



40 Years of innovation policy: what's next?

24-25 March 2015

'House of Research', Sensengasse 1, A-1090 Vienna

Fred Block, U.C. Davis

Lessons from the Now-Less-Hidden

U.S. Developmental State

Key Elements

- Tens of thousands of daily collaborations between industry technologists and publicly funded scientists
- In federal laboratories and on university campuses

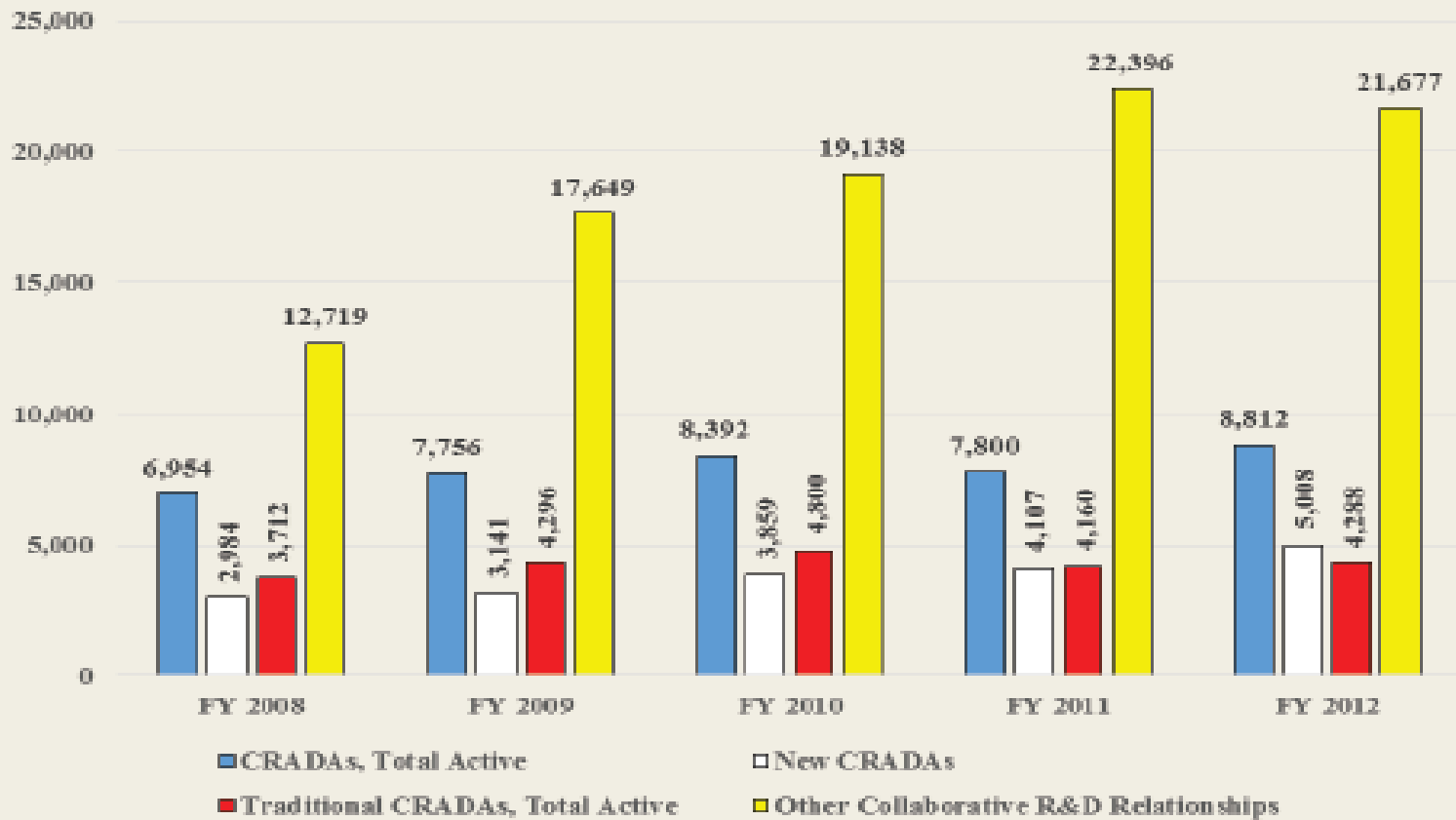
Many different programs:

- Cooperative research and development agreements, work for others, facilities agreements at federal labs
- Engineering Research Centers, Industry-University Cooperative Research Centers on campuses
- Small Business Innovation Research grants

One example

- Work for others at the DOE laboratories
- Between 2009 and 2012, 927 firms bought services including 224 of the Fortune 1000
- Some contracts worth more than a million dollars per year

Federal Collaborative R&D Relationships



| | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>FY 2012</u> |
|--|----------------|----------------|----------------|----------------|----------------|
| CRADAs, Total Active | 6,954 | 7,756 | 8,392 | 7,800 | 8,812 |
| New CRADAs | 2,984 | 3,141 | 3,859 | 4,107 | 5,008 |
| Traditional CRADAs, Total Active | 3,712 | 4,296 | 4,800 | 4,160 | 4,288 |
| Other Collaborative R&D Relationships | 12,719 | 17,649 | 19,138 | 22,396 | 21,677 |

Rechargeable Revolution: A Better Battery

Scientists are reinventing rechargeable cells to drive down costs and boost capacity.

SEE ▶



Featured in the *Journal Nature*

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Video: Employee Spotlight
Chemical Engineer and Postdoctoral Researcher Damla Eroglu seeks to create new breakthrough energy storage technology. [Learn more »](#)



JCESR Accomplishments
JCESR Director, George Crabtree, published a detailed description of JCESR accomplishments. [Learn more »](#)

May 4

Events
2nd Annual JCESR Affiliate Workshop
Chicago Innovation Exchange

June 4

Chicago Regional Event
Chicago Innovation Exchange

Current Affiliates

Current Affiliates Include:

3M Energetics Inc.

4M Technologies, Inc.

Abemarle

AlCell Technologies

Ammeron

Battery Innovation Center

Esstech

California Clean Energy Fund

Carnegie Mellon University

Case Western Reserve University

Center for Electrical Energy Storage (CEES) – EFRC

Center for Electrocatalysis, Transport Phenomena, and Materials for Innovative Energy Storage (CETM) – EFRC

Ceramatec

Chevron

Chicago Innovation Exchange

City of Evanston

ComEd

National Network for Manufacturing Innovation

Each institute will leverage and expand the industrial, research, and institutional strengths of the region in which it is located. The focus of each unique Institute will be determined through a competitive application process, but all will concentrate on adopting, refining, and applying promising emerging technologies or processes.

The NNMI and its institutes are designed to scale-up the production of these technologies and processes.

For Immediate Release

FACT SHEET: National Network for Manufacturing Innovation - Institute List

Name: IACMI
(Institute for Advanced Composites Manufacturing Innovation)
Location: Knoxville, TN
Focus Area: Advanced fiber-reinforced polymer composites
Date Announced: 1/9/2015
Director: Craig Blue
Founding Organization: University of Tennessee, Knoxville
Federal Partner: Department of Energy
Funding: Federal \$70M, Matching \$180M

Name: DMDII
(Digital Manufacturing & Design Innovation Institute)
Location: Chicago, IL
Focus Area: Integrated digital design and manufacturing
Date Launched: 2/25/2014
Director: Dean Bartles
Founding Organization: UI Labs
Federal Partner: Department of Defense
Funding: Federal \$70M, Matching \$106M

In Progress

Name: Flexible Hybrid Electronics
Federal Partner: Dept. of Defense
Funding opportunity posted: 1/23/15,
due 5/29/15

Name: Smart Manufacturing
Federal Partner: Dept. of Energy
Notice of intent posted: 12/11/14

