

COLLABORATION FOR ADVANCED MANUFACTURING TALENT DEVELOPMENT

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ManufacturingTDI

 Manufacturing Talent Development Institute



Key Issues

We lose good, talented manufacturing workers due to the misperceptions of modern manufacturing

- **The U.S. needs 400,000 new graduates in STEM fields by 2015.**
- **Jobs in traditionally American-led industries outside of science & technology such as farming, health care, and finance require a strong knowledge of STEM.**
- **We need to cultivate the next generation of innovators and big thinkers**
- **Less than 20% of Americans said that their parents or their school system encouraged them to pursue a career in manufacturing.**
- **When asked what industry they would choose if they could start their careers today, manufacturing was near the bottom**

Did you know.....

Taken alone, manufacturing in the United States would be the 8th largest economy in the world.

- ❑ **Manufacturers contributed \$2.03 trillion to the economy.**
- ❑ **For every \$1.00 spent in manufacturing, another \$1.32 is added to the economy.**
- ❑ **Manufacturing supports an estimated 17.4 million jobs in the United States—about one in six private-sector jobs.**
- ❑ **Manufacturers in the United States perform two-thirds of all private-sector R&D.**
- ❑ **The NAM Manufacturing Institute estimates that there are currently 600,000 unfilled manufacturing jobs in the U.S. due to the skills gap**

Florida Manufacturing

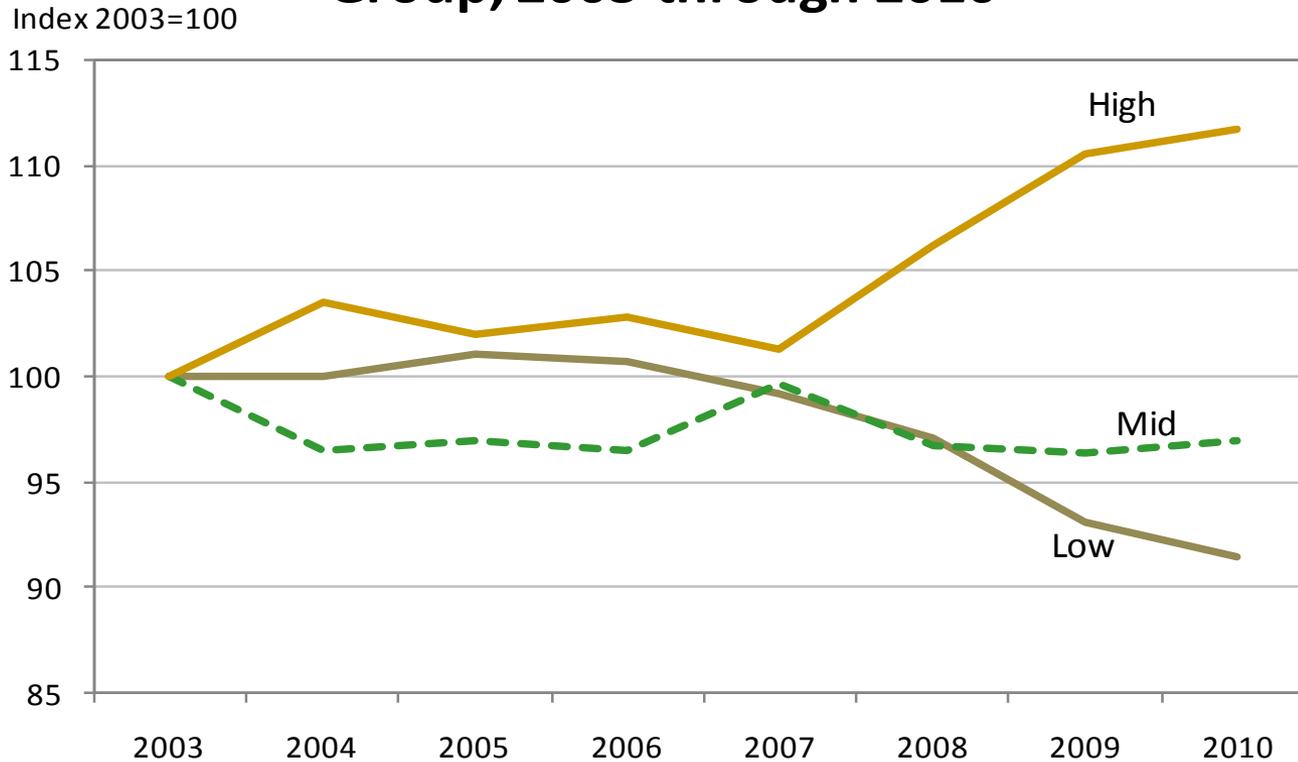
According to the Manufacturing Association of Florida, there are 6000 manufacturing jobs open in Florida today

