

Michigan Strategic Fund Entrepreneurship & Innovation Program Evaluation

July 13, 2023

Prepared by the Office of the Chief Financial Officer, Michigan Department of Technology, Management and Budget (DTMB) in partnership with Guidehouse Inc., under the direction and oversight of the DTMB.

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GRETCHEN WHITMER GOVERNOR STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET LANSING

MICHELLE LANGE DIRECTOR

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DATE: June 13, 2023

TO: Quentin L. Messer Jr., President, MSF Board & Chief Executive Officer, MEDC; Kevin Francart, Chief Compliance Officer, OCCO; MSF Entrepreneurship & Innovation Program Grantees

FROM: Michael Gilliland, Department of Technology, Management & Budget

SUBJECT: MSF Entrepreneurship & Innovation Economic Development Program Evaluation

In accordance with Act 54 of 2018 (the Economic Development Incentive Evaluation Act), Section 9, attached is a copy of the program evaluation and accompanying recommendations concerning nine of the Michigan Strategic Fund's programs focused on supporting Michigan-based entrepreneurs and innovators.

This report is the first of series of program evaluation reports required by Act 54 of 2018.

This report is presented by DTMB, and was prepared by our selected third-party evaluator, Guidehouse, Inc.

Should you have any questions regarding this report, please contact me at <u>gillilandm@michigan.gov</u>.

Sincerely,

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Michael Gilliland Director, DTMB-Financial Services

Executive Summary About this Report

The objective of this report is to assess Michigan's Entrepreneurship and Innovation (E&I) programs, focusing on economic impact and their overall effectiveness. This report marks the beginning of a comprehensive series of evaluations, mandated by the 2018 Economic Development Incentive Evaluation Act. The Act stipulates that the State must conduct independent evaluations of a designated number of programs annually. The Act's fundamental objective is to guarantee the efficiency, efficacy, and accountability of the State's economic development initiatives.

The State of Michigan actively supports its community of high-tech entrepreneurs and innovators through nine programs. These programs are under the purview of the Michigan Strategic Fund (MSF) and executed by the Michigan Economic Development Corporation (MEDC) in collaboration with various local partners, including Michiganbased universities and local nonprofit organizations. The overarching objective of the E&I programs is to support MSF's mission of *encouraging the diversification of the economy and the creation of jobs and investment in the State* by nurturing high-tech entrepreneurship and innovation in Michigan. These nine programs can be grouped into four primary areas of support: university-based innovation, federal grant support, early company formation, and early-stage funding.

During the five-year period analyzed in this study (FY19-FY23), the nine MSF E&I programs were allocated around \$74 million in State funds, averaging around \$14-16 million per year. However, when looking at a longer timeseries, the annual budget for the E&I programs experienced a decline before its more recent period of stability. Starting at a peak of \$28.5 million in 2014, the total E&I budget gradually decreased, and eventually reached the current and stable level of \$15.6 million. Thus, over the last 10 years, MSF's E&I programs faced a decreasing budget which resulted in programmatic cuts and reduced spending.



Executive Summary | Key Findings

The first finding from this evaluation is Michigan possesses fertile that а environment for a flourishing entrepreneurship and innovation ecosystem but will require targeted State action to reach its full potential. Looking beyond the programs evaluated in this analysis and taking a broader perspective on Michigan's overall performance in E&I metrics, it is clear that the State possesses numerous crucial resources that can propel it to become a leading state in high-tech entrepreneurship and innovation. Notably, Michigan has a long-standing commitment to R&D investments, is the 6th largest state in the country in terms of patents issued and has a robust presence of science and engineering occupations. In terms of areas for growth, the most significant opportunities identified by this study are the need for Michigan to more successfully transition its R&D efforts into the establishment of new startups and expand Michigan's capital pool by stimulating investor activity.

Another significant finding is that. collectively, the E&I programs overseen by the Michigan Strategic Fund (MSF) have demonstrated a high return on investment. Over the past five years, these programs have generated an estimated impact of \$4.5 billion in Gross State Product (GSP), showcasing their substantial economic contribution. Moreover, these programs have exhibited cost-effectiveness in creating job opportunities, with an average cost of \$15,850 per job generated. The unique value of these E&I programs lies in their ability to provide high-tech innovative crucial support to ventures during their critical early stages. By focusing on the needs of these ventures during their early stages of development, these programs act as a catalyst for economic impact resulting in a high return on investment.

Furthermore, at the individual program level, this study highlights that while most of MSF's E&I programs offer significant value to participating entrepreneurs and innovators, certain programs exhibit higher levels of impact than others. The Early-Stage Funding program (ESF), emerges as the overall most impactful program within Michigan's E&I portfolio, with remarkable outcomes. ESF has been instrumental in enabling Michigan entrepreneurs to secure an average funding amount as high as \$5.7 million of dollars and to create, on average, up to 9 jobs. The individual evaluation provides the State with additional insights to guide future actions and prioritize capital allocation towards programs that offer greater value to Michigan's entrepreneurs.

In addition to the quantitative analysis described above, this study incorporated qualitative insights gathered from diverse stakeholders across Michigan's E&I ecosystem, most notably program managers, entrepreneurs, mentors, and early-stage investors. These interviews revealed that despite the achievements of MSF's E&I programs, their current scale limits their capacity to fully meet the needs of the E&I community. Pain points frequently mentioned by entrepreneurs were the lack of access to adequate fundraising support and mentorship opportunities, and the difficulty of finding and retaining qualified talent. Moreover. the absence of State-funded incentives for earlystage investments was highlighted as a limiting factor among investors.

Executive Summary | Recommendations

To maximize the E&I team's capacity to support the Michigan Strategic Fund in mission, achieving its this study recommends that moving forward, the State focuses on four primary areas: 1) investing in high-quality data, 2) increasing the visibility of Michigan's E&I efforts and successes, 2) budgeting for the long-term and preparing for funding gaps, and 4) building from current successful programs to scale-up impacts. The diagram below summarizes the vision for these changes.

This study suggests a series of tactics that will allow the State to start acting on the four recommendations in an impactful, targeted manner. For example, to invest in high-quality of data, the State should consider assigning dedicated E&I staff to ensure data quality, assign unique identifiers to companies tracked in the MEDC's database, regularly train and educate partners on quality assurance metrics, and standardize program data collection methods. To increase the visibility of its efforts and successes, the State should communicate more frequently with key

stakeholders, advertise success stories more regularly (i.e., thriving startups that have emerged from the E&I programs), and coordinate and facilitate networking events and collaboration among stakeholders. To budget for the long-term and prepare for funding gaps the State should develop a 10year E&I strategic and budget plan, partner with local organizations to fill in short-term budget gaps and consider investing in an evergreen fund. Finally, to build on its most successful efforts and fill in strategic gaps, this analysis found that the Sate should expand its mentorship offering, grow the ESF program, support entrepreneurs' talent search, and identify opportunities to expand economic incentives related to E&I, particularly related to early-stage investment activities.

A detailed look into the complete set of recommended tactics can be found in Appendix A.

RECOMMENDATIONS	MICHIGAN'S E&I TODAY		MICHIGAN'S E&I TOMORROW
Invest in high-quality data	The existing database allows for good visibility into the program's performance, but data collection efforts could be strengthened if more resources were available		The State holds a robust high-confidence database that clearly conveys the value of its E&I programs
Increase the visibility of MI's E&I efforts and successes	While stakeholders generally acknowledge the value of E&I, there is limited awareness of ongoing programs and their achievements		The State plays the role of a central coordinator that communicates the importance of E&I and facilitates synergies that uplift the whole industry
Budget for the long- term and prepare for funding gaps	The current budget process for E&I aligns with the State's 1 to 2-year cycle, which increases uncertainty and limits long-term planning		The State's E&I programs benefit from more stable and predictable funding sources that allows for long-term planning
Build from successful efforts and scale-up impact	The existing programs are highly impactful, but their current scale limits their ability to comprehensively address market needs		Michigan becomes a national reference for excellent E&I support through its programs and economic incentives

Executive Summary | Approach

This report presents findings derived from a comprehensive approach that combines quantitative and qualitative research methods. The analysis draws on a robust database comprised of 8,000+ data points across 4.5 years and various impact metrics. These quantitative insights were complemented by information gathered through stakeholder interviews, surveys, and extensive desktop research.

Data Sources

Impact Metrics

8,000+ data points across 4.5 years on the impact of the nine E&I programs were gathered from a variety of sources including the MEDC and program grantees. The impact data were the primary inputs for the economic modeling of the E&I programs that support the findings of this report.



Surveys

220+ survey responses from program participants were received (i.e., entrepreneurs and innovators), providing responses regarding the estimated value program provided. These survey responses provided additional quantitative and qualitative insights to this analysis.



Stakeholder Interviews

50+ individuals were interviewed across a wide spectrum of stakeholder groups, including program administrators, industry experts, and partner organizations. These interviews provided additional insights and context to the program's quantitative evaluation.



Desktop Research

Multiple internal State documents, articles, and best practices related to Michigan's economy and E&I programs were reviewed. This additional analysis offered external perspectives and allowed for a nation-wide benchmarking analysis of Michigan's performance.



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A Look at Michigan's Entrepreneurship & Innovation Ecosystem

Michigan has many of the essential elements to become a leading state with respect to supporting entrepreneurship and innovation, and with continued, targeted action from entities like MSF and the MEDC, the State can reach its full potential.

Michigan has the 14th largest economy in the United States, but for many innovationrelated metrics, it consistently ranks among the top 10. Despite slower economic growth over the past decades, which has lowered Michigan's national ranking from 9th to 14th place in terms of GDP,¹ Michigan's long-standing commitment to research and human capital formation has helped maintained its position as a top ten performer in key indicators necessary to foster entrepreneurship and innovation (E&I). These indicators include total investments in research and development (R&D), where Michigan is ranked 6th in the nation (just shy of New York), approved patents, where Michigan also ranks 6th (right behind Massachusetts), and the percentage of science and engineering occupations among all occupations, where Michigan ranks 10th (nearly on par with Oregon ranked 9th and not far behind California). Michigan's high performance in these areas indicates that the State provides fertile ground for a thriving E&I ecosystem.

Compared to states like Ohio, Illinois, and Virginia, Michigan exhibits favorable performance in the field of E&I, with potential for growth in one key area. Michigan leads the pack in university R&D investments among its neighboring states, averaging around \$3 billion annually². Additionally, it consistently attracts significant STTR/SBIR funding at levels similar to Illinois³. However, Michigan's research efforts appear to be more focused on academic research rather than entrepreneurial endeavors. Although Michigan's public universities contribute significantly to the state's startup creation, as many as 30 a year⁴, data suggest even more could be done. For example, Michigan produces one invention disclosure⁵ for every \$3.2 million in R&D, and one startup for every \$79 million invested. In comparison, Ohio achieves one invention disclosure for every \$2.3 million in R&D and one startup for every \$72 million invested in R&D. These figures indicate that Michigan could benefit from fostering an even stronger cultural shift that encourages and facilitates the transfer of R&D investments into entrepreneurship.

US Patents Total R&D Investment Science & Engineering Occupations % of all patents, top 10 states, 2021 % of all occupations, top 10 states, 2022 In \$ billions, top 10 states, 2019 R&D as a % over GDP US Avg. CA 193 6.2% CA 27.4% WA 10.4% 41 7.2% WA 6.7% ТΧ MD 9.9% MA 39 5.5% 9.4% 6.6% NY VA TX 31 1.7% WA 5.0% CO 9.3% NY 29 1.6% 4.9% 9.2% MA MA 25 MI 4.6% MI 4.0% CA 7.8% NJ 23 3.5% IL 3.4% NH 7.8% MD 23 5.3% UT 7.6% 3.2% 21 OR 7.4% PA 2.5% OF 3.0% IL 18 1.9% 2.8% MI 7.3% NJ

Source: National Science Foundation

Source: United States Patent and Trademark Office

Source: US Bureau of Labor Statistics

Sources: [1] US Bureau of Economic Analysis [2] National Center for Science and Engineering Statistics, Higher Education R&D Survey; FY2016-2020 [3] Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) award data collected by SBA from FY2016 to 2020; [4] University of Michigan Office of Technology Transfer [5] An invention disclosure is a confidential document written by a scientist or engineer for use by a company's patent department

A Look at Michigan's Entrepreneurship & Innovation Ecosystem

Another critical area for growth is Michigan's early-stage investor activity, which, despite growth in recent years, continues to fall behind its regional peers. From 2016 to 2021, Michigan experienced significant growth in venture capital (VC) funding going from less than \$0.5 billion in total VC investment in 2018 to more than \$6 billon in 2021. Although this impressive growth was greatly influenced by a nation-wide surge in venture capital investments and the rise of a few local "unicorns," which accounted for roughly 80 percent of the VC funding in 2021, this progress is still notable. According to a 2022 Research Report from the Michigan Venture Capital Association (MVCA), there were 154 venture-backed startups in Michigan, an increase of 56 percent over the past five years. However, despite this surge, Michigan's investor ecosystem is still considerably smaller than those of its peers - most notably, Ohio, Virginia, and Illinois. While 90 Michigan has venture capital firms headquartered in the State, Ohio has 108, Virginia has 117, and Illinois has 289. Michigan's relatively low investor count ultimately leads to less funding available to founders. For example, looking at a 5year average from 2018-2022, Michigan's startups received a total of \$2.7 billion in VC funding per

year, while Illinois-based startups received \$3.8 billion¹, or 40 percent more than Michigan.

Furthermore, without proactive measures, the disparity between Michigan and other regional states could widen. Recent data on VC funding in the US and Michigan shows that the exponential surge observed between 2018 and 2021 has come to a stop due to a larger crisis in the industry. In fact, VC funding has suffered a sudden and significant drop across the country. In the United States the overall drop from 2021 to 2022 has been of approximately 45 percent, while in Michigan VC funding has reduced by more than 70 percent. As this takes place, neighboring states like Ohio and Illinois have taken significant strides over the last years to increase funding available and bridge the early-stage funding gap, providing further support to their startups through the creation and expansion of initiatives like Ohio's Third Frontier and Illinois' Growth and Innovation Fund.

To address this gap, Michigan could capitalize on some of the positive momentum seen between 2018 and 2021 in its VC landscape and increase incentives to private investors acting in the state.

VC investments in MI vs US¹

In US billions, 2016 – 2023 YTD



Regional investor presence²



Number of venture capital investors with a HQ in the state

Understanding the MSF's Existing E&I Programs

The State of Michigan, via the Michigan Strategic Fund (MSF), currently oversees nine programs focused on supporting high-tech entrepreneurs and innovators. These programs are administered by the MEDC and executed by local partners.

The Michigan Strategic Fund (MSF) is a State entity established to strengthen and promote Michigan's economic stability and **growth.** To this end, the MSF provides funding for a variety of economic development programs, in infrastructure. areas including community development, and entrepreneurship. As part of this role, the MSF Board is responsible for funding and overseeing the nine E&I programs evaluated in this report.

The Michigan Economic Development Corporation (MEDC) is a public body that works in partnership with the MSF and local economic development agencies. The MEDC is responsible for the administration of the MSF's programs, including the E&I programs covered in this report. These programs rely on partnership with local organizations – the programs' grantees, or executers – who are responsible for delivering the day-to-day services and resources to entrepreneurs. The E&I programs encompass a range of services, including mentorship, financial aid, technical support, training, and connections to networks and partners.

The nine E&I programs cater to high-tech entrepreneurs during the early stages of their development, providing services ranging from creating a proof of concept to supporting an emerging businesses seeking its first round VC seed funds. The programs are designed to be roughly sequential, catering to the needs of entrepreneurs as they progress through the different stages of company maturation. Entrepreneurs may participate in as many E&I programs as needed as their business matures.

Over the five years covered in this study, the nine MSF E&I programs have invested approximately \$74 million in State funds. Notably, the programs' annual budget has decreased and then plateaued over the years, ranging from as high as \$28.5 million in 2014 down to \$19 million in 2017, and finally \$15.6 million in 2021, where it has remained until 2023¹.

	1. Proof of Concept (PoC)	Provides funds to advance high-tech related research				
University Based Innovation	2. Tech Transfer Network (T3N)	Connects entrepreneurs to experienced mentors				
intervation	3. Michigan Translational Research and Commercialization Program (MTRAC)	Helps transfer technologies from university to the market				
Federal	4. Grant Training	Provides training for STTR/SBIR ¹ grant applications				
Grants	5. Emerging Technology Fund (ETF)	Provides matching funds to awardees of STTR/SBIR				
	6. Gateway	Supports startups and creates networking opportunities				
Early Company Formation	7. Tech Team	Provides consulting services to new tech companies				
1 onnation	8. Business Accelerator Fund (BAF)	Offers funds to other business accelerators				
Early Funding	9. Early-Stage Funding (ESF)	Provides seed capital to MI-based startups				

MSF's nine E&I programs

Sources: [1] MEDC budget figures include programmatic and administrative costs.

Analyzing the Economic Impact of MSF's E&I Programs

Collectively, the nine E&I programs funded by the MSF generate a high return on investment. These programs act as powerful catalyst to economic development by supporting high-tech ventures during their early stages of development.

Over the past 5 years, MSF's E&I programs have generated an estimated impact of \$4.5 billion in Gross State Product (GSP), enabled by leveraging follow-on funding. In other words, every \$1 dollar of the \$74 million invested by MSF in its E&I programs resulted in an additional \$59 of economic impact. Roughly half of this impact came from follow-on funding to participant companies (direct impact), while the other half stemmed from supplier purchases and employee spending within the state (indirect and induced impact). This outcome underscores the significant role the State plays in supporting Michigan's high-tech startups, not only in terms of securing follow-on funds and survival of the participant companies, but also in generating indirect and induced impacts on the broader economy.

Furthermore, MSF's E&I programs have proven to be highly cost-effective in generating job opportunities. Between 2018 and 2022, one job was created for every \$15,850 invested by MSF through its E&I programs. Moreover, when combining the direct, indirect, and induced effects from the companies supported by MSF's E&I programs and follow-on funding, approximately 5,200 jobs were supported annually during the past 5 years.

The unique value of these E&I programs lies in their ability to support high-tech innovative ventures during their critical early stages. For startups, supporting the survival of companies during the first five years of their existence is crucial to future growth. Providing resources, mentorship, and funding during these early phases enables emerging ventures to reach an inflection point towards accelerated growth. Helping companies through this maturation phase results in substantial economic impact as increased capital flow enables the companies to scale and expand job creation that benefits the Michigan economy and its population.



Analyzing the Economic Impact of MSF's E&I **Programs**

This study reveals that while most of MSF's E&I programs provide substantial value to participating entrepreneurs and innovators in their journey to develop and grow their businesses, some programs seem to deliver more value than others.

To enhance the economic impact analysis of MSF's E&I programs, this study also examined the performance of each program individually. The program-level evaluation provides the State with additional insights to guide future actions and prioritize capital allocation towards programs that offer greater value to Michigan's entrepreneurs and innovators.

To assess the performance of each program, employed а counterfactual this study methodology that isolates individual program impact. Given the interconnected nature of MSF's programs, where entrepreneurs often E&I participate in multiple programs¹, this analysis examined the average performance of distinct groups of companies within a specific program. By comparing the outcomes of participants who joined a specific program to what would have occurred if they had not joined, the difference in performance was attributed to the individual program. This methodology relied on 4.5 years of available data and provided a measure of relative performance for each E&I program and the observed impact on the average participant.

Moreover, to accurately account for the differences between program objectives, this

study looked at multiple indicators in evaluating program performance. Since different E&I programs have different goals and timelines for impact, it is crucial to account for these variations using a comprehensive set of indicators. For example, the evaluations of programs focusing on the earlier E&I stages (e.g., university research) should be measured by their ability to have patents approved, licenses acquired, and/or funding raised, while programs targeting later-stage entrepreneurship (e.g., business accelerators) should be assessed on their impact on product creation and job creation.

After employing the counterfactual methodology, this analysis found that the seven largest E&I programs accounting for 90 percent of the total MSF investments are also the programs that deliver the most impact. This impact is evident not only through measurable economic indicators, such as followon funding - e.g., data suggests that a single program like ETF can help Michigan's entrepreneurs raise, on average, at least \$1 million but also through their perceived value, reported directly by participants through a recent survey that received over 200 responses from program participants.



Estimated Impacts of Program A Using a Counterfactual Methodology

Analyzing the Economic Impact of MSF's E&I Programs

Among the highest performing programs, Early-Stage Funding, or ESF, stands out as the most impactful program in Michigan's E&I portfolio. Since 2018, ESF has helped Michigan entrepreneurs raise, on average, as much as \$5.7 million of dollars and create as much as 9 jobs. Additionally, certain programs demonstrate specific strengths, such as the Business Accelerator Fund, or BAF, which, on average, has helped each program participant create 2-3 new commercialized products.

While some programs may show a lower performance, there is evidence to suggest that they contribute positively to Michigan's **E&I community.** For instance, Proof of Concept received high program scores from participants, and data suggests that Grant Training boasts a 20 percent success rate in federal grant applications, surpassing the national average of 15-18 percent in FY21¹. Despite their comparatively lower performance with respect to the nine programs evaluated, these examples demonstrate the positive value these programs create for entrepreneurs.

The table on the following page presents a comprehensive overview of the program's performance individual across various metrics. To better account for the unique designs objectives of and each program, the counterfactual calculation separated the program's isolated impact into two categories: add-on impact ("AO") and standalone impact ("SA"). Add-on impact estimates the average benefit to a participant when the program is used alongside other programs, while standalone impact estimates the average benefit when the program is used in isolation. The numbers shown in the table should be interpreted as the expected average impact on participants in each of these situations. For instance, the isolated impact of Tech Team means that based on 4.5 years of data collected, an entrepreneur that joins Tech Team should expect to raise, on average, \$0.5 to \$2.2 million in funding after joining the program.

Finally, it is worth mentioning that all estimates are presented as ranges to account for the statistical margin of error in the data samples.

Furthermore, the table on the next page employs a color scale to visually represent the relative impact of each program. The color scheme ranges from darker green indicating a higher level of impact to yellows representing lesser impact, while red indicates no identified impact. The color assignment was determined by calculating the weighted average impact based on the number of participants that engaged with the program either as a standalone support or in combination with other programs.



Entrepreneurship and innovation are known for being long-term impact generating endeavors. The earlier in the business lifecycle that intervention takes place, the longer it takes to yield tangible economic impacts, such job creation. The diagram above illustrates the nine E&I programs according to their point of intervention in the E&I curve.

Analyzing the Economic Impact of MSF's E&I Programs⁴

		Earlier-stag	je je	Entrepreneuria	al Journey	Later	r-stage	Other inc	licators
					•		,		
		Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specific metrics
2	PoC	SA data unavailable AO: No impact	0.1 patents 0.2 licenses	N/A	N/A	N/A	N/A	2.0 – 3.0	N/A
	T3N	SA \$0.8M-\$1.2M AO: \$0.3M-\$0.5M	0.7 patents 0.6 licenses	N/A	N/A	N/A	N/A.	1.0 – 2.2	N/A
	MTRAC	SA: \$5.1M-\$8.3M AO: \$5.1M-\$8.3M	2 patents 1.3 licenses	OSNI	DSNI	N/A	N/A	2.3 – 3.1	56% Acceptance rate
	Grant Train.	SA: \$0.07M-\$0.12M AO: No impact	No impact detected	WA	N/A	N/A	N/A	1.5 – 2.1	20% Funding success
	ETF	SA: \$0.9M-\$1.3M A0: \$7.1M-\$10.4M	0.4 patents 0 licenses	SA: 0-1 AO: 0-1	SA: 1-2 A0: 1-2	SA: 1.6-2.4 AO: 3-4	SA: 8-12 AO: 49-72	1.9 – 3.4	N/A
	Gateway	SA: \$1.3M-\$1.5M A0: \$0.09M-\$0.1M	0.9 patents 0.6 licenses	SA: 0.6-0.7 AO: 1.5-1.9	SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	SA: 11-12 A0: 4-5	1.9 – 2.8	36% Referral rate
0	Tech Team	SA: \$0.5M-\$0.7M AO: \$1.4M-\$2.2M	0.4 patents 0 licenses	SA: 0.3-0.4 AO: No impact	SA: 1.0-1.3 AO: 1.0-1.3	SA: 1-2 AO: 2-3	SA: 8-12 AO: 26-42	1.4-2.7	N/A
0	BAF	SA: \$0.3M-\$0.5M AO: \$0.9M-\$1.2M	0.5 patents 0 licenses	SA: 0.09-0.12 AO: 2-3	SA: 1-2 A0: 4-6	SA: 0.5-0.6 AO: 1.6-2.3	SA: 10-13 AO: 8-11	1.6 – 3.0	N/A
	ESF	SA: \$1.0M-\$1.4M AO: \$4.1M-\$5.7M	0.2 patents 1.0 licenses	SA: 0.3-0.4 AO: 1.0-1.4	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA: 5-7 AO: 21-30	2.4-4.1	N/A



and distribution; [3] : "NA" above indicates that the metric was not applicable to the program in question, and "INSD" indicates that the data was insufficient or unavailable [4] This analysis Notes: [1] "Patents" includes patents, copyrights, and trademarks, [2] Colors were assigned by a combination of factors including standalone and add-on impacts and participant numbers relies in 4.5 years of collected data from mid-2018 to end of 2022

Learnings from Michigan's E&I Community

MSF's E&I programs are providing sought-after services to stakeholders in the E&I community, but their current scale limits their ability to comprehensively address the market needs of critical stakeholders, most notably entrepreneurs and early-stage investors.

Michigan's E&I ecosystem is a dynamic network characterized by a robust convergence of governmental, academic, and financial resources. The State's ecosystem showcases a high degree of interconnectivity among various stakeholders, including State government, research institutions, residents, venture capitalists, and entrepreneurial support organizations as depicted in the diagram below.

To complement the findings from the economic impact model, this study included the collection of qualitative inputs from various stakeholders within Michigan's E&I ecosystem, most notably entrepreneurs, mentors, and investors.

Entrepreneurs expressed challenges around a lack of fundraising support, locating mentorship opportunities, and access to qualified talent, which can result in entrepreneurs seeking out-of-state assistance or abandoning their efforts.

"This early help and funding is the main reason we have reached our goals so far, but more funding is needed to achieve full production." – Local Entrepreneur **Mentors** reported a lack of financial incentives to boost participation in mentorship programs and lack of a central directory identifying open mentorship opportunities. As a result, potential qualified industry experts are excluded from the mentor pool, resulting in a loss for aspiring entrepreneurs and innovators.

"Other than the altruism and passion to support Michigan's entrepreneurs, there is not much of an incentive to get involved." - Local Mentor

Private sector investors play a crucial role in the E&I ecosystem by providing essential capital for start-ups. However, early-stage investors in Michigan, particularly venture capitalists and angel investors, reported a lack of State-funded financial incentive program. This puts the State at risk of losing early-stage investment opportunities to other states, thereby restricting funding access for Michigan's entrepreneurs.

