APPROPRIATIONS REQUEST FORM
OREGON HOUSE DELEGATION
FISCAL YEAR 2010

DEADLINE FOR SUBMISSION: FEBRUARY 13, 2009

PLEASE NOTE: As required by the House Appropriations Committee, all requests will be made public on the requesting Member's website.

1. **Project Title:**

   Northwest Manufacturing Initiative

2. **Organization Name and address:**

   Manufacturing 21 Coalition
   1100 SW 6th Avenue Suite 1425
   Portland, Oregon 97204

3. **Primary Contact name, phone number, mobile phone number, fax number and email:**

   Norman Eder
   Executive Director, Manufacturing 21 Coalition
   1100 SW 6th Avenue, Suite 1425
   Portland, Oregon 97204
   503.802.4101 (O)
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   norme@cfmpdx.com

4. **Project Location Address (if different from Organization):**

   Same

5. **Please describe the requesting organization's main activities, and whether it is a public, private non-profit, or private for-profit entity:**

   Manufacturing 21 Coalition is a 501c(6) advocacy organization. It has an industry board and members across Oregon and SW Washington. MFG 21 membership is composed of manufacturing companies, colleges and universities, non-profit community groups, local workforce investment boards and public agencies.

   The coalition's goal is to support the growth and development the Northwest's manufacturing economy, which now comprises over 20% of all economic activity in the region. MFG 21 focuses on two areas – the expansion of a skilled, work ready work

force and an increase in the capacity of the region's colleges and universities to support the applied innovation needs of manufacturing companies. MFG 21 does not directly operate programs in either of these areas. The coalition works with community providers of research and training services to influence their programs and to direct investment into high value activities, especially those areas that support the US Department of Defense supply chain of services and products.

6. Briefly describe the activity or project for which funding is requested (please keep to 500 words or less.)

The Northwest Manufacturing Initiative is a unique regional effort. Its purpose is to improve the performance of manufacturing companies and the products they create as part of the defense logistics pipeline. The NMI represents the combined efforts of over 100 companies and five participating research institutions across the region. The goal of NMI is to meet the advanced product needs of the US Department of Defense by improving the capacity of companies of all sizes to acquire and apply innovations to produce superior high value products and components. NMI companies are seeking to accomplish this through selective investments in participating university partners, information systems, and workforce training.

This is part of a long-term investment strategy designed by industry leaders to concentrate federal, state, public and private resources to serve the needs of the Department of Defense by building the capacity of an entire region's manufacturing cluster to respond to immediate and long term national needs.

The areas targeted for investment in this request are:

- Weld Surface Engineering technologies for repair, optimization, and life cycle enhancement of life limiting components in defense systems.
- Manufacturability of metal matrix composite materials, including the impact of tool wear, in drilling of composite/metal stacks.
- Energy efficiency/savings technologies designed to reduce costs in the manufacturing process.
- Technical innovation leading to the further development and application of friction stir welding for materials, in particular used in aerospace.
- Develop and individualize new approaches to improved supply chain management and the greening of supply chain systems for defense applications.
- Expand the reach of this program to even more manufacturers in the Pacific Northwest.

- Upgrade skills of the defense workforce to support the implementation and integration of new applied technologies and processes n the manufacturing environment.

7. Has this project received federal appropriations funding in past fiscal years?

Yes

7a. If yes, please provide fiscal year, Department, Account, and funding amount of any previous funding.

$2.5 million - funded in FY 2007 through DOD, Defense Logistics Agency – Industrial Preparedness.

$1 million – funded in FY2008 through DOD, Defense Logistics Agency – Industrial Preparedness.

$1.6 million - funded in FY 2009 through DOD, Defense Logistics Agency – Industrial Preparedness.

8. **Federal agency and account from which funds are requested (Please be specific – e.g. Department of Housing and Urban Development, Economic Development Initiatives account):**

Department of Defense, Defense Logistics Agency – Industrial Preparedness

Research Development, Test and Evaluation – RDT&E
Program Element (PE) Number – 0708011S
Line Number – 225

9. **What is the purpose of the project? Why is it a valuable use of taxpayer funds? How will the project support efforts to improve the economy and create jobs in Oregon?**

The Pacific Northwest has a highly diversified manufacturing economy. Manufacturers, despite the current recession, are one of the largest generators of living wage jobs in the region. And they have the capacity to provide more living wage jobs as they adopt new innovations and technologies to the their existing products and processes or develop new ones that meet the needs of the defense marketplace. NMI is especially committed to the expansion of the capabilities of small and medium size manufacturers, who often find it difficult to access and apply new technologies to their products – thus limiting their ability to meet the logistics and product acquisition needs of the Department of Defense.