- ❑ **Florida's advanced manufacturing industries are diverse and include sectors producing both intermediate and finished products**
- ❑ **Florida is home to over 18,000 manufacturers**
- ❑ **Employing some 311,000 workers, which equates to ~4.9% of the workforce**
- ❑ **Average Annual Wage in Florida Manufacturing is \$53,286**
- ❑ **Florida manufacturing contributes 5% of the state's GDP**

Manufacturing Jobs Require Higher Skills

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Manufacturing Employment by Skill Group, 2003 through 2010



Sources: Chmura Economics & Analytics and Current Population Survey.

Why – Talent Development?

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Employers need qualified (skilled) workers

Need to replace retiring workers (~25% are ≥ 55)

High Schools, Technical Centers, & College programs can close the gap

Alignment needed on academic and non-credit sides

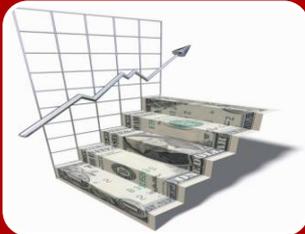
The technology used in modern manufacturing demands higher skills and knowledge

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**Statewide resource for
cutting-edge talent
development**



**Promote and support
Economic Development**

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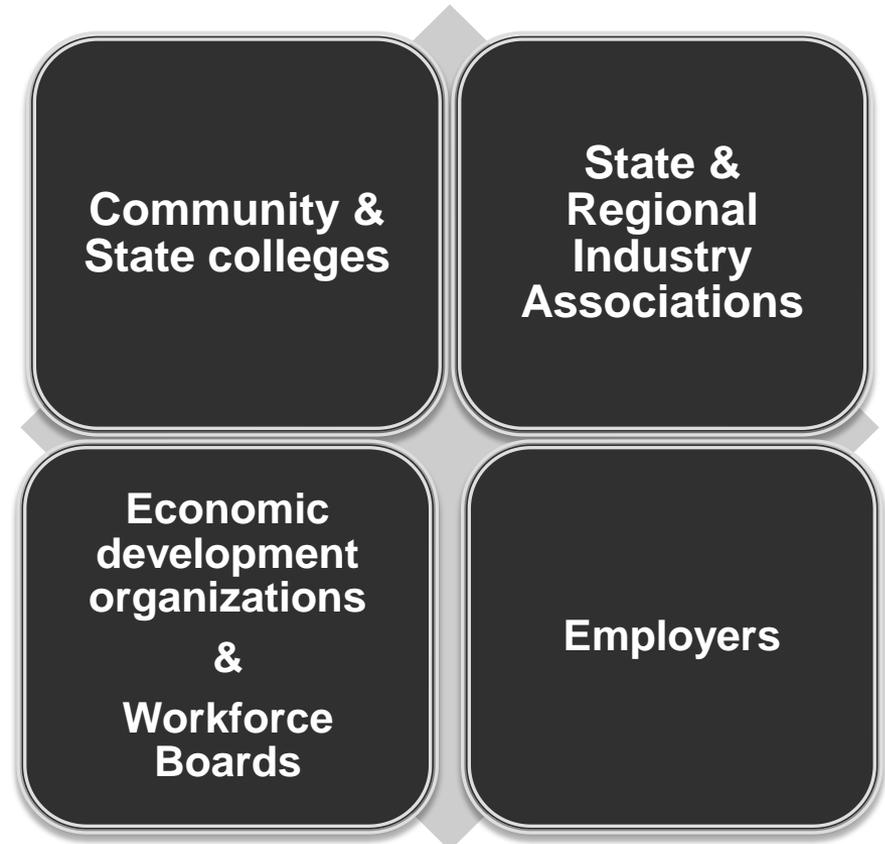
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ManufacturingTDI Guidance and Governance

