



# EXAMINING THE RETURN ON INVESTMENT OF MANUFACTURING CREDENTIALS

## PART 3: Recommendations

JULY 2023

Published by

**workcred**  
*an affiliate of ANSI*

In partnership with



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP®**

The National Institute of Standards and Technology (NIST)  
Hollings Manufacturing Extension Partnership (MEP)

# ACKNOWLEDGEMENTS

This research work was performed under the financial assistance award 70NANB19H111 from the U.S. Department of Commerce, National Institute of Standards and Technology (NIST).

Additionally, Workcred would like to thank the following people and organizations for assisting in this research study.

- » Kyle Albert, Assistant Research Professor, George Washington Institute of Public Policy, George Washington University;
- » Stacey Jarrett Wagner, Principal, JarrettWagner Group, LLC;
- » The Hollings Manufacturing Extension Partnership (MEP) Centers; and
- » All the interviewees and participating manufacturing facilities.

## SUGGESTED CITATION

Workcred, *Examining the Return on Investment of Manufacturing Credentials: Recommendations* (July 2023), <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/Examining-the-Return-on-Investment-of-Manufacturing-Credentials-Recommendations.pdf>.

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Published by Workcred, an affiliate of the American National Standards Institute.  
Printed in the United States of America.

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Washington, DC 20036

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# ABOUT THE RESEARCH STUDY

The U.S. manufacturing sector continues to be central to the national economy, and relies on a highly skilled workforce of more than 12 million workers. The majority of jobs in manufacturing are likely to require a high school diploma or less. Because of this, credentials have uneven use in the manufacturing industry and are not routinely required or used as a major factor in hiring or promotion decisions.

In order to more effectively use credentials to support a competitive manufacturing workforce, and in follow up to the first report developed that examined the quality, market value, and effectiveness of manufacturing credentials,<sup>1</sup> Workcred—an affiliate of the American National Standards Institute (ANSI)—again partnered with MEP, an operating unit of NIST, to understand how manufacturing employers and workers value credentials, which credentials they value, and how they determine whether or not to pursue additional credentials.

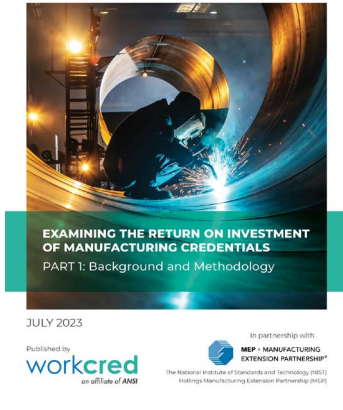
Workcred developed a set of three interview guides to use to address these questions with direct interviews with front-line workers (credential holders), hiring managers, and supervisors at small- and medium-sized manufacturing facilities.<sup>2</sup> By examining the viewpoints from these three different stakeholder groups, Workcred anticipated a more nuanced understanding of the use and value of credentials in this important sector.

The project background and methodology, results and outcomes of the research, and the recommendations are described in a series of three reports:

## THE PRIMARY RESEARCH QUESTIONS ADDRESSED BY THIS RESEARCH STUDY ARE:

**How are U.S. Manufacturing employers and workers using credentials?**

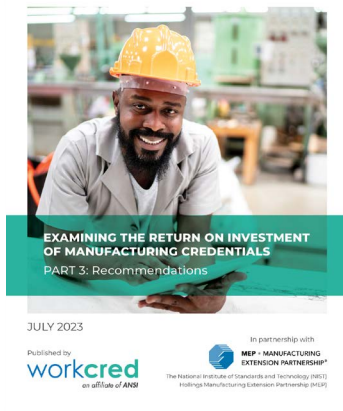
**What is the return on employer and employee investments in credentials?**



*Part 1: Background and Methodology* describes the types of facilities and individuals that participated in the research and analysis of the interviews.<sup>3</sup> It also considers the likely self-selection bias of the participants who volunteered for the interviews, and the potential impact that the COVID-19 pandemic had on participation.



*Part 2: Results and Discussion* details the analysis of the interviews, highlighting common themes and attitudes about credentials and their use in manufacturing.<sup>4</sup> Gaps in knowledge capture and use of credentials are described, as well as attitudes toward credential attainment.



