Final Performance Report for

Michigan Industry Cluster Approach 2.0 Grantee

Grand Traverse Software Development Employer Collaborative

Name of Grantee: **Traverse City Center of Entrepreneurship (20Fathoms)**

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Project Summary

The "Grand Traverse Software Development Employer Collaborative" project funded via the Michigan Industry Cluster Approach 2.0 Collaborative Grants initiative is marketed as tccodes (Traverse City Codes) and tccyber (Traverse City Cybersecurity). This branding is used to represent efforts conducted by 20Fathoms in support of MICA 2.0 objectives.

The vision for the MICA project was to create systems and services to support the "last mile" of the talent pipeline with a specific focus on software developer professionals and related career pathways. "Beginning with the End in Mind" (Covey) enabled the team to deliver immediate value for our existing developer community, create a clear vision of workforce development needs, and form a community of professionals committed to supporting broader educational goals.

Implementation was organized into three strands of service – *Community*, *devPD*, and *newDev* as described below.

Community: Services include trainings and presentations to the community at large. The goal was to build awareness of the opportunities for software developer professionals, the talent gap constraining local growth, and the services provided by the project to address these needs.

*devPD***:** Professional development training for area software developers focused on two goals. The initial goal was to provide intermediate to advanced professional development experiences to area software developers. The broader goal was to create a learning community in support of Traverse City's evolving tech hub. Ultimately, it is this community that will continue to expand and sustain our emerging tech hub and build out our talent pipeline.

*newDev***:** Innovative pathways for new software developers. This is the highest-value deliverable of the project. Our goal was to demonstrate workforce development pathways beyond the traditional university computer science program that leads to placement as a software development professional. This effort included support for internships and potential apprenticeship.

Accomplishments

Despite complication from COVID, the team successfully executed our MICA 2.0 plan to deliver the services identified above. Project objectives were completed with most metrics vastly exceeding projections. Our tccodes and tccyber brands are recognized and identified as high value by our local community and national workforce development initiatives such as the Center on Rural Innovation and Cisco Networking Academy.

We have formed a team of local subject matter experts in both coding and cybersecurity that will continue to create learning experiences and facilitate skill development opportunities. Advanced workshops provided immediate value to working professionals while entry-level course introduced early-learners or career changers to coding and cybersecurity. As the learning community matures, we continue to look for opportunities to leverage the understanding, skills, and experiences of our technical professionals to enhance technical education in local schools and community college.

More than 250 Northern Michigan residents participated in one or more training events. Events were designed to provide high-quality tech education, and to be highly accessible, welcoming, and supportive for all learners. Program participants included:

- Newbies learning the basics of coding and exploring new opportunities
- Developers beginning their careers and supplementing their education with coaching and mentorship

- Career changers gaining new tech skills and mentorship as they prepare for a new profession
- Experienced tech professionals networking and learning new skillsets from their peers
- Computer science teachers learning the latest tech skills to pass along to their students
- Local employers providing insights related to their needs for tech talent and skillsets

To assess the impact of this workforce development and training effort, a survey was distributed to sixty participants that attended three or more trainings. Twenty-two of the sixty responded (37%) with over one quarter indicating that they had received either a promotion or a raise since attending our trainings. One-half reported that they were "put in a position to earn a promotion or raise." See Figure 1. Almost all respondents included additional comments touting the value of their tccodes and tccyber experience. These comments are provided in Appendix B of this report.
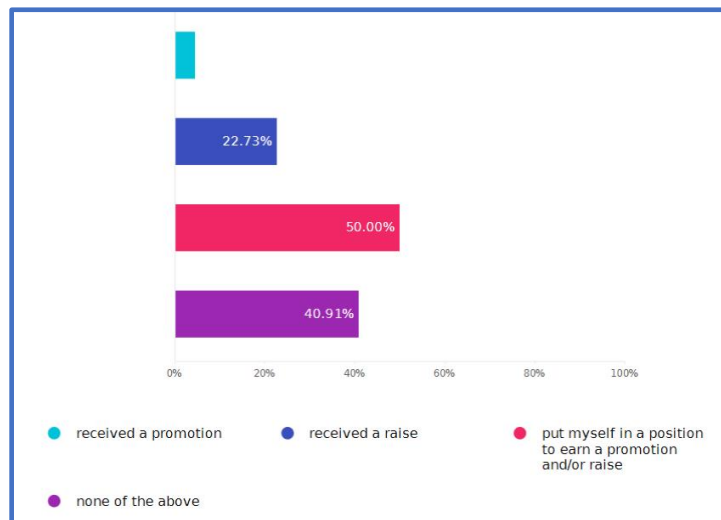

FIGURE 1 - IMPACT SURVEY RESPONSES

The high response rate, promotion and raise responses, and extensive comments validate the high quality provided by tccodes and tccyber via the MICA 2.0 project.