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Public-Private Consortium

- **Statewide nexus for industry knowledge related to workforce needs**
- **Develop and deliver industry-driven workforce development products**
- **Support pipeline development needs**
- **Expand dissemination of solutions/products**
- **Promote and support economic development**
- **Seed funded with revenue streams to become self-sustaining**



Roadmap to Talent

- Integrated academic and technical learning paths
- More available alternatives for learning, with more “on” and “off” ramps to higher education and lifelong learning systems to acquire new skills as technology advances
- The integration of nationally portable, industry-recognized credentials with educational pathways, leading to postsecondary credentials with real value in the workplace
- A heightened focus on Science, Technology, Engineering and Math skills



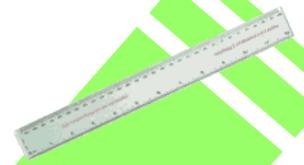
State DOE

- Curriculum Framework revisions
- Coordination w/ Com. Colleges
- Implementation of CAPE
- Partnership with DOE
- Apprenticeship Programs



Workforce (DOL)

- Funding (IWT & EWT)
- Statewide needs
- Partnerships with DOE
- CareerSource Florida



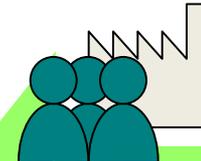
External Benchmarks

- Industry Certifications
- MSSC/SME/APICS/NIMS
- Industry standards



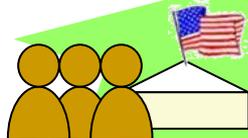
C.C. Academic Programs

- Articulations
- Curriculum Frameworks
- 1+1 programs
- Statewide Marketing
- Outreach



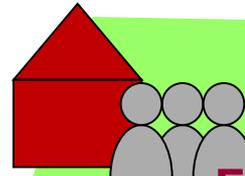
Manufacturers/ Employers

- Employer needs/skills gap
- One voice
- Regional Manufacturing Associations
- Incumbent training
- Outreach
- Support (time, \$, talent)



School Districts

- Rigor & Relevance
- Articulation
- Career Academies
- Perkins Accountability
- Industry Certifications



Four-Year Institutions

- Academic & Continuing Ed.
- Alignment / Progression
- Effective Transferability
- 21st Century Skills

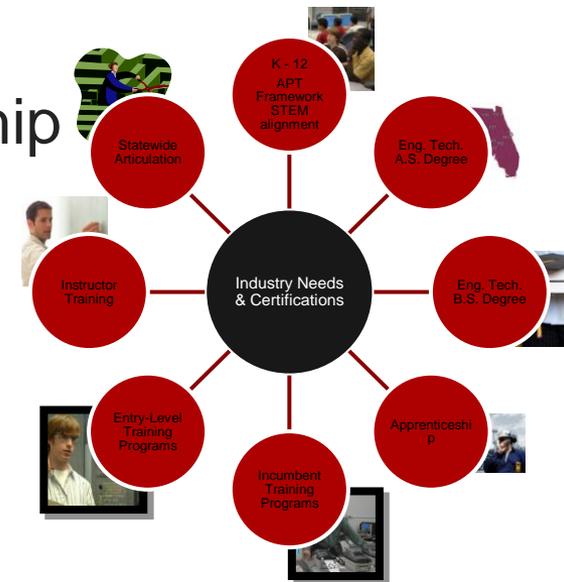
C.C. Workforce Training

- Alignment
- Articulation
- Industry Certifications
- Rapid Response
- Short-term