The NWI seeks to strengthen the economy, maintain, and expand manufacturing jobs by assuring manufacturing companies remain globally competitive. In expanding the

capabilities of our region's manufacturing sector we will also be securing the vitality of our ability to meet the needs of the Defense Department for strong and resilient domestic manufacturing companies capable of responding to our nation's security needs.

10. Have you requested funding for this project from other Members of Congress? If so, who?

Yes. We have submitted the project to the following offices for consideration:

Senator Ron Wyden, Senator Gordon Smith, Senator Patty Murray, Senator Maria Cantwell, Rep. Peter DeFazio, Rep. Kurt Schrader, Rep. David Wu, Rep. Greg Walden and Rep. Brian Baird.

11. Funding Details:

a. Total project cost (all funding sources and all years):

We expect this phase of the Northwest Manufacturing Initiative project to cost $8 million from 2010-2012.

b. Amount being requested for this project in Fiscal Year 2010:

$2.8 million

c. What other funding sources (local, regional, state) are contributing to this project or activity? (Please provide specific dollar amount or percentage.)

The 2007 Oregon Legislature provided $2.8 million for equipment, new faculty, and applied research. Governor Kulongoski has included $1.8 million in his 2009-2011 biennial budget to support the state's manufacturing initiative.

Portland State University, OIT, and Washington State University, Vancouver will provide ongoing support for newly developed programs on their campuses. University of Oregon, Charles H. Lundquist College of Business, will provide a 60% match for all invested funds and provide ongoing support for programs.

The Northwest Manufacturing Initiative has also been instrumental in focusing Department of Labor training resources through local workforce investment boards and a $5 million US Department of Labor WIRED grant to the region. We expect that our success will continue to assist the region to increase the effectiveness of funds spent on workforce training and recruitment.

d. Do you expect to request federal funding in future years for this project?

Yes.

e. Breakdown/budget of the amount you are requesting for this project in FY 2010. (e.g. salary $40,000; computer $3,000):

General Budget Concepts

- All research and development funds will support faculty activities and be directly contracted with participating institutions.
- PNDC will guide the development of a regional assets database. All funds will be used for salary support, travel, and supplies related to the implementation of the database.
- Work force training funds will be administered by local workforce boards (as established by the Workforce Investment Act.) Industry skills panels will be deployed to guide expenditures. This will allow NMI to leverage existing workforce investments from local, state, and federal agencies.
- A consortium of regional community colleges will provide direct, hands-on delivery of training services to incumbent and newly skilled workers.

Budget Allocation

Pacific Northwest Defense Coalition - $700,000

With funds secured in FY07, the Pacific Northwest Defense Coalition collected and catalogued the diverse capabilities of the manufacturing community in the Pacific Northwest. This identified significant gaps in capability that may adversely impact the national security industry base. We are pleased to report that the first phase of the program has produced excellent preliminary results.

In the proposed second phase of this program, PNDC will expand the reach of this program to even more manufacturers in the Pacific Northwest. The first aim of this request is to develop and train a network of economic development professionals from around the region to use the database software. This will to ensure the maximum level of participation from primary industry.

PNDC will further add a sophisticated economic modeling function to the database. This program, known as INCLUSIO, was developed by the Connectory in conjunction with San Diego State University, and identifies the industry clusters that drive the economy based on data from Implan, to gold standard for economic analysis. This tool will allow Department of Defense managers and regional planners to better understand the impacts that vital defense industry clusters have on the regional economy.

Portland State University - $625,000

Surface degradation due to wear, corrosion, or cracking is oftentimes a life limiting factor in defense and commercial system components. Degradation too often results in replacement, increases maintenance and/or disposal costs, and results in system down time. For critical low volume and legacy components, replacement parts may not be

available. The ability to extend system life by increasing durability and repairability reduces lifecycle costs and help maintain system readiness.

In some cases depositing coatings by conventional electrochemical, evaporative, sputter deposit or by thermal spray methods can restore dimensional requirements. However, coatings do not restore structural load bearing requirements. Additionally these methods usually require expensive, complex deposition systems that usually require depot level facilities and expertise rather than amenable to field processing.

This program will focus on welding based surface repair and extension technologies in which the surface modification is an integral structural restorative technology and not a coating, and that can be applied in Depots for convenience but without requiring Depot level facilities and expertise in and of themselves. The structural integrity consideration results in much higher levels of mechanical properties, inspection, and performance assurance since a flaw in the deposit is a defect in the overall structure, and not just in a coating which may fail, but not threaten the overall structural integrity.

Specifically the program will address a range of application requirements that include major thick section repair up to an inch in thickness where major materials losses have occurred, repairs to heat sensitive components where welding process heat input must be minimized, to surfacing very small regions and depths with micro scale welding processes. Examples of weld processes able to span these needs include electroslag strip surfacing, cold metal transfer, fiction stir welding, and electrospark deposition respectively.