"Early-stage venture capitalists do not feel supported in Michigan. State support is focused on large deals and not fostering investment in tech startups." - Local Investor



Michigan's E&I Community

Defining a Path Forward: Strategic Framework, Recommendations, and Implementation Blueprint

To maximize the impact of its programs and better serve Michigan's community of entrepreneurs and innovators, the MSF should build on its current strengths and look for opportunities to scale up, while filling in strategic gaps in partnership with the MEDC.

Moving forward, to maximize MEDC's capacity to support the MSF in achieving its mission, the State should focus on four recommended areas: 1) invest in high-quality data, 2) increase the visibility of Michigan's E&I efforts and successes, 3) budget for the long-term and prepare for funding gaps, and 4) build from successful efforts and scale impact. These recommendations encompass range of а approaches, from operational improvements aimed at optimizing time and resources to strategic initiatives designed to achieve broader outcomes. The framework below provides a summary of these recommendations.

These four recommendations are interconnected, forming a virtuous cycle where each positive outcome builds upon the foundation established by the last. First, investing in higher-quality data and building out a robust database enables the MEDC's E&I team to effectively communicate the positive impacts of Michigan's E&I programs and make informed decisions regarding programmatic changes. Improved data empowers the E&I team to present a compelling case for Michigan's E&I efforts and successes to stakeholders, facilitating increased awareness, support, partnerships, and ultimately, funding for the State's E&I initiatives. With a broader support base and long-term budget planning, the MSF and MEDC can strategically expand its best-performing E&I programs, thereby generating more data-backed evidence of their impact, which reignites the virtuous cycle.

To enact these four recommendations, the State can focus on a series of tactics that allow the MSF and MEDC teams to make targeted, intentional progress. The next page offers an overview of these tactics.

For more detailed information on the recommendations and specific tactics, please refer to Appendix A.

MSF's Mission	To encourage diversification of the economy and the creation of jobs in this state				
E&I's role	Support MSF'	s mission by fosterir innovation	ng high-tech entrepro in Michigan	eneurship and	
	Operational			Strategic	
Recommended focus going	N		X	MA .	
forward	Invest in high-quality data	Increase the visibility of MI's E&I efforts and successes	Budget for the long- term and prepare for funding gaps	Build from successful efforts and scale-up impact	
Objectives	 Standardize and streamline data gathering processes Convey the value of E&I programs through collected data 	 Establish frequent and strategic channels with key stakeholders Increase the number of E&I champions in the state 	 Increase visibility of long-term funding needs Reduce uncertainty of budget fluctuations 	 Expand most impactful programs Adopt economic incentives that can catalyze programmatic impact 	

Defining a Path Forward: Strategic Framework, Recommendations, and Implementation Blueprint

Recommendation		Tactical Actions	Rationale
		A1: Assign dedicated data lead within MEDC's E&I team	Ensure overall progress and quality of all data related efforts
	Invest in high- quality data	A2: Standardize data collection across all grantees	Improve data quality by applying a consistent and comparable methods
A.		A3: Collect companies' tax identification number (TINs)	Develop the ability to track companies' long- term survival and overall success
		A4: Assign unique company IDs to each subgrantee for data collection	Standardize company identification to improve ease of data analysis
		A5: Standardize quality assurance process across all stakeholders	Improve reliability of data by ensuring consistent quality control
		A6: Regularly educate/train partners on key definitions of success metrics	Align on data requirements to comparability of metrics
		A7: Collect new Grant Training data measuring funding success rates	Measure Grant Training's program success with more relevant metrics
		A8: Boost equitable access to resources within the E&I ecosystem	Align with the broader industry prioritization of equitable access
B.	Increase the	B1: Increase communication touchpoints with key stakeholders	Consistently convey program activities to the Legislature, MSF, and public
	visibility of MI's E&I efforts and	B2: Advertise individual success stories on top of the quantitative data	Highlight program wins to stakeholders through concrete case studies
	successes	B3: Become a central coordinator in the state's E&I space	Increase public awareness of the MSF, MEDC, and the E&I programs' value
C.	Budget for the	C1: Develop a 10-year budget plan for the E&I programs	Prepare for the long-term and highlight the need for consistent funding
	long-term and prepare for	C2: Partner for short-term budget gaps	Fill short-term budget gaps to ensure program success and longevity
	funding gaps	C3: Invest in an evergreen fund to support startups and founders	Fill a long-term need of consistent financial support for entrepreneurs
		D1: Expand mentorship efforts to support entrepreneurship outside of universities	Fulfill a need voiced by entrepreneurs in customer satisfaction surveys and interviews
D.	Build from successful	D2: Continue to grow the ESF program	Increase funding availability for early-stage companies
	efforts and scale up	D3: Support entrepreneurs and innovators in their talent searches	Fulfill entrepreneurs' need for increased access to employees and cofounders
	impact	D4: Incentivize E&I activity in the State	Encourage entrepreneurship and innovation by creating state incentives
		D5: Focus on high-impact programs	Optimize resource allocation to high performing programs

Defining a Path Forward: Strategic Framework, Recommendations, and Implementation Blueprint

The State can meet these recommendations by effectively prioritizing and scheduling the delivery of the tactics, or practical strategies, outlined below. These tactics vary in the time and effort expected to achieve them. Some tactics are categorized as "quick wins", meaning that that are likely achievable within a year, while others require a longer-term investment spanning at least three years to be fully realized.

The successful implementation of these four recommendations necessitates careful consideration of several key factors beyond the prioritization and spacing of tactics. These factors include understanding the resource requirements, advocating for necessary policy changes, fostering a supportive team culture, and comprehendina the broader socio-political implications. Each of these elements plays a crucial role in ensuring the effective execution of the recommendations.

Resources required: Staffing and funding adjustments may be necessary to successfully implement some of the tactics outlined below. These are the 'hard' costs of implementation.

Legislative and legal changes: Enacting some of the more strategic recommendations may necessitate policy and operational change, particularly with proposed tactics like the development of new incentives or programs.

Team culture: The implementation strategy must consider implications to the culture of the MSF and MEDC teams, especially when considering changes to process and communication norms.

Broader Implications: Due to the interconnected nature of the State's E&I ecosystem, programmatic changes should be enrolled systemically and consider a broad spectrum of stakeholders.

The table below provides a summary of the suggested sequencing and estimated timeline for implementing the tactics associated with each recommendation.

Recommendation	Tactic Implementation Timeline								
	Year 1			Year 2			Year	3 and bey	ond
	A1 Assign dedicated data quality lead								
		A2 Standardize data collection methods							
		A3 Collect companies' TINs							
A. Invest in high-quality		A4 Assign unique identifiers to companies							
data		A5 Sta	andardize (QA proce	SS				
	A6 Regularly train and educate partners	•	•	•	•	•	•	•	•
	A7 Collect additional data for Grant Training	•	•	•	•	•	•	•	•
	A8 Boost commitment to equitable access								
B. Increase the visibility	B1 Increase communication w/ stakeholders	•	•	•	•	•	•	•	•
of MI's E&I efforts	B2 Advertise individual success stories	•	•	•	•	•	•	•	•
and successes		B3 Bec	ome a cen	tral coord	linator faci	litating ne	tworking a	and collab	orations
C. Budget for the long-	C1 Develop a 10-year budget plan								
term, prepare for		C2 Pa	rtner with l	ocal orga	nization to	fill in shor	t-term buo	dget gaps	8
funding gaps		C3 Inv	est in an e	vergreen	fund				10
	D1 Expand mentorship efforts								
D. Build from	D2 Continue to grow the ESF Program								
successful efforts	D3 Support entrepreneurs' talent search								
and scale-up impact		D4 Ide	ntify oppo	rtunities t	o expand (economic	incentive	S	
		D5 Co	nsider con	centratin	g funds on	fewer, hig	gher-impa	ict program	ns
				Ind	icates Re	ecurring	activity		

Appendices Available as separate documents

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Michigan's Economic Development Incentive Evaluation

Appendix A: Recommendations: Strategic Framework and Tactics

This deliverable was prepared by Guidehouse Inc. for the sole use and benefit of, and pursuant to a client relationship exclusively with the Michigan Department of Technology, Management, and Budget ("Client"). The work presented in this deliverable represents Guidehouse's professional judgement based on the information available at the time this report was prepared. The information in this deliverable may not be relied upon by anyone other than Client. Accordingly, Guidehouse disclaims any contractual or other responsibility to others based on their access to or use of the deliverable.

To increase the impact of the E&I programs and, therefore, support MSF in achieving its mission, the State should focus on four overarching goals



Recommended focus going forward



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These four recommendations build on the State's current strengths, looking for opportunities to scale up impact and fill in strategic gaps



The current budget process for E&I aligns with the State's 1 to 2-year cycle, which increases uncertainty and limits long-term planning The State's E&I programs benefit from more **stable and predictable funding** sources that allows for long-term planning



D) Build from successful efforts and scale-up impact

MICHIGAN E&I TODAY

The existing programs are highly impactful, but their current scale limits their ability to comprehensively address market needs

MICHIGAN E&I TOMORROW

Michigan becomes a **national reference for excellent E&I support** through its programs and economic incentives Together, they create a virtuous cycle, with the benefits from one recommendation spurring further benefits from the next



To start acting on these recommendations, a few tactics have emerged as particularly valuable for State's consideration

N

A) Invest in high-quality data

TACTICS

- A1 Assign a dedicated staff for data quality
- A2 Standardize data collection methods
- A3 Collect company's TINs¹
- A4 Assign a unique identifier to companies
- A5 Standardize quality assurance process
- A6 Regularly train and educate partners
- **A7** Collect additional data for Grant Training
- A8 Boost commitment to equitable access

B) Increase the visibility of MI's E&I efforts and successes

TACTICS

B1 Increase communication with key stakeholders, most notably the MSF board

B2 Advertise individual success stories

B3 Become a central coordinator facilitating networking events and collaborations

C) Budget for the long-term and prepare for funding gaps

TACTICS

 Λ

C1 Develop a 10-year budget plan

short-term budget gaps

C2 Partner with local organization to fill in

C3 Invest in an evergreen fund

D) Build from successful efforts and scale-up impact

TACTICS

- D1 Expand mentorship efforts
- D2 Continue to grow the ESF Program
- D3 Support entrepreneurs' talent search

D4 Identify opportunities to expand economic incentives for early-stage investing

D5 Consider concentrating funds on fewer, higher-impact programs

DETAILED RECOMMENDED TACTICS

HILLE

F

THE

1

Tactic A1: Assign a dedicated individual who will focus solely on data collection and quality assurance

This tactic serves to improve the current process of collecting and compiling data for the annual Legislative Report.

Tactic Overview					
Tactic Type					
X	Operational		Strategic		
X	General		Program Specific		
Problem Statement					

The current data-collection system, which requires each grantee to collect and report their own program metrics, has proven to be challenging and time-consuming. Along with placing a burden on program managers' time, this decentralized approach often leads to inconsistencies in data collection methodologies and makes interpreting the data difficult.

Proposed Solution

Adopt a centralized approach with a dedicated person in charge of overseeing the data collection and quality assurance process across all 9 programs. Each grantee will have to coordinate with this person to explain past and ongoing practices, as well as to help facilitate future data needs.

	Summary of Benefits						
		Quick Wins			Sustained Benefits		
• F c	Program man collection resp	agers will be relieved of d ponsibilities.	ata-	 Increas figures 	ed confidence in data, including published in Legislative Reports.		
• A r c	A more strear educing the t collect and re	nlined data-collection proc ime and effort required to port metrics.	cess,	 Ability t reports perform 	o start building longitudinal data with trend analysis, benchmarks, and nance goals for each program.		
• (a c	Consistency in across progra compare and	n data collection methodo ms, making it easier to interpret data.	logies	 Improve effective those w 	 Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 		
Implementation Snapshot							
		Timeframe, Leve	of Eff	ort, and L	evel of Impact		
X	Short Term (D-12 months)	d. Term	(1-2 years)	Long Term (2+ years)		
Le	el of Effort	LOW	Leve	l of Impact	HIGH		
	Primary Bonoficiary(ios)						
	MSE			Grant	ees (i.e., program admin.)		
	IVIOF			Grante			
X	MEDC			Subgrantees (i.e., entrepreneurs)			

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Tactic A2: Collect impact data from subgrantees in a standardized manner through a single consolidated survey

This tactic serves to improve the current process of collecting and compiling data for the annual Legislative Report.

Tactic Overview					
Tactic Type					
X	Operational		Strategic		
Х	General		Program Specific		
Droblem Statement					

Currently, each program collects data in a different way, leading to:

- Inconsistent metrics across different programs and different years within the same program.
- Increased burden on grantee time and resources.
- Survey fatigue from subgrantees.

Proposed Solution

Send out a single consolidated survey each reporting period. The form should utilize survey logic to create a set of common questions shown to all respondents, along with various sets of program-specific questions customized for each subgrantee's unique group of programs.

Summary of Benefits						
Quick Wins	Sustained Benefits					
Clean, consistent data across programs over	 Increased confidence in data, including figures published in Legislative Reports. 					
time.Higher response rate on surveys thanks to reduced survey fatigue and confusion over	 Ability to start building longitudinal data reports with trend analysis, benchmarks, and performance goals for each program. 					
multiple surveys.Saves time on data collection by grantees.	 Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 					

	Implementation Snapshot									
Timeframe, Level of Effort, and Level of Impact										
Short Term (0-12 months) X Med			ed. Term (1-2 years)				Long Term (2+ years)			
Lev	Level of Effort HIGH Le			Level of In	l of Impact HIG			HIGH		
Primary Beneficiary(ies)										
	MSF					Grante	es (i.e	., pro	gram admin.)	
Х	MEDC					Subgra	antees	(i.e.,	entrepreneurs)	

Tactic A3: Collect data on companies' Taxpayer Identification Numbers (TINs) in order to track long-term success

This tactic serves to improve grantees' ability to track the long-term success of their programs.

Tactic Overview						
Tactic Type						
X	Operational		Strategic			
Х	General		Program Specific			
Problem Statement						

Currently, subgrantees are identified only by manually inputted company name, leading to:

- Inconsistent spellings/naming conventions across reporting periods, meaning no true unique identifier exists in today's system.
- Difficulty tracking long-term success beyond the years actively spent in the E&I programs.

Proposed Solution

Collect data on company's TINs in addition to their names and use these TINs to help track long term success. This sustained success may be tracked through various means, including companies' business registration status, found in sources such as the MI Department of Licensing and Regulatory Affairs (LARA) database.

Summary of Benefits							
Quick Wins	Sustained Benefits						
 A more complete database, with the Taxpayer Identification Number allowing for: More consistent tracking of companies across reporting periods and over time. Long-term success tracking through business registrations 	 Newly trackable metrics, namely long-term company success after exiting E&I programs. Ability to start building longitudinal data reports with trend analysis, benchmarks, and performance goals for each program. 						
 Higher level of confidence in legitimacy of businesses served. 	 Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 						
Implementation Snapshot							
implementat	ion Snapshot						
Timeframe, Level of Eff	fort, and Level of Impact						
Timplementat Timeframe, Level of Eff X Short Term (0-12 months) Med. Term	fort, and Level of Impact (1-2 years) Long Term (2+ years)						
X Short Term (0-12 months) Med. Term Level of Effort MEDIUM Level	Ion Snapshot fort, and Level of Impact (1-2 years) Long Term (2+ years) HIGH						
X Short Term (0-12 months) Med. Term Level of Effort MEDIUM Level Primary Ber	ion Snapshot fort, and Level of Impact (1-2 years) Long Term (2+ years) el of Impact HIGH						
X Short Term (0-12 months) Med. Term Level of Effort MEDIUM Level Primary Ber MSF	ion Snapshot fort, and Level of Impact (1-2 years) Long Term (2+ years) el of Impact HIGH neficiary(ies) X Grantees (i.e., program admin.)						

Tactic A4: Assign a unique MEDC identifier (different from the TIN) for each company supported

This tactic serves to improve the current process of collecting and compiling data for the annual Legislative Report.

Tactic Overview						
Tactic Type						
X	Operational		Strategic			
X	General		Program Specific			
Problem Statement						

Currently, subgrantees are identified only by manually inputted company name, leading to inconsistent human errors, such as spellings/naming conventions across reporting periods. Tracking TINs could address this issue internally, however, not all program participants will have TINs and due to data privacy guidelines, TIN data cannot be released publicly.

Proposed Solution

Assign a unique identifier to be used alongside the TIN for each company supported. This can be randomly generated, as long as it is consistently applied to all data collected for that company. Subgrantees should know their own MEDC unique identifiers to help support consistency across all parties.

Summary of Benefits					
Quick Wins	Sustained Benefits				
 A more complete database, with the unique identifier allowing for more consistent tracking of companies across reporting periods in situations where a TIN is not available or cannot be released for data privacy reasons. 	 Ability to start building longitudinal data reports with trend analysis, particularly in situations where the TIN is not available or cannot be shared. Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 				

	Implementation Snapshot							
	Timeframe, Level of Effort, and Level of Impact							
X Short Term (0-12 months) Med. Term ((1-2 years)		Long Term (2+ years)			
Level of Effort LOW Le			Leve	l of Impact		HIGH		
	Primary Beneficiary(ies)							
	MSF			Grante	es (i.e	e., program admin.)		
Х	MEDC			Subgra	antees	(i.e., entrepreneurs)		

Tactic A5: Develop and implement a standardized quality assurance process for accurate data collection

This tactic serves to improve the current process of collecting and compiling data for the annual Legislative Report.

Tactic Overview						
Tactic Type						
X	Operational		Strategic			
Х	General		Program Specific			
Problem Statement						

Currently, data is collected in different ways for each program. The process is highly manual, with subgrantees self-reporting their success metrics or grantees inputting it with the help of Pitchbook, formulas, etc. This leaves the data subject to human error, the effects of which are exacerbated due to the lack of a standard quality assurance process across the programs.

Proposed Solution

Develop a standardized quality assurance process for accurate data collection, and train grantees and any necessary MEDC employees involved in the data collection/report process. Grantees will need to collaborate to decide what process works best, particularly after standardizing their data collection practices.

Summary of Benefits						
Quick Wins	Sustained Benefits					
 Improved accuracy and consistency of data thanks to reduced risk of mistakes, including human error. Increased transparency in data-collection methodologies, leading to a greater understanding of program performance. 	 Increased confidence in data, including figures published in Legislative Reports. Improved program outcomes thanks to better-informed decision-making based on reliable data. Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 					

	Implementation Snapshot								
	Timeframe, Level of Effort, and Level of Impact								
X Short Term (0-12 months) Med. Te			. Term (1-2 yea	ars)		Long Term (2+ years)			
Level of Effort MEDIU			MEDIU	М	Level of Impact			HIGH	
				Primar	y Benefic	iary(ie	es)		
		MSF				Grante	es (i.e., pr	ogram admin.)	
	X	MEDC				Subgrantees (i.e., entrepreneurs)			

Tactic A6: Regularly educate stakeholders (grantees, subgrantees, MEDC team) on key definitions of report metrics

This tactic serves to improve the current process of collecting and compiling data for the annual Legislative Report.

Tactic Overview						
Tactic Type						
X	Operational		Strategic			
X	General		Program Specific			
Problem Statement						

Currently, there is a set list of definitions for the various metrics measured in the Legislative Report, but interviews and data inconsistencies reveal that the various stakeholders who work to prepare these reports are unclear on the exact interpretation of many of these definitions, leading to less reliable data and reporting.

Proposed Solution

Actively educate stakeholders on the definitions of report metrics to eliminate confusion or inconsistencies in interpretation. This activity could be led by the internal data lead and achieved through surveys, live sessions, or asynchronous training materials.

Summary of Benefits					
Quick Wins	Sustained Benefits				
 A clear understanding of what is specifically being measured by the different report metrics. More consistent data collection across the programs over time. 	 Increased confidence in figures published in the Legislative Reports. Improved program outcomes thanks to better-informed decision-making based on reliable data. Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding 				

	Implementation Snapshot								
	Timeframe, Level of Effort, and Level of Impact								
X Short Term (0-12 months) Med. Te			l. Term (1-2 yea	ars)		Long Term (2+ years)			
Level of Effort MEDIU		М	Level of Impact			HIGH			
				Primar	y Benefic	iary(ie	s)		
		MSF				Grantee	es (i.e., pr	ogram admin.)	
	Х	MEDC				Subgrantees (i.e., entrepreneurs)			

Tactic A7: Collect data on BBC Grant Training's SBIR/STTR applications and compare it to national/state benchmarks

This tactic serves to improve BBC Grant Training's ability to track program success outside of the Legislative Report.

	Tactic Overview								
	Tactic Type								
	X	Operational		Strategic					
General				Program Specific					
	Problem Statement								

Currently, subgrantees who participate in the BBC Grant Training program are not required to report whether they submit an SBIR/STTR application, leading to:

- An inability to calculate the program's overall application-to-funding success rate.
- Difficulty measuring the program's success.

Proposed Solution

Establish that all BBC Grant Training participants must report applications submitted as a requirement for participation in the program. This data can be collected through the unified survey suggested in Tactic 1.2.

Summary of Benefits								
Quick Wins	Sustained Benefits							
 The ability to track application counts, which, in conjunction with funding award counts (already collected), allows for: Better tracking of program success and trends through a more appropriate KPI. Ability to compare against national/state benchmarks. 	 Newly trackable metrics, namely funding success rates for SBIR/STTR applications. Ability to start building longitudinal data reports with trend analysis of application counts and success rates. Improved ability to communicate program effectiveness to key stakeholders, including those who allocate funding. 							

	Implementation Snapshot									
Timeframe, Level of Effort, and Level of Impact										
X Short Term (0-12 months) Med. Term (1-2 years) Long Term (2+ years)										
Level of Effort LOW		Leve	Level of Impact			MEDIUM				
	Primary Beneficiary(ies)									
MSF					Grantees (i.e., program admin.)					
MEDC					Subgrante	es (i.e.,	entrepreneurs)			

Tactic A8: Explore ways to highlight Michigan's commitment to providing equitable access to the State's E&I resources

This tactic positions the MSF to make evidence-based decisions about how to ensure equitable access to State-funded E&I programming.

	Tactic Overview								
	Tactic Type								
		Operational	X	Strategic					
X General		General		Program Specific					

Diversity, Equity, and Inclusion (DEI) is a growing priority in the E&I space, particularly among investors. The State can look at strategies to measure its E&I program outcomes with respect to relevant demographics in order to identify possible gaps and outreach opportunities to facilitate equitable access to these programs, reinforcing its commitment fostering equity in the State.

Proposed Solution

Collaborate with MEDC's DEI officer to adopt evidence-informed frameworks for attaining equitable entrepreneurial growth. Develop marketing messages targeted to reach under-represented entrepreneurs, as well as actively seeking stakeholders who reflect Michigan's talented and diverse workforce.

Summary of Benefits									
Quick Wins	Sustained Benefits								
 Provides the MSF & MEDC's E&I team with descriptive data to properly characterize the diversity of E&I program participation. Positions the State to determine if any changes to its outreach strategy to grantees and subsequently entrepreneurs and innovators might be needed to facilitate equitable access to program resources. 	 Michigan continues to reach its mission to be a State where anyone can start and grow a business successfully. Michigan solidifies its reputation among investors as a place where DEI is honored and prioritized. 								
Implementation Snapshot									
Timeframe, Level of Eff	ort, and Level of Impact								

Short Term (0-12 months)			Med. Term (1-2 years)			rs)	X	Long Term (2+ years)
Level of Effort HIGH		Level of Impact			npact		HIGH	
Primary Beneficiary(ies)								
MSF				X	Grantees (i.e., program admin.)			
MEDC				Χ	Subgran	ntees (i.e.,	entrepreneurs)	

Tactic B1: Improve communication with the MSF board by increasing frequency of touch points and simplifying information This tactic serves the purpose of increasing the MSF board's understanding of and involvement with

the E&I programs.

Tactic Overview											
	Tactic Type										
X	Operatio	nal			Stra	ategic					
X	General				Pro	gram S	Specific				
	Problem Statement										
Curren progran up-to-c effectiv	Currently, the MSF board receives periodic updates and communications regarding the E&I programs, but there is often confusion or a lack of awareness about their services and impacts. An up-to-date, dynamic understanding of the programs is essential for the MSF board to most effectively advocate for them.										
			Pro	posec	d Solution						
Increas on the MSF E commu univers	Increase touchpoints with the MSF Board by (i) adjusting the MSF agenda to have regular updates on the E&I programs, (ii) appointing an E&I champion on the MSF board, or (iii) establishing an MSF E&I task force. In addition, the MEDC E&I team should simplify how information is communicated to the MSF Board, by, for example, bucketing programs into their larger groups (e.g., university innovation, company formation, etc.) and avoiding the use of acronyms.										
Summary of Benefits											
Quick Wins						Su	stained Benefits				
 More up-to-date information and awareness of the E&I programs' activities and impacts from the MSF Board. 					 Improved ability to communicate program effectiveness to key MSF stakeholders, including those who help advocate for the programs and allocate funding. 						
	Implementation Snapshot										
		Timefram	e, Level	of Eff	ort, and L	evel	of Impact				
X Sh	ort Term (0-12 months)	Med	l. Term	(1-2 years) Long Term (2+ years)						
Level	Level of Effort LOW Leve				l of Impact		HIGH				

Primary Beneficiary(ies)								
X MSF	Grantees (i.e., program admin.)							
	MEDC	Subgrantees (i.e., entrepreneurs)						

Tactic B2: Increase visibility of success stories, esp. for earlier stage programs with longer timelines for quantifiable success

This tactic serves to better communicate the full add-on value of MSF's programs, as a supplement to the data in the Legislative Report.

	Tactic Overview									
	Tactic Type									
X	Operatio	nal			Strat	egic				
X	General				Prog	ram Specific				
		P	roblem	Stateme	ent					
Curre univer subgr Trainin strong	Currently, it is hard to communicate the full value-add of some of the E&I programs, particularly the university programs and BBC Grant Training, due to their longer timelines for quantifiable subgrantee success, as well as the general nature of their services rendered (e.g., BBC Grant Training's focus on federal grants leads to relatively lower follow-on funding, despite indication of a strong success rate among participants).									
		Р	roposed	d Soluti	on					
Frequ T3N N succe meeti	Frequency advertise individual success stories – particularly the ones related to Proof of Concept, T3N Mentors, MTRAC and BBC Grant Training – due to their longer timelines for quantifiable success. Examples of success cases could be added to the website, newsletters, press releases, meeting openers, among other opportunities.									
	Summary of Benefits									
		Quick Wins		Sustained Benefits						
• A n pro cor me Leç	ete and positive picture ormance than what is cu d by quantitative perforr as those published in the port.	of irrently nance e	 Improved ability to communicate program effectiveness to key stakeholders, including those who help advocate for the programs and allocate funding. Improved public understanding and perception of the MSF E&I programs, potentially attracting more entrepreneurs to participate in Michigan's E&I space. 							
		Implei	mentat	ion Sn	aps	shot				
		Timeframe, Lev	el of Eff	fort, and	l Le	vel of Impact				
X Short Term (0-12 months) Med. Term				(1-2 years)		Long Term (2+ years)				
Level of Effort LOW Leve				el of Impact HIGH						
		Prin	nary Ber	neficiary	/ieg	3)				
Y N	ISE			Grantoos (i.e., program admin.)						
X MEDC				Subgrantees (i.e., entrepreneurs)						
Tactic B3: Serve as a central coordinator, creating opportunities for networking, information sharing, and collaboration

This tactic utilizes partnerships with grantees to create better services for subgrantees, benefitting both groups and their partners.