Florida's Unified Educational Pathways

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- Industry Certification alignment and Statewide certification-based Articulation Agreements
- Workforce Training Curricula
- Updated Secondary Career Academy Programs and Funding (CAPE Legislation)
- Updated Post-Secondary Adult Vocational (PSAV) Certificate programs
- Formal Competency-Based Apprenticeship Programs
- Updated & New Statewide AS degrees
- AS to BS & BAS Degree Pathways
- Train-the-Trainer Courses



| EDUCATION & TRAINING PATHWAY | | | CERTIFICATION PATHWAY | CAREER PATHWAY |
|---|---|--|---|--|
| MASTERS & PH.D. | | | | |
| BACHELORS - ENGINEERING | BACHELORS - ENGINEERING TECHNOLOGY | BACHELORS - OPERATIONS MANAGEMENT | | |
| ASSOCIATE IN SCIENCE – ENGINEERING TECHNOLOGY (60 Credit Hours)** <ul style="list-style-type: none"> Degree Specializations: Advanced Manufacturing, Adv. Technology, Alternative Energy, Biomedical Systems, Digital Design & Modeling Electronics, Mech. Design & Fabrication, and Quality 15 Short-term College Credit Certificate programs Year-1 Core aligned with the MSSC CPT to allow for industry certification articulated credit | | | <ul style="list-style-type: none"> (none – alignment with SME should be undertaken) | <ul style="list-style-type: none"> Manufacturing Engineer Manufacturing Technologist Management |
| REGISTERED APPRENTICESHIP PROGRAMS <ul style="list-style-type: none"> Adv. Mfg. Maintenance: EIA Technician & Mechanic/Millwright (Mosaic / Polk State) Machining (SFMA) | | | | |
| PSAV PROGRAMS (Offered by Technical Centers and/or FCS Colleges) <ul style="list-style-type: none"> APT, Applied Welding, Machining Technology | | | <ul style="list-style-type: none"> In process of integration into the ET Degree specializations: <ul style="list-style-type: none"> ISA CCST & ISAB4 Safety SME/ASQ/Shingo – Lean Bronze IFPS FPCT ASQ CQIA MSSC CPT * | <ul style="list-style-type: none"> Supervisor of Production Manufacturing Technician Engineering Technician Maintenance Technician Quality Technician |
| HIGH SCHOOL CTE & CAREER ACADEMIES <ul style="list-style-type: none"> CAPE Legislation: Industry Certification + Career Academy format + College Credit = Bonus FTE Funding Automation and Production Technology (APT) FRAMEWORK <ul style="list-style-type: none"> Specifically Aligned with MSSC CPT PLTW Programs <ul style="list-style-type: none"> PLTW + MSSC CPT integration Engineering Technology Programs <ul style="list-style-type: none"> STEM/ENG with MSSC CPT integration | | | <ul style="list-style-type: none"> MSSC CPT *, OSHA10, Rockwell Automation, IFPS NIMS | <ul style="list-style-type: none"> EIA (Electrical Instrumentation & Automation) Technicians Mechanical Millwright Machinist |
| | | | <ul style="list-style-type: none"> MSSC CPT* NCCER or AWS NIMS | <ul style="list-style-type: none"> Production Technicians Welders Machine Operators |
| | | | <ul style="list-style-type: none"> PLTW Solidworks Auto Desk MSSC CPT * | <ul style="list-style-type: none"> Assemblers Lift Operators Entry Level Operator |
| | | | <ul style="list-style-type: none"> RTW (NCR) | |

* Statewide Articulation Agreement – Attainment of certification results in 15 College Credit Hours toward the Technical Core of the Engineering Technology AS Degree

** 10 FCS Colleges - Polk State College, St. Petersburg College, State College of Florida, Hillsborough Community College, Brevard College, College of Central Florida, Florida Gateway College, Florida State College at Jacksonville, Pensacola State College, & Daytona State College

A HOMECOMING FOR US MANUFACTURING?

