

# DMDII Workshop on Project Call 15-08

## *Workforce Development Efforts*

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# DMDII views Workforce Development (WFD) via:

## This Definition of Digital Manufacturing

*"The ability to **connect** different parts of the manufacturing life-cycle through **data**, and utilize that information to make **smarter** more efficient business decisions" - DMDII*

## WFD Mission and Vision

*DMDII facilitates or provides the foundations required for **effective DM&D workforce development, leveraging a network of partners and existing infrastructure across industry, education, government, and NGOs***

# The Manufacturing Reality

## Manufacturing Skills Gap

### Unfilled Positions

- 600,000 unfilled manufacturing positions around the country
- Baby boomers retiring – no one left to take positions

### Perception of Manufacturing

- Public has a misperception of manufacturing

## Technology Skills Gap

### Lack of skilled laborers with specific skills

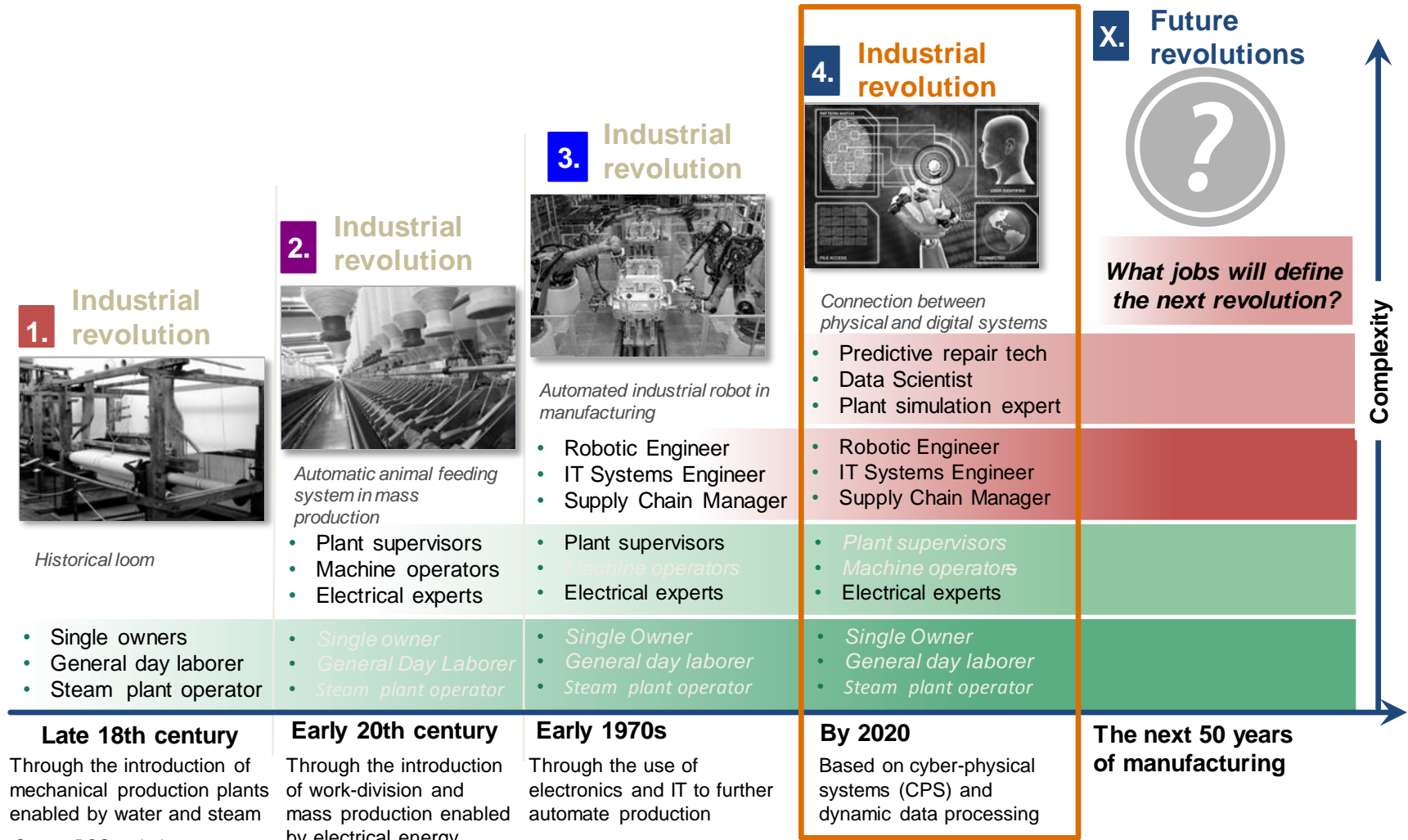
- Very particular skills gap
- Digital analytics across the product life cycle requires new technology skill sets.