Tactic Overview						
	Tactic Type					
		Operational	X	Strategic		
X General				Program Specific		
Problem Statement						

Michigan has a vibrant ecosystem of E&I-focused organizations, but not all of them are currently working with the MEDC, potentially missing out on valuable collaboration, knowledge sharing, and network building.

Proposed Solution

Serve as a central coordinator for Michigan's E&I ecosystem by working with E&I organizations, grantees, and incubators in order to create more opportunities for networking and collaboration. It is important to note that the MEDC already sponsors events such as the Michigan Angel Summit, a2Tech360, and Midwest House; by increasing the visibility of these existing collaborations, as well as continuing to create new ones (for instance, partnering with Michigan Tech Week), the MEDC can boost its role as a central coordinator.

Summary of Benefits						
Quick Wins	Sustained Benefits					
 Increased visibility and credibility for the MEDC as a central coordinator. Increased collaboration and communication, leading to more efficient and effective support for early-stage businesses. Greater awareness of available resources and opportunities for entrepreneurs, leading to increased participation and engagement. 	 Improved access to funding, mentorship, and other resources for early-stage businesses, leading to increased success rates and job creation. Greater retention of talent and investment in Michigan, thanks to a stronger, more cohesive E&I ecosystem. 					
Implementation Snapshot						
Timeframe Level of Effort and Level of Impact						

Short Term (0-12 months) X Med. Term			Term (1-2 yea	rs)		Long Term (2+ years)		
Level of Effort HIGH			Level of Impact				HIGH	
	Primary Beneficiary(ies)							
MSF		X	Grantees (i.e., program admin.)					
MEDC			X	Subgra	antees (i.e.,	entrepreneurs)		

Tactic C1: Project programmatic goals and budget priorities for the next 10 years to gain clarity on long-term financial needs

This tactic helps the MSF and MEDC E&I teams lay the groundwork for its long-term goals, programmatic objectives, and financial needs.

Tactic Overview						
Tactic Type						
		Operational	X	Strategic		
X General Program Specific						
Droblem Statement						

Problem Statement

The E&I team currently aligns their budget planning with the State's 1 to 2-year budget cycle, which limits visibility of long-term goals and hinders active pursuit of funding for sustainable programmatic efforts. This poses a challenge for the development of E&I initiatives, which typically require years to show impact.

Proposed Solution

Adopt a 10-year planning horizon as an internal MEDC E&I tool to gain clarity on financial needs and budget accordingly. The 10-year plan should be revise and refresh on a regular, pre-set schedule (e.g., every two years). Please note that this recommended tactic is optimized when done together with tactics C2 and C3.

Summary of Benefits						
Quick Wins	Sustained Benefits					
 Enhances the MEDC's E&I team's capacity to identify long-term goals and opportunities, and effectively advocate for the funding required to execute those goals. Demonstrates for stakeholders the adverse implications of short-term funding fluctuations and disruptions. 	 Improves communication with key stakeholders such as the MSF Board, legislators, and potential partners, fostering stronger engagement and collaboration. Allows the E&I team to pursue more ambitious initiatives, positioning MI's E&I space for sustained success and growth in the coming decade and beyond. 					
Implementation Spanabat						

	Implementation Snapshot						
	Timeframe, Level of Effort, and Level of Impact						
X Short Term (0-12 months) Med. Term (1-2 y					ears) Long Term (2+ years)		
Lev	Level of Effort MEDIUM to HIGH Level			Level of Ir	npact MEDIUM to HIGH		
	Primary Beneficiary(ies)						
MSF					Grantees (i.e., program admin.)		
X MEDC				Subgrantees (i.e., entrepreneurs)			

Tactic C2: Formalize partnerships with local companies and foundations to leverage alternative sources of funding and fill **short-term budget gaps** This tactic utilizes partnerships to help fill in gaps in funding for grantees.

	Tactic Overview								
Tactic Type									
	Operatio	nal			Х	Stra	Strategic		
X	General					Pro	gram	Speci	ific
			Prob	olem 🖁	State	ment	1		
When State t jeopar	When E&I funding levels drop, it puts current programs at risk. This makes it challenging for the State to retain program managers, program partners, and attract applicants, which in turn can jeopardize the momentum that these programs have previously built.						es it challenging for the nts, which in turn can		
			Prop	osec	d Solu	ution			
Form p <u>Wilson</u> source gaps o Smarta	Form partnerships with local companies and foundations (e.g., <u>The Kresge Foundation</u> , <u>Ralph C.</u> <u>Wilson Jr. Foundation</u> , <u>Ballmer Group</u> , etc.) already active in the E&I space to secure a secondary source of funding that can be drawn upon as needed to bridge programs across short-term budget gaps or deficiencies. An example of a potential use case would be the preservation of critical SmartZones that are losing their State funding.								
			Summ	nary	of B	enef	its		
		Quick Wins			Sustained Benefits				
 Sets up the ability to fill funding gaps and deficiencies for programs during important periods for growth and/or survival. Creates less uncertainty about the future of E&I programs thanks to a source of backup funding for specific challenges. 				 Sets up the ability to plan further into the future thanks to a greater confidence in program survival, regardless of annual funding fluctuations (especially in partnership with Tactic C1). Allows for continuity of programs and initiatives that may otherwise been paused or ended. 					
		Ir	npleme	ntati	ion S	nap	sho	t	
		Timeframe	e, Level o	of Eff	ort, a	nd L	evel	of In	npact
SI	nort Term (d	0-12 months)	Med	. Term	(1-2 year	5)		Х	Long Term (2+ years)
Level	of Effort	MEDIU	M	Leve	l of Im	pact			HIGH
			Primar	y Ber	nefici	ary(ie	es)		
M	SF				X	X Grantees (i.e., program admin.)			
MEDC				Subgrantees (i.e., entrepreneurs)					

Tactic C3: Consider investing in an evergreen fund to increase long-term financial sustainability of E&I budget and fill in a market need

This tactic utilizes an evergreen fund to help provide funding to subgrantees.

MEDC

	Tactic Overview						
	Тас	tic Type					
Operatio	onal	X	Strategic				
X General			Program Specific				
	Problem Statement						
The budget for E&I programs lacks predictable funding, which affects its ability to make long-term assurances of its support to grantee and, consequentially, the entrepreneurs participating in these programs. In addition, Michigan is lagging in early-stage investor activity, which startups rely on to provide capital for growth and development.							
	Propos	ed Solut	tion				
Join ongoing eff dedicated to ear investment profe In line with other through the even term, this fund c	Join ongoing efforts or help facilitate a new discussions for the establishment of an evergreen fund dedicated to early-stage entrepreneurship. This fund would be operated by a partner and investment professional that would develop a pipeline of early-stage opportunities for investment. In line with other states' practices – such as Illinois' Growth and Innovation Fund – funds invested through the evergreen fund would be directed exclusively to Michigan-based companies. In the long term, this fund can yield returns sufficient to self-fund the continuation of its investment efforts.						
	Summar	y of Bei	nefits				
	Quick Wins		Sustained Benefits				
 Sets up a cor funding for Ea regardless of funding. Provides incre startups in Mi 	nsistent and reliable source of &I that persists at a steady pace fluctuations in State-provided eased access to capital for ichigan.	The set sup pro sup of u p	 The evergreen fund's perpetual nature would set up a source of sustained funding to supplement the support from the existing E&I programs. This helps foster continuous support for startups and reduces the effects of uncertainties related to annual State- provided budget fluctuations. 				
	Implement	ation Sr	napshot				
	Timeframe, Level of I	Effort, an	nd Level of Impact				
Short Term	0-12 months) Med. Te	r m (1-2 years)	X Long Term (2+ years)				
Level of Effort	MEDIUM to LOW	evel of Imp	Pact HIGH				
	Primary B	eneficia	ry(ies)				
MSF		G	Grantees (i.e., program admin.)				

Х

Subgrantees (i.e., entrepreneurs)

Tactic D1: Expand the scope of E&I mentorship programming to include a broader audience of non-university entrepreneurs

This tactic introduces mentorship support for entrepreneurs beyond just those affiliated with universities.

Tactic Overview				
Tactic Type				
	Operational	X	Strategic	
General X Program Specific				
Problem Statement				

Michigan E&I's mentorship services – such as those provided through T3N program and partially by MTRAC – have proven to be highly impactful but are currently exclusively available to university-affiliated entrepreneurs.

Proposed Solution

Select a grantee to create, manage, and maintain a roster of mentors who they can match up with entrepreneurs entering through the SmartZones. The SmartZones then support the initiative by organizing group mentorships, pitch practices, and other such opportunities. The MEDC can support this efforts by collaborating with corporations to help secure funds to provide financial incentives for participating mentors.

Summary of	of Benefits			
Quick Wins	Sustained Benefits			
 Access to mentors who can provide guidance, industry insights, and networking opportunities for entrepreneurs from outside of the university ecosystem. A more robust E&I ecosystem in MI through increased interconnectedness and collaboration. 	 Potential for increased entrepreneurial success thanks to guidance from mentors, who can help mitigate risks, address challenges, and improve overall venture viability. Attraction of entrepreneurial talent thanks to a comprehensive mentorship program. 			
Implementation Snapshot	Spotlight			
Timeframe, Effort, Impact	MIT's Venture Mentoring Services ¹			
Short Term (0-12 months) X Med. Term (1-2 years) Long Term (2+ years)	The MIT VMS program employs a standout model for entrepreneurial mentorship, drawing from a diverse network of ~200 industry experts			
Level of Effort HIGH Level of Impact HIGH	VMS's team-based approach assigns a group of mentors to each startup – a collaborative			
Primary Beneficiary(ies)	structure that fosters comprehensive support			
MSF Grantees (i.e., program admin.)	With long-term engagement, a confidential environment, and connections to its university			
MEDC X Subgrantees (i.e., entrepreneurs)	ecosystem, VMS's model could be adapted by Michigan with great benefit to its enterprises.			

Tactic D2: Continue to expand the ESF programs to address entrepreneurs' critical need for funds while capitalizing on E&I's most impactful program

This tactic increases the opportunity for entrepreneurs to receive more early-stage funding.

Tactic Overview					
Tactic Type					
	Operational	X	Strategic		
	General X Program Specific				
Drahlam Otatamant					

Problem Statement

Currently, as shown by peer-state analysis and voiced by MI entrepreneurs¹, there is a gap in funding opportunities for MI businesses at the very early stage. The Early-Stage Funding (ESF) program addresses this critical need and has proven be the highest-performing among the nine programs evaluated. However, since 2020, ESF has relied on alternative sources such as Corporate and Permanent funds to expand its reach.

Proposed Solution

In light of the program's success and clear need for additional early stage capital, the MSF should continue to increase its focus on the ESF program and advocate for additional funding allocation.

Summary of Benefits						
Quick Wins	Sustained Benefits					
 Readily available capital support for early- stage high-tech Michigan startups. State assumption of investment risk at the earliest stages of company development helps establish a strong pipeline of startups for private funds to invest in at a later stage. 	 A more active E&I ecosystem in the State of Michigan and improved survival rates and retention among local startups. Enhances MI's reputation as an innovation hub, attracting private investors, talent, entrepreneurs, and businesses. 					

Implementation Snapshot

Timeframe, Level of Effort, and Level of Impact

Short Term (Short Term (0-12 months) X Med. Term		(1-2 yea	rs)			Long Term (2+ years)	
Level of Effort	Level of Effort LOW		Level of Impact				HIGH	
	Primary Beneficiary(ies)							
MSF					Grantees (i.e., program admin.)			
MEDC				X	Subgra	antees (i	i.e.,	entrepreneurs)

[1] MEDC's Voice of the Customer survey consistently identifies limited access to capital as the number one concern among MI entrepreneurs; [2] In 2020, ESF drew \$3M from the Corporate Fund; in 2021 \$6.5M from the Permanent Fund

Tactic D3: Support innovators and entrepreneurs' hiring efforts, by collaborating with Michigan's existing talent initiatives

This tactic facilitates the workforce support that can accelerate the success of entrepreneurs and innovators efforts to commercialize.

Tactic Overview				
Tactio	: Туре			
Operational	X	Strategic		
General	X	Program Specific		
Dueleleure	04 - 4	t		

Problem Statement

Michigan entrepreneurs point to hiring and retaining talent as one of their top challenges in the state^{1.} This includes selecting co-founders that can help drive business growth. If not addressed, this issue can lead to startups leaving MI once they enter hiring stages.

Proposed Solution

Collaborate with Michigan's existing talent initiatives – especially those already run by the MEDC such as the Talent Action Team – to increase investment in and marketing of available resources that could be used by entrepreneurs participating in MSF's E&I programs.

Leverage Michigan's E&I university partners to develop a pipeline of local talent that could join Michigan-based startups. A prime candidate to lean into would be investment in STEM internships for students who can then go on to accept full-time jobs after graduation.

Summary	of Benefits
Quick Wins	Sustained Benefits
 Streamline the talent search process for entrepreneurs seeking employees and/or co- founders. Simplify job placement for skilled workers interested in joining Michigan's startups. 	 A more active E&I ecosystem in the State of Michigan. Higher startup survival and retention rates when lack of talent hinders venture sustainability.

Implementation Snapshot Timeframe, Level of Effort, and Level of Impact Х Med. Term (1-2 years) Short Term (0-12 months) Long Term (2+ years) Level of Effort HIGH Level of Impact HIGH Primary Beneficiary(ies) MSF Grantees (i.e., program admin.) MEDC Х Subgrantees (i.e., entrepreneurs)

[1] MEDC's Voice of the Customer survey identified hiring and retaining talent as one of the top 3 challenges among Michigan's entrepreneurs

Tactic D4: Identify opportunities to expand economic incentives for Michigan's early-stage investors

This tactic incentivizes angel investors to provide seed capital to Michigan entrepreneurs.

	Tactic Overview								
		Tacti	с Туре						
	Operational		X	Strategic					
	General		Х	Program Spe	ecific				
		Problem	Statem	ent					
	MI does not currently of activities. As a result, ea startups finding it difficul to neighboring states tha talent and economic gro	al (VC) and angel invest in Michigan. This leads y become attractive to r ultimately lead to a loss	or to nove of						
		Propose	d Solut	ion					
	Assess potential early-stage investment incentives opportunities for Michigan and benchmark incentives in competitor state to determine suitable options.								
Summary of Benefits									
	Quick	Wins	Sustained Benefits						
 Better understanding of the incentives offered by neighboring states and the likely impacts in Michigan's economy. If an incentive is approved: increase in early- stage investment activity into new high growth ventures. 				 Increase survival rate of startups in Michigan. Creation of higher paying knowledge-based jobs. 					
	Implementati	on Snapshot	Spotlight: Peer Programs						
	Timeframe, E	ffort, Impact	Pee	er State Invest	tment Incentives [Tax C	redit]			
	Short Term (0-12 months) Med. (1-2 year	Term X Long Term	State	Credit	Limit per Entity	Credit Cap			
			IL	25%	\$250,000	\$10mm			
			MN	25%	\$125,000	\$5mm			
	Primary Ben	eficiary(ies)	NJ	20%; 25% if M/WBE ¹	\$500,000	\$35mm			
	MSF	program admin.)	СТ	25%	\$500,000	\$20mm			
	MEDC	X Subgrantees (i.e., entrepreneurs)	IA	25%	\$100,000 individuals; \$500,000 business	\$2mm			

[1] M/WBE: minority or women-owned business enterprise

Tactic D5: Consider concentrating funds on fewer, higher-impact programs from the E&I portfolio

This recommendation helps the MEDC prioritize resource allocation in order to most effectively achieve its overall goals.

Tactic Overview				
Tactio	: Туре			
Operational	Х	Strategic		
General	X	Program Specific		
Darkland (01-1			

Problem Statement

Amongst the 9 programs evaluated, some stand out as particularly effective (e.g., ESF, BAF), while others show relatively less impact (e.g., Grant Training, Proof of Concept). The dispersion of funds and resources across multiple programs with varying levels of success may be diluting the overall impact of the programs and hindering the achievement of their shared goals.

Proposed Solution

Consider concentrating funds and resources on fewer, higher-impact programs within the E&I ecosystem. By strategically identifying and prioritizing the programs that have demonstrated the most significant positive outcomes and potential for success, the MSF can allocate a greater share of its resources to those programs, while phasing out on the less impactful ones.

Summary of Benefits						
Quick Wins	Sustained Benefits					
 Enables the MEDC to allocate resources more effectively and efficiently. Greater investment in successful programs, leading to better outcomes, including jobs, products, patents, etc. Streamlined management responsibilities for the MEDC, with fewer programs to oversee and support. 	 Increased economic impact from higher- potential programs, which attract and support high-growth startups, promote innovation, and generate a sustainable jobs. Optimization of resources, which can be invested in targeted training, mentorship, and other support systems specific to a small selection of programs rather than generalized across many. 					

Implementation Snapshot Timeframe, Level of Effort, and Level of Impact Short Term (0-12 months) Med. Term (1-2 years) X Long Term (2+ years) Level of Effort LOW Level of Impact MEDIUM to LOW

	Primary Beneficiary(les)					
X	MSF	Grantees (i.e., program admin.)				
X	MEDC	Subgrantees (i.e., entrepreneurs)				

Michigan's Economic Development Incentive Evaluation

Appendix B: Analysis of Michigan's E&I Ecosystem



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Analyzing Michigan's economy and key E&I trends

Benchmarking Michigan's E&I performance

Additional Charts

Michigan is home to ten million people, has a 10% lower median income and is less racially diverse when compared to US averages



Source: American Community Survey 5-Year Estimates, 2020 Decennial Census, [1] Inflation- adjusted dollars



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Michigan GDP Distribution by County

In 2022, MI produced \$621 billion in current dollar Gross Domestic Product (GDP), with concentrated production related to both industry and geography

Michigan Current Dollar GDP by Industry



Source: Bureau of Economic Analysis, Cartography by Guidehouse. Notes: [1] Includes insurance and real estate [2] "Other" category includes Arts, entertainment, and recreation (4%), Construction (3%), Transportation and w arehousing (3%), Information (3%), Other non-governmental services (2%), Utilities (2%), Agriculture, forestry, fishing, and hunting (1%), Mining, quarrying, oil, and gas (0%) [3] % total and Accum. % differ slightly due to rounding

Historically, MI's GDP has typically aligned with US and Midwest trends, although it has shown a greater susceptibility to the impact of recessions



- Historically, Michigan's GDP has shown more fluctuation than that of the US. MI's GDP has typically followed the directional trends of the country but has experienced some deeper valleys, particularly during the 2008 recession.
- This has likely contributed to its slower overall growth. Between 2010 and 2021, Mi's compound annual GDP growth rate of 3.5% was lower than that of the overall US at 4.1%.
- However, Michigan's GDP growth is not far behind that of its Midwestern peers. Between 2010 and 2021, MI's compound annual GDP growth rate of 3.5% was only slightly lower than the average of the Midwestern states,¹ which was 3.8%.

When compared to other large states, MI follows a similar pattern, generally aligning with trends, with some deeper fluctuations

Michigan vs. Selected US States - GDP % change YoY



- Compared to the states with the largest GDPs in the US, as well as those with the largest GDPs in the Midwest,¹
 Michigan has historically been more influenced by recessions. During the Dotcom Recession of 2001 and the Great Recession of 2008-2009, Michigan's GDP dropped more steeply and for longer when compared to CA, NY, and TX.² The same holds true for IL and OH, the two largest Midwestern state economies.
- The COVID-19 Crisis of 2020 was unique in its all-encompassing, far-reaching nature, breaking the previously established pattern. The ensuing recession seemed to affect disparate areas of the county indiscriminately, reflected in Michigan's comparably moderate downturn during that time.
- Although some of Michigan's drops have been steep, its subsequent rates of recovery have been strong. Following recessions, Michigan's GDP growth rates have been faster than or on par with those of peers.

Source: US Bureau of Economic Analysis; in US current dollars. Notes: [1] Midw estern states include IL, IN, IA, KS, MI, MN, MS, NE, ND, OH, SD, WI, [2] currently the top 3 state GDPs by size, and therefore a helpful benchmark for thriving economies; see CA, (#1 largest state GDP) in chart on left

Michigan's economy is more concentrated in manufacturing than the US average, but still maintains an overall diversity in industry composition

Michigan vs. United States - Employment by Industry (nonfarm)¹



- Michigan's economy (ranked 14th nationally by size of GDP) is more concentrated in manufacturing when compared to other states with large GDPs. As indicated in the chart to the left, Michigan's percent of nonfarm employment in manufacturing (14%) far exceeds the national average (8%). This trend persists when comparing Michigan's manufacturing employment to other states with large GDPs: CA (8% of total nonfarm jobs), TX (7% of total nonfarm jobs), and NY (4% of total nonfarm jobs).
- Despite a high concentration in manufacturing, Michigan still has strengths in other industries. Employment levels in other industries within Michigan are all within 1% of the national average.



Michigan's historical focus on manufacturing made it a key economic player, but this focus also contributed to greater economic variability

Michigan vs. United States - Manufacturing Industry's Contribution to % Change in GDP



reduced, which subsequently impacts manufacturing activity.

Michigan - Contribution to % Change in GDP: Manufacturing vs. All Industry Total¹



economy is highly influenced by the business cycle of one industry. During previous recessions, reduction in demand for manufactured goods contributed to the steep downturns as illustrated above, however supply shortages during the COVID crisis reversed this pattern in 2021.

Source: Bureau of Economic Analysis, Notes: [1] Comparisons are not exact – BEA notes that percentage-point contributions do not sum to "All industry total (percent change)" because the industry details are calculated using source data and methodologies that differ from those used to calculate grow th in the top-line, expenditure-based measure of real GDP.



As a result of MI's economic fluctuations, MI has moved from the 9th largest state economy in 1997 to the 14th in 2022

Top State Economies measured by GDP (1997)

1	California
2	New York
3	Texas
4	Illinois
5	Florida
6	Pennsylvania
7	Ohio
8	New Jersey
9	Michigan
10	Georgia

m	Top State Economies easured by GDP (2022)	CAGR (1997-2022)
1	California	3.0%
2	Texas	3.1%
3	New York	1.9%
4	Florida	2.6%
5	Illinois	1.3%
6	Pennsylvania	1.5%
7	Ohio	1.2%
8	Georgia	2.4%
9	Washington	3.1%
10	New Jersey	1.3%
14	Michigan	0.8%

Despite periods of economic growth comparable to the top GDP states, Michigan's average growth rate has been brought down by previous economic downturns. From 1997 to 2022, the US average compound annual growth rate of real GDP was 2.2%. States generating top levels of GDP have CAGRs ranging from 1 to 3%, whereas MI's is 0.8%. This is fourth-lowest of any state, despite having a healthy economy outside periods of recession.

• Compared to the states with the highest GDPs, including Midwestern peers, Michigan has a lower growth rate. Illinois, Ohio, and Indiana (the three Midwestern states with the highest GDPs) all had CAGRs above 1.2%, ahead of Michigan's 0.8%.

Compound Annual Real GDP¹ Growth Rate 1997-2022



For the average household in MI, these macroeconomic trends have resulted in slowed income growth and periods of high unemployment **A**

MI Per Capita Personal Income as a % of US Avg.



MI vs. US Unemployment Rates



See pages 44 and 45 for data tables



However, recent efforts to strengthen MI's economy are starting to yield results, including in the entrepreneurship and innovation (E&I) space

- Michigan's efforts and accomplishments in the E&I space have earned it recognition as a leader in the emerging "Middle Coast" of innovation. Although still not comparable to the hubs of the East and West Coasts, the Middle Coast is establishing itself as a healthy secondary E&I market with the benefit of lower costs for its companies.
- Detroit was named 2022's Number 1 emerging ecosystem by Startup Genome. The top 5 included rounded Hong Kong, Dublin, Minneapolis, and Houston. Scoring factors included:
 - 1) Performance (Detroit: 10, Hong Kong: 9, Dublin: 10, Minneapolis: 10, Houston: 9)
 - **2)** Funding (Detroit: 8, Hong Kong: 10, Dublin: 8, Minneapolis: 8, Houston: 9)
 - **3) Market reach** (Detroit: 10, Hong Kong: 10, Dublin: 10, Minneapolis: 10, Houston: 7)
 - 4) Talent and experience (Detroit: 10, Hong Kong: 10, Dublin: 10, Minneapolis: 9, Houston: 9)
- Michigan experienced the most growth in VC funding of any state from 2016-2020. According to Crunchbase, the average growth rate across the top 5 fastest growing states was ~400%, while MI grew by nearly 900%.



Michigan seems to have identified the importance of supporting E&I efforts, which help strengthen and diversify the economy. The four pillars above are key focus areas of investment in which the state has seen growth: the next few slides will explore them in more depth.

Michigan has increased R&D performance by ~6% annually over the last ten years and does almost 50% more than the US average as a % of GDP



- MI is a top performer in terms of R&D investments, ranking 6th and 7th among states in terms of total R&D investment and R&D as a percentage of GDP, respectively.
- While CA is a clear leader in overall R&D performance, in terms of R&D as a % of total GDP, CA ranks 4th among all U.S. states and narrows the gap between CA (7.2%) and MI (4.8%).
- Washington State ranks consistently high, coming 2nd and 3rd in terms of absolute and relative investment, respectively. New York, on the other hand, comes 5th in terms of total R&D performance but drops down to 30th in terms of R&D as a % of GDP. With its stable performance in both categories, WA could emerge as an aspirational peer for MI.

Note: R&D performance refers to R&D activities conducted in the state by federal and state agencies, businesses, universities, and nonprofit organizations. R&D-performing organizations either fund their ow n R&D activities or receive funding from other organizations. For example, a considerable portion of academic R&D performance is funded by the federal government.

Source: National Center for Science and Engineering Statistics; Notes: [1] R&D performance includes all R&D conducted in the state, from any funding source (this number is greater than exclusively state-funded research); State-level higher education R&D data have not been adjusted to eliminate the double counting of funds passed through from an academic institution to subrecipients (other academic institutions, businesses, NPOs, and others).

Michigan has a concentrated talent pool with leading percentages of STEMeducated professionals who form the workforce behind its E&I landscape...