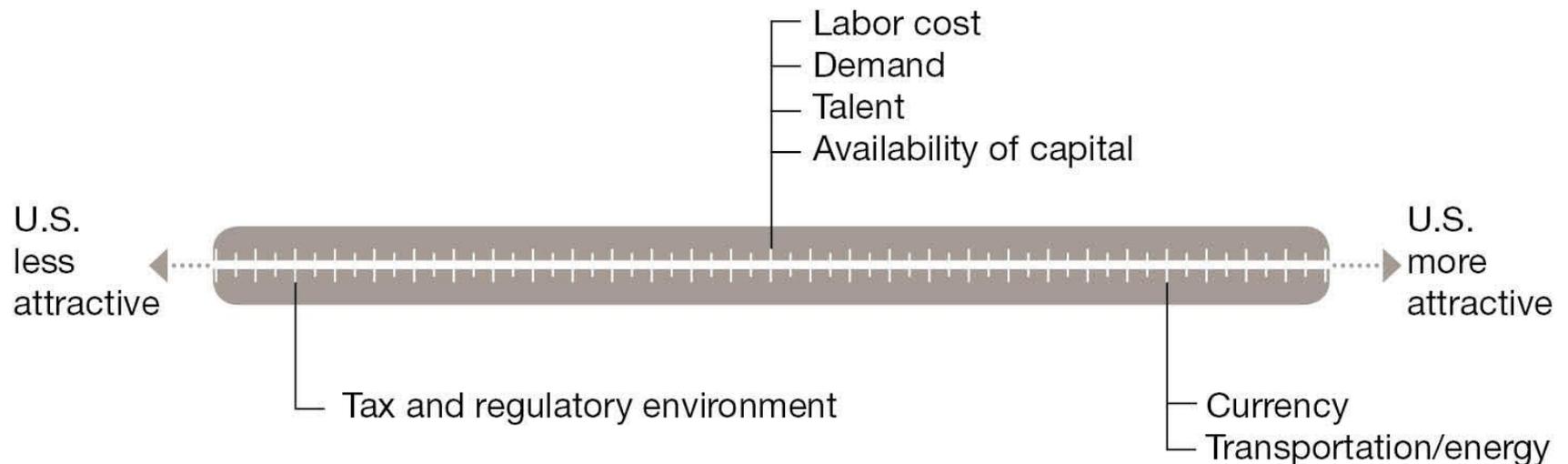
WHY A RESURGENCE
IN US MANUFACTURING
MAY BE THE NEXT BIG BET



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Factors driving a potential resurgence in US manufacturing

Summary of manufacturing attractiveness trends



Source: Census Bureau, Bureau of Transportation Statistics, Bureau of Economic Analysis, PwC Analysis

Factors US companies should consider when deciding on the right US reshoring and onshoring strategy

Just as multinational manufacturers have been eager to place their stake in the fast-growing markets in Asia-Pacific, Brazil, and Africa, some manufacturing companies are rethinking their US strategy, whether reshoring or locating new plants.



Transportation/Energy

Rising transportation fuel prices have made long supply chains costlier and will further favor local production if this trend persists as expected.



Labor Cost

Wages in China and other low-cost economies are forecast to keep rising, yet the US wage premium is still expected to be relatively high through 2016.



Demand

GDP per capita in the US is expected to continue to dwarf that of emerging markets through 2016, boding well for manufacturers selling to the US market.



Talent

The gap in higher education/training between the US and some emerging economies has narrowed, but the US workforce will likely remain competitive for the foreseeable future.



Availability of capital

As banks resume tightening of credit standards, companies are re-adjusting their appetite for tying up capital in the supply chain.



Tax and regulatory environment

There are proposals for tax reform, yet the uncertainty around taxes and the regulatory environment is not conducive to domestic expansion.



