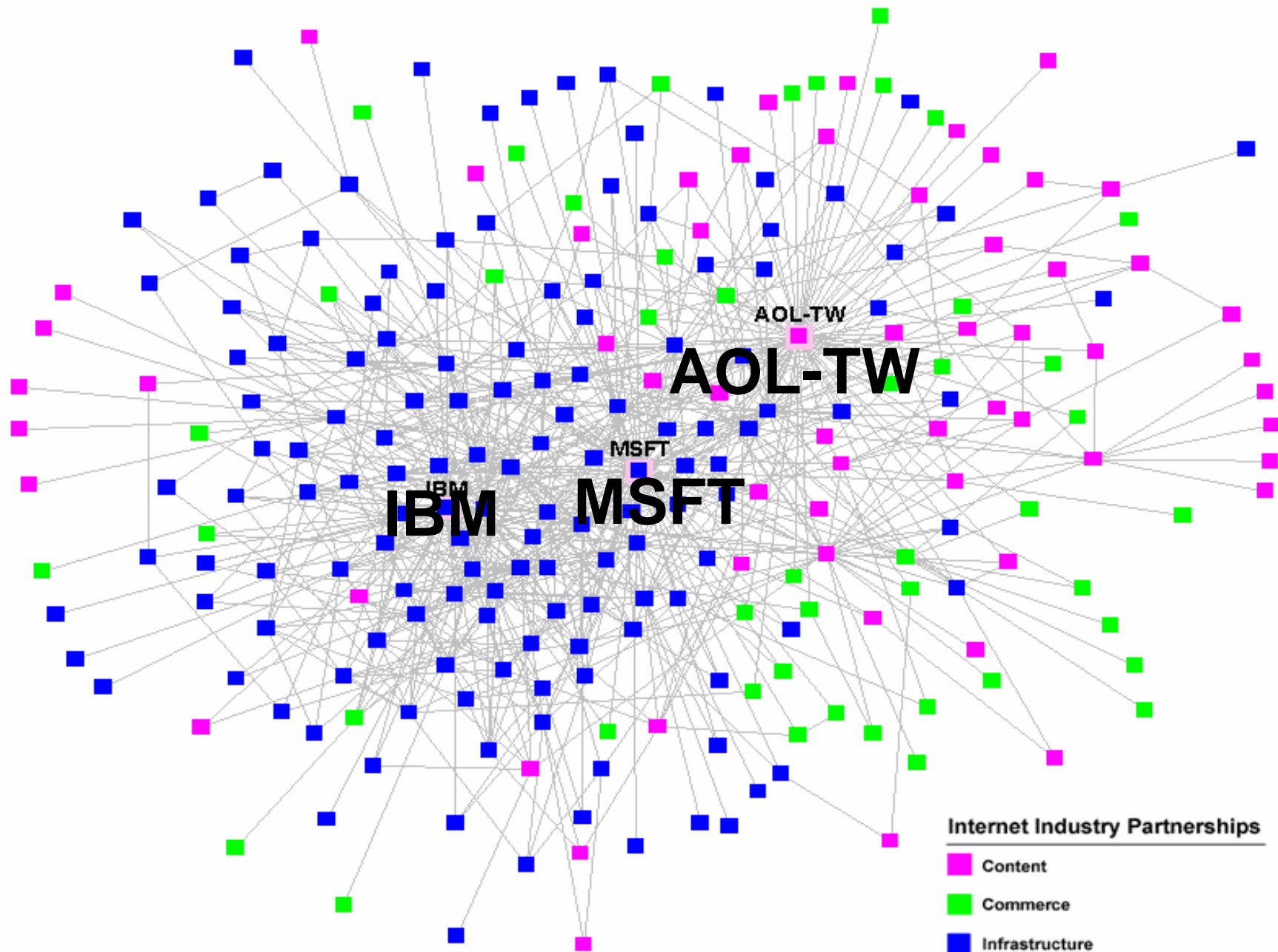


Dynamic Ecosystem





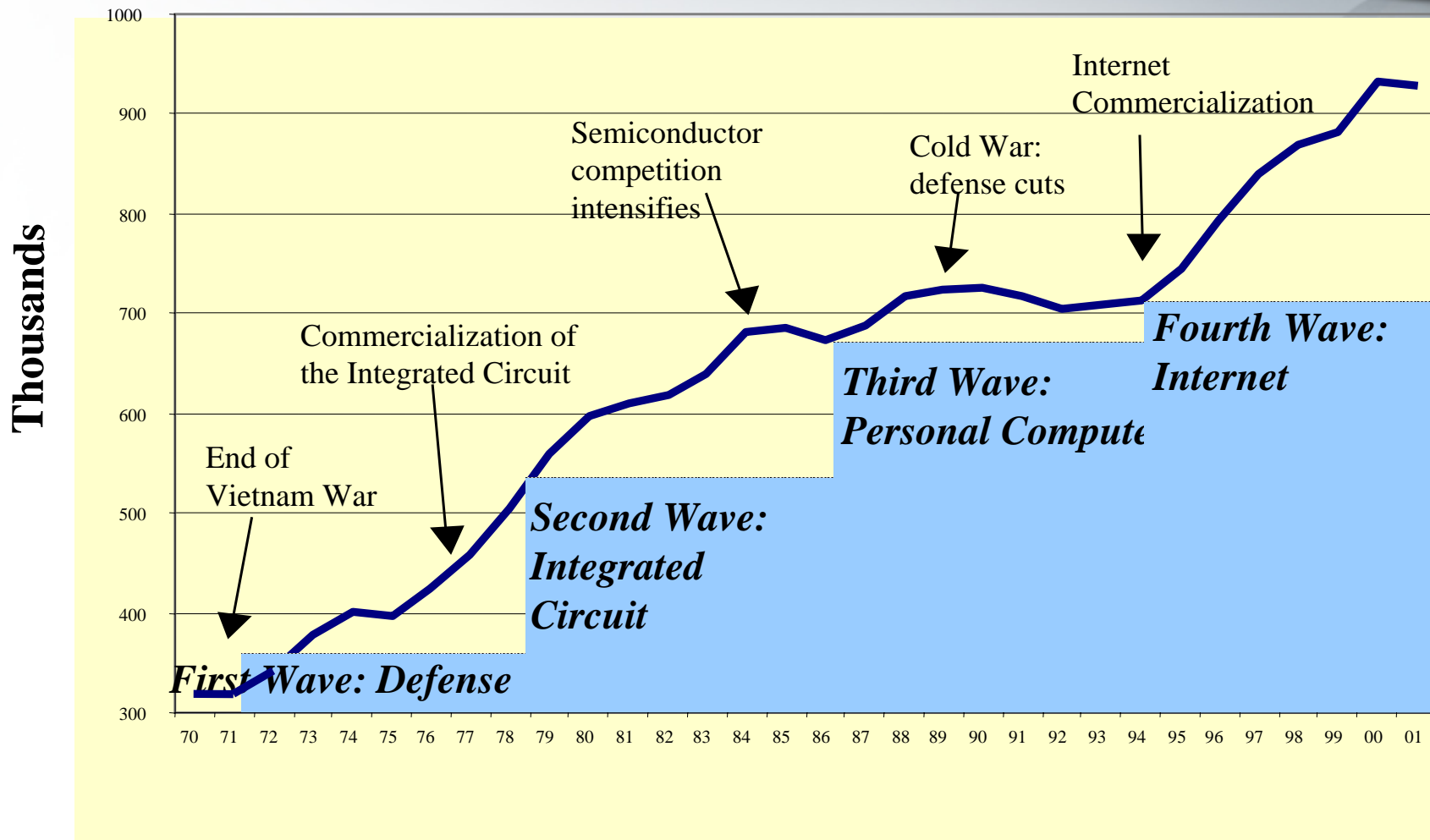
**Innovation
Hubs**



Internet Industry Partnerships

- Content
- Commerce
- Infrastructure

Silicon Valley Employment Waves: Adaptive Pattern



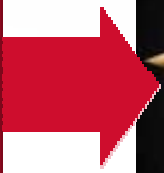
Source: Doug Henton, Collaborative Economics