Individuals in Science & Engineering Occupations as a % of All Occupations



% US Patents by State



- MI is a top-10 state in terms of workforce % within a science and engineering occupation, which heavily supports labor demand within the entrepreneurship and innovation space.
- MI has 7.3% of its workforce employed in science and engineering occupations, above the US average of 6.6%. In fact, MI nearly matches California's average of 7.8%, which is especially notable given CA's status as the leading state in terms of GDP, R&D, patents, and total VC funding.
- MI's talented workforce has helped it earn a spot as 6th highest state by number of patents produced. Washington, which ranked 2nd in terms of both total R&D spent and R&D spending as a % of GDP, is ranked 7th, right behind Michigan in the % of U.S. patents produced in 2022 (MI accounted for 3.79% of US patents, while Washington accounted for 3.75%).
- MI's skilled talent pool is supported by its academic institutions, most notably its public university system, which is widely regarded as one of the best in the country.



...However, despite its skilled and educated workforce, Michigan faces challenges in keeping talent within the state and attracting outside talent in

MI Civilian Labor Force Participation Rate



- Michigan has 721,000 fewer people in its workforce as compared to January of 2000. Labor force participation peaked at 68.8% around 2000, but today, Michigan struggles to stay above 60%. As of the end of 2022, Michigan's workforce was down by 97,200 people since the COVID-19 crisis.
- Since 2000, Michigan has seen its steepest declines in labor force participation among younger workers, with a 23% drop among 16-19 year-olds, 9.2% drop among 20-24 year-olds, and a 4.1% overall drop across the broad category of 25-54 year-olds. The decline in younger workers is partially explained by an increasing desire to obtain higher education, but also reflects the larger trend of statewide workforce participation decrease.
- Net domestic migration (the number of people moving into Michigan minus the number of people moving out) improved through the past decade but remains negative, indicating Michigan has room to grow in attracting talent from out of state.

M

500 622 (~6% of the 11.2K 400 applications in Sept. The shift to remote and hybrid work 2022) 300 caused by COVID-19 has reduced the cost of creating a business and 200 resulted in a sustained surge in new 100 startups since 2020. Apr-2018 Oct-2018 Apr-2019 Jul-2019 Oct-2019 Apr-2016 Oct-2016 Jan-2018 Jan-2019 Jan-2020 Apr-2020 Oct-2020 Apr-2022 Jul-2018 Jul-2020 Jul-2022 Jul-2016 Oct-2017 Jan-2022 Jan-2015 Jan-2016 Jan-2021 Apr-2021 Oct-2021 Jul-2017 Jul-2021 Jan-2017 Apr-2017 Apr-201 Oct-201! Jul-201

Michigan Business Formations,¹ 2015-2022

Actual Business Formations

@

1,000

900

800

700

600

Michigan experienced a spike in company formation in 2020 – as did other states – and rates have continued to remain higher than previous levels

85%

April – July

3 mo.

increase:

Projected Business Formations based on Applications

MI is seeing sustained momentum in business applications and projected formations. After an initial dip in the spring of 2020 at the start of the COVID-19 pandemic, MI saw a sudden spike in applications in the summer and fall of 2020. Even after the surge, application and projected formation numbers have remained higher than previous levels.

 This follows the trend of the US as a whole, which initially saw a pause in many activities at the beginning of the pandemic, followed by a period of unprecedented inspiration and vigor from a mostly-remote workforce.

Michigan has emerged as a hub of the "Middle Coast" of VC investment, with rapid growth in recent years despite a poor 2022 for VC across the US

Michigan vs US VC Investment,¹ 2016-2023 YTD



- Major investments from 2019 to 2021 contributed to a massive venture capital boom. This includes investments in five MI startups² that became unicorns³ during this this time period. According to Crunchbase statistics, in 2019, these 5 companies accounted for as much as 83% of the venture funding flowing into the state. For 2020 and 2021, that number jumps to 95% and 88%, before dropping off in 2022.
- Large deals like these have helped attract more VC interest in the MI market overall, with Michigan accounting for 0.7% of US VC funding in 2022, compared to just 0.2% in 2018 before funding to these unicorns began. The 2021 Michigan Venture Capital Association (MVCA) report found that every dollar invested in a Michigan startup by a Michigan VC firm attracted \$9.7 of investment from outside of Michigan; just a year later, the 2022 report found that number had increased to \$42.9.
- While there was a funding boom in 2021 across the US, levels have dropped since then; continued investment in the E&I space can help Michigan gain sustainable momentum into the future.

Mi's VC funding as a % of total US funding

Total U.S. total dollars invested

\$B

Sources: Crunchbase, Michigan Venture Capital Association Reports, 2021 and 2022, Notes: [1] Based on a Crunchbase Pro query of all investments made in Michigan and US-based organizations by venture capital investors between 2016-June 2023. Exact deals counted may vary depending on specifics of the query and source, but the overall trends are consistent [2] Duo Security, Llamasoft, Onestream Softw are, Rivian Automotive and StockX, [3] "unicorns" are privately held companies valued at over \$1 billion



	Company	Year Achieved Unicorn Status	Year founded	Sector (Subsector)	Total Funding Amount	Valuation ¹	Description
DUC	Duo Security	2018	2009	Software (<i>Security)</i>	\$121.5M	\$2.4B (acquired by Cisco)	Duo Security provides security software products and services.
LL amasoft	LLamasoft	2020	2002	Software (Supply Chain)	\$56.1M	\$1.5B (acquired by Coupa Software)	LLamasoft is a supply-chain planning company.
🚸 RIVIA N	Rivian Automotive	2021	2009	Consumer Goods (<i>Automotive)</i>	\$10.7B	\$25.7B as of mid-December 2022 (\$66.5B at IPO)	Rivian is an electric vehicle manufacture.
ONESTREAM GET BACK TO BUSINESS	OneStream Software	2021	2010	Software (Corporate Performance Management)	\$200M	\$6B (acquired by private equity firm KKR)	OneStream Software provides financial planning and analysis software.
StockX	StockX	2021	2015	Consumer Goods (Clothing)	\$690M	\$3.8B (as of their last funding round in April 2021)	StockX is an online marketplace to buy and sell limited edition and high demand sneakers.

In recent years, MI's VC space has also begun to pay attention to diversity equity & inclusion, following a larger national trend toward DEI investing

US VC Funding to Female-led Business



2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

US VC Funding to Black and Latino-led Business



As stated by the Michigan Venture Capital Association, **MIVCs are aligned with the broader VC environment, which has generally** recognized the value of diversity, equity, and inclusion (DEI) considerations in building their portfolios. This is beneficial not just from a social perspective, but also a financial one, as a wider pool of investment opportunities will naturally lead to variety and growth. In future years, these demographic distributions will likely become more even.



The data suggests that MI might be ahead of the curve in its DEI investment considerations, although there is much progress is yet to be made

CEOs of Michigan VC-Backed Firms by Gender



CEOs of Michigan VC-Backed Firms by Ethnicity

The Michigan Venture and Entrepreneurial Foundation (MVEF), a nonprofit launched in 2021, works with the MVCA to advance DEI priorities

MVEF

The Michigan Venture and Entrepreneurial Foundation (MVEF) is a 501©3 nonprofit launched in 2021 in affiliation with the Michigan Venture Capital Association (MVCA) to create programs and initiatives that support the entrepreneurial and venture and angel investor community throughout the State of Michigan. Its focus areas include (i) diversity, equity, and inclusion, (ii) education and growth, and (iii) developing research and publications.

Even as the MVEF has new DEI resources in development, the MVCA has already had success with two DEI-focused programs. However, a lack of funding has led to the cessation of one:

Internship Program (active)



- Paid internships have shown to be a key indicator with respect to job offers for college students, and research has shown that **racial/ethnic minorities are less likely to get paid internships**.
- Interns participating in this program receive real-world entrepreneurial experience that helps equip them in their pursuance careers as investors and entrepreneurs. Students benefit from a paid, part-time, in-person internship, where they receive essential skills training through the MVCA.

Venture Fellows (on-hold)



- The Venture Fellows program was designed to increase the number of VC professionals in Michigan. Through Michigan Venture Fellows, applicants with significant ties to Michigan were hired by Michigan venture firms for a fellowship period of two years, with the expectation that they will continue at the firm following the fellowship period. A total of 22 individuals were part of this program from 2011 through 2018.
- In 2017, MVCA created additional eligibility requirements for participating venture capital firms to be dedicated to building a diverse and inclusive entrepreneurial and investment community in Michigan. Each firm was required to add a statement in their application package that described how the firm has supported diversity and inclusion initiatives or its potential to make contributions to this area.
- Currently the Venture Fellow program is not accepting applications due to a lack of funding, but the MVCA is actively seeking new funding sources in hopes to bring this program back to the ecosystem.

Michigan's higher education R&D focuses mostly on life sciences, while its corporate R&D focuses almost entirely on the transportation industry



🧕 🏂 👪

MI's efforts across the entrepreneurship and innovation ecosystem has also led to increased VC investment, which tend to focus in high-tech sectors

Top 10 Industries by Deal Count¹ in Michigan (2017-2022)

Total number of deals marked with each tag in Crunchbase investment database *Categories are not mutually exclusive



Top 10 Industries by Percent of Deals Made¹ (2022)

🧕 🍰 👪

*Categories are not mutually exclusive

1	Software	37%
2	Health Care	27%
3	Science & Engineering	23%
4	Information Technology	20%
5	Financial Services	17%
6	Biotechnology	14%
7	Data Analytics	14%
8	Hardware	14%
9	Professional Services	12%
10	Consumer Electronics	10%

• The industry focus of VCs is demonstrably different from M's corporate R&D, 75% of which is focused on transportation equipment (namely automotive). VC's focus on innovation and shorter-term monetary returns creates a different dynamic of sector preferences than that of these established corporations. In any market, but particularly for MI given its long-time concentration in manufacturing, this investment from VCs can help support diversification from traditional industries.

Sources: Crunchbase, Michigan Venture Capital Association Reports, 2021 and 2022, Notes: [1] Data is based on industry tags assigned to companies in Crunchbase's database, and are not mutually exclusive, so some companies are counted in multiple categories. For example, 23% of all deals made in 2021 involved software companies, some of which also overlap with the 19% of deals in the health care space. The purpose of this data is to show industries of interest, rather than a bucketed distribution of discrete deal types.



Key takeaways



Michigan's historical specialization in the manufacturing industry has led to greater economic variability relative to the rest of the US. As a result, over the last decades, Michigan has gone from the 9th largest US state economy to the 14th (as measured by GDP), and residents have felt the impacts of slowed income growth combined with periods of high unemployment.



Michigan's **long-standing commitment to R&D** (through public and private investments) **and human capital formation** (through its top-tier university system), sets a strong foundation and **for the development of entrepreneurship** and innovation programs, but will require targeted state action to overcome important hurdles such as the declines in young labor force and recent downturn in venture capital funding.



Michigan's university system and venture capital scene add ~\$6 billion/year¹ to its entrepreneurship and innovation ecosystem and are a catalyst for diversifying Michigan's economy, given their focus on less traditional industries. In the case of venture capital, Michigan has seen momentum in attracting funding, which can significantly advance the state's promising technology space and overall E&I ecosystem. However, recent years' major fluctuations in VC funding activity across the US give reason to monitor investment activity closely for emerging insights.

[1] The annual funding of \$6 billion encompasses approximately \$3 billion from universities' R&D investments and an additional \$3 billion from venture capital (VC) investments, representing the average VC funding received by Michigan's startups over the past five years.

ABOUT THIS ANALYSIS (1/5)

This analysis looks at quantitative & qualitative indicators to understand how MI's E&I ecosystem and programs compare with those of its peers

The purpose of this analysis is to understand how Michigan's E&I ecosystem and programs compare to those of its peers. We consider Michigan compared to six peer states selected based on similar characteristics, including the maturity of their E&I programs, the similarity of their economies, and geography.

The analysis segments programs into the three E&I phases (**university-based innovation**, **business ideation**, and **early company formation**) so that we are comparing programs with similar goals.



		🕴 Michigan	👘 Indiana	🧕 Virginia	🦉 Illinois	Minnesota	Dhio 🔁	Wisconsin
	Selection Justification	Baseline	Maturity	Similar GDP	Regional Competitor	Regional Competitor	Regional Competitor	Regional Competitor
	SBIR/STTR Phase 1 ¹	\$72.4M	\$32.6M	\$171.7M	\$89.3M*	\$57.0M	\$130.8M*	\$33.5M
	SBIR/STTR Phase 2 ¹	\$262.1M	\$90.8M**	\$736.5M	\$242.1M	\$189.5M	\$483.4M**	\$85.0M
eation	1-Year Survival Rate of new firms ² Compared to US Avg. of 80.8% [2020]	+.55 (81.35%)	+.1.88 (82.68%)	+.61 (81.41%)	+.77 (81.58%)	+.67 (81.47%)	+1.59 (82.40%)	+3.37 (84.18%)
usiness ide	1-Year Survival Rate of Professional, Scientific, and Technical Services firms ² Compared to US Avg. of 80.42% [2020]	+2.13 (82.56%)	+.61 (81.04%)	38 (80.04%)	- 25 (80.18%)	+.55 (80.97%)	+.92 (81.35%)	+2.18 (82.60%)
8	5-Year Survival Rate of new firms ² Compared to US Avg. of 54.65% [2020]	+1.94 (56.59%)	+2.32 (56.97%)	+1.37 (56.02%)	+1.27 (55.91%)	+2.98 (57.62%)	+2.91 (57.55%)	+6.31 (60.95%)
	5-Year Survival Rate of Professional, Scientific, and Technical Services firms ²	+2.27 (54.83%)	+1.58 (54.14%)	+2.52 (55.08%)	-1.34 (51.22%)	-2.02 (50.54%)	+1.96 (54.51%)	+5.98 (58.54%)

This benchmark analysis looks at both (1) **quantitative** benchmarks and (2) **qualitative** benchmarks to provide the fullest picture possible of how Michigan compares with peer states in terms of program structure and E&I sector performance.

	State Entrepreneurial & Innovation Programs																						
	Virginia - Virginia Innovation Partnership Authority						Indiana - Indiana Economic Development Corp (IEDC)					Michigan - Michigan Economic Development Corporation (MEDC)											
Relevant Functions of E&I Programs	Virginia Catalyst	SBIR/STTR Assistance Program	Regional Innovation Fund	Common- wealth Commercial- Ization Fund	Virginia Venturo Partnera	VVP Fund of Funda	Go Virginia	Entrepreneure- In-Residence	Elevate Ventures Purdue Foundry Fund	Innovation Voucher Program	SBIR/STTR Grant Matching	indiana Smail Busineas Developmen t Center	Indiana Businese Incubatore	indiana Seed Fund	Proof of Concept	T3N	MTRAC Hubs	Gatewa Program	2	RISTTR	Emerging Technologies Fund	Business Accelerator Fund	Early-Stage Funding
University Commercialization	x								х						х	x	x						
Service Providers		x	x				х	x		x	x	x						x	x	x			
Capital Support				х	x	x							x	x							x	x	x

ABOUT THIS ANALYSIS (3/5)



Peer states were selected based on characteristics including E&I program maturity, size of economy, and regional competition

Selection Criteria

		Maturity of E&I Program	Similar Economy (5-year avg. GDP)	Neighbor and/or Similar (U.S. Region)	E&I Program Description
8	Michigan	2009 ¹	529.38B ²	Midwest	The State of Michigan will serve as our baseline reference to derive peer benchmarking. Michigan's E&I framework is made up of early-stage entrepreneurship programs administered through a network of partners throughout the state. These programs and services are designed to support the start-up, commercialization, and growth of technology-based companies in the state.
	Indiana	2006 ¹			The State of Indiana was selected as its E&I initiative was established by statue several years after MSF's E&I initiative. Indiana is working through its Innovation & Entrepreneurship Initiative to build the nation's top environment for innovative ideas to transform into high-growth companies and industry leaders.
	Virginia		552.74B ²		The State of Virginia has been selected due to its comparable size of economy relative to Michigan. Virginia's E&I framework bridges gaps at the earliest stages of the innovation continuum. Through commercialization and seed funding it helps entrepreneurs launch and grow high-growth technology companies and create high-paying jobs for the future.
ELECTION DE LA COMPACTICIÓN DE LA COMPACTICICA DE LA COMPACTICA DE LA COMPACTICICA DE LA COMPACTICA DE LA COMPACTICICA DE LA COMPACTICICA DE LA COMPACTICA DE LA COMPACT	Illinois			Midwest	The State of Illinois was selected as it is a regional competitor to Michigan for both capital and STEM Talent. Illinois' E&I framework aims to convene, catalyze, and champion Illinois' research, science, and technology communities by forging impactful relationships between start-ups, academic institutions, global corporations, and innovation ecosystems.
0	Minnesota			Midwest	The State of Minnesota was selected as it is a competitor in the Midwest market. Minnesota's E&I framework aims to accelerate the growth of startups and amplify Minnesota as a national leader in innovation. Through grants, tax credits, educational programming, and a statewide network, we're building efforts to help grow Minnesota's startup ecosystem.
<u>></u>	Ohio			Midwest	The State of Ohio was selected as it is a regional competitor for capital, STEM talent, and federal funding. Ohio's E&I framework aims to work with innovative startup companies across the state. Its programs provide access to business expertise, mentorship, capital, and talent to build and scale these cutting-edge technology companies.
WISCONSIN	Wisconsin			Midwest	The State of Wisconsin was selected as it is a regional competitor in the Midwest and maintains a similar network of public universities. Wisconsin's E&I framework aims to reach early-stage business across the state with a range of resources relevant to their needs. WEDC's entrepreneurship programs are intended to support new companies that are moving from idea stage through profitability.

ABOUT THIS ANALYSIS (4/5)



Like MI, most of the selected peer states have Professional, Scientific, and Technical Services in their top three sectors by firm creation

		Top 3 Sectors by Firm Creation (% of Total) ¹	Professional, Scientific, and Technical Services % of Total Firm Creation ²
8	Michigan	 Retail Trade [13%] Accommodation and Food Services [12%] Professional, Scientific, and Technical Services [11%] 	11%
	Indiana	 Construction [13%] Accommodation and Food Services [12%] Professional, Scientific, and Technical Services [11%] 	11%
	Virginia	 Professional, Scientific, and Technical Services [18%] Construction [12%] Other Services (except Public Administration) [11%] 	18%
ELECTE	Illinois	 Professional, Scientific, and Technical Services [15%] Accommodation and Food Services [12%] Construction [11%] 	11%
0	Minnesota	 Professional, Scientific, and Technical Services [14%] Construction [13%] Other Services (except Public Administration) [10%] 	14%
	Ohio	 Accommodation and Food Services [13%] Professional, Scientific, and Technical Services [11%] Construction [11%] 	11%
WISCONSIN	Wisconsin	 Accommodation and Food Services [14%] Construction [13%] Health Care and Social Assistance [11%] 	10%

 In addition to the selection criteria mentioned in the previous slide, there are similarities between Michigan and the selected states when observing the top 3 sectors by firm creation.

 When deploying the professional, scientific, and technical services (PSTS) sector as a proxy indicator for E&I industries, we see that the distribution of newly created PSTS firms is similar across states in the Midwest region.

Sources: [1] U.S. Bureau of Labor Statistics; The ranking is derived from measuring the average % of startups created within each NAICS sectors from 2016-2020 [2] U.S. Bureau of Labor Statistics; The percentage reflects the total number of new professional, scientific, and technical services firms relative to all new firms created from 2016 to 2020

QUANTITATIVE ANALSYS (1/4)



To further tailor this analysis to MI's E&I programs, we looked at qualitative indicators segmented into the three key E&I stages that MI's programs serve

Quantitative metrics

University-bas	ed innovation	Business	s ideation	Early company formation				
Metric	Description	Metric	Description	Metric	Description			
Higher Education R&D Expenditures by state and public institution	Direct comparison	SBIR/STTR Phase I Awards by state	Direct comparison	Number of Investors with HQ in state	Direct comparison			
Higher Education R&D Expenditures in science and engineering fields	Direct comparison	SBIR/STTR Phase II Awards by state	Direct comparison	Number of active investors by early-stage	Direct comparison			
by state Amount (in \$M's) of Research Expenditures	Potio	5-year survival rate of new companies [2020]	Percentage/Rate	Number of active investors by accelerators	Direct comparison			
per University Invention Disclosure	Railo	1-year survival rate of	Percentage/Rate					
Amount (in \$M's) of Research Expenditures per Start-Up Formation	Ratio	new companies [2020]						
QUANTITATIVE ANALSYS (2/4)



MI's E&I efforts lean into its best-in-class university ecosystem, but could do more to support them in translating R&D expenditures into new business

		Michigan	Indiana	(Wirginia	Illinois	Minnesota	Dhio 🔁	Wisconsin Baa
	Selection Justification	Baseline	Maturity	Similar GDP	Regional Competitor	Regional Competitor	Regional Competitor	Regional Competitor
Ę	Higher Education R&D Expenditures ¹	\$13.6B	\$7.7B	\$8.4B	\$12.9B	\$5.0B	\$11.8B	\$7.9B
ILIOVALIO	Higher Education R&D Expenditures, Public Institutions ¹	\$13.3B	\$6.6B	\$8.3B	\$5.7B	\$5.0B	\$9.0B	\$6.5B
naseu II	Higher Education R&D Expenditures in Science and Engineering Fields ¹	\$12.8B	\$6.9B	\$7.7B	\$12.2B	\$4.8B	\$11.2B	\$7.3B
IIVEISILY-	Amount (in \$M's) of Research Expenditures per University Invention Disclosure ²	\$3.2M U. Michigan, Ann Arbor	\$1.8M Purdue U., West Lafayette	\$2.4M U. Virginia, Charlottesville	\$2.7M U. Illinois, Urbana- Champaign	\$2.5M U. Minnesota, Tw in Cities	\$2.3M Ohio State U.	\$3.2M U. Wisconsin-Madison
D	Amount (in \$M's) of Research Expenditures per Start-Up Formation ²	\$78.9M U. Michigan, Ann Arb	\$29.4M vdue U., West Lafayette	\$89.6M U. Virginia, Charlottesville	\$101.5M U. Illinois, Urbana- Champaign	\$57.9M U. Minnesota, Tw in Cities	\$72.4M Ohio State U.	\$131.4M U. Wisconsin-Madison

Michigan's E&I programs receive a significant investment from its public universities, whereas Illinois depends more heavily on its private institutions, as do several other of Michigan's peers. Though Michigan's universities make significant investments in the E&I space in partnership with MSF, **the ROI on these investments seems to be lower** than that of peer states. The University of Michigan seems to be **spending more** to bring products to market than some of its peers.



Sources: [1] National Center for Science and Engineering Statistics, Higher Education R&D Survey; FY2016-2020 [2] AUTM Licensing Activity Survey, AUTM Statistics Access for Tech Transfer (STATT); Values are reflective of largest public university per state. Public university size is based on scale of cumulative research expenditures from 2016 to 2020.

QUANTITATIVE ANALSYS (3/4)



MI performs well in terms of its 1- and 5- year firm survival rates when considering the industry sectors most directly impacted by its E&I programs

		🛞 Michigan	Indiana	(I) Virginia	Illinois	Minnesota	Dhio	Wisconsin Wisconsin
	Selection Justification	Baseline	Maturity	Similar GDP	Regional Competitor	Regional Competitor	Regional Competitor	Regional Competitor
	Total SBIR/STTR Awarded Phase 1 ¹	\$72.4M	\$32.6M	\$171.7M	\$89.3M*	\$57.0M	\$130.8M*	\$33.5M
	Average allocation per a ward [#of a wards]	\$169K [429]	\$168K [194]	\$148K [1164]	\$183K [487]	\$207K [276]	\$156K [839]	\$218K [154]
	Total SBIR/STTR Awarded Phase 2 ¹	\$262.1M	\$90.8M**	\$736.5M	\$242.1M	\$189.5M	\$483.4M**	\$85.0M
uc	Average allocation per a ward [#of a wards]	\$1.061M [247]	\$1.082M [84]	\$1.061M [694]	\$1.101M [220]	\$1.239M [153]	\$1.079M [448]	\$1.150M [74]
ideatic	1-Year Survival Rate of new firms ² Compared to US Avg. of 80.8% [2020]	+.55 (81.35%)	+.1.88 (82.68%)	+.61 (81.41%)	+.77 (81.58%)	+.67 (81.47%)	+1.59 (82.40%)	+3.37 (84.18%)
Business	1-Year Survival Rate of Professional, Scientific, and Technical Services firms ² Compared to US Avg. of 80.42% [2020]	+2.13 (82.56%)	+.61 (81.04%)	38 (80.04%)	25 (80.18%)	+.55 (80.97%)	+.92 (81.35%)	+2.18 (82.60%)
	5-Year Survival Rate of new firms ² Compared to US Avg. of 54.65% [2020]	+1.94 (56.59%)	+2.32 (56.97%)	+1.37 <i>(5</i> 6.02%)	+1.27 (55.91%)	+2.98 (57.62%)	+2.91 (57.55%)	+6.31 <i>(60.95%)</i>
	5-Year Survival Rate of Professional, Scientific, and Technical Services firms ² Compared to US Avg. of 52.56% [2020]	+2.27 (54.83%)	+1.58 (54.14%)	+2.52 (55.08%)	-1.34 (51.22%)	-2.02 (50.54%)	+1.96 (54.51%)	+5.98 (58.54%)

*State does not provide SBIR/STTR Phase 1 Matching Grant Program **State does not provide SBIR/STTR Phase 2 Matching Grant Program

Sources: [1] Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) aw ard data collected by SBA from FY2016 to 2020 [2] United States Census Bureau Business Dynamics Statistics (BDS); survival rate is observed in FY2020

QUANTITATIVE ANALSYS (4/4)



MI's lags behind in early-stage investment in comparison with its peers, but could leverage the success of its neighbors while growing its own VC scene

		🛞 Michigan	Indiana	Virginia	Illinois	Minnesota	Ohio	Wisconsin Wisconsin
	Selection Justification	Baseline	Maturity	Similar GDP	Regional Competitor	Regional Competitor	Regional Competitor	Regional Competitor
ompany ation	Number of venture capital investors with a HQ in state ¹	90	54	117	289	78	108	56
Early cd form	Number of active investors with an early-stage focus ¹	78	29	99	217	53	78	51

Illinois has a mature and extensive venture capital ecosystem, likely related to the relative size and strength of the Chicago-Naperville-Elgin MSA. Ohio has a comparable number of early-stage investors but a slightly larger number of VC investors overall, and a slightly larger number of accelerators

QUALITATIVE ANALSYS (1/7)



Next, we use a set of qualitative measures to benchmark MI's E&I programs against peer states, broken down by stage in the E&I journey

		□ Qualitativ	ve Metrics		
University-bas	sed innovation	Busines	s ideation	Early compa	iny formation
Commercial Feasibility	University Incentives	Business Development	Federal Funding Support	Accelerator or Incubator Assistance	Early-Stage Funding
		Methodology: Key (Questions Evaluated		
What programs are used to support research commercialization?	Does the state E&I framework offer incentives for university faculty of Technology Transfer Offices (TTOs) to develop startups?	Are entrepreneurs offered support to scale and growth their company?	Do states offer application or proposal training for federal funding, such as SBIR/STTR?	Do funds exist to attract, assist and retain quality startup or technology- enabled businesses?	Do funds exist to attract, assist and retain quality startup or technology-enabled businesses?