> "tccodes had given me the opportunity to get back in the tech community and start learning again, and specifically learning new technologies and things that have changed since I graduated college. In addition, it is giving me the connections and confidence to start building a portfolio and pursuing a new career in design and development." – Roxanne Scrivener, Project Coordinator

Credentials and Placement

Two entry-level developers were placed with one reporting a starting salary of $66,000. The salary of the second was not reported. While the number placed is small, the fact that one was able to pivot his career by completing a combination of self-study, coaching, and instruction is significant. This example demonstrates the ROI of these community workforce development initiatives. Placement in a high-demand, high-wage profession was enabled using community resources, open-sourced instructional materials, and minimal cost to the individual.

Until very recently, many companies were holding off on hiring and that is reflected in our numbers. The number of certifications and the number of participants employed after the program fall below the stated goal. This is a direct result of the impact that COVID had on this career field and our community's employment. Our proposed metrics were based on a growing demand for junior developers and associated internships. COVID realities required software

development teams to become virtual, resulting in the cancelation of internship programs and a move to hire experienced professionals able to immediately participate in virtual work.

Agility

In any successful project, the process is crucial if deliverables are to be met. This project highlighted the value of Agile/Lean project management with the goal to deliver as fast as possible and decide as late as possible. While these methodologies are standard procedure for this implementation team, they are relatively new to government and education. The challenges of COVID provided an opportunity to demonstrate applicability and value in this broader setting. While most MICA 2.0 projects were unable to meet the required completion deadline, this 20Fathoms project adjusted to not only meet but exceed project deliverables.

The implementation team applied this iterative, solutions-focused approach to tccodes and tccyber in order to best meet the needs of our participants as well as respond to the realities of COVID. Our program began with stand-alone in-person workshops, capped off by pizza and networking. Along the way we evolved to provide in-depth, multi-week virtual courses facilitated with community nights that enabled cross-functional sharing. We continue to learn how to optimally blend our local expertise with low-cost online learning resources.

As we reflected on the successes of tccodes, an opportunity to meet the needs of the cybersecurity community emerged. As a result, tccyber was launched leveraging local experts and resources provided by Cisco.

> "tccyber/tccodes has provided me with opportunities I would not have had otherwise. I have learned immensely from attending tccyber workshops and have met some really great people along the way." – Nick Maike, Cybersecurity Student

Partnerships

This MICA 2.0 project hosted by 20Fathoms is just one of many services provided to a robust network of entrepreneurs and tech professionals. Many individuals and organizations partnered to make tccodes and tccyber successful. In-kind contributions were substantial.

- TCNewTech is our local monthly pitch event. Educational programming through tccodes and tccyber was promoted at events and in publications.
- Northwestern Michigan College – Python instruction supporting the Robotics and Automation curriculum was enhanced and included entry-level industry certification. Efforts are expanding to deliver a college-wide opportunity supporting innovation and entrepreneurship.
- Traverse City and Elk Rapids high schools – Instructors participated in multiple workshops on Python programming and Raspberry Pi systems. Hardware, software, and curriculum developed by tccodes was integrated into high school STEM curriculum.
- Newton's Road is our local community-based organization supporting STEM education. 20Fathoms partnered with Newton's Road to deliver coding activities and a cyber learn-a-thon to early learners. Plans for additional activities supporting creativity and innovation are planned.
- Cisco Networking Academy – 20Fathoms partnered with Cisco to provide free certification preparation in cybersecurity. Additional certification training targeting Cisco DevNet DevOps is underway. Finally, Cisco has recognized our coding instruction as exemplary and instructional leads contacted us to better understand our approach as they revise their instructional model.

- Center on Rural Innovation (CORI) - Through our partnership with the CORI, we offered scholarships for tech education through Udacity's online learning platform. Twenty people in the Grand Traverse Region completed foundational courses and gained new job skills in digital marketing, business analytics, and front-end development. Three of them went on to earn nanodegrees.

> "The Business Analytics course was a game changer for me. This knowledge is very relevant and has helped me deliver value to clients and, in some cases, opened new doors for me." – Ellie Hudson, Consultant

Learning Communities

Through tccodes and tccyber we have created valuable connections focused on education between local professionals.

Often the value is immediate: a new tool or technique shared during a workshop can be applied to a participant's work right away. Other times the effect may be more long-term as a young professional decides to pivot toward a career in coding or the recent professional development listed on a resume leads to a new job opportunity.

The biggest impact may be a far-reaching ROI as the local tech professionals in our program not only provide peer-to-peer professional development, but also inspire new coding education in area schools and new software development and cybersecurity initiatives across the state.

> "As a working software developer, tccodes classes and talks have plugged gaps in my knowledge and given me tips and techniques to share with my peers at work to improve our professional projects." – Edwin Gustafson, Web Application Architect

Financial expenditures

Actual expenditures closely aligned with the agreed budget with most of the funding being allocated to instructional staffing and project manager/convener. Some minor budget adjustments were required due to COVID. Travel and event expenses were eliminated as instruction moved to virtual. These resources were reallocated to instructional time enabling services to expand to include additional coaching and cybersecurity content. Final 2021 Q2 financial reporting is provided in Appendix A.