There is a “dog-fight” for tech talent

*-Wall Street Journal*

# Trends: the role of the workforce in manufacturing has evolved with each 'industrial revolution'



Source: BCG analysis

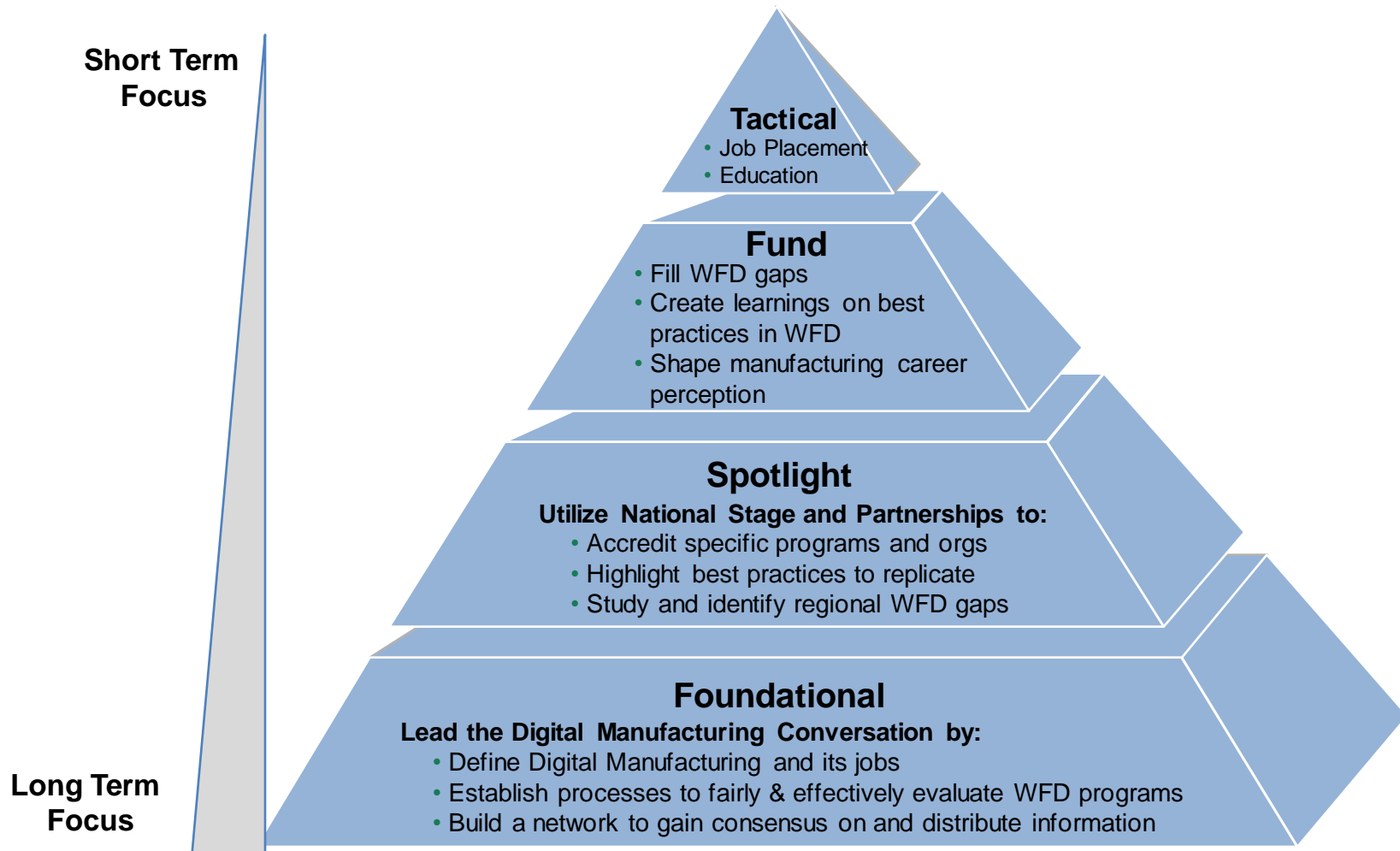


# Government's Expectations

## DMDII Co-Operative Agreement WFD deliverables

- ❑ **4.1.4.1 - Establish a framework and infrastructure** to create a project based learning environment and create appropriate interfaces to interact with external educational and workforce training activities with the goal of educating students and training workers in advanced Digital Manufacturing and Design skills.
- ❑ **4.1.4.2 - Attract and develop students** at all levels and **educate teachers**, faculty and instructors through **multi-modal** interfaces, **hands-on** training and programming
- ❑ **4.1.4.3 - Identify and engage relevant industry** and industry association partners to **address needs** and **skill gaps** and **create** validated and accepted **educational activities**
- ❑ **4.1.4.4 - Provide professional education on Digital Manufacturing and Design**
- ❑ **4.1.4.5 - Work with regional "Manufacturing Extension Partnership"** locations as well as **professional educational content developers**