QUALITATIVE ANALSYS (2/7)



Virginia is seeking to further diversify its E&I efforts from a geographic and industry perspective, which is currently focused on government services and Metropolitan D.C.

						State E	ntrepre	neurial &	& Innov	ation Pr	ograms	5				
		Virginia	- Virginia lı	nnovation P	artnership /	Authority				Michiga	an - Michiga	n Strategic I	Fund E&I Pr	ograms		
Relevant Functions of E&I Programs	<u>Virginia</u> <u>Catalyst</u>	<u>SBIR/STTR</u> <u>Assistance</u> <u>Program</u>	<u>Regional</u> <u>Innovation</u> <u>Fund</u>	<u>Common-</u> <u>wealth</u> Commercial ization Fund	<u>Virginia</u> <u>Venture</u> <u>Partners</u>	VVP Fund of <u>Funds</u>	ⁱ <u>Go Virginia</u>	Proof of Concept	T3N	MTRAC Hubs	Gate w ay Program	Tech Team	SBIR/STTR Training	Emerging Technologie s Fund	Business Accelerator Fund	Early-Stage Funding
University Commercialization	х							x	Х	Х						
Service Providers		Х	Х				X				X	X	Х			
Capital Support				X	X	Х								X	x	X

Due to Virginia's high reliance on federal government-related activities, it seeks to incentivize workers in government and larger firms to establish startup businesses through its Regional Innovation Fund, whereas in Michigan, large employers such as the "Big 3" automotive suppliers tend to be more focused on intrepreneurship and acquiring technology businesses that got their start in the university system.

QUALITATIVE ANALSYS (3/7)



Indiana' E&I framework is segmented into two primary elements: venture development and small business support

					Sta	ate Entr	epreneu	irial & Ir	nov	ation	Prograr	ns				
		Indiana - Iı	ndiana Eco	onomic Dev	elopment Corp	o (IEDC)				Μ	ichigan - Mi	chigan Strat	egic Fund E	&I Programs		
Relevant Functions of E&I Programs	Entrepreneurs- in-Residence	Elevate Ventures Purdue Foundry Fund	Innovation Voucher Program	<u>SBIR/STTR</u> <u>Grant</u> <u>Matching</u>	Indiana Small Business Development <u>Center</u>	<u>Indiana</u> <u>Business</u> Incubators	Indiana Seed <u>Fund</u>	Proof of Concept	T3N	MTRAC Hubs	Gate w ay Program	Tech Team	SBIR/STTR Training	Emerging Technologies Fund	Business Accelerator Fund	Early-Stage Funding
University Commercialization		Х						Х	X	Х						
Service Providers	X		Х		X						X	X	X			
Capital Support	ital Support			X		X	х							X	X	X

Indiana's programmatic configuration closely resembles Michigan's E&I programs. However, **Indiana has partnered with one entity to deliver most of its programs**, Elevate Ventures.

QUALITATIVE ANALSYS (4/7)



Illinois' E&I framework leverages its service provider programs to catalyze public-private partnerships

					State	Entreprer	neurial 8	& Innov	vation F	Program	ns				
		Illinois - Depa	rtment of Co	mmerce & Eco	nomic Opportu	nity			Mich	nigan - Micl	higan Strate	egic Fund E&	I Programs		
Relevant Functions of E&I Programs	<u>SBIR/STTR</u> <u>Phase I</u> <u>Matching</u> <u>Program</u>	Illinois Small <u>Business</u> Development <u>Centers</u>	<u>Illinois</u> Growthand Innovation Fund	<u>Venture Engine</u>	Startup Chicago	Intersect Illinois	Proof of Concept	T3N	MTRAC Hubs	Gate w ay Program	Tech Team	SBIR/STTR Training	Emerging Technologies Fund	Business Accelerator Fund	Early-Stage Funding
University Commercialization							х	Х	Х						
Service Providers		X		X	X	X				X	X	Х			
Capital Support	х		X										X	X	X

Due to the number of active investors and the scale of Chicago's investment ecosystem, Illinois' E&I programmatic efforts are highly focused on facilitating start-up interactions with investors and developing corporate partnerships.

Illinois' university commercialization efforts are primarily supported by in-house tech-transfer programs and proof of concept funds, such as University of Illinois' "Illinois Ventures" program.

QUALITATIVE ANALSYS (5/7)



Ohio's E&I framework is primarily captured within its Ohio Third Frontier initiative, which is lead by its legacy Entrepreneurial Services Provider Program and Pre-Seed/Seed Plus Fund Capitalization Program (PFCP)

					State	e Entrep	oreneuri	al & Inr	novatio	on Pro	grams					
			Ohio - Depar	tment of Deve	elopment					Michię	gan - Michi	igan Strat	egic Fund Ea	&I Programs		
Relevant Functions of E&I Programs	<u>Ohio Small</u> <u>Business</u> <u>Development</u> <u>Centers</u>	Entrepreneuria Services Provider Program	Ohio Third Frontier Technology Validation and Start-up Fund	<u>Tech Ohio</u>	<u>Spark Grant</u>	<u>Pre-</u> <u>Seed/Seed</u> <u>Plus Fund</u> <u>Capitalizatio</u> <u>n Program</u>	Ohio Capital <u>Fund</u>	Proof of Concept	T3N	MTRAC Hubs	Gate w ay Program	Tech Team	SBIR/STTR Training	Emerging Technologies Fund	Business Accelerator Fund	Early- Stage Funding
University Commercialization			х					х	Х	X						
Service Providers	x	x		X							x	х	x			
Capital Support		1			х	X	x							x	x	Х

Entrepreneurial Services Provider Program has established an approach that integrates sources of deal flow, entrepreneurial support, and capital to effectively grow the technology-based entrepreneurial commercialization outcomes within six Ohio geographies. Ohio has invested over \$240mm in the program since it launched in 2007.

Ohio's PFCP program is a **statewide network of early-stage investment funds** that have **invested over \$200mm in state funds** since the first fund was capitalized in 2002.

QUALITATIVE ANALSYS (6/7)



Minnesota's E&I framework seeks to improve access to its resources by coordinating with an organized network of regional partners across the state

					State E	Intreprene	eurial &	Inno	vation	Progra	ms				
	Minnesota	- Minnesota	Department	of Employment (DEED)	and Economic	Development			Mi	chigan - M	ichigan Stra	ategic Fund E	&I Programs		
Relevant Functions of E&I Programs	<u>Minnesota</u> <u>Small</u> <u>Business</u> Development <u>Centers</u>	<u>Minnesota</u> Exchange	<u>Business</u> <u>Operations</u> <u>Grant</u>	SBIR/STTR Matching Grant	<u>The Launch</u> <u>Minnesota</u> <u>Network</u>	<u>MNVenture</u> <u>Builders</u>	Proof of Concept	T3N	MTRAC Hubs	Gateway Program	Tech Team	SBIR/STTR Training	Emerging Technologies Fund	Business Accelerator Fund	Early-Stage Funding
University Commercialization							X	X	X						
Service Providers	X	Х			X	X				Х	Х	X			
Capital Support			X	Y									X	X	x

Minnesota's E&I framework, spearheaded by Launch Minnesota, is heavily focused on **initiatives to connect the state startup ecosystem** and **facilitating access to entrepreneurship**, including a virtual entrepreneurial education program. This is comparable to Michigan's E&I framework, which relies heavily on SmartZones that are accessible to a statewide audience.

QUALITATIVE ANALSYS (7/7)



Wisconsin's E&I framework provides a similar portfolio of programs and resources but is primarily focused on the development of industry clusters, such as freshwater technology in Milwaukee

State Entrepreneurial & Innovation Programs																
		Wisc	onsin - Wisconsir	1 Economic	Development	Corp				Mic	higan - Mic	chigan Stra	ategic Fund	E&I Programs		
Relevant Functions of E&I Programs	<u>Wisconsin</u> Small Business <u>Development</u> <u>Centers</u>	<u>SBIR</u> Advance	<u>SBIR/STTR</u> <u>Assistance/</u> <u>commercialization</u> <u>Micro-grant</u>	<u>Capital</u> <u>Catalyst</u> <u>Program</u>	<u>Entrepreneursh</u> ip Partner <u>Grant</u>	<u>Wisconsin</u> <u>Angel</u> <u>Network</u>	<u>Seed</u> Accelerator	Proof of Concept	T3N	MTRAC Hubs	Gateway Program	Tech Team	SBIR/STTR Training	Emerging Technologies Fund	Business Accelerator Fund	Early- Stage Funding
University Commercialization				Х				X	X	Х						
Service Providers	x		х		X						Х	X	Х			
Capital Support		X				X	X							X	Х	X

Wisconsin leverages its strategic industries, such as freshwater technology, and network of industry-specific accelerators, such as the Business-Research-Entrepreneurship-in Water (BREW), to attract entrepreneurs and investment. The industry-specific accelerators serve as magnets for entrepreneurs from across the U.S. and the world that want to take advantage of local sector expertise and gain access to large corporations, leading industry research, and other entrepreneurs that are aligned with their core business area.

Historically, MI's GDP has typically aligned with US and Midwest trends, although it has shown a greater susceptibility to the impact of recessions



Michigan vs. United States – GDP % change YoY

When compared to other large states, MI follows a similar pattern, generally aligning with trends, with some deeper fluctuations



Michigan's historical focus on manufacturing made it a key economic player, but this focus also contributed to greater variability than the US (1/2)

Michigan vs. United States – Manufacturing Industry's Contribution to % change in GDP YOY



Michigan's historical focus on manufacturing made it a key economic player, but this focus also contributed to greater variability than the US (2/2)

Michigan – Contribution to % Change in GDP: Manufacturing vs. All Industries Total¹



Source: Bureau of Economic Analysis, Notes: [1] Comparisons are not exact – BEA notes that percentage-point contributions do not sum to "All industry total (percent change)" because the industry details are calculated using source data and methodologies that differ from those used to calculate grow thin the top-line, expenditure-based measure of real GDP.

For the average household in MI, these macroeconomic trends have resulted in slowed income growth and periods of high unemployment (1/2)

MI Per Capita Personal Income as a % of US Average





For the average household in MI, these macroeconomic trends have resulted in slowed income growth and periods of high unemployment (2/2)

Michigan vs. United States Unemployment Rates





Michigan has increased R&D performance by ~6% annually over the last ten years and does almost 50% more than the US average as a % of GDP

Michigan Total R&D Performance



Source: National Center for Science and Engineering Statistics; Notes: [1] R&D performance includes all R&D conducted in the state; State-level higher education R&D data have not been adjusted to eliminate the double counting of funds passed through from an academic institution to subrecipients (other academic institutions, businesses, NPOs, and others).

Michigan's Economic Development Incentive Evaluation

Appendix C: Overview of Michigan's E&I Programs



This deliverable was prepared by Guidehouse Inc. for the sole use and benefit of, and pursuant to a client relationship exclusively with the Michigan Department of Technology, Management, and Budget ("Client"). The work presented in this deliverable represents Guidehouse's professional judgement based on the information available at the time this report was prepared. The information in this deliverable may not be relied upon by anyone other than Client. Accordingly, Guidehouse disclaims any contractual or other responsibility to others based on their access to or use of the deliverable.



Contents

Understanding Michigan's E&I Programs

Program Snapshots





The Michigan Strategic Fund and the Michigan Economic Development Corporation are public entities working in partnership to achieve their shared goal to foster economic development in Michigan





Michigan's E&I programs are under the purview of the MSF and administered by MEDC in partnership with local economic development organizations

Michigan Strategic Fund (MSF)

Dbjectives Promote economic growth in the State of Michigan through a combination of **direct investments**, oversight of incentives and financial assistance programs, and **collaboration** with other organizations and stakeholders.

Michigan Economic Development Corporation (MEDC)



Objectives

The MSF is the state agency **that is responsible for investing in programs and initiatives** that support economic growth in Michigan. It **provides funding** for a variety of projects, including infrastructure improvements, community development, and supporting entrepreneurs and innovators. The MSF also plays a role in managing state economic development incentives and other financial assistance programs for businesses. The MSF Board is responsible for funding and oversight of the E&I programs in this evaluation. The MEDC is **responsible for developing and administering programs that promote business growth and job creation** in Michigan. The agency provides a range of services and resources to businesses and nonprofits, including financial assistance, technical support, and access to networks and partners. The MEDC also works with local communities to develop and implement economic development strategies. The MEDC is responsible for the administration of the MSF's E&I programs and supporting its program grantees.









Early

Stage in the E&I journey

Late



University innovation programs support faculty members of MI-based institutions in evaluating the market viability of their technology

Overview of MSF's E&I programs across the entrepreneurship and innovation journey



- Funding for University programs largely **target early-stage concepts** that need additional resources and exposure in order to be commercialized and scaled.
- Each program serves a unique function, with Advance Grant funding a minimum viable product, T3N lending the university's relationship network for socialization of the concept, and MTRAC further testing the commercialization of ideas and supporting the process for patent, copyrights, trademarks, and licenses.
- Funding recipients sometimes leverage all three programs' streams throughout their journey, or a mix and match based on need and eligibility.
- Additional information on University Programs can be found in the Program Snapshots.
 - Advance Grant Program ("Proof of Concept Fund")
 - Technology Transfer Network Program ("T3N")
 - Michigan Translational Research & Commercialization Program ("MTRAC")

Later stages of E&I

(i.e., company formation)



Stage of the entrepreneurship and innovation journey



For early companies looking to raise funds, the Federal Grant programs help entrepreneurs obtain and supplement federal SBIR/STTR grants

Overview of MSF's E&I programs across the entrepreneurship and innovation journey



Later stages of E&I (i.e., company formation)

- As the name implies, the Federal Grant programs focus on acquiring and supplementing federal funding.
- Specifically, these two programs focus on helping entrepreneurs write compelling SBIR/STTR grant applications, and then once a federal grant is awarded, providing matching funds to amplify it.
- As with the prior programs, recipients may use one or both programs.
- Additional information on Federal Grants Programs can be found in the Program Snapshots.
 - SBIR/STTR Federal Grant Training ("Grant Training")
 - Emerging Technology Fund ("ETF")

Stage of the entrepreneurship and innovation journey

(e.g. conceptualization)	Earlien stands of EQ		
(e.g. conceptualization)	Earlier stages of Earl		
(e.g., conception)	(e.g., conceptualization)		



Later into the entrepreneurship journey, programs focus on providing services and building skills that can lead to success in company formation

Overview of MSF's E&I programs across the entrepreneurship and innovation journey

- The Early Company Formation programs, while sharing some parallels with the University programs, focus **beyond the conceptual phase**.
- Specifically, these three programs target efforts to grow a business from its startup phase to a market-ready corporate entity through E&I programming, business development services, and funding.
- As with the prior stages, recipients may use 1, 2, or all 3 programs at different stages of their growth
- Additional information on Early Company Formation Programs can be found in the Program Snapshots.
 - Entrepreneurial Support Services and Business Incubator Gateway ("Gateway")
 - Michigan Small Business Development Center ("Tech Team")
 - Business Accelerator Fund ("BAF")



Stage of the entrepreneurship and innovation journey





As entrepreneurs take the first steps into their newly formed companies, the ESF program focuses on providing early-stage seed funds

Overview of MSF's E&I programs across the entrepreneurship and innovation journey

- This funding program is more mature in nature, with a focus on **supporting newly-realized business entities with market-entry, funding, and scaling** to meet identified demand.
- The ESF program aims to bridge the funding gap for promising early-stage technology companies that haven't yet attained the size and maturity required to secure investments from private investors
- Additional information on the Early-Stage Funding Program can be found in the Program Snapshots.
 - Early-Stage Funding Program ("ESF")



Stage of the entrepreneurship and innovation journey





Altogether, these 9 E&I programs form a support roadmap for Michigan's entrepreneurs, offering assistance at various stages of their journey

Overview of MSF's E&I programs across the entrepreneurship and innovation journey



Stage of the entrepreneurship and innovation journey

Earlier stages of E&I (e.g., conceptualization)

Later stages of E&I (i.e., company formation)



99

To deliver support, the E&I programs collaborate with several actors and aim $\frac{3}{2}$ to create the right conditions for later stage investors, like VC funds



All programs are intermediated by an implementing or administrative partner ("grantees"), who are the first recipients of MSF's funds

 MSF'S E&I Program	Administrative Partner (i.e., grantee)	Support offe	red to entrepreneurs (i.e., subgrantee)
Proof of Concept	S MICHGAN STATE	Financial Support (i.e., grants)	Provides financial incentives for participating university faculty with early-stage technology or intellectual property to engage in commercialization activities.
Mentors T3N		Technical Support (i.e., mentorship, networking)	Provides sector-specific mentorship from senior industry experts to advise early-stage businesses with market assessment.
MTRAC	S WAYNE STATE MICHIGAN STATE UNIVERSITY MICHIGAN STATE	Financial Support (i.e., grants)	Creates commercial development and patent opportunities for Michigan-based universities.
SBIR/STTR Grant Training	s bbc	Technical Support (i.e., training)	Provides Michigan-based small businesses with onsite and virtual training for SBIR/STTR proposal development.
Emerging Technologies Fund	S Michigan SBDC	Financial Support (i.e., grants)	Provides matching funds to companies that received SBIR/STTR federal grants.
Gateway	SPARK MANAGE 10+ Others	Technical Support (i.e., networks, overall business guidance)	Leverages Michigan's SmartZones to support start-up companies' in accessing a variety of entrepreneurial programs.
Tech Team	S Michigan SBDC	Technical Support (i.e., consulting, training)	Provides free consulting, training, and market research to help small businesses launch, grow, transition and innovate.
Business Accelerator Fund	S Michigan SBDC	Technical Support (i.e., networks, overall business guidance)	Provides a series of grants to business accelerators to help high- tech businesses access specialized services and networks they need to grow
Early-Stage Funding Program		Financial Support (i.e., early-stage funding)	Provides initial funds to new tech-companies early-on in commercialization to help securing follow-on funds within 12 months.



E&I programs are primarily (90%+) funded by tax dollars and represent, on avg., 6.8% of MSF's appropriated funds, although this figure has been declining





Approximate E&I budget as a % of MSF's total appropriation²

Note: [1] Legislature Allocated Funds are state tax-dollar funds appropriated by Michigan legislators, Permanent Funds are investment fund seeded by 1990 Master Settlement Agreement between Tobacco Companies and 101 States, and Corporate Funds are funding received through Indian Gaming taxation agreements in the state. [2] E&I's annual bud get might also include unused budget from previous years. Source: MEDC



In terms of grant allocation, the nine E&I programs under evaluation have awarded ~\$130 M in nine years, with significant fluctuation year-over-year

E&I Programmatic Allocation by Funding Source

In millions of US\$, includes only grants awarded from the nine programs under evaluation



-		-	0
	Legislative allocated funds	Permanent funds	Corporate funds E&I's annual budget from MSF appropriated funds
	- 5		



At an aggregate level, almost two thirds of E&I's allocation has been used to fund 3 of its largest programs – MTRAC, Gateway and Early-Stage Funding

MSF's E&I Funding Breakdown by Program, Total from 2013-2021



However, allocation patterns show increased efforts toward later-stage programs, with the ESF program recently emerging as a clear focus

E&I Programmatic Allocation





Beyond dollar amounts, Gateway, Tech Team and the Business Accelerator Fund have had the highest reach in terms of final beneficiaries

Early-Stage **University- Based Innovation** Federal Grants **Early Company Formation** Funding Programs from the **early company** formation stage - Gateway, Tech Team, and BAF - are the largest source of As expected, university-based **pipeline** for the E&I programs innovation programs have a representing 75%+ of total participants more niche presence and represent less than 5% of Michigan's E&I reach in terms of final beneficiaries. PoC T3N MTRAC Grant Training Tech Team BAF ESF Total ETF Gateway % Participation 5% 1% 2% 6% 4% 46% 18% 12% 6% Cumulative¹ % 2% 7% 9% 64% 82% 94% 100% 15% 19%

Beneficiaries (i.e., subgrantees) by Program (2018-2022)

Total program participants from 2018 to 2022



Most of which are located in Washtenaw, Oakland and Wayne counties, representing more than 50% of the E&I Program Participation in MI

Beneficiaries' (i.e., subgrantees) E&I Program Participation by County



Michigan's E&I programmatic focus is greatly aligned with the innovation efforts coming from the state's universities and venture capital activity

Program Beneficiaries (i.e., subgrantees) by Industry




Finally, program participants report that accessing capital, changes to the supply chain, and hiring top talent are the most worrying aspects of growth

Relative ranking of challenges faced by entrepreneurs

Q: Rate the degree to which each of the following challenges currently impacts your company's growth, 1 being little to no impact and 5 substantial impact



Answers from the open-ended feedback

Q: What additional support services could the MEDC, or Entrepreneurial service network provide to your business?
Availability of venture funding is limited and pales in comparison to other parts of the world (Tel Aviv, Shenzhen, etc. and NA (Silicon Valley, Boston, Toronto, etc.).
66 Better hand-holding when it comes to capital raising
ff I would like entrepreneurs to be able to access these services and the funding available a lot easier
Talent is still hard to find. Ways to help companies find remote talent and retain it would be great.
۲۵ Help with hiring and retaining talent



Proof of Concept Fund

Proof of Concept

Overview

The University Early-Stage Proof of Concept Fund is designed to provide a pipeline of de-risked technologies and fundable startup opportunities for further advancement. Specifically, the program provides resources and services to transition university projects from scientific / applied research into the commercial market. The program provides matching funds for faculty with early-stage technologies at Michigan universities to engage with their university's Technology Transfer Office (TTO) and commercialization activities. Inventors, their technologies, and TTOs all benefit through the achievement of critical early-stage milestones such as proof-of-concept or market opportunity validation which can lead to follow-on commercialization activities.

Operations & Administration



The MSU Innovation Center manages and administers the University Early-Stage Proof of Concept Fund (also known as the ADVANCE Grant Program), sponsored by the Michigan Economic Development Corporation (MEDC) on behalf of all public universities throughout the State of Michigan.



Reported Impact, from 2013-2021



T3N											
Proof of Concept T3N MTRAC Grant Emerg Training Tech F				H		eam	Bu Acc		E	arly-Sta Funding	ge
Overview	Gr	ant Disk	ourseme	ents							
The Technology Transfer Talent Network (T3N) is a statewide university network designed to support, through key talent programs, the commercialization of university technologies through licenses and startups. The program operates through university Tech Transfer Offices (TTOs) and provides critical expertise from mentors in residence and postdocs focused on the commercialization strategies of university projects. Services include technology assessment fellows (graduate student-level), business mentorship, IP commercialization, implementation plan development, and roundtables to share strategies and best practices. These connections can serve as important bridges to launch tech-	Thousands of USD	1500 1000 500		1375		1000	1200	1260	1175	500	750
based startups or license university inventions to established companies.		0	2013	2014	2015	2016	2017	2018	2019	2020	2021
Operations & Administration	Re	ported I	mpact,	from 20)13-202 <i>′</i>	1					
Launched in 2012, T3N is led by the University of Michigan; the network includes seven universities with strong research-based technology opportunities or clusters of talent. Each university collaborates with its regional economic development organization to promote increased access to mentors and partner businesses. The seven member universities are the University of Michigan, Wayne State University, Michigan State University, Michigan Technological University, Western Michigan University, Grand Valley State University, and Oakland University.			\$	7.3	\$1,1	11	N/J	Ą	N/A	Ą	
		Award Am (in US\$M)	ount	Follov (in US	v-on fundin S\$M)	g	Products ((In No. of I	Commercia Products)	alized	Jobs C No. of	Created (in Jobs) 110

	E
Carcanette	3

MTRAC

MTRAC



Overview

The Michigan Translational Research and Commercialization (MTRAC) Program, like T3N, was launched in 2012 to accelerate the transfer of new technologies from Michigan's institutions of higher learning into the commercial market by way of licenses or startups.

In 2016, the program expanded as a statewide program to support translational research throughout the state of Michigan. The expansion reinforces the commitment to entrepreneurship, innovation and economic growth by providing a pathway to accelerate the creation and transfer of new technologies into the commercial market.

Operations & Administration

MTRAC is comprised of five Innovation Hubs across the state. Each hub specializes in key technology areas, supporting projects across institutions of higher education, hospital systems, and nonprofit research centers.

- 5 Michigan State University - Agri Bio Innovation Hub
- University of Michigan Life Sciences Innovation Hub
- University of Michigan Advanced Transportation Innovation Hub
- 1885 Michigan Technological - University Advanced Materials Innovation Hub
- Wayne State University Advanced Computing Innovation Hub



Reported Impact, from 2013-2021





SBIR/STTR Grant Training

Concer

N

RAC

Grant Training

Tecl

ch Fund

Overview

The **Michigan SBIR/STTR Assistance Program** provides group training and one-on-one proposal development consulting to Michigan's technology-based entrepreneurs and early-stage companies. The program's goal is to increase Michigan's share of **Small Business Innovative Research** (SBIR) and **Small Business Technology Transfer** (STTR) funding by enhancing the competitiveness of SBIR/STTR proposals. Support covers applications to all 11 participating federal agencies including NIH, NSF, DoD and DoE and requires a non-refundable participation fee of \$500, which provides up to 15 hours of one-one assistance, access to agency tools and templates as appropriate and a reduced rate for on site training sessions for all individuals from an organization.

Operations & Administration



BBCetc team members travel throughout Michigan to attend appropriate state and local meetings to provide general information on the SBIR/STTR program and technology commercialization. Through partner organizations such as the Michigan Economic Development Corp., Michigan Small Business Development Center and Michigan SmartZones[™], training and consulting services are delivered directly to entrepreneurs and technology companies. They also collaborate with academic technology transfer administrators and other partners.



Reported Impact, from 2013-2021





Michigan Emerging Technology Fund

Concen

Operations & Administration

T3N

MIRAC





/ Tecł

n Team

siness celerator

Funding

Overview

The **Michigan Emerging Technologies Fund** (ETF) is designed to expand funding opportunities for Michigan technology-based companies in the federal innovation research and development arena by providing match dollars to eligible Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) proposals. The funds are used for commercialization for the tech sponsored under the SBIR/STTR. Eligible use of funds include purchase of equipment, legal costs (intellectual property protection, employee agreements, licensing agreements, etc.), sales and marketing costs (reasonable travel, trade shows, advertising, market studies, etc.), business planning costs, human resource development costs, and fundraising costs.