Currency

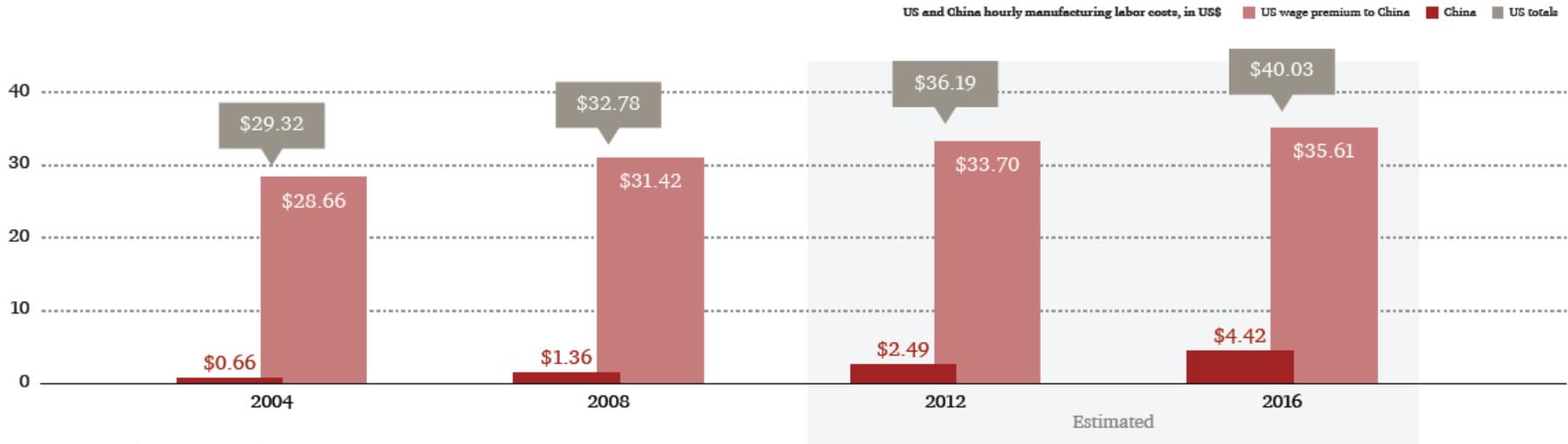
The depreciation of the US dollar has helped make the US a lower cost location for exports to some countries. Local production for local markets can help hedge currency volatility.

Source: Census Bureau, Bureau of Transportation Statistics, Bureau of Economic Analysis, PwC Analysis

Source: [A homecoming for US manufacturing?](#)

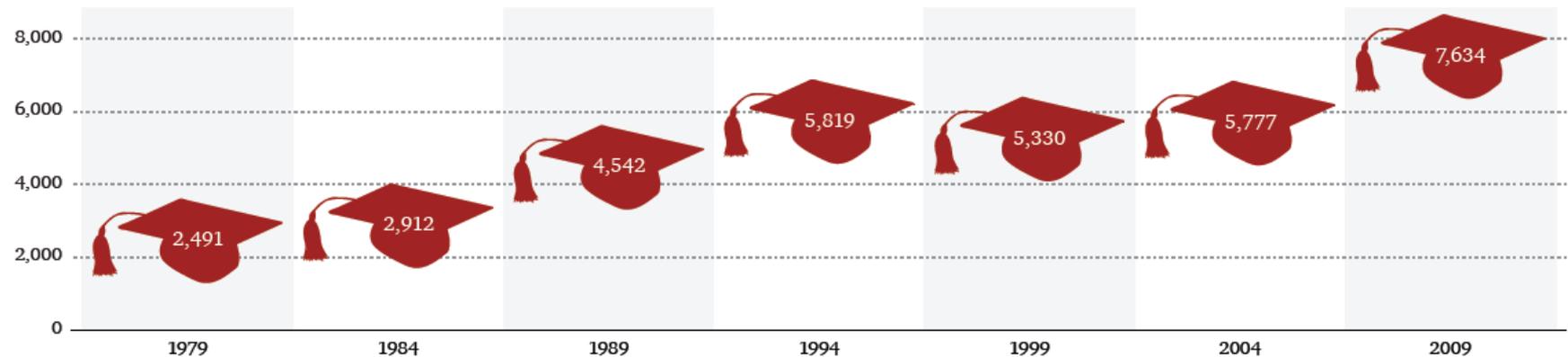
End of ultra-cheap Chinese labor?