Public Policy



Supply



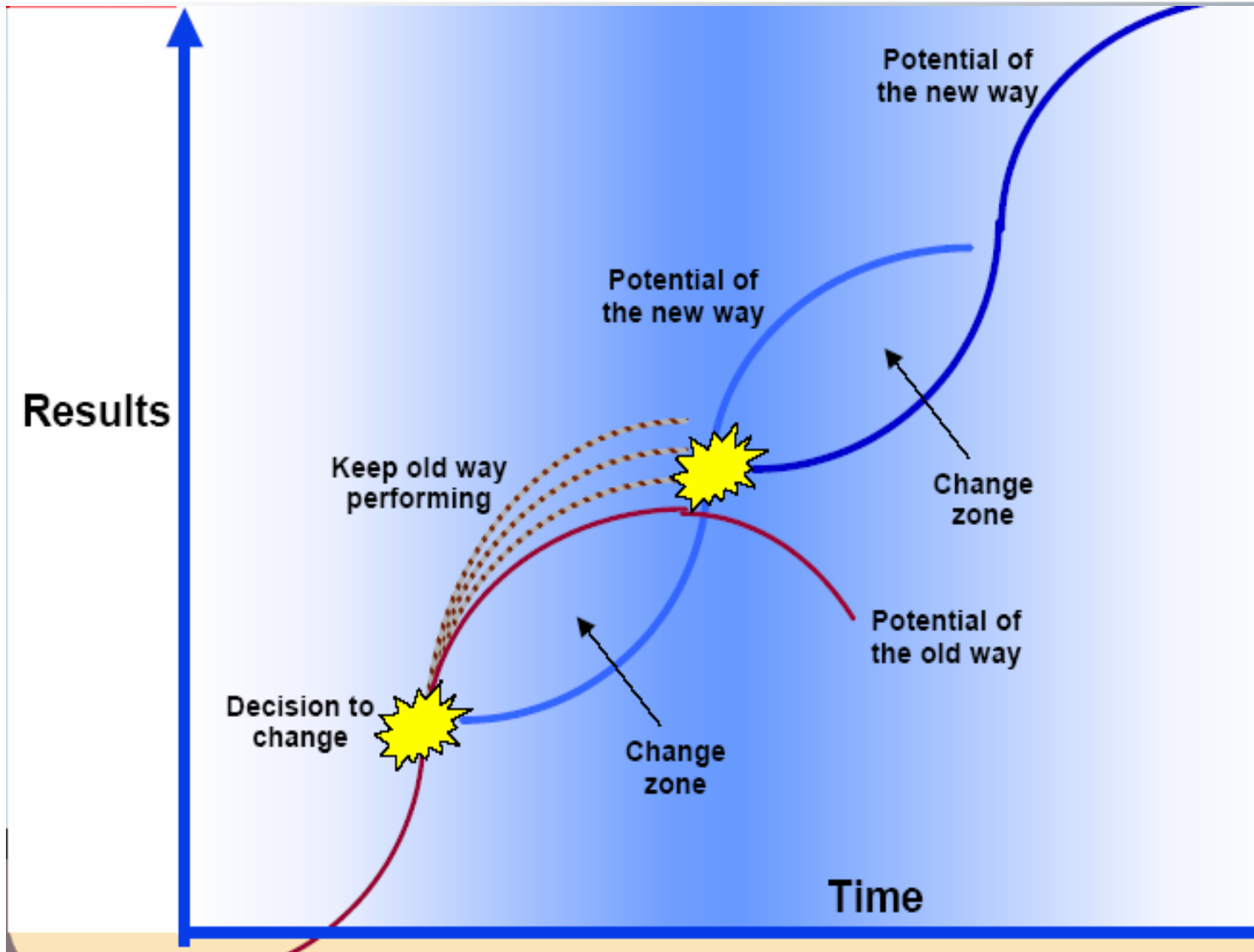
Demand



Infrastructure

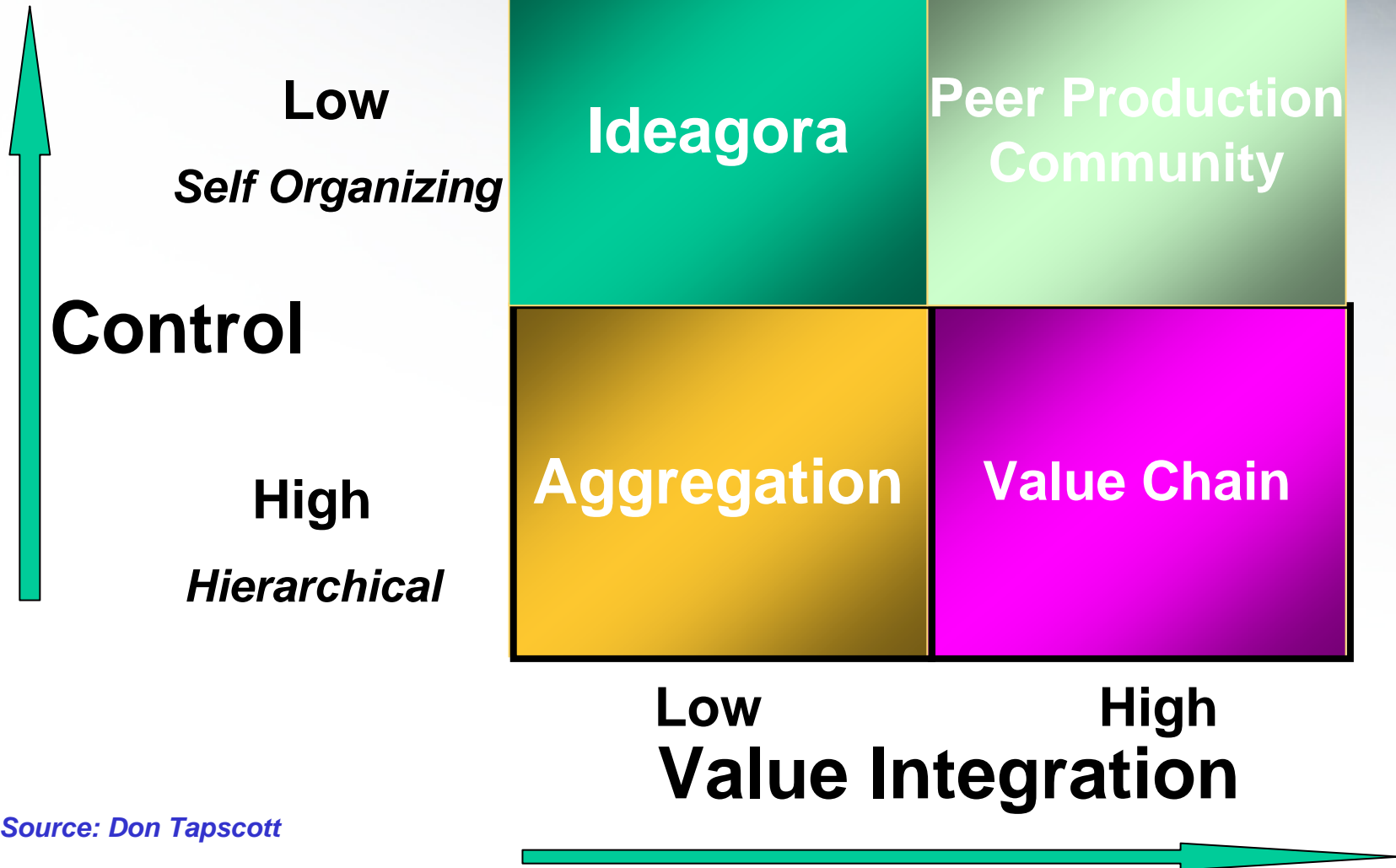


Inflection Points



Source: Gartner Group

Collaboration Taxonomy



Source: Don Tapscott

Customers as Co-Creators