A Critical Piece of the Puzzle

Our broader tech and start-up ecosystem understands how crucial tech talent is to their success as software development and cybersecurity have become critical services. tccodes and tccyber are now recognized as workforce development initiatives designed to address talent gaps and help meet demands for high-quality IT professionals.

Appendix A – Project Financials

Section V: Financial expenditures of grant money and leveraged funds to the project, including in-kind and/or direct resources. (Use all grant agreement budget line items to complete this form.)				
Program Development	**Current Grant Costs**	**Cumulative Grant Costs**	**Current Leveraged Dollars**	**Cumulative Leveraged Dollars**
1.1 Salaries/Fringe	$9,454	$81,000	$3,900	$30,150
1.3 Travel	$0	$334		$0
1.4 Events	$0	$1,354		$0
1.5 Purchased Services	$5,908	$13,292	$0	$36,009
1.6 Materials/Printing	$0	$4,380	$0	$0
1.8 Facilities	$700	$7,700	$209	$2,300
Program Development Subtotals	$16,062	$108,060	$4,109	$68,459
Training				
2.1 Instructor Salary				$6,955
2.2 Materials/Printing				$3,864
2.3 Resources/Books				$3,864
2.4 Mentorship				$34,773
2.5 Hardware				$7,727
Training Subtotals	$0	$0	$0	$57,182
Administration (not to exceed 10%)	$1,728	$12,000	$0	$0
	$17,790	**$120,060**	**$4,109**	**$125,641**

Appendix B – Responses to Impact Survey Open-Ended Prompt

Is there anything that we didn't ask about that you'd like to let us know?

- There is value to these courses to managers as well. In our local area, management is just as likely to not have a strong technical background. These intro courses are a great way to educate non-technical leadership.

- TcCyber/TcCodes has provided me with opportunities I would not have had otherwise. I have learned immensely from attending TcCyber workshops and have met some really great people along the way. Their mission of helping individuals transition into high-demand career fields, expanding industry knowledge, and giving back to the community is truly awesome.

- These courses have been very helpful.

- tccodes has filled gaps in my knowledge and provided perspective unavailable in day-to-day projects at work

- tccodes is a great local opportunity to improve my coding skills. The C# fundamentals course gave me skills that I immediately applied in my job.

- tccodes had given me the opportunity to get back in the tech community and start learning again, and specifically learning new technologies and things that have changed since I graduated college a few years ago. In addition, it is giving me the connections and confidence to start building a portfolio and pursuing a new career in design and development. Keith and all of the instructors have been so dedicated to this program, and I really appreciate all that they are doing to provide this unique opportunity.

- The most important aspect for me was to meet some local people in hi-tech. It is hard to make connects because we are all working remotely, online.

- I really enjoyed the classes that I was able to attend. Made me think different about the way I code and interact with people. The instructors are top grade and really informational. Can't wait for the chance that I can attend more classes.

- The course offerings are great opportunities for new people as wells as veterans to learn and expand their skills. I am grateful that this program is here in Traverse City. It can make a big difference in peoples lives. I will support and or participate as much as I can in TCCODES and TCCyber.

- No, just thank you for putting these courses on.

- It was very positive to see the changes in 2020 as tccodes improved learning opportunities while dealing with the Covid.

- TCcodes has been instrumental in improving the experience for devs in TC and their potential employers alike.

- This program exposed me to what I didn't know and plugged me.into the tech environment in Northern Michigan. The impact has been invaluable.

- The skills I learned with tccodes helped I'm my employment search.

- This experience provided me with additional tools that helped grow my high school student's knowledge in engineering and computer science. Opportunities to be a part of TCcodes and related training has helped me as a teacher and has helped prepare my students for future successes.

- "I wanted to earn the credentials needed to restart a career . Unfortunately I was not selected to participate in your program. I had to take a pause from my career to care for my children. Now I am seeking to re educate myself to work in a field in demand."

- I loved this opportunity, but would be very interested in non-certification-based classes as well. While I'm not necessarily new to IT, there are still a lot of IT fundamentals that I would appreciate being able to learn and ask about in a casual setting - ie not a classroom, in prep for high stakes testing etc. A place to just ask questions and learn from others (I struggle with self-guided learning because I'm never certain whether I am teaching myself an accurate or inaccurate understanding of the topics). I think casual classes for networking, subnetting, server config and administration, setting up and using labs, CTF and guided learning tools, cloud platforms, etc. could be very helpful for building a fuller and more rounded knowledge of tools as well as helping people like myself 'know where to start'. Knowing where to start is most often my biggest hurdle.

- "The offerings of this organisation have been nothing but instrumental in my life. I deal with depression and have had no desire to return to my career. tccodes has given me the chance to turn around my life. I'm coming out of my depression and these classes have done so much for me. The classes have renewed my abilities as a developer. They have given me me contacts that will be beneficial for the rest of my life. I hope that this wonderful group will continue to help provide assets to the local community and continue to connect the people of like minds in the northern Michigan area. I give sincere thanks to all the professionals that offered their services to this project."

- It's a great program. Hoping to catch up with the cyber security course over the summer.