While still relatively low compared to the US, Chinese wages are projected to rise six-fold from 2004 to 2016



America's got talent: Home-grown engineers could help fuel reshoring of R&D

Number of doctorates in engineering awarded in the US



Source: [A homecoming for US manufacturing?](#)

INVESTING IN MANUFACTURING COMMUNITIES PARTNERSHIP

THE U.S. DEPARTMENT OF COMMERCE'S ECONOMIC DEVELOPMENT ADMINISTRATION (EDA) ROLE IN FOSTERING REGIONAL ECONOMIC DEVELOPMENT CENTERED ON MANUFACTURING.

IMCP – Investing in Manufacturing Communities Partnership

- Applicants define their own regional boundaries, identify their own partners, for designation, which:
 - Have a strong existing manufacturing base
 - Is large enough to contain critical elements of key technologies or supply chains (KTS) prioritized by applicant – as evidenced by either jobs or firms
 - Small enough to enable close collaboration by identified partners
- Applicants must demonstrate that the IMCP designation will result in measurable improvement in key areas of their manufacturing ecosystem.

IMCP

- *Winning IMCP Communities will receive preferential consideration in federal competitions and assistance across 10 agencies to funds up to \$1.3 billion*
- *Preferential consideration (or supplemental awards for existing grantees) will be available for funding streams identified by the IMCP Participating Agencies as assisting Manufacturing Communities in bolstering their economic development plans.*
- *Manufacturing Communities will receive preference when applying for grants and projects consistent with the community's economic development strategy.*

IMCP

| | |
|---|---|
| Department Of Agriculture | <ul style="list-style-type: none">• RBEG; REDLG; Intermediary Re-lending; Rural Development Loans; Business & Industry Loan Guarantees |
| Department Of Housing And Urban Development | <ul style="list-style-type: none">• Integrated Planning & Investment Grants (Pending Appropriation); Delta Community Capital Initiative; Appalachia Economic Development Initiative |
| Department Of Labor | <ul style="list-style-type: none">• Trade Adjustment Assistance Community College and Career Training Grant Program (TAACCT) |
| Department Of Transportation | <ul style="list-style-type: none">• Transportation Investment Generating Economic Recovery (TIGER) |
| Appalachian Regional Commission | <ul style="list-style-type: none">• Local Access Road Program; Area Development Program |
| Delta Regional Authority | <ul style="list-style-type: none">• States' Economic Development Assistance (SEDAP) |
| Environmental Protection Agency | <ul style="list-style-type: none">• Targeted Brownfield Assessments (TBA); Brownfield Site Assessment/cleanup/RLF (RLF) |
| National Science Foundation | <ul style="list-style-type: none">• Advanced Technology Education (ATE); I/UCRC (supplemental awards) |
| Small Business Administration | <ul style="list-style-type: none">• Accelerator Program |

(Additional Technical Assistance (t.a.) available and programs that support IMCP objectives.)

| | |
|-------------------------|--|
| Department Of Commerce | <ul style="list-style-type: none">• MEP t.a. |
| Department Of Defense | <ul style="list-style-type: none">• Community Economic Adjustment t.a. |
| Department Of Education | <ul style="list-style-type: none">• Technical Education t.a. |
| Department Of Energy | <ul style="list-style-type: none">• Clean Energy Company Incubation; CHP t.a.; Industrial Assessment Centers; National Lab Resources |

Thank you!

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