*Part 3: Recommendations* lists three sets of recommendations: recommendations to support more effective use of credentials by manufacturing facilities, recommendations for implementation by policymakers, and recommendations for future research.<sup>5</sup> These recommendations are meant to be practical and actionable to make an immediate impact to support the manufacturing workforce.

# RECOMMENDATIONS TO SUPPORT A MORE HIGHLY SKILLED AND EFFICIENT MANUFACTURING WORKFORCE

The interviews conducted for this research study—with workers/credential holders, supervisors, and hiring managers—offered tremendous insight into the use of credentials in manufacturing facilities in the United States. They also provided an evidence base to develop the following recommendations in support of a more highly skilled and efficient manufacturing workforce.



## RECOMMENDATIONS FOR MANUFACTURING FACILITIES

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During the interviews, both workers and employers expressed that they value credentials. In particular, employers found them to be a valuable tool for signaling technical skills. In order to further leverage and increase the use of credentials in manufacturing facilities, we propose three recommendations that can improve hiring and promotion.

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### *#1: Capture formal and experiential training with a credential*

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Both employers and workers strongly agreed that workers were regularly exposed to formal and/or experiential training in their current roles. While some of this training is captured to meet compliance requirements, much of this training is not formally recognized with a credential, which increases the need for every employer to invest in and conduct training for new employees.

Instead, employers should strongly consider developing or using more formal credentials, such as digital badges and/or microcredentials, to recognize the training they conduct. Competencies can be embedded in these types of digital credentials, which provides more transparency about the skills represented by the credentials as well as information about the issuer, and can increase the ability of workers to signal their skills. Furthermore, compared with most other credentials, digital badges

and/or microcredentials are an inexpensive and easy approach to provide workers with a credential that signals their skills. This is because employers can work with a local partner to develop and issue a badge or microcredentials, or issue a credential themselves by working with a digital badging platform.

In addition, employers should facilitate their employees' capacity to earn external credentials like certifications and assessment-based certificates as appropriate, which would allow workers to leverage the labor market value of an established credential, as well.

If implemented at scale, these practices would result in a more credentialed manufacturing workforce and make hiring more efficient. It would also allow employers to reduce new employee training costs by allowing for more tailored training based on the credentials and skills workers already hold when starting a position.

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## *#2: Clearly signal the credentials/skills valued in hiring and promotion*

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Employers should more clearly signal the credentials and skills they value in hiring and promotion through transparent job descriptions. This will better support workers through two approaches.

First, it will provide clear guidance on the set of skills that are needed for a specific job role to individuals who apply for a position, as well as those wishing to upskill or reskill to qualify for a position. For those already working in the manufacturing sector, it can facilitate finding new employment opportunities by focusing on the skills rather than the position title. And for those seeking to upskill or reskill, it provides a clear set of competencies to align with education and training opportunities. In addition, it provides guidance to select a credential that includes the necessary competencies.

Second, it will signal to regional education and training providers, as well as national credential issuers, the skills needed for a specific job role. This signaling mechanism is important, as too often education and training providers rely on a limited number of subject matter experts to identify which skills and credentials they need to teach/offer, which may not fully represent the skill needs of small- and medium-sized manufacturers. If employers clearly signal the skills and competencies they value in

job descriptions, and regularly update them, credential issuers will have a trusted source from which to get this information.

Support may need to be provided for employers on how to write competencies into job descriptions to effectively provide this signal, however. Employers often create job descriptions that include tasks and responsibilities; they may need some guidance on shifting to create job postings that focus on the competencies needed to successfully accomplish those responsibilities (in addition to the responsibilities).

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### *#3: Increase the use of accreditation or other markers of quality credentials*

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Employers were clear that there is no value in credential transparency without trust in the credential issuer. Higher education institutions have accreditation processes at the institutional and program level, and have a reputation for quality (or not) within their communities.

However, employers seemed less familiar with accreditation standards for certifications and other credentials issued outside of the higher education system. If these markers of quality were more readily available and better understood, it could significantly increase trust in non-degree credentials in manufacturing, and could facilitate employer's hiring and promotion processes.