# Our Approach: Strategic DM&D WFD Efforts



# Pilot Initiative 1000 Jobs Campaign (2014): Supporting Regional Manufacturers

## Process Outline

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### Awareness

- Launch an awareness and outreach campaign

### Capacity

- Match cross-training & best-practice sharing

### Coordination

- Drive job seekers to a centralized landing page

## Results Expected

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### Codify learnings and scale impact

- Publish research & end results

### Coordinate to deliver consistent experience

- Finesse WFD expectations regardless of geographic location



**Provide learning opportunity to highlight 'best in class' regional workforce development programs**

# Providing a Foundation: Digital Manufacturing Taxonomy

## Provide Skills Classifications for Digital Manufacturing Jobs

- DMDII, in coordination with a proven global partner, will define the digital manufacturing skill sets and job profiles.
- This product will afford something for **industry** and **educational partners** and result in successful workforce development programming that is demand driven.
- Meets the charge of the institute in addressing need where no one company is best positioned to lead alone.
- Result in cross-industry alignment and understanding on skills needed for digital manufacturing positions and the future need for digital manufacturing jobs.

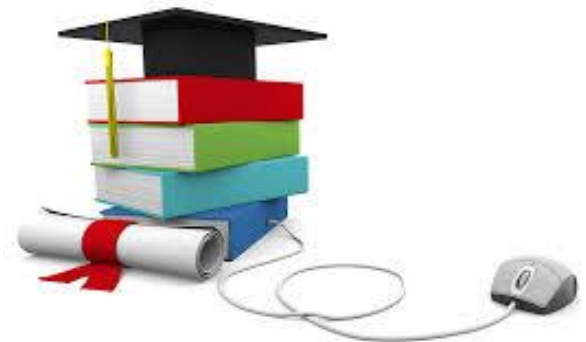




# Educational Content: DM&D-101

**Launch Digital Manufacturing online, open-source, courses for existing workers to prepare and engage in various DM precepts**

- DMDII is partnering with online course provider, Coursera to offer a Specialization, a suite of courses that define digital manufacturing and its technological components.
- This approach known as massive open online courses, MOOCs, will be available to anyone, mostly free of charge.
- Coursera is the largest provider of MOOCs with over 16 million learners.
- Courses will be developed through project awards to partners presenting the best method to teach DM to interested learners from existing engineers, to students, to veterans.
- Courses will be available end of 2016/start of 2017.



# What is a MOOC? Why this approach?

## Background:

- Massive Open Online course platform (MOOC) is a recently developed approach to distance learning- accessible for all; leveraging academic experts
- Coursera, a MOOC platform, has popularized and implemented best practices with academic and industry partners for successful online course development.
- A **specialization** is an offering through the Coursera platform for learners to master a subject area through taking a targeted sequence of courses.

## What the Experts have said:

- “The Employer Potential of MOOCs,” a study funded by the Gates Foundation and conducted by Duke University and RTI International, revealed manufacturers would like to use MOOCs for the education and training of their workforce.
- The Economist recently noted “digitally-delivered courses, which teach students via the web or tablet apps, have big advantages. With low startup costs and powerful economies of scale, online courses dramatically lower the price of learning and widen access to it, by removing the need for students to be taught at set times or places.”



# What this means for DMDII: The end result

## DMDII is taking the approach to achieve the following:

- Open, online, affordable courses to inform, educate and inspire learners
- Maximal value for our vast network of members and stakeholders
- Target new and existing learners to DM&D
- Capitalized on cutting edge and proven models for 21<sup>st</sup> education
- Unprecedented action of bringing MOOCs to manufacturing

# What this means for you! (applicants)

## DMDII Project Call 15-08 is the opportunity for you to:

- Network and connect to form project teams (connecting experts, advisors, providers)
- Learn more about Coursera and their work
- Make a contribution to an emerging and growing field of digital manufacturing

# Project Call DMDII-15-08 Explained

## Specialization Requirements

**1) Format** - On-demand

**2) Content** - Minimum of 16 weeks of content amounting to approximately 40 hours of work with at least one formative assessment per week

**3) Other** – Video bumpers w/ logos of the selected Partner(s) and DMDII

**4) Verified Certificate** – Resulting certificate from completion of specialization

**5) Availability** - At least three years following its launch on Coursera only

Full details for Course and Specialization Requirements can be found in Section 3 of Project Call DMDII-15-08



# Project Call DMDII-15-08

## Offeror Requirements

- Offeror must be *aligned with Coursera and DMDII on design*
- Offeror must have *at least one instructional designer* to support
- Offeror *must have subject matter expertise in digital manufacturing*
- Offeror must participate in *regular check-in calls* throughout the duration of program development

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