USD 3000 2500 2293 2500 2077 2100 2150 Thousands of 1750 2000 1455 1280 1500 1155 1000 500 0 2013 2014 2015 2016 2017 2018 2019 2020 2021

Reported Impact, from 2013-2021

Grant Disbursements





Gateway Proof of T3N MTRAC Grant Emerg Training Tech F			Gateway	н		eam	Bu. Acc		E E		ge
Overview	Gr	ant Disb	ursemer	nts							
Michigan currently has 20 SmartZones located throughout the state, each with a Gateway Representative. The SmartZones provide distinct geographical locations where technology-based companies, entrepreneurs, and researchers can get support in close proximity to community assets that assist in their endeavors. The SmartZones include technology business accelerators that provide various services including business development mentoring, feasibility studies, business planning, entrepreneurial training, market analysis, technology assessments, technology mining, and more. They also facilitate the commercialization of technologies developed at state universities by partnering with Tech Transfer Offices.	Thousands of USD	10000 8000 6000 4000 2000 0	8042	2250	2756	1900	4355	1632 2018	1731	2427	2351
Operations & Administration	Re	eported l	mpact , fr	om 2013	8-2021						
The Gateway Representative program is funded by the Michigan Strategic Fund (MSF) and is managed by the Michigan Economic Development Corporation (MEDC) Entrepreneurship and Innovation division. The SmartZones are below: 1. Houghton/Hancock - <u>SmartZone MIEC</u> ; 2. Marquette SmartZone - <u>Innovate Marquette</u> ; 3. Sault Ste. Marie SmartZone									9,314		
 Sault Ste. Marie EDC; 4. Muskegon SmartZone - Muskegon Innovation Hub; 5. Grand Rapids SmartZone - Spartan Innovations / Start Garden; 6. Holland SmartZone - Lakeshore Advantage; 7. Midland SmartZone - Midland Business Alliance; 8. Mount Pleasant SmartZone - CMURC; 9. Port Huron SmartZone - St. Clair County EDA; 10. Lansing/East Lansing SmartZone - Lansing Economic Area Partnership (LEAP); 11. Battle Creek SmartZone - Battle Creek Unlimited; 12. Kalamazoo SmartZone - WMed Innovation Center; 13. Ann Arbor/Y psilanti SmartZone - Ann Arbor SPARK; 14. Jackson SmartZone - Lean Rocket Lab; 15. Adrian/Tecumseh SmartZone - Lenaw ee Now; 16. Rochester Hills SmartZone - OU INC; 17. Sterling Heights SmartZone - Sterling Heights Velocity Center; 18. Troy SmartZone - Automation Alley; 19. Southfield SmartZone - Centrepolis Accelerator; 20. Detroit SmartZone - Techtow n 			\$3	31.8	\$2,8	97.9	N/A				
		Award Am (in US\$M)	ount	Follov (in US	v-on fundir S\$M)	ng	Products C (In No. of F	Commercia Products)	alized	Jobs C No. of	created (in Jobs) 114

E

Proof of T3N MTRAC Grant Emergence Concept T3N MTRAC Training Tech F		H		h	Tech T	eam	Bu Acc		E	Farly-Sta Funding	ge 9
Overview	Gr	ant Disb	ursemen	its							
The Michigan Small Business Development Center (SBDC) enhances Michigan's economic well-being by providing free consulting, training and research for new ventures, existing small businesses and advanced technology companies. It provides these services through its "Tech Team" of experienced business consultants, who have years of first-hand experience launching and growing high tech companies. Their background in tech sectors including life sciences, IT, advanced manufacturing, and mobility enables them to provide in- depth support that is essential to the inception and expansion of companies built on cutting-edge technologies.	Thousands of USD	3000 2500 2000 1500 1000 500 0	2013	2423	2015	1250	1500	2018	2019	1910	2021
Operations & Administration	Re	ported l	mpact, fr	om 2013	3-2021	2010	2017	2010	2013	2020	2021
Headquartered at Grand Valley State University, representing a long-term collaboration between the Small Business Administration and the State of Michigan, the SBDC operates 11 regional offices and more than 20 satellite offices.			\$^	12.4	\$90	5.0	617	,	1,976		



Business Accelerator Fund

Overview

The Business Accelerator Fund (BAF) leverages Michigan's statewide SmartZone network to provide privately-held small businesses with technical assistance. A small business applies for assistance through one of Michigan's 20 SmartZone hubs (Accelerator) and funds are allocated to the Accelerator to then provide services to the small business. Technical support to startups include legal services, IP, regulatory consulting, tech consulting, engineering services, market plan development/market research, financial management and modeling, product testing and logo design.



Business Accelerator

Operations & Administration Reported Impact, from 2013-2021 850.0 Michigan 506 SBDC \$324.0 BAF is administered by the Small Business Development Center (SBDC). \$10.6 Companies interested in participating are encouraged to contact the nearest participating business accelerator.

Award Amount (in US\$M)

Follow-on funding (in US\$M)

Products Commercialized (In No. of Products)

Jobs Created (in No. of Jobs) 116

Early-Stage Funding Program		
Proof of T3N MTRAC Grant Emer Concept Taining Tech	erging Gateway Tech Team Business Early-Stage Funding	
Overview	Grant Disbursements	
The Early-Stage Funding Programs provide early-stage, milestone driven funds to new tech companies in Michigan. The funds are focused on providing initial capital that will incentivize follow-on funding from other MSF funding programs or angel and venture investors.	G 10000 8958 8000 6000 6000 10000 4000 2000 2000 1750 0 2013 2013 2014 2015 2016 2017 2018 2018 2019 2020 2020	D
Operations & Administration	Reported Impact, from 2013-2021	
The Pre-Seed Fund III is administered by the Michigan State University Research Foundation through Michigan Rise, which is a fully-owned subsidiary of the Foundation. Michigan Rise supports entrepreneurs and technology startups across Michigan through capital support, coaching, assistance with grant funding and more. The First Capital Fund is administered by Invest Detroit, which is a nonprofit Community Development Financial Institution (CDFI) that puts philanthropic dollars to work in support of Detroit's underserved populations.	4,556 \$47.5 N/A 97	
	Award Amount (in US\$M)Follow-on funding (in US\$M)Products Commercialized (In No. of Products)Jobs Created No. of Jobs)	(in 117

Michigan's Economic Development Incentive Evaluation

Appendix D: Economic Impact Evaluation: Data, Methodology, and Detailed Results

This deliverable was prepared by Guidehouse Inc. for the sole use and benefit of, and pursuant to a client relationship exclusively with the Michigan Department of Technology, Management, and Budget ("Client"). The work presented in this deliverable represents Guidehouse's professional judgement based on the information available at the time this report was prepared. The information in this deliverable may not be relied upon by anyone other than Client. Accordingly, Guidehouse disclaims any contractual or other responsibility to others based on their access to or use of the deliverable.



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Understanding the Methodology

Analyzing the Economic Impact of the Programs

Additional Information on Data and Methodology



This analysis uses data from four sources, including MSF's Legislative Reported and a recently conducted survey of program participants



The Michigan Strategic Fund (MSF) is required to submit an annual report to the governor and the Michigan Legislature summarizing activities and program spending for the previous fiscal year. It, along with Salesforce, contains **aggregated impact metrics for each Michigan E&I program**. Quick access to all past reports can be found here. <section-header>

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The MEDC Subgrantee Database contains disaggregated impact metrics for each Michigan E&I Program, detailed at the subgrantee level (i.e., at the level of each entrepreneur, researcher, or startup that chooses to participate in the E&I programs).



The Subgrantee Survey was sent to all current and recent subgrantees (i.e., participants) of one or more Michigan's E&I program. This survey **supplements the annual report and database, asking questions directly of the subgrantees**, such as a 1-5 ranking of how helpful each program was.

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File Hanny Insert Date Page Lay $\begin{array}{c} & X \\ \hline \\$	at firmula = = 1 = = = 1 h area	a Deta A Deta A Deta A Deta A Deta A	teretere y	Inter Holp Power Prot General -	E taurt E Calebra - E Tarra Cale	- Σ - Α - Ξ - Ζ - Φ - Μ	Power P O to find & er Selet *	reents di S Aratigon Data Aratigon	hare
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2122 Applicants to NTRAC Life Sciences	8	0	P	2022 Anordees - MTRAC Life Sciences	6			3	
2 Project Tale Wreless Billary Stert Occkson Nonformp System to Early Detection of Recorrent Billary 2 Obstruction	Applicant Richard Kwon, MD	University U-M	Award Type MTRAC	Project Title The Solid-State Smart Valve For Hydrocephalus	Applicant Hartis, Carolyr	University Wayne State University	Award Type		
The Solid-State Smart Value For 4 Hydrocephake	Carsfyn Harris Ptil	Wayne State University	MTRAC	PresR/De: Novel compression mechanism to reduce post-operative terminism formation and improve wound healing is patients undergoing pacematies/deforitator implantation EDU/UTI: Emulowment for Model Monitorion	Mehra, Nishak	Deauncel Health System	MTRAC	'canceled in G2	•
FeriScope	Marilyn Filter, Path, CNM	UMPH	MTRAC	Evaluation and Tanely Tuning: A Health IT Tool for Clinical Model Surveillance	Ansari Santar	U-M	MTRAC		
PressRite: Novel compression mechanism to mduce post-operative heritations formatics and improve would healing in patients undergoing pacemarker/defocilator implantation EMMETT (Environment for Mode) Monitoring.	Nistani Mehta. MD	Beauriant Healt System	MTRAC	Proof of Concept Test of a Commercializable Genetic Tool to Promote Dapamine Neuros Production	Gelaso-Tayky, Mentiz	Grand Valley State University	MTRAC		
Evaluation and Tarrely Tuning) A Health IT Too T for Clerical Model Surveillance	Sardar Arean. Pa0	U-M Nacy Free	MTRAC	Non-irritating reteolds for skill repair and wound bealing	Varani, James	U-M	MTRAC		
	Kebey 2 (i)	Bed		Development of the anti-CD6 monoclonal					
						COMPLEX.	100		

When the annual report and database did not contain complete information for evaluation, grantees (i.e., program administrators and MEDC partners) were asked for any data they themselves collected for their program. This includes internal tracking documents and one-on-one interviews with program leaders.



These sources provide a robust picture of the program's performance; however, it is important to highlight data limitations for accurate interpretation

Key data limitations	Necessary data adjustments ¹	Implications for interpretation
The included database contains data from varying timeframes and may have different levels of availability across programs and metrics. For instance, while the job metrics cover approximately 5 years of data, the product metric has only been collected for the past 2 years.	We performed separate model calculations for different data timeframes and, when necessary, reported "insufficient data" for instances where the dataset was inadequate or had an insufficient sample to generate statistically significant results.	Impact calculations based on larger datasets resulted in more precise estimates, while smaller datasets (e.g., for product creation metrics) had higher margins of error. As a result, impact estimates for indicators or programs with smaller datasets should be interpreted with caution.
Most of the collected data is self-reported , which means that program participants provide their own success metrics to the program administrators for the relevant period. This method is prone to human error and inconsistencies, as people may unintentionally report inaccurate data.	Outliers, such as highly inconsistent job metrics, were removed from the dataset if it could be verified through desk research that the reported outlier was due to human error. Additionally, to account for margins of error and variability in the data, the results have been presented as ranges.	Although we have confidence in the directionality of the estimates and have thoroughly cleaned apparent human errors and methodological inconsistencies, it is important to note that there may still be less apparent reporting errors that were not identified, as well as possible double counting of the same metrics
E&I programs vary greatly in terms of their stage and requirements for reporting impact data by participants, with some mandating reporting and others not. As a result, program administrators use multiple methodologies to collect the data .	Data was used as reported by MEDC and grantees, but results have been presented as ranges rather than absolute numbers to account for margins of error. In addition, disclaimers have been included for cases where a methodology could impact the results.	by more than one program due to the varying methodological approached. These factors may have still influenced the outcomes. Therefore, when interpreting the results, readers should consider both the margins of error and the ranges to ensure accurate interpretation.

Important note

Appendix E, provides an overview of the data collection process utilized by Michigan's E&I programs and highlights the key pain points associated with it. In Appendix A, these pain points were transformed into a set of recommendations that aim to mitigate the data limitations observed in this analysis, create consistency in future data collection efforts, and ultimately, improve the accuracy of future impact analyses.

To account for the unique characteristics of the startup ecosystem and evaluate programs fairly, this analysis looks at a broad range of indicators

•	Earlier-stage		Entrepreneu	Irial Journey		Later-stage	Other in	dicators
	Follow-on Funding	Patents and Licenses	Products in Pipeline	Commercialized Products	Jobs created	Jobs retained	Program Scoring (from survey)	Program specific metrics
ΡοϹ	\checkmark	\checkmark	N/A	N/A	N/A	N/A	✓	N/A
T3N	\checkmark	\checkmark	N/A	N/A	N/A	N/A	✓	N/A
MTRAC	\checkmark	\checkmark	INSD	INSD	N/A	N/A	\checkmark	✓ Acceptance Rate
Grant Train.	\checkmark	\checkmark	N/A	N/A	N/A	N/A	\checkmark	✓ Success Rate
Gateway	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓ Referral Rate
Tech Team	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	N/A
ETF	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark	\checkmark	N/A
BAF	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	N/A
ESF	\checkmark	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	N/A



While some indicators are applied universally across all nine programs, others were deemed not applicable depending on the design of the program

	Earlier-stage		Entreprener	urial Journey		Later-stage	Other indicators	
	Follow-on Funding	Patents and Licenses	Products in Pipeline	Commercialized Products	Jobs created	Jobs retained	As entrepreneurs in their early stages of are constantly evolving, earlier stage E&I notably PoC, T3N, MTRAC, and Grant Tr	development programs – aining – are
PoC	\checkmark	\checkmark	N/A	N/A	N/A	N/A	not designed to create jobs or products. A outcomes may arise eventually, these productions designed to provide other foundational or	Although such
T3N	\checkmark	\checkmark	N/A	N/A	N/A	N/A	enterprises, such as raising capital and is patents. Therefore, in our analysis, we ha	sues new excluded
MTRAC	\checkmark	\checkmark	INSD	INSD	N/A	N/A	the evaluation of jobs and, in some cases earlier-stage E&I programs as our databa maximum of 4.5 years. In summary, giver	s, products in use covers a n the long-
Grant Train.	\checkmark	\checkmark	N/A	N/A	N/A	N/A	term impact nature of E&I, the impact of s would not be properly captured within this and therefore, have been excluded from t	some metrics s timeframe
Gateway	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	The typical progression of E&I In	npact ¹
Tech Team	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	Early-stages Mid-stages La (1-3 years) (3 -10 years) (1	te-stages 0+ years)
ETF	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	G Later fu Job creation	DP growth Inding
BAF	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	E Products Early funding Licenses Patents	
ESF	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	ideas	

An additional performance indicator, which directly measures participants' experiences on a scale of 1-5 for each program, was collected via a survey

•	Earlier-stage	Entreprene	urial Journey		Later-stage		Other in	dicators
	Follow-on Funding				Jobs retained	1	Program Scoring (from survey)	
PoC			The Pro	gram Scoring indic	ator		✓	
T3N			Our program scori the E&I programs, through our Subgra	ng indicator is a direc as rated by their ben antee survey. Respor	ct ranking of eficiaries ndents were		✓	
MTRAC			asked to rate the in 1 to 5, with 1 indicating	npact of the program ating "not impactful" a alv impactful " The su	on a scale of and 5 Irvey		✓	
Grant Train.			evaluated the prog which included follo	ram's impact in five of ow-on funding, paten	categories, ts and		✓	
Gateway			retention				✓	
Tech Team							✓	
ETF							✓	
BAF							✓	
ESF							✓	

K

Finally, to tell a complete story and capture unique program goals, three program-specific metrics were developed to round out the indicators

	Earlier-stage		Entreprene	urial Journey		Later-stage		Other in	dicato	rs
			Products in	Commercialized	Jobs created	Jobs retained	Program	Scoring rvev)	Progra rr	am specific netrics
				Acceptance	Rate Applied <u>only</u>	to MTRAC				
PoC			MTRAC's accepted int competitiver	cceptance rate measur to the program. This m ness and selectiveness	es the percentage o etric is used as a pro of the program, and	f applicants who were oxy to gauge the I by extension, the qu	e uality of			N/A
T3N			the participa acceptance selectivenes	nt pool. However, it's i rate may not necessar s, Instead, it could also	mportant to note that ily reflect an increase to be a reflection of a	t sudden spikes in M e in the program's n increase in the pro	TRAC's aram's			N/A
MTRAC	√	~	funding, whi Therefore, which is the interpreter	ch allows it to serve m while MTRAC's accepta	ore projects and acc ance rate can provide ar factors, such as fi	ept more participants valuable insights, it	s. should		✓	Acceptance Rate
Grant Train.	\checkmark			Success Rate	Applied <u>only</u> to Gr	ant Training	capacity.		✓	Success Rate
Gateway	~	~	Grant Traini who receive metric is an	ng's success rate is a d STTR/SBIR federal indicator of the strengt	metric that measures grants after being su h of both the funding	the percentage of in pported by the progra applications and the	ndividuals am. This e		✓	Referral Rate
Took Toom			program's s	upport over the past fe	w years.					N1/A
Tech Team				Referral Rat	te Applied <u>only</u> to	Gateway				IN/A
ETF			Gateway se innovators i	rves as the primary en n the state, and it also	try point for non-univ provides access to o	ersity entrepreneurs other critical E&I prog	and rams			N/A
BAF			successfully into the effect	F and ESF. The referral transition from Gateway ctiveness of Gateway a	rate measures the ay to other programs as a pathway to othe	percentage of partici . This metric provide r programs and the l	pants who s insights evel of			N/A
ESF			interest and Gateway is	engagement among p successfully connectin	articipants. A high re g participants to othe	ferral rate indicates er valuable resources	that and			N/A

Where possible, indicators were developed using a counterfactual attribution methodology to carve out a program's individual impact

•	Earlier-stage		Entrepreneu	ırial Journey		Later-stage	Other in	dicators
	Follow-on Funding	Patents and Licenses	Products in Pipeline	Commercialized Products	Jobs created	Jobs retained	Program Scoring (from survey)	Program specific metrics
PoC	✓	\checkmark	N/A	N/A	N/A	N/A	The counterfactu	al attribution methodology
T3N	✓	\checkmark	N/A	N/A	N/A	N/A	Considering the intention nine programs, we have have have have have have have hav	erconnected nature of these nave adopted a methodology
MTRAC	✓	\checkmark	INSD	INSD	N/A	N/A	that can effectively i program, avoiding a taking into account	solate the impact of each ny double counting and also the add-on effects of earlier
Grant Train.	\checkmark	\checkmark	N/A	N/A	N/A	N/A	programs. We call the counterfactual attr	his methodology the r ibution methodology .
Gateway	✓	\checkmark	✓	✓	\checkmark	✓ _	The following eight: information on the lo	slides provide detailed ogic and mechanics involved
Tech Team	✓	\checkmark	✓	✓	✓	✓ L		
ETF	✓	\checkmark	1	✓	✓	✓	\checkmark	N/A
BAF	✓	\checkmark	1	✓	✓	✓	\checkmark	N/A
ESF	✓	\checkmark	✓	✓	✓	✓	\checkmark	N/A



The counterfactual calculation isolates the program's Add-on Impact, while a separate calculation finds its Standalone Impact, both visualized below (1/3)

Estimated Add-on and Standalone Impacts of Program A (using data from Programs A, B, and C)



Notes: See Additional Information section for detailed breakdown of the counterfactual attribution methodology



The counterfactual calculation isolates the program's Add-on Impact, while a separate calculation finds its Standalone Impact, both visualized below (2/3)

Estimated Add-on and Standalone Impacts of Program A (using data from Programs A, B, and C)





The counterfactual calculation isolates the program's Add-on Impact, while a separate calculation finds its Standalone Impact, both visualized below (3/3)

Estimated Add-on and Standalone Impacts of Program A (using data from Programs A, B, and C)



Finally, using the IMPLAN platform, we can extrapolate the results from our indicators to estimate the total economic impact of MI's E&I programs

Application of IMPLAN to MI's E&I Programs





Comments



The following pages provide a summary of the impact analysis results for each of the nine programs under evaluation

*	University	1 University Early-Stage Proof of Con	cept Fund ("Proof of Concept")	Page 19 Quick Access <u>Here</u>
Ĺ	based	2 Tech Transfer Network ("T3N")		Page 20 Quick Access <u>Here</u>
		3 Michigan Translational Research ar	d Commercialization Program ("MTRAC")	Page 21
	Federal	4 SBIR/STTR Grant Training Services	("Grant Training")	Page 22 Quick Access <u>Here</u>
	Grants	5 Federal Grant Match or Early Techn	ology Fund ("ETF")	Page 23
	Farby	6 SmartZones Business Incubators a	nd Accelerators ("Gateway")	Page 24 Quick Access <u>Here</u>
	Company Formation	7 SBDC Consulting and Business Co	unseling ("Tech Team")	Page 25
	r onnation	8 Business Accelerator Services Fun	d ("BAF")	Page 26 Quick Access <u>Here</u>
1000 A	Early Funding	9 Early-Stage Funding Program ("ESI	=")	Page 27





To ensure consistency in this analysis, we have standardized the names of programs by using the short version presented in quotation marks on the previous page, even though these programs may be referred to by various names.



	Over	view	Sumi	mary of li	of Impact Analysis		
Brie	Description		To provide context to the reader,	the program			
Progr	am Type		and support type sections utilize a	an "X" mark			
Χ	University-based innovation	Early-company formation	to easily indicate the most funda characteristics of the program	amental	ing [progra	m name] has led to	
	Federal Grants	Early Funding	Follow-on Funding	Patents a	nd Licenses	Products in Pipeline	
Supp	ort Type						
Χ	Capital Support	Service Support	Standalone \$0.8M-\$1M	[Avg]	Licenses	No impact	
	f Departmention]		Add-on \$3M-\$4M	[AVg]	Patents	detected	
Грпе	Description		Commercialized Products	Jobs	Created	Jobs Retained	
Prog	ram Scale		Other Performance Indic	ators			
	Total MSF Investment From 2018 to 2021, in USD m	Total Beneficiaries From 2018 to 2021	This section provides readers with snapshot of the program's relati terms of both funding and part The pie chart represents the total by MSF and the number of progra participants over the last nine year highlighted section of the pie char green) shows the representation program in question within that to	h a ve scale, in icipants. investment m rs. The t (dark of the tal.	Program Scor	Meaningful Sole reason for	



Program Name

	This section of the scorecard provides a breakdown of the impact for each indicator, differentiating		Sum	mary of Impact Anal	ysis
Brief Description	between the program's standalone attribution (in		Economic Impact		
Program Type	cases where a participants <u>only</u> enrolled in that specific				
X University-based innovation	the participant enrolled in <u>two or more</u> programs,		For the average part	icipant, joining [program	name] has led to
Federal Grants	including the one being evaluated).		Follow-on Funding	Patents and Licenses	_ Products in Pipeline
Support Type	In this example, the average participant joining only this			This indicates that the data	
X Capital Support	program should expect to raise \$0.8 million to \$1 million,		\$0.8M-\$1M	analyzed did not reveal any	No impact detected
[Brief Description]	while the average participant that joined two or more programs, should expect to raise \$3 to 4 million more as	$\left(\right)$	Add-on \$3M-\$4M	within the timeframe considered	
	a result of joining the program under evaluation.		Commercialized Products	Jobs Created	Jobs Retained
Program Scale	This denotes that the indicator was not calculated for this specific program because the data was not available or insufficient		Data unavailable or insufficient	was not calculated for this specific program as it did not fit the program's core objectives	Not applicab le
Total MSF Investment	Total Beneficiaries		Other Performance indicate	or Program Scorin	g by Participants
From 2018 to 2021, in USD	m From 2018 to 2021			Funding	
		ome c	ases, the scorecard will	Patents	
	inclu india	de ot cators	her performance s such as the acceptance	Licenses	Program scores on a scale
	rate	used	in the case of MTRAC,	Products	the participants in the
	Gran	e suc It trair	ing program,	Jobs	subgrantee survey
				No contribution	Meaningful Sole reason for contribution performance



Proof of Concept

	Overview				
	Brief Description				
F	Program Type				
	Χ	University-based innovation		Early-company formation	
		Federal Grants		Early Funding	
	Support Type				
	Χ	Capital Support		Service Support	

The PoC program provides matching funds for faculty with early-stage technologies at Michigan's universities to engage with their university's Technology Transfer Office. The program aims to support early-stage milestones such as market opportunity validation and helps transition university projects from scientific/applied research into the commercial market.





Summary of Impact Analysis

Economic Impact

For the average participant, joining PoC has led to...

Follow-on Funding	Patents and Licenses ¹	Products in Pipeline
Standalone Data unavailable Add-on No impact detected	0.1 patents, copyrights, and trademarks 0.2 licenses	Not applicable
Commercialized Products	Jobs Created	Jobs Retained
Not applicable	Not applicable	Not applicable
Program Scoring by Part	icipants	
Funding	2.0	
Patents	3.0	
Licenses	2.7	
Products	Not applicable	
Jobs	Not applicable	
No	Meaningful	Sole reason fo
contribution	contribution	performance



	Overview				
	Brief Description				
F	Program Type				
	Χ	University-based innovation		Early-company formation	
		Federal Grants		Early Funding	
	Support Type				
		Capital Support	Χ	Service Support	

The T3N program connects entrepreneurs who are developing high-tech projects within Michigan's universities with experienced industry professionals who can serve as mentors and offer guidance. The primary objective of the program is to create effective commercialization strategies for university projects helping innovators kickstart new business, raise funds, or issue licenses and patents.



Summary of Impact Analysis

Economic Impact

For the average participant, joining T3N has led to...

Follow-on Funding	Patents and Licenses ¹	Products in Pipeline
Standalone \$0.8M-\$1.2M Add-on \$0.3M-\$0.5M	0.7 patents, copyrights, and trademarks 0.6 licenses	Not applicable
Commercialized Products	Jobs Created	Jobs Retained
Not applicable	Not applicable	Not applicable
Program Scoring by Pau	rticipants	
Funding	2.2	
Patents 1.	0	
Licenses		
Products	Not applicable	
Jobs	Not applicable	
No	Meaningful	Sole reason fo



	Overview				
Brief	Brief Description				
Progra	Program Type				
Χ	University-based innovation		Early-company formation		
	Federal Grants		Early Funding		
Suppo	Support Type				
	Capital Support	Χ	Service Support		

The MTRAC program offers support aimed at accelerating the transfer of new technologies from Michigan universities into the commercial market, via licenses or the creation of startups. The program supports five (5) Innovation Hubs in key technology areas of - Advanced Computing, Advanced Transportation, Advanced Materials, Agriculture-Biology and Life Sciences.