Firm-Customer Interaction

- Interaction is the locus of economic value *extraction*
- Markets are forums for value exchange

The Firm
Creates Value

The Market
Exchange of Value

The Customer
Target of Firm's
Offerings

Firm-Customer Interaction

- Interaction is the locus of *co-creation* of value and value extraction
- Markets are forums for *co-creation of experiences*

The Firm:

Collaborator in co-creating value
Competitor in extracting value

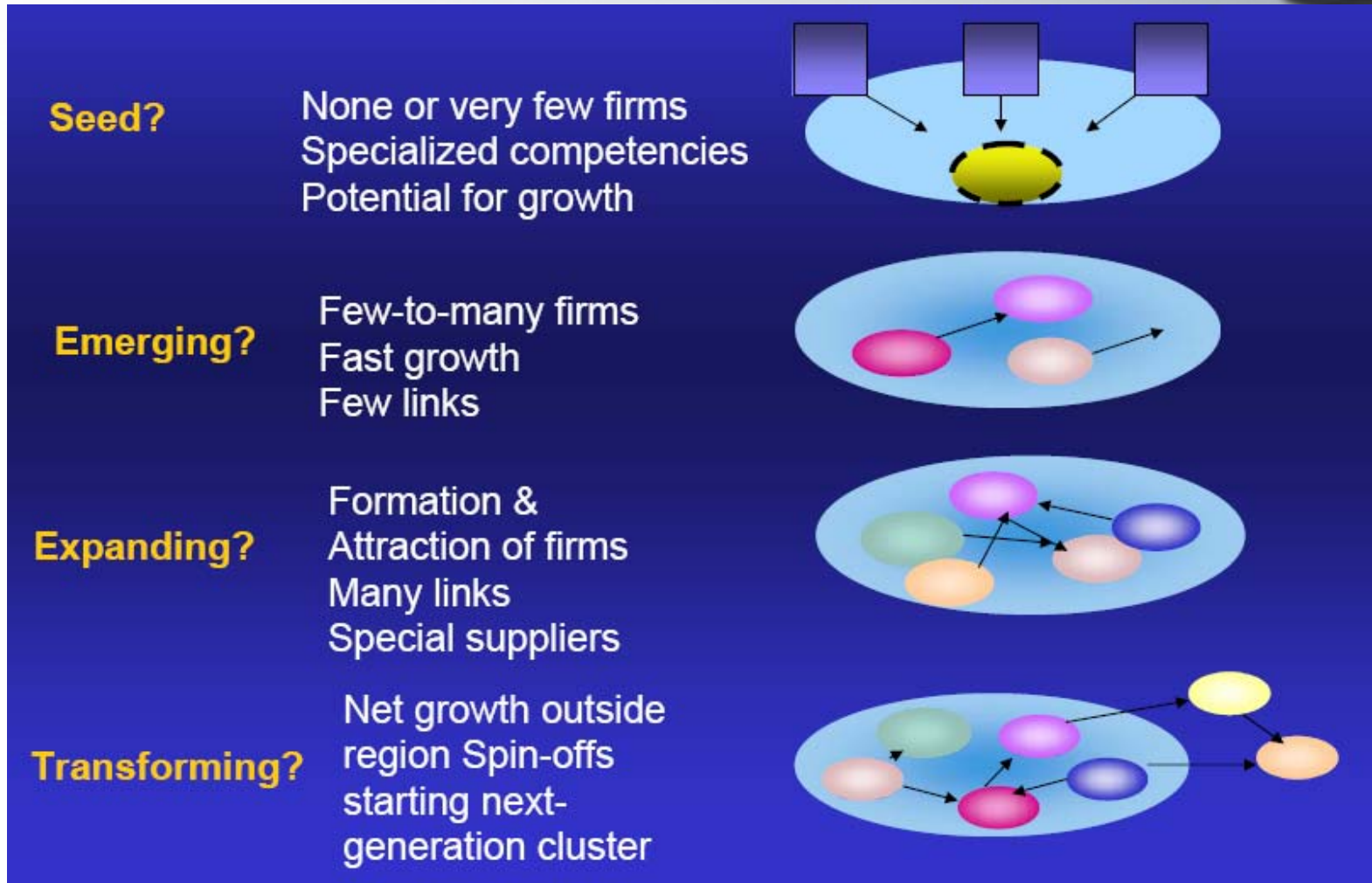
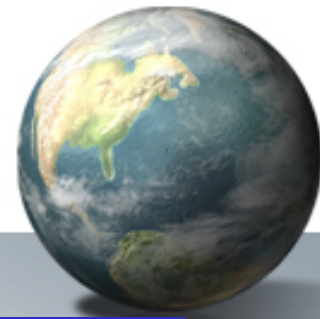
The Market:

Co-creation Experiences
of Unique Value

The Customer:

Collaborator in co-creating value
Competitor in extracting value

What Stage Is Your Innovation Ecosystem In?



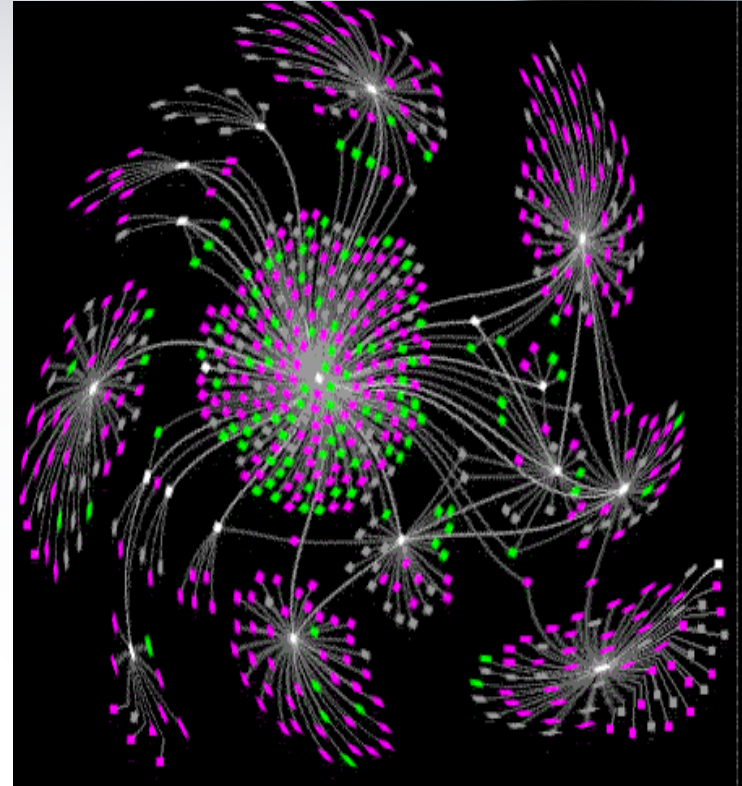
Action Implications



Don't pick winners: foster a habitat for innovation and avoid strategic industry lock-in

Architect the innovation ecosystem, not just the inputs

- **Map nodes and linkages**
- **Access external innovation sources**
- **Build a sensing network**
- **Pursue lab to market financing**
- **Break down barriers to collaboration**
- **Adapt digital support tools**
- **Leverage policies for rapid commercialization**
- **Develop and retain creative talent**





DISCUSSION