Employers should work to increase familiarity with accreditation standards and practices for non-degree credentials, which will increase their trust that individuals holding these credentials are likely to be qualified for positions aligned with those credentials.





Having a competitive, robust, skilled manufacturing workforce is critical to maintain U.S. economic competitiveness. Credentials are an important component in attaining this goal, as they improve the effectiveness of hiring, training, and promotion in the workforce. Policymakers can support a highly skilled, well-credentialed manufacturing workforce by implementing the following three recommendations.

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### *#1: Provide resources to offer workers impartial career advice*

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Workers currently have no reliable or consistent source for career advice in manufacturing. Given the critical importance of the manufacturing workforce in multiple industries, resources need to be identified to provide workers impartial career advice that prepares them for labor markets to enhance their sustainability and career mobility.

This career advice needs to include information about pathways and the skills, training, and/or credentials needed to advance along that pathway. Credentials and training opportunities should be screened for quality and fit for a career pathway, with a preference for including credentials and training opportunities that provide outcomes data on employment and wages.

Given the number of sectors and complexity of roles within manufacturing, a comprehensive guide may not be possible; however, for strategically important or critical industries, resources should be identified and/or developed to provide this targeted career advice.

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### *#2: Offer more support for workers to earn manufacturing credentials*

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Currently, manufacturing workers are either self-funding credentials and/or relying on their employers to pay for credentials. While some of the facilities participating in this study paid for employees to earn credentials, they are typically looking for

training/credentials to meet immediate workforce needs. However, to develop a skilled and resilient manufacturing workforce, there is a need for financial support for workers to earn manufacturing credentials to not only meet current workforce needs, but also future needs as well.

Currently, for example, workers seem to be using creative, cost-free options to develop skills in 3-D printing and robotics. However, this ad-hoc approach is not likely to equip manufacturing workers at scale with the skills to support a competitive manufacturing industry in the United States. To accomplish that goal, workers need systematic support in obtaining credentials that meet both current and future skills demands. Funding and other resources (noted in other recommendations) are needed to support workers to gain credentials to maintain and increase the competitiveness of the U.S. manufacturing workforce.

Additionally, given the capacity constraints for virtual education/training that surfaced in our research, support for education/training should accommodate technological capacity at small- and medium-sized facilities. At a minimum, there should be a recognition by education and training providers in manufacturing that in-person training or courses will continue to be the preferred methods well into the future until these constraints can be decreased. Policymakers should consider making resources available to ensure that manufacturing facilities can benefit from remote or virtual training opportunities.

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### *#3: Create a portal with information on quality credentials*

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Given the lack of information on quality credentials in manufacturing, both workers and employers would benefit from the creation of a portal of vetted credentials. The purpose of this portal would be to offer a list of manufacturing credentials that are relevant to manufacturing roles, meet a well-defined quality standard, and have publicly-available outcomes data on wages and employment.

This portal could be conceptually similar to the What Works Clearinghouse (WWC), which is managed by the Institute of Education Sciences within the U.S. Department of Education. The WWC is a trusted, evidence-based source that reviews research

and identifies which programs, products, practices, and policies meet their rigorous standards.

This credentials portal, along with the other recommended resources, would support manufacturing employers of all sizes by building their capacity to use, recommend, and support credential attainment for their workforce. It would also support workers by providing them with unbiased information and data about which credentials can support their professional goals.



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## RECOMMENDATIONS FOR FUTURE RESEARCH

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The approach taken in this study revealed insights into the use of credentials, attitudes toward training, and capacity constraints of manufacturing facilities that went beyond the expectations of the research team. This approach—individual interviews, multiple viewpoints, on-site visits—is not commonly used in education and workforce research due to its resource-intensive nature, but it is our hope that researchers will incorporate more elements from this approach into their future studies.

As described below, this approach also yielded three additional research topics that should be further addressed.

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### *#1: Identify effective approaches to tracking credentials and skills of workers*

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Research is needed to understand the specific needs of small- and medium-sized manufacturing facilities to track the credentials and skills of their workers. Many facilities did not track credentials, training, or skills unless required by regulations. However, several employers identified that tracking this information would improve their hiring, staffing, and training processes. Given the resources that are invested in these activities, insights from research in this area should result in important efficiencies for manufacturing employers.