Summary of Impact Analysis

Economic Impact

For the average participant, joining MTRAC has led to...

Follow-on Funding	Patents and Licenses ¹	Products	in Pipeline
Standalone \$5.1M- \$8.3M Add-on \$5.1M- \$8.3M	2.0 patents, copyrights, and trademarks 1.3 licenses	Data in	nsufficienț
Commercialized Products	Jobs Created	Jobs I	Retained
Data insufficient	Notapplicable	Not a _l	oplicable
Acceptance Rate	Program Scor	ing by Partic	ipants
	Funding	2.6	
	Patents	2.3	
30% of applicants were	Licenses		
the MTRAC program	Products	3.1 ▼ 3.1	
	Jobs	Not applicable	
	No	Meaningful	Sole reason for



Grant Training

ı.

	Overview				
Brie	Brief Description				
Prog	Program Type				
	University-based innovation		Early-company formation		
X	Federal Grants		Early Funding		
Supp	Support Type				
	Capital Support	Χ	Service Support		

The Grant Training program provides SBIR/STTR grant training and one-on-one proposal development consulting services to Michigan's technology-based entrepreneurs. The program's goal is to increase Michigan's share of SBIR and STTR funding by enhancing the competitiveness of proposals.



Summary of Impact Analysis

Economic Impact

For the average participant, joining Grant Training has led to...

Follow-on Funding	Patents and Licenses ¹	Products in Pipeline
Standalone \$0.07M-\$0.12M Add-on <i>No impact detected</i>	No impact detected	Not applicable
Commercialized Products	Jobs Created	Jobs Retained
Not applicable	Not applicable	Not applicable
Funding Success Rate	Program Scor	ing by Participants
	Funding	2.1
20% of participants were	Patents 1.5	
awarded federal SBIR/STTR	Licenses	
funding awards	Products	Not applicable
	Jobs	Not applicable
	INO	weaningrul Sole reason for



	Overview				
	Brief Description				
Program Type					
		University-based innovation		Early-company formation	
	Χ	Federal Grants		Early Funding	
Support Type					
	Χ	Capital Support		Service Support	

The ETF program provides matching fund to awardees of the SBIR and STTR Federal grant. This program was designed to expand funding opportunities for Michigan technology-based companies in the federal innovation research and development arena.



Summary of Impact Analysis

Economic Impact

contribution

For the average participant, joining ETF has led to...



contribution

performance



Gateway

Overview			
Brief Description			
Program Type			
	University-based innovation	Χ	Early-company formation
	Federal Grants		Early Funding
Support Type			
	Capital Support	Χ	Service Support

Michigan currently has 20 accelerators called SmartZones throughout the state, each with a Gateway Representative who helps coordinate and act as a link to the rest of the MI's E&I ecosystem. The SmartZones provide distinct locations where technology-based companies, entrepreneurs, and researchers can get support including business development mentoring, feasibility studies, and tech assessments.



Summary of Impact Analysis

Economic Impact

For the average participant, joining Gateway has led to...





Tech Team

Overview			
Brief Description			
Program Type			
	University-based innovation	Χ	Early-company formation
	Federal Grants		Early Funding
Support Type			
	Capital Support	Χ	Service Support

The Tech Team program provides free or low-cost consulting, training and research services for new technology-related ventures and small businesses. Headquartered at Grand Valley State University, representing a long-term collaboration between the Small Business Administration and the State of Michigan, the SBDC operates 11 regional offices and more than 20 satellite offices.





Summary of Impact Analysis

Economic Impact

For the average participant, joining Tech Team has led to...





Overview			
Brief Description			
Program Type			
	University-based innovation	Χ	Early-company formation
	Federal Grants		Early Funding
Support Type			
	Capital Support	Χ	Service Support

Administered by the Michigan SBDC, the BAF program offers funds to other business accelerators in Michigan's SmartZone network. These funds support the provision of unique services to clients in order to accelerate their path to commercialization, company success, and economic impact for the state of Michigan. Services provided by business accelerators include office space, networking opportunities, business education and training, and access to funding, and mentorship and coaching.





Summary of Impact Analysis

Economic Impact

For the average participant, joining BAF has led to...





Overview				
Brief Description				
Program Type				
	University-based innovation		Early-company formation	
	Federal Grants	Χ	Early Funding	
Support Type				
X	Capital Support		Service Support	

The ESF program provides seed capital to Michigan-based startups that are developing cutting-edge technologies. The primary focus of these funds is to bridge the capital gap and provide the much-needed initial capital that can then encourage follow-on funding from early-stage investors, most notably angel investors and venture capital funds.



Summary of Impact Analysis

Economic Impact

contribution

For the average participant, joining ESF has led to...



contribution

performance

How to read the bubble charts

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In the following pages, a series of bubble charts compare the nine E&I programs against each other



143


Follow-on funding data indicates that a few programs tend to excel on their own, while others achieve optimal results in conjunction with other programs



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When it comes to product creation, all programs demonstrate positive impacts, but Gateway & BAF stand out as the most impactful in this area (1/3)





When it comes to product creation, all programs demonstrate positive impacts, but Gateway & BAF stand out as the most impactful in this area (2/3)



When it comes to product creation, all programs demonstrate positive impacts, but Gateway & BAF stand out as the most impactful in this area (3/3)







When it comes to job creation and retention, all programs show a positive impact, with ESF & ETF having the most significant impact in creating jobs (2/2)



How to read the performance matrix



On the following page, we will analyze the overall performance of the E&I program through an aggregated performance matrix

		Earlier-stag	ge	Entrepreneuria	al Journey	Late	er-stage	Other in	dicators
		Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specific metrics
	PoC	SA data unavailable AO: No impact	0.1 patents	stimated Impact	N/A			5 INSD and	N/A cells
٠	T3N	SA \$0.8M-\$1.2M AO: \$0.3M-\$0.5M	Each cell show impact type as program score	s the breakdown by presented in the card, with "SA"	N/A	N/A	N/A	"N/A" signifies that not relevant to the question, while "IN	the metric was program in SD" indicates
	MTRAC	SA: \$5.1M-\$8.3M AO: \$5.1M-\$8.3M	indicating stan "AO" represent	dalone impact and ing add-in impact.	INSD	N/A	N/A		
۰	Grant Train.	SA: \$0.07M-\$0.12M AO: No impact	No impact detected	N/A	N/A	N/A	N/A	1.5 – 2.1	20% Funding success
	ETF	SA: \$0.9M-\$1.3M AO: \$7.1M-\$10.4M				SA: 1.6-2.4 AO: 3-4	SA: 8-12 AO: 49-72	1.9 - 3.4	
	Gateway	SA: \$1.3M-\$1.5M	0.9 patents		SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	SA: 11-12 AO: 4-5	1.9 – 2.8	36% Referral rate
	Tech Team	e size of each bubble	int of funds			SA: 1-2 A O: 2-3	P	rogram Performance	
•	BAF ESF			3 ••• Program Type The colors represent the four main types of programs under analysis.		The color scale ranges from red to dark green represent the scale of impact detected by the by indicator. Red cells mean no impact, while and yellow show small impact, and green and indicate large and most impactful programs,		es from red to dark green f impact detected by the s mean no impact, while all impact, and green and ost impactful programs, re	to program, orange dark green espectively.
-	Program size	by total MSF investment	University-based	Program type Federal Grants	arly Company Earl	y Funding Low est	Program performan	Highest SA:	Impact Type Standalone impact : Add-on impact 150

Overall, this study found that most programs in MI's E&I portfolio, including its largest investments, have a clear positive economic impact in the state

		Earlier-sta	ge	Entrepreneuri	al Journey	Late	er-stage	Other in	dicators
		Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specific metrics
	PoC	SA data unavailable AO: No impact	0.1 patents 0.2 licenses	N/A	N/A	N/A	N/A	2.0 - 3.0	N/A
٠	T3N	SA \$0.8M-\$1.2M AO: \$0.3M-\$0.5M	0.7 patents 0.6 licenses	N/A	N/A	N/A	N/A	1.0 – 2.2	N/A
	MTRAC	SA: \$5.1M-\$8.3M AO: \$5.1M-\$8.3M	2 patents 1.3 licenses	INSD	INSD	N/A	N/A	2.3 - 3.1	56% Acceptance rate
٠	Grant Train.	SA: \$0.07M-\$0.12M AO: No impact	No impact detected	N/A	N/A	N/A	N/A	1.5 – 2.1	20% Funding success
	ETF	SA: \$0.9M-\$1.3M AO: \$7.1M-\$10.4M	0.4 patents 0 licenses	SA: 0-1 AO: 0-1	SA: 1-2 AO: 1-2	SA: 1.6-2.4 AO: 3-4	SA: 8-12 AO: 49-72	1.9 – 3.4	N/A
	Gateway	SA: \$1.3M-\$1.5M AO: \$0.09M-\$0.1M	0.9 patents 0.6 licenses	SA: 0.6-0.7 AO: 1.5-1.9	SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	SA: 11-12 AO: 4-5	1.9 – 2.8	36% Referral rate
	Tech Team	SA: \$0.5M-\$0.7M AO: \$1.4M-\$2.2M	0.4 patents 0 licenses	SA: 0.3-0.4 AO: No impact	SA: 1.0-1.3 AO: 1.0-1.3	SA: 1-2 AO: 2-3	SA: 8-12 AO: 26-42	1.4 – 2.7	N/A
	BAF	SA: \$0.3M-\$0.5M AO: \$0.9M-\$1.2M	0.5 patents 0 licenses	SA: 0.09-0.12 AO: 2-3	SA: 1-2 AO: 4-6	SA: 0.5-0.6 AO: 1.6-2.3	SA: 10-13 AO: 8-11	1.6 – 3.0	N/A
	ESF	SA: \$1.0M-\$1.4M AO: \$4.1M-\$5.7M	0.2 patents 1.0 licenses	SA: 0.3-0.4 AO: 1.0-1.4	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA: 5-7 AO: 21-30	2.4 - 4.1	N/A
	Program size	by total MSF investment	University-based Innovation	Program type Federal Grants	Early Company Early	/ Funding	Program performano	Highest SA:	Impact Type Standalone impact : Add-on impact 151

While the color scale offers a helpful overview of program impact, it is worth noting specific factors that may have contributed to the lower scores (1/4)

		Earlier-sta	ge	Entrepreneuri	al Journey	Late	er-stage	Other in	dicators
		Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program spec metrics
PoC		SA data unavailable AO: No impact	0.1 patents 0.2 licenses	N/A N/A N/A		N/A N/A		2.0 - 3.0	N⁄A
T3N		SA \$0.8M-\$1.2M A O: \$0.3M-\$	0.7 patents 0.6 licenses	N⁄A	N/A	N⁄A	N/A	10-22	N/A
MTRA	C ·	The Proof of Concept pr	ogram's low impact m	netrics are likely			The high present of the hi	rogram scores of PoC in patents and license	s, are
Grant Train program – the ~5-year per enough time to start see		ge at which participan period covered by th peing significant cor	ne data may not be ne data may not be nmercial activity			derived dire	ctly from the survey respectively from the survey respectively and the survey respected by the survey of the surve	ponses	
ETF	F from PoC participants.						program, ev immediately	en if participants may r see significant results	not in
Gatewa	ay	these numbers will start participants begin to ent	to reflect new succes er the later stages of	sses as PoC commercialization	SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	AO: 4-5	follow-on funding.	36% Referral rate
TechT	eam		0 licenses	AO: No impact					
BAF									
ESF		SA: \$1.0M-\$1.4M AO: \$4.1M-\$5.7M	0.2 patents 1.0 licenses	SA: 0.3-0.4 AO: 1.0-1.4	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA: 5-7 AO: 21-30	2.4 - 4.1	N/A
ļ	Program s	size by total MSF investment		Program type			Program performanc	e ²	Impact Type
		\bigcirc \bigcirc \bigcirc \circ	University-based Innovation	Federal Grants	Early Company Early	Funding Low est		Highest SA: performer AC	Standalone impact): Add-on impact

While the color scale offers a helpful overview of program impact, it is worth noting specific factors that may have contributed to the lower scores (2/4)

	Follow-on							
	Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specif metrics
PoC	SA data unavailable AO: No impact	0.1 patents 0.2 licenses	N/A	N/A	N/A	N/A	2.0 - 3.0	N⁄A
T3N								
MTRAC								
Grant Train.	SA: \$0.07M-\$0.12M AO: No impact	No impact detected	N/A	N/A	N/A	N/A	1.5 – 2.1	20% Funding succes
ETF		0.4 patents 0 licenses	SA: 0-1 AO: 0-1	SA: 1-2 AO: 1-2	SA: 1.6-2.4 AO: 3-4	SA: 8-12 AO: 10.72	1.9-3.4	NKA N
Gatew The lower in program is	mpact of follow-on fu possibly due to the	nding for the Grant Tr smaller scale of the	raining e federal 5-0.7	SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	SA: Grant Tr AO participa	raining's low program s ants are likely influenced	cores from d by the
Tech T funding. Ur	en compared to othen nlike venture capital h millions of dollars	er sources of follow deals and acquisition SBIR/STTR grants av	-on s, which warded			population federal a	on of participants who on awards as a result of the data suggests that G	did not receive eir application;
BAF by the government of	rnment usually do no dollars.	ot surpass low hundre	d			AC: grant a	a 20% success rate in pplications, surpassin	federal g the
ESF receive the relatively lo	only a small percenta STTR/SBIR grant ac w average of follow-c	age (10%-30%) of pa cross the country, resu on funding per particip	ulting in a point.	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA Nationa	I average of 15-18% in	FY21 ³
Program size b	y total MSF investment		Program type			Program performanc	e ²	Impact Type

Notes: [1] "Patents" includes patents, copyrights, and trademarks, [2] Colors were assigned by a combination of factors including standalone and add-on impacts and participant numbers and distribution [3] National Institutes of Health Office of Extramural Research

While the color scale offers a helpful overview of program impact, it is worth noting specific factors that may have contributed to the lower scores (3/4)

•	Earlier-sta	ge	Entrepreneuri	al Journey	Lat	er-stage	Other in	dicators		
	Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specifi metrics		
PoC	SA data unavailable	0.1 patents	N/A	N/A	N/A	N/A	2.0 - 3.0	N/A		
ТЗМ	Approximately other program funding metrics	60% of participants i involvement, and Ga s are derived from thi	n Gateway join the prog teway's strong standalo s group. On average, a	ram without any ne follow-on a participant who		N/A	Gateway's 36% referral a participants since 2018 (rate for its 1,622 (or 46% of the total		
MTRAC	only enrolls o million dollars	Ily in Gateway can anticipate raising between \$1.3-\$1.5 in follow-on funding. NA NA					participants across all 9 programs) ma a valuable entry point for entrepren			
Grant Train.	For the remain the for other E Gateway's add	-on funding metrics f	e more suitable for their rom this group are cons	es as a referral needs. As a result, iderably lower.	NA	N/A	looking to join Michiga but unsure where to begi	igan's E&I ecosystem begin with.		
ETF		0 licenses	SA: 0-1 AO: 0-1	SA: 1-2 AO: 1-2		SA: 8-12 AO: 49-72	1.9 - 3.4			
Gateway	SA: \$1.3M-\$1.5M AO: \$0.09M-\$0.1M	0.9 patents 0.6 licenses	SA: 0.6-0.7 AO: 1.5-1.9	SA: 1.1-1.3 AO: 3-4	SA: 1.6-1.7 AO: 1.4-1.5	SA: 11-12 AO: 4-5	1.9 – 2.8	36% Referral rate		
Tech Team	SA: \$0.5M-\$0.7M AO: \$1.4M-\$2.2M	0.4 patents 0 licenses	SA: 0.3-0.4 AO: No impact	SA: 1.0-1.3 AO: 1.0-1.3	SA: 1-2 AO: 2-3	SA: 8-12 AO: 26-42	1.4 - 2.7	N⁄A		
BAF										
ESF	SA: \$1.0M-\$1.4M AO: \$4.1M-\$5.7M	0.2 patents 1.0 licenses	SA: 0.3-0.4 AO: 1.0-1.4	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA: 5-7 AO: 21-30	2.4 - 4.1	N/A		
Program size	by total MSF investment		Program type			Program performa	ince ²	Impact Type		
	$\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$	University-based Innovation	Federal Grants	Early Company Early	Funding Low est		Highest SA:	Standalone impact 0 : Add-on impact		

While the color scale offers a helpful overview of program impact, it is worth noting specific factors that may have contributed to the lower scores (4/4)

	•	Earlier-stag	ge	Entrepreneur	ial Journey	Late	er-stage	Other in	dicators
		Follow-on Funding	Patents ¹ and Licenses	Commercialized Products	Products in Pipeline	Jobs created	Jobs retained	Program Score (from survey)	Program specific metrics
	ΡοϹ	SA data unavailable AO: No impact							
•	T3N	SA \$0.8M-\$1.2M AO: \$0.3M-\$0.5M							
	MTRAC	SA: \$5.1M-\$8.3 M AO: \$5.1M-\$8.3 M			INSD	N/A	N/A		
۰	Grant Train.	SA: \$0.07M-\$0.12M AO: No impact	No impact detected	N/A	Amongst its nearly c performance metrics	lean sweep of high- , ESF's low product p	bipeline	1.5 – 2.1	20% Funding success
	ETF				result of the more developed nature of ESF's participant companies. ESF, as the MI's latest-				
	Gateway	SA: \$1.3M-\$1.5M AO: \$0.09M-\$0.1M	0.9 patents 0.6 licenses	SA: 0.6-0.7 AO: 1.5-1.9	participants who are developing their pipe	still in the process of still of products, as the	ney would	1.9 – 2.8	36% Referral rate
	Tech Team				need an existing pro- funding in most case	duct to successfully re			
	BAF					SA: 0.5-0.6 AO: 1.6-2.3	SA: 10-13 AO: 8-11		
	ESF	SA: \$1.0M-\$1.4M AO: \$4.1M-\$5.7M	0.2 patents 1.0 licenses	SA: 0.3-0.4 AO: 1.0-1.4	SA: No impact AO: No impact	SA: 0.9-1.3 AO: 6-9	SA: 5-7 AO: 21-30	2.4 - 4.1	N/A
	Program size	e by total MSF investment		Program type			Program performance	22	Impact Type
		\bigcirc \bigcirc \bigcirc \circ	University-based Innovation	Federal Grants	Early Company Formation Early	Funding Low est		Highest SA: performer AC	Standalone impact D: Add-on impact 155



In addition, the survey revealed that most of the jobs directly created by the $\overset{\&}{}$ E&I programs are based in MI and pay higher salaries than the state's average





To calculate the total direct impact of MI's E&I programs, this analysis looked state at the combined results for funding and job creation...





which, then allowed us to extrapolate the aggregate results and estimate not only their direct impact, but also their indirect and induced impacts in MI

DIRECT IMPACT

INDIRECT IMPACT

INDUCED IMPACT



The E&I programs offered by MI have a direct impact on the local economy. More specifically, since 2018 the programs helped generate 1,200 new jobs per year and inject \$4.7 billion into Michigan's startups. This, in turn, created a ripple effect of capital flow, stimulating further economic growth and development within the community...

...After the direct impact of MI's E&I programs flowed into the state's economy, a series of additional indirect effects followed, for example the purchase of software licenses, and rental of office and industrial spaces, the increase in demand for supply chain services, and an upsurge in business taxes...

... Finally, the indirect increase in labor income triggered a chain of induced effects, starting with an upsurge in household spending which led to additional purchase of goods and services, further increasing labor income and household taxes



Since 2018, MI's E&I programs created 5.2k jobs/year, contributed \$8.5B in business sales, and \$4.5B to GSP after factoring in indirect & induced impact













Key takeaways from the Economic Impact Analysis

Within each metric, certain programs seem to play a more impactful role if they are the sole program an entrepreneur is participating in, while others benefit from a synergistic effect when used in conjunction with other E&I programs. However, there is no program that operates better on its own across all metrics – in other words, they all benefit on *some* way from being a part of the broader portfolio of E&I programs.

2

Analysis within and across the four program groupings reveals a trend: as the programs progress from earlier-stage to later-stage participants, their impact strengths mirror the typical focus of entrepreneurs at that stage. More specifically: 1) University Programs excel in patents and licenses, 2) Federal Grant Programs lead in follow-on funding and employment, 3) Early Company Formation Programs have high employment and lead in commercialized products, and 4) Early Funding Programs show leading results across the board.

3

All the programs in Michigan's E&I portfolio have some degree of positive economic impact in the state, with most of them exhibiting strong quantitative results and favorable participant ratings. Moreover, the top three programs by total MSF investment each lead in one area or another, with Gateway's leading participant count (1622), ESF's leading jobs created (6-9) and program scores (2.4-4.1), and MTRAC's leading patents/licenses (2/1). ESF and MTRAC also score notably high on commercialized products and follow-on funding, respectively.

Almost three-quarters of the startups participating in MI's E&I programs are exclusively hiring local residents at a wage that is 16% higher than the state average. This can be partially attributed to the high-paying characteristics of the typical jobs found in the tech ecosystem, such as engineering. This results in an estimated total economic impact from 2018 to 2022 of an average of 5.2k jobs created per year, \$8.5B in company revenues, and \$4.5B in GSP.



For all programs and metrics with sufficient data, the counterfactual approach for add-on impact followed a straightforward five-step process



Step 1
Map all distinct
combinations of
E&I programs ¹

Step 2 Calculate average impact metrics for each combination **Step 3** Isolate individual program impacts **Step 4** Average all impact calculations for each program

Step 5 Estimate margins of error to create impact ranges

Result

Notes: [1] Program combinations that had less than 10 recorded subgrantees were not considered due to insufficient samples sizes



Step 1 & 2: Map all distinct combinations of programs and calculate the average impact for each combination

Step 1: map all the distinct combinations of programs In this example, there are 8 possible combinations, including companies that participated in only one of the 3 programs under consideration, those that participated in all three, and those that did not participate in any of them

Ļ	three, and those tha	t did not participate i	n any of them.	Sample Size	Total Follow- on Funding	Avg. Follow-on Funding	Total Jobs Created	Avg. Jobs Created
1	MTRAC	Gateway	Tech Team	<i>X</i> ₁	\$Y ₁	\$Y ₁ /X ₁	W_1	W_1/X_1
2	MTRAC	Gateway	Tech Team	<i>X</i> ₂	\$Y ₂	\$Y ₂ /X ₂	<i>W</i> ₂	W_2/X_2
3	MTRAC	Gateway	Tech Team	<i>X</i> ₃	\$Y ₃	\$Y ₃ /X ₃	W ₃	W ₃ /X ₃
4	MTRAC	Gateway	Tech Team	<i>X</i> ₄	\$Y ₄	\$Y ₄ /X ₄	W_4	W ₄ /X ₄
5	MTRAC	Gateway	Tech Team	X_5	\$Y ₅	\$Y ₅ /X ₅	W_5	W ₅ /X ₅
6	MTRAC	Gateway	Tech Team	X_6	\$Y ₆	\$Y ₆ /X ₆	W_6	W ₆ /X ₆
7	MTRAC	Gateway	Tech Team	X ₇	\$Y ₇	\$Y ₇ /X ₇	<i>W</i> ₇	W ₇ /X ₇
8	MTRAC	Gateway	Tech Team	<i>X</i> ₈	\$Y ₈	\$Y ₈ /X ₈	W_8	<i>W</i> ₈ / <i>X</i> ₈

Program name

In this combination companies did not participation in this program

Program name

In this combination companies participated in this program

Step 2: Calculate average impact metrics for each combination

To determine the average impact achieved by each distinct group, we need to know the total impact and the number of participants in each group. In this illustrative table, for instance, participants who only took part in MTRAC had an average result for follow on funding of Y_2/X_2 .

ILLUSTRATIVE



Step 3: Isolate the impacts of each individual program by comparing results for every pair of combinations that differs by only that one program

ILLUSTRATIVE

				Sample Size	Total Follow- on Funding	Avg. Follow-on Funding	Total Jobs Created	Avg. Jobs Created
				X_1	\$Y1	\$Y ₁ /X ₁	W_{1}	W_1/X_1
2	MTRAC	Gateway	Tech Team	X ₂	\$Y ₂	$A = \$Y_2/X_2$	<i>W</i> ₂	$C = W_2/X_2$
3	MTRAC	Gateway	Tech Team	X_3	\$Y ₃		W ₃	
4			Tech Team	X_4	\$Y ₄		A + B - A <i>W</i> ₄	
5	MTRAC	Gateway	Tech Team	X_5	\$Y ₅	$B = \$Y_5 / X_5$	W_5	$D = W_5 / X_5$
6	MTRAC	Gateway	Tech Team	X_6	\$Y ₆	\$	W ₆	W ₆ /X ₆
7		Gateway	Tech Team	X ₇	\$Y	Step 3	: Isolate individual program	impacts
8	MTRAC	Gateway	Tech Team	X ₈	\$ Y	This methodology is desig	ned to estimate causality	by comparing average
	Program name	In this combination co	mpanies did <u>not</u> partic	ipation in this pro	gram	gauge the impact of Gatev who took part in both MTR who only participated in M	way by contrasting the av RAC and Gateway with th TRAC.	erage results of participants e average results of those
	Program name	In this combination co	mpanies participated i	n this program		n this illustrative example, on follow-on funding and j average impact of the two	we can isolate the impa obs by calculating the dif highlighted groups, as d	ct of the Gateway program ference between the epicted in the image above.