Name: Integrated Photonics Institute
Federal Partner: Dept. of Defense
Funding opportunity posted: 11/5/14,
closed 12/19/14

Name: LIFT (Lightweight Innovations for Tomorrow)

Location: Detroit, MI

Focus Area: Lightweight technology

Date Launched: 2/25/2014

Director: Larry Brown

Founding Organization: EWI

Federal Partner: Department of Defense

Funding: Federal \$70M, Matching \$78M

Name: PowerAmerica

Location: Raleigh, NC

Focus Area: Wide bandgap semiconductors

Date Announced: 1/15/2014

Director: Major General Nicholas G. Justice (USA, ret.)

Founding Organization: North Carolina State University

Federal Partner: Department of Energy

Funding: Federal \$70M, Matching \$70M

Name: America Makes

Location: Youngstown, OH

Focus Area: Additive manufacturing

Date Launched: 8/16/2012

Director: Ed Morris

Founding Organization: National Center for Defense Manufacturing and Machining

Federal Partner: Department of Defense

Funding: Federal \$50M, Matching \$39M

Announcing a.....

Directed Project Opportunity

Additive Manufacturing of Heat Exchangers
for Propulsion Applications

**America Makes**

Up to Two Awards
Approximately \$1M each
Each are Anti-

[Learn More](#) →



When America Makes, America Works

America Makes is the National Additive Manufacturing Innovation Institute. We are helping the United States grow its strength in 3D printing, also known as additive manufacturing, by fostering collaboration in design, materials, technology, and more.

GOLD MEMBERS

Air Force Research Laboratory

Allegheny Technologies Incorporated

AMT - The Association For Manufacturing Technology

Applied Systems and Technology Transfer, Inc. (AST2)

ASME

Booz Allen Hamilton

Carnegie Mellon University

Case Western Reserve University

Concurrent Technologies Corporation

DANTE Solutions, Inc.

Eaton Corporation

ESI North America, Inc.

ExOne Company

General Electric Company (GE)

Grid Logic Incorporated

Johnson & Johnson Global Supply Chain

Johnson Controls, Inc.

Lawrence Livermore National Lab

Lincoln Electric Company



DMDII
DIGITAL MANUFACTURING AND
DESIGN INNOVATION INSTITUTE

+ a **UI LABS** Collaboration

WHAT IS THE Digital Manufacturing and Design Innovation Institute (DMDII)?

Chicago-based UILABS was awarded \$70 million from the U.S. Department of Defense (DoD) to fund the Digital Manufacturing Design Innovation Institute (DMDII). This award is leveraged by commitments of approximately \$250 million from industry, academic, government and community partners.

The DMDII is the nation's flagship research institute for applying cutting-edge digital technologies to reduce the time and cost of manufacturing, strengthen the capabilities of the U.S. supply chain, and reduce acquisition costs for DoD. The DMDII will both develop and **demonstrate** digital manufacturing technologies and deploy and commercialize these technologies across key manufacturing industries.

Digital manufacturing is the use of an **integrated**, computer-based system comprised of simulation, **three-dimensional** (3D) visualization, analytics and various **collaboration** tools to create product and manufacturing process definitions simultaneously. Design innovation is the ability to apply these technologies, tools and products to re-imagine the entire manufacturing process from end to end. The **headquarters** of the DMDII will be housed in Chicago at the Digital Lab for Manufacturing, located on Goose Island.

DMDII PARTNERS

UILABS brought together more than 40 industry partners, and 30+ academic, government and community partners, and an additional 500+ supporting companies and organizations to launch the DMDII. Founding industry partners include General Electric, Rolls-Royce, Procter & Gamble, Dow, Lockheed Martin, Siemens, Boeing, Deere, Caterpillar, Microsoft, Illinois Tool Works, and PARC, among many others. University and government partners are regionally anchored in the Midwest, spanning Illinois, Indiana, Iowa, Wisconsin, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Carolina, North Dakota, Ohio, New York, Pennsylvania, and Virginia.