Research is also needed to focus on the capacity of small- and medium-sized facilities to implement an effective tracking system. Considerations should include: benefits to employers from tracking skills, credentials, and training; resources needed

to implement and maintain a tracking system; benefits to workers from participating in this system; and how a system might be compatible with similar efforts in the workforce community in order to ensure manufacturing is not siloed.

It is worth noting that there are products available that support employers in capturing the skills of their employees and provide professional development of employees to meet the employer's needs. Once the needs and capacity of small- and medium-sized facilities are understood, existing products could be analyzed to determine whether they meet these needs or whether new products should be developed.

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## *#2: Identify gaps in existing manufacturing credentials*

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While there are many existing credentials in manufacturing, there are also gaps in critical areas. For example, multiple employers mentioned the importance of such skills as communication, problem solving, critical thinking, and teamwork, for which there are no manufacturing-relevant credentials. A credential that could assess these skills in a context relevant to manufacturing workers would support employers and workers in hiring and promotion. There is also a lack of credentials available that signal skills in emerging technologies like robotics and digital twinning. Some of these skills may be integrated into existing credentials; however, others will require the need for new credentials to adequately achieve proficiency.

Research is needed in this area to better understand the landscape of existing manufacturing credentials and the gaps that exist between the skills assessed by the credentials and the skills that employers value. This research will also need to be forward-looking, examining how technologies being developed and implemented in large facilities might impact manufacturing processes at small- and medium-sized facilities. As manufacturing facilities continue to deploy new technologies, skills needs will continue to emerge and change.

Additionally, research is needed to better understand if and how small- and medium-sized facilities may have different credential needs. For example, the findings of this study suggest that additional generalist certifications (for multi-tasking employees) are needed in the small- and medium-sized manufacturing facilities to allow for more flexibility and efficient use of employees. This may also be the case for other manufacturing credentials or large-sized facilities.

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### *#3: Invest in worker-centered research in manufacturing*

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There is a need for more worker-centered research to also understand their needs. One powerful component of this study was ensuring that the workers perspective on credentials was represented alongside the perspective of employers. While there were many areas of commonality among the workers and employers participating in this study, the unique perspective provided by workers on their value and use of credentials is central to promoting a more effective credentialing system in manufacturing. In particular, workers provide significant insight into their motivations for training and credential attainment, which can oftentimes be different than what employers are looking for or doing. Rather than focusing on the needs of only employers, finding a balance between the needs of both workers and employers is central to developing a more skilled manufacturing workforce.



# FINAL THOUGHTS

These recommendations provide concrete steps that policymakers can take to ensure that workers have the information they need to convey their skills to employers; that employers understand the skills potential workers possess; that there is more relevant and easily accessible information about credentials and career guidance in manufacturing; and that workers and employers have access to information about the quality of credentials and the wage and employment outcomes associated with those credentials.

Understanding and investing in a highly skilled and competitive manufacturing workforce is critical to ensuring the economic health of the United States for centuries to come.



*Background and Methodology*



*Results and Discussion*



*Recommendations*

# ENDNOTES

- 1 Workcred, *Examining the Quality, Market Value, and Effectiveness of Manufacturing Credentials in the United States* (July 2018), <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/Examining-the-Quality-Market-Value-and-Effectiveness-of-Manufacturing-Credentials-in-the-United-States.pdf>.
- 2 The full interview guides can be found here: <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/0693-0033-NIST-Workcred-Interview-Questions-OMB-Approved-08-03-2020.pdf>.
- 3 Workcred, *Examining the Return on Investment of Manufacturing Credentials: Background and Methodology* (July 2023), <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/Examining-the-Return-on-Investment-of-Manufacturing-Credentials-Background-and-Methodology.pdf>.
- 4 Workcred, *Examining the Return on Investment of Manufacturing Credentials: Results and Discussion* (July 2023), <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/Examining-the-Return-on-Investment-of-Manufacturing-Credentials-Results-and-Discussion.pdf>.
- 5 Workcred, *Examining the Return on Investment of Manufacturing Credentials: Recommendations* (July 2023), <https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Manufacturing-Study/Examining-the-Return-on-Investment-of-Manufacturing-Credentials-Recommendations.pdf>.