Portland State University has experience and capabilities in each technology. These dual use processes are equally applicable to defense and commercial needs.

Washington State University, Vancouver Campus - $325,000

To increase aircraft fuel efficiency and reduce lifecycle costs, aircraft manufacturers are using more composites and titanium. For example, The Boeing 787 and the Airbus A350 airframes will consist mostly of composites by weight. In order to assemble these composite structures, the drilling processes are required to create holes. Challenges remain in drilling larger diameter holes in thicker, multiple-material stacks such as composite/titanium stacks. In particular, tool surface degradation due to wear during the process increase damage on the composite/metal stack systems and manufacturing costs.

The objective of long-term study is to develop a firm understanding on tool wear in drilling composite/metal stacks and provide optimum tool material, tool geometry, and cutting conditions to aircraft manufacturers and tool makers. For the first year, the study will focus more on developing a preliminary understanding of tool wear in machining composite materials; particularly carbon fiber reinforced plastic composites. Due to the difficulties associated with the composite drilling process, tool manufacturers have been developed newer grade cutting tools such as PCD and BAM tools.

The results from this preliminary study will provide the fundamental knowledge about the tool wear mechanisms of the newer grade tools. Similar to metallic materials, tool wear in machining of composites depends on tool materials and cutting conditions. However, the angles among fibers, cutting directions, and tool edge can be a major factor determining the tool wear mechanisms. The proposed project will conduct drilling experiments to analyze tool wear for the carbon fiber reinforced plastic composites.

Oregon Institute of Technology - $325,000

OIT will coordinate with PSU, UO, WSU, partner community colleges, and industry associations through its manufacturing technology program to assist manufacturing companies to integrate new technologies into their manufacturing processes. OIT will place special emphasis on the design, and integration of automated composite manufacturing systems and applied research in reconfigurable and agile automation systems (Smart Assembly) for manufacturing.

The initiative will allow OIT to expand its engineering and engineering technology programs, including critical laboratory facility updates, ensuring Oregon's polytechnic university can lead regional efforts in undergraduate teaching and workforce development, graduate education in manufacturing engineering technology, applied research projects, and innovation. Programs supported by the Initiative include Manufacturing Engineering Technology, Mechanical Engineering Technology, Mechanical Engineering, Electronics Engineering Technology, Operations Management and Renewable Energy Engineering. The initiative will assist Oregon's defense contractors to increase their competitiveness.

University of Oregon, Lundquist School of Business – $325,000

This proposal seeks to expand the state's capacity in research, teaching, continuing and executive education, and consulting in the key areas of lean operations and agile supply chains, with a special emphasis on sustainability (cradle-to-cradle perspective using triple bottom line). The primary goal is to enhance the competitive capabilities of the state's and region's manufacturing asset base in terms of lean and agile processes and infrastructure to meet the strategic needs of the defense supply chains while also taking a lead in addressing the emerging challenges in their value chains with regards to the natural environment.

Under the auspices of the Center for Sustainable Business Practices (CSBP) at the Lundquist College of Business, faculty with expertise in operations and supply chain management, business strategy, industrial ecology, organizational behavior, entrepreneurship, information systems, and statistics will engage with manufacturing and service firms in Oregon and the Pacific Northwest to undertake benchmarking studies and applied problem solving research initiatives. A deeper understanding of the sustainability challenges in the

defense supply chains and other related industries will also be used to develop continuing and executive education modules. These modules addressing sustainability issues in supply chains are also expected to be infused into the curriculum of the recently re-designed Oregon MBA with a track focused on Sustainable Business Practices.

Workforce training – $500,000

The workforce elements of this proposal build upon the region's existing system of community colleges and work force boards. It leverages private and community resources (local, state, and federal) and brings them in to alignment around the training needs of companies in the defense logistics system.

f. Please list public or private organizations that have supported/endorsed this project:

The companies and organizations of the Manufacturing 21 Coalition
Southern Oregon Regional Economic Development, Inc.
Portland Development Commission
Portland Business Alliance
Clackamas County
Clackamas County Business Alliance
Southwest Washington Workforce Development Council
Oregon Workforce Partnership
Washington State University
Portland State University
University of Oregon, Charles H. Lundquist College of Business
Oregon Institute of Technology
Workforce Solutions (Marion, Yamhill and Polk Counties)
Lane County Workforce Partnership
City of Portland

g. Is this project scalable? (i.e. if partial funding is awarded, will the organization be able to use the funds in FY 2010?):

Yes.

Please return this form no later than February 13, 2009 (via email) to:
appropriations.blumenauer@mail.house.gov