Step 4: Isolate one program at a time, then average the calculated impacts for each program to get an estimated counterfactual attribution

ILLUSTRATIVE

				Sample Size	Total Follow- on Funding	Avg. Follow-on Funding	Total Jobs Created	Avg. Jobs Created				
1	MTRAC	Gateway	Tech Team	1	Step 4	: Average all impact calc	ulations for each progra	ım				
2	MTRAC	Gateway	Tech Team	, Ir	In this example, MTRAC can be isolated in by creating four pairings: None (grouping 1) vs. MTRAC (grouping 2)							
3	MTRAC	Gateway	Tech Team	2	Gateway (grouping 3) vs. Gateway + MTRAC (grouping 5)							
4	MTRAC	Gateway	Tech Team		Tech Team (grouping 4) vs. Tech Team + MTRAC (grouping 6)							
5	MTRAC	Gateway	Tech Team		Gateway + Te fter calculating the aver	ch Team (grouping 7) vs. ages of all four pairings, t	Gateway + Tech Team+ hese averages are then a	MTRAC (grouping 8) averaged out to arrive				
6	MTRAC	Gateway	Tech Team	a	t an estimated counterfa	actual attribution. This pro	cess is repeated for all p	rograms.				
7	MTRAC	Gateway	Tech Team	X ₇	\$Y ₇	\$Y ₇ /X ₇	W ₇	W ₇ /X ₇				
8	MTRAC	Gateway	Tech Team	X ₈	\$Y ₈	\$Y ₈ /X ₈	W_8	W ₈ /X ₈				

Program name

In this combination companies did not participation in this program

Program name

In this combination companies participated in this program



Step 5: Estimate margins of errors based on the sample size and the overall quality of the data, and calculate impact ranges

							Step 5: Estima	te margins of err	or to create i	mpact ranges		
				Sample Size	Total F on Fui	To address p estimates fro adjustment m therefore, gre	otential data issue m step 4 were ad eans that progra eater certainty in t	es and account fo justed by a margir ms with combinati heir final results, v	r varying sam of error, wh ons that had were applied	ple sizes, the final ich varied by progr larger sample size a lower margin of e	attribution am. This s and, error.	
1	MTRAC	Gateway	Tech Team	X ₁		Conversely, p robustness, h	programs with cor ad in a higher ma	nbinations that ha argin of error appli	d smaller sar	mple sizes and less tributed impact.	s statistical	
2	MTRAC	Gateway	Tech Team	X ₂		The table presented below serves as an illustrative example of how margins of error were utilized. It demonstrates the reasoning behind the use of higher margins of error in situations where the estimated impact is statistically less robust and, thus, less certain. Nevertheless, the calculation of margins of error is a much more intricate process than						
3	MTRAC	Gateway	Tech Team	X ₃								
4	MTRAC	Gateway	Tech Team	X ₄		depicted in this simple example, taking into account various factors such as the total population size and confidence level.						
5	MTRAC	Gateway	Tech Team	X ₅		Program	Attribution (from step 4)	Participant's population	Sample Size	Margin of error	Impact range	
6	MTRAC	Gateway	Tech Team	<i>X</i> ₆		MTRAC	Α	500	50 (medium)	20%	A ± 20%	
7	MTRAC	Gateway	Tech Team	X ₇		Ontarra		4 000	300	10%	D . 40%	
8	MTRAC	Gateway	Tech Team	X ₈		Gateway	В	1,000	(large)	(nigner certainty)	в ± 10%	
						Tech Team	С	500	10 (small)	30% (lower certainty)	C ± 30%	

Program name

In this combination companies did not participation in this program

Program name

In this combination companies participated in this program

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Whenever it was not possible to apply the counterfactual approach, this analysis used the next-best approximation of a program's add-on impact

Based on MSF's Annual Legislative Report



Contains aggregated totals for each program's impact



Determine the relevant program's average impact, as published in the Legislative Report

Step 2

From the result of Step 1, subtract the average impact of all program combinations that overlap with the relevant program

Result

This methodology works like a simplified version of the counterfactual attribution methodology described before this. For example, if we are analyzing Program A but lack isolated data for A, then we would find A's results in the Legislative Report, then subtract the average results of BA, CA, and BCA to isolate A's add-on impact. Due to data limitations, this methodology has been used for all license/patent metrics.

The chart below shows the participant distribution across unique program combinations, with Gateway as a standalone program leading by far:



Notes: [1] "Others" includes 87 unique groupings that each had participant counts under 30 (40 of the 87 groups onlyhad 1 participant)



While working with the MEDC's database for attribution calculations, adjustments were made to clean the data and correct for any limitations

Attribution Calculations (MEDC's subgrantee database)

- Throughout this report, it is stated that the data spans approximately 5 years (2018-2022), but in some cases, impact data for the beginning of 2018 or the end of 2022 was unavailable. The datasets were used in their most complete form wherever applicable, with margins of error built in to help account for some of these differences.
- Product commercialization data was only available for 2021-2022, so those attribution calculations were calculated separately in order to account for the shorter data timeline.
- ³ Proof of Concept lacks sufficient data in the subgrantee database, so a simplified calculation method (described in the methodology section) was used for their impact analyses.
- Initially, the subgrantee database had T3N and Grant Training participants listed but lacked their impact metrics; data received directly from the grantees were incorporated into the original database.
- In some cases, a company was listed twice in the same reporting period, under both "companies created" and
- 5 "companies served." In these cases, to avoid double counting, the listing under "companies created" was deleted, and the listing under "companies served" was retained.
 - Due to the self-reported nature of the data, the same companies were listed in the database under varying names across
- 6 multiple entries. In these cases, one name variant was selected and then standardized across all entries for that same company.
 - 21 outliers across jobs created, jobs retained, products commercialized, and products in the commercialization pipeline
- 7 were identified, verified as errors based on public data, and deleted from the database. Follow-on funding data was not cleaned for outliers because funding data is not consistently publicly available.



While working with the subgrantee database for IMPLAN analysis, assumptions were made to clean the data and correct for any limitations

There was significant variation in the originally-listed "high-level industries" in the database, so a new column was added to sort these entries into more consistent "consolidated industries."
 NAICS codes were only available for some database entries (mostly 2021-2022), so the relative distribution of available codes was calculated for each high-level industry, and then a proportionate distribution for each high-level industry was assumed for the remaining entries.
 A weighted average of industry breakdown for each year revealed a salary split of 28%-29% (i.e., comparable companies on average were found to spend about that much of their funds on payroll), which was used in the IMPLAN calculation.

4 The IMPLAN calculations only accounted for "jobs created," and did not include "jobs retained."

Michigan's Economic Development Incentive Evaluation

Appendix E: Program Administration Evaluation



This deliverable was prepared by Guidehouse Inc. for the sole use and benefit of, and pursuant to a client relationship exclusively with the Michigan Department of Technology, Management, and Budget ("Client"). The work presented in this deliverable represents Guidehouse's professional judgement based on the information available at the time this report was prepared. The information in this deliverable may not be relied upon by anyone other than Client. Accordingly, Guidehouse disclaims any contractual or other responsibility to others based on their access to or use of the deliverable.



Contents

Evaluating Key Processes

Learnings from Michigan's E&I Community

List of Stakeholders Consulted





This study has identified two crucial processes that require further evaluation to enable Michigan's E&I initiatives to realize their full potential



E&I Data Gathering Process

Learning from the Current State Assessment

MI's E&I program performance indicators are based on data from various sources, and although data collection efforts have improved over time, there is still room for improvement.

Importance of this process for strategy design

Careful planning and strategic decision-making, grounded in quality data, are essential for achieving long-term impact.



E&I Budget Definition Process

Learning from the Current State Assessment

Over the last 10 years, MI's E&I budget has been trending downward. Furthermore, the MEDC teams administering these programs have limited visibility into the budget definition process.

Importance of this process for strategy design

Long-term impact requires long-term planning which, in turn, requires some level of visibility over a multi-year budget.



Over the following pages, we will look at the current data gathering process of Michigan's E&I programs and identify areas for potential improvement

E&I Data Gathering Process

FOCUS OF THE NEXT PAGES

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Over the last 10 years, MI's E&I budget has been trending downward. Furthermore, the MEDC team administering these programs has limited visibility into the budget definition process.

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Long-term impact requires long-term planning which, in turn, requires some level of visibility over a multi-year budget.

The process of gathering data from E&I programs involves multiple steps that rely on MEDC's partners to collect and share data provided by participants



	Process Key										
Data	Data	Quality	Legislative	Formal	Informal						
request	Capture	Control	Reporting	Process	Process						

Grantees are asked to report impact data to the MEDC on a semiannual basis, the data is then collected directly from the entrepreneurs & innovators...



Data Gathering Process Overview

1) Data Request Email

- The data collection process is initiated by a data request email that is sent from the E&I team to grantees, or program administrators.
- The data request email contains a series of metrics tailored to each program, which describe various key performance indicators used to monitor program progress and outputs.

2) Data Collection

After the data request email is circulated to grantees, or program administrators, the grantee program manager issues a data request to their program subgrantees, or E&I program participants.

3) Data Reported

• Within the third stage in the data collection process, program participants provide data for a series of metrics required under their grant agreement, aimed at depicting the participant's entrepreneurial output.

4) Data Quality Assurance

- Depending on the program, the program manager sometimes undertakes a high-level data review, or sense-check.
- The objective of this quality assurance step is to ensure the data is reflective of efforts supported by E&I funding.

		Proces	s Key		
Data	Data	Quality	Legislative	Formal	Informal
request	Capture	Control	Reporting	Process	Process



... After collecting the data, grantees submit their final reports to the MEDC, which initiates its own quality assurance process...



Data Gathering Process Overview

5) Report Upload

After the quality assurance review is complete at the program administrator level, the program manager utilizes MEDC's customer relationship manager (CRM) system to upload the aggregated data from each program participant.

6) Data Quality Assurance

- Once the data is uploaded to MEDC's CRM, the MEDC grant manager conducts an additional informal data quality assurance review of the data supplied by each program administrator.
- The objective of the quality assurance review at this stage is ٠ to ensure that each data point is supported by source documentation (e.g., program participant progress reports).

) Final Data Quality Assurance

After the grant manager completes the guality assurance process, the data undergoes a final formal review by the E&I Team prior to being entered in the Legislative Report.

Process Key						
Data	Data	Quality	Legislative	Formal	Informal	
request	Capture	Control	Reporting	Process	Process	



Finally, with the data in hand, the Legislative Report is compiled and reviewed before its final submission to the Legislature



Data request

Data CaptureQuality ControlLegislative ReportingFormal ProcessInformal Process



A thorough review of this process allowed for the identification of three main suggested opportunities for improvement as highlighted in the chart below



Process Key							
Data	Data	Quality	Legislative	Formal	Informal		
request	Capture	Control	Reporting	Process	Process		


Next, we will look at the process of budget definition and approval for MI's E&I programs and, again, identify potential areas for improvement

FOCUS OF THE NEXT PAGES



E&I Data Gathering Process

Learning from the Current State Assessment

MI's E&I program performance indicators are based on data from various sources, and although data collection efforts have improved over time, there is still room for improvement.

Importance of this process for strategy design

Careful planning and strategic decision-making that are grounded in quality data are essential for achieving long-term impact.

E&I Budget Definition Process

Learning from the Current State Assessment

Over the last 10 years, MI's E&I budget has been trending downward. Furthermore, the MEDC teams administering these programs have limited visibility into the budget definition process.

Importance of this process for strategy design

Long-term impact requires long-term planning which, in turn, requires some level of visibility over a multi-year budget.



The E&I budget allocation is a multi-stakeholder process involving the MSF and MEDC teams as well as the legislators and the governor's office



Before sending the budget recommendation to the governor's office, there are a series of conversations between the E&I team and the MEDC leadership...

OP Image: Several severation several sev	Budget Definition Process Overview				
OP Review EXI Team ² submits budget EXI Team ² submits budget EXI Budget Requests are Finalized BXI SVP EXI Team ² submits budget EXI Budget Requests are Finalized EXI Budget Requests are Finalized EXI Budget Requests are Finalized • The EXI budget request • Once the grantee progress reports, and aggregation of program information, such as the legislative report. The information is used to draw conclusions regarding future funding suggestions. • Next Budget BXI SVP EXI and MECC Leadership MECC Leadership BXI SVP EXI and MECC Leadership MECC Leadership • The second node depicts the point in the EXI process where MEDC leadership reviews the program budget for each of the 9 EXI programs. • Modifications are requested and calibrated in concert with all MSF programs, thus program funding adjustments take into account budget requests being made across the entire MSF programmatic portfolic • Once MEDC Leadership concludes calibrating internal requests for program cost modifications, the internal budget proposal is finalized. • Once MEDC Leadership concludes calibrating internal requests for program cost modifications, the internal budget ine-item at the discretion of the Executive Office. • After the EXI budget line-item at the discretion of the Executive Office. • After the EXI budget line-item are "informed proposed". • After the EXI budget line- which indicates the vare "informed processes". • After the exit and proposed through steps 1-3. As such, the interactions between nodes 3 and 4			1) Review programmatic reports and prepare for next budget cycle		
Next Budget Leadership Bil SVP Leadership Bil SVP Leadership Covernor's Budget Governor's Budget Covernor's Covernor's	MEDC	Review 1 Programmatic Reports* and Prepare for Reports * and Prepare for Reports * and Prepare for Reports * and Prepare for	 The E&I budget process is initiated through the compilation and review of information submitted by grantees, such grantee progress reports, and aggregation of program information, such as the legislative report. The information is used to draw conclusions regarding future funding suggestions. Once the grantees and programmatic outputs are reviewed, suggestions for cost adjustments are prepared for MEDC leadership's review. 		
 Children Leadership Leadership The second node depicts the point in the E&I process where MEDC leadership reviews the program budget for each of the 9 E&I programs. Modifications are requested and calibrated in concert with all MSF programs, thus program funding adjustments take into account budget requests being made across the entire MSF programmatic portfolio 3) E&I budget requests are finalized Once MEDC Leadership concludes calibrating internal requests for program cost modifications, the internal budget proposal is finalized. 4) Governor's budget recommendation After the E&I budget proposal is finalized by MEDC leadership, the proposed figure is assumed under the E&I budget line-item at the discretion of the Executive Office. Note, the Governor's E&I budget line-item recommendation may or may not be informed by the budget created and proposed through steps 1-3. As such, the interactions between nodes 3 and 4 are reflected with a dotted line, which indicates they are "informal processes". 		Next Budget Leadership E&I and MEDC MEDC	2) E&I team submits budget request		
Image: State of the state	MSF	Leadership I Leadership	 The second node depicts the point in the E&I process where MEDC leadership reviews the program budget for each of the 9 E&I programs. Modifications are requested and calibrated in concert with all MSF programs, thus program funding adjustments take into account budget requests being made across the entire MSF programmatic portfolio. 		
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Governor	Executive Office of Governor	4 Governor's Budget Recommendation Governor	 After the E&I budget proposal is finalized by MEDC leadership, the proposed figure is assumed under the E&I budget line-item at the discretion of the Executive Office. Note, the Governor's E&I budget line-item recommendation may or may not be informed by the budget created and proposed through steps 1-3. As such, the interactions between nodes 3 and 4 are reflected with a dotted line, which indicates they are "informal processes". 		

*Reports used to evaluate programmatic spending and performance (e.g., expenditure and progress reports)

>>>



Afterward, the Legislature engages in a series of deliberations that result in a final consensus and the signature of different budget line-items, including for E&I...





In the last stages, the state budget is transmitted to the MEDC leadership, who review and adjust it before the MSF board motions the final allocation



After conducting interviews with multiple stakeholders, we have identified areas for >>>improvement that, if addressed, could improve MI's E&I long term planning





The analysis of these two crucial processes has yielded several key takeaways that are essential to unlocking the full potential of MI's E&I initiatives

	Issues identified and opportunities for improvement	What is the impact to the State?	
N	• There is variance in how the grantees (i.e., program administrators) collect data from subgrantees (i.e., program participants), which subjects the data to varying levels of quality.	 Inconsistencies in data collection methods may affect the MEDC's ability to leverage data for decision making and ability to articulate the wider economic benefits of its programs. 	
E&I Data	• Inconsistency in the current quality assurance process, both at the grantee and MEDC level, increases the likelihood of errors being recorded in the database.	• The MEDC may miss opportunities to address data errors prior to publication, affecting the dependability of the annual report and its validity in generating evidence for budget suggestions.	
Gathering Process	Self-reporting method of data collection is vulnerable to human error.	• Without a strong quality assurance practice, collected data would have to undergo a rigorous cleaning process, as conducted in this study, before any program evaluation can take place.	
	• The government's short-term budgeting approach , typically spanning only 1-2 years, hinders the much-needed long-term programmatic planning that is crucial for achieving meaningful and sustainable impact through E&I efforts. This means that by nature, E&I budget is vulnerable to annual budgetary decision-making process.	 It may place MEDC in delicate scenarios to retain relationships with partners, including grantees and private funders, as they are not positioned as a dependable funding source. It created challenges to retain internal workforce as staffing decisions are reactionary, meaning they are missing out on top talent. 	
Al Dudget	Lack of visibility and control in the budget process heightens uncertainty for long-term programs.	MEDC is missing potential opportunities to increase and sustain financial support for its E&I programs.	
Approval Process	 Due to their relatively small budgets in comparison to other MEDC programs, E&I programs often receive limited attention from relevant funding entities, which perpetuates the problem. 	 MSF Board Members have limited visibility on program delivery, meaning that the MEDC is not benefiting from their strategic advice and political connections. Key decision makers are unable to adequately advocate for change throughout the budget development process. 	

In addition to evaluating data- and budget-focused processes, this report examines the perspective of different stakeholders in MI's E&I ecosystem

This framework provides a comprehensive perspective on the three key factors that drive the success of E&I programs, namely its **data**, its **financial support**, and the experience of the **people** embedded in Michigan's entrepreneurship and innovation ecosystem.

Data Gathering

Learning from the Current State Assessment

MI's E&I program performance indicators are based on data from various sources, and although data collection efforts have improved, there is still room for enhancement.

Importance of this process for strategy design

Careful planning and strategic decision-making that is grounded in quality data are essential for achieving long-term impact.



E&I Budget Definition Process

Learning from the Current State Assessment

Over the last 10 years, MI's E&I budget has been trending downward. Furthermore, the MEDC team administering these programs has limited visibility into the budget definition process.

Importance of this process for strategy design

Long-term impact requires long-term planning which, in turn, requires some level of visibility over a multi-year budget.



Stakeholder Engagement

Importance of this process for strategy design

By examining the "human element" of the E&I ecosystem and researching the key pride and pain points experienced by key stakeholders interacting with Michigan's E&I programs, we can develop strategic recommendations that are both data-driven and human-centered. This approach can maximize the potential impact of Michigan's future efforts in the entrepreneurship and innovation space.



In the next pages, we will look at a simplified map of MI' E&I ecosystem and deep dive into the lived experiences of selected members of this ecosystem

Data Gathering

Learning from the Current State Assessment

MI's E&I program performance indicators are based on data from various sources, and although data collection efforts have improved, there is still room for enhancement.

Importance of this process for strategy design

Careful planning and strategic decision-making that is grounded in quality data are essential for achieving long-term impact.



Budget Approval

Learning from the Current State Assessment

Over the last 10 years, MI's E&I budget has been trending downward. Furthermore, the MEDC team administering these programs has limited visibility into the budget definition process.

Importance of this process for strategy design

Long-term impact requires long-term planning which, in turn, requires some level of visibility over a multi-year budget.

Stakeholder Engagement

FOCUS OF THE NEXT PAGES

Importance of this process for strategy design

By examining the "human element" of the E&I ecosystem and researching the key pride and pain points experienced by key stakeholders interacting with Michigan's E&I programs, we can develop strategic recommendations that are both data-driven and human-centered. This approach can maximize the potential impact of Michigan's future efforts in the entrepreneurship and innovation space.

How to read the E&I network map



First, we examine a map of MI's E&I ecosystem identifying the key stakeholders shaping this space; below is an explanation of how to read the map



Network Map Overview

Understanding stakeholders and the dynamics between them is a key objective to developing effective evidence-based insights. This network map of Michigan's E&I Network is a depiction of all the primary stakeholders who can influence the E&I program and how they are connected. The diagram arrows depict the sequential flow of monetary and social supports among stakeholders. By understanding the E&I program's operational environment, we are able to accurately identify activities that facilitate program delivery and gain insight into stakeholder interactions during these activities.

State Government

The State Government node provides a high-level depiction of how budgetary revenues are appropriated and allocated to the E&I program.

MSF and **MEDC**

The MSF/MEDC node depicts how the two entities interact to administer the E&I programmatic allocation. The MSF board provides oversight and strategic direction while the MEDC E&I team manages the programs.

MEDC Partners

The MEDC Partners node depicts the key role grantees play in the administration of E&I's grant programs. The Partners function as subrecipients of E&I funding and have a primary role in program deliverv.

E&I Program Beneficiaries

The Program Beneficiaries node depicts the end users of the E&I programmatic assistance. Beneficiaries leverage support from E&I programs to generate additional. or "follow-on" opportunities through private and federal funders.

Capital Support Providers

2

The Capital Support Providers node depicts the various funding opportunities Beneficiaries leverage during and after their interaction with the E&I programs. Several E&I programs, such as the Federal Grant Training program, directly facilitate opportunities for coaching and technical assistance. Additionally, several programs, such as the Early-Stage Funding programs, incentive beneficiaries to gain external capital assistance with a funding match component.

The ecosystem that the MSF and MEDC operates in consists of five primary groups of stakeholders connected by a flow of monetary and technical support



1**90**

[1] Revenues from the 21st Century Fund and federal appropriations, at times, may be used to supplement tax revenues allocated to the E&I program participants and program administrators may receive revenues from the local tax capture, state and federal grants in addition to resources depicted in the above netw ork map, [3] VC Funds stands for Venture Capital Funds, [4] Other private investors include seed and pre-seed investors, commercial banks, impact invertors, foundations, corporations, among many others



Next, we delve deeper into five critical stakeholders within this network and examine the State's "pride" and "pain" points in supporting their success



How to read the persona template

The persona page features a fictional character that encapsulates insights from comprehensive research, including multiple stakeholder interviews

2



1

Persona Profile

<u>Archetype</u>: The persona archetype characterizes a **defined role for the persona**. Archetypes bring further focus to the depiction of the stakeholder.

<u>Attributes</u>: Attributes further detail **user-centered characteristics** based on real stakeholder insights. Attributes are tailored to each persona, thus may vary.

Sources: Crunchbase, MEDC-MSF Annual Legislative Report

<u>Sector or Focus Area</u>: The sector or focus area details the **persona's** concentration within the E&I ecosystem.

Biography

The bio is a **short**, **illustrative description** that personalizes the archetype previously described to give readers a clear understanding of the characteristics and trajectories that typify this stakeholder group.

Quotes

Quotes reflect real, anonymized responses captured from stakeholder interviews and surveys concerning actual **user insights**. *Sources: Stakeholder Interviews*.

2022 Voice of the Customer Survey

Ecosystem Characteristics

The ecosystem characteristics are statistics compiled from various sources **detailing the persona's impact on the E&I ecosystem**. *Sources: MVCA Annual Report, AUTM STATT Database*

Motivation

This section defines **what is motivating each stakeholder** to engage with the E&I programs. Sources: Stakeholder Interviews, The Michigan Opportunity Podcast



Pain Points and Pride Points

5

<u>Pride Points</u>: The persona pride points provide an indication of how the E&I programs can help each stakeholder's respective entrepreneurial journey.

<u>Pain Points</u>: The persona pain points provide an indication of how the E&I programs could be improved to further support each stakeholder's respective entrepreneurial journey.

Sources: Stakeholder Interviews, The Michigan Opportunity Podcast, 2022 Voice of the Customer Survey

University-Affiliated Entrepreneurs & Innovators



Bio

5



"Universities are critical to Michigan's entrepreneurial ecosystem."

ARCHETYPE: Inventor COMPANY MATURITY: <1 year PRE-MONEY VALUATION: <\$1 Million² **TECHNOLOGY:** Biotechnology STATUS: Pre-Revenue

Mary is a College Professor of Biology at a R1 research university in Michigan. She is a core member of her university's biotechnology research institute located in West Michigan, where she has developed a new geneediting technology. Her technology is patent pending. She is interested in exploring licensing and would like to establish a start-up company upon finding a co-founder.

Michigan University Innovation Characteristics¹

- 678 Invention disclosures received 4
 - 282 New patent applications
- **\$2.6B** Total research expenditures

Motivation

- Contributing to technological advances in therapeutics
- Access to funding opportunities beyond university networks

Pride Points

- ▲ University-affiliated founders are focused on R&D, which enhances the pipeline for translational research in the state
- Universities collaborate and communicate to connect entrepreneurs and innovators to appropriate mentors across the state

Pain Points

- University-affiliated founders often prioritize R&D. necessitating guidance on commercialization, particularly in building business networks and fundraising
- Early-stage technology often evolves rapidly, which can be out of sync with program timelines and processes

Example Quote

"The mentorship and other basic services--marketing, networking, grant writing help, etc.—are very helpful for new entrepreneurs who need guidance."

Example Quote

"Programs that provide capital funding for translational research and support commercialization are a winning model and could be better funded."

Example Quote

"We spent a lot of time on the MTRAC application process. It is burdensome, especially if you don't ultimately receive an award."

Solution Non-University Affiliated Entrepreneurs & Innovators





"We need to produce things again."

ARCHETYPE: Start-Up Founder COMPANY MATURITY: 1 year PRE-MONEY VALUATION: \$4 Million² TECHNOLOGY: 3D Printing STATUS: Pre-Revenue

Bio

Allan is a former engineer at a large firm based in Virginia. He recently resigned from his position and moved closer to family in Michigan. He is a new entrepreneur and resides in Marquette. Derrick has a patent pending for an additive manufacturing device he designed and is seeking support in further commercializing his business.

Michigan Startup Characteristics¹

- 20 SmartZone technology clusters
- 83% Percent of startups Professional,
 Scientific, and Technical Service firms are still active after one-year¹

Motivation

- Access to manufacturing facilities and contract manufacturers
- Access to local engineering talent

Pride Points

- ▲ The State has put effort into creating a geographically diverse set of SmartZones that provide State-funded programming in most regions across the State
- Several innovation hubs located in the State, including Ann Arbor, Grand Rapids, and Detroit, are gaining a national reputation that helps to concentrate interest and resources in these areas

Pain Points

- There is a lack of fundraising experience and guidance on how to raise capital
- There is a lack of available mechanisms to identify and retain qualified talent from Michigan's talent pool
- Application process tend to be burdensome and timeconsuming which can negatively impact entrepreneurs' ability to focus on and develop their business

Example Quote

Example Quote

"You start off with a good idea, but not knowing how to navigate though the web of "how to launch my business" they take you step by step."

"This early help and funding is the main reason we have reached our goals so far, but more funding is needed to achieve full production."

Example Quote

"Tying the SmartZones and entrepreneurial locations together makes services easier to find. [However] they can feel disjointed or overlapping and it takes some work to find the right people to talk to."



Program Mentors



"We should get individuals with business experience involved very early in the entrepreneurship journey."

ARCHETYPE: C-Suite Executive INDUSTRY EXPERIENCE: 30 years COMPANY MARKET CAP: \$1.2 Billion¹ SECTOR: Advanced manufacturing FOCUS AREA: Venture Assessment 4

George has been a C-suite executive for nearly 10 years. He is currently based in central Michigan, where he has mentored entrepreneurs for over a decade. He maintains strong relationships with Michigan's various university commercialization offices and provides mentorship within his local innovation ecosystem.

Michigan Mentor Pool Characteristics

- 7 Universities participating in a **Mentor-in-Residence** program that supports the T3N programming
- Entre preneurs-in-Residence programs facilitate mentorship opportunities statewide across accelerators and incubators

Example Quote

"[The program] has allowed me to lend and apply the experience and knowledge I have gained over the years, while keeping me involved and abreast of current developments in industry."

Motivation

- Stay abreast of current industry developments
- Opportunity to remain local and directly contribute to the startup ecosystem

Pride Points

- Mentors bring vast industry knowledge, hands-on experience, and connections to resources, aiding entrepreneurs and innovators in their quests for commercialization
- People who have a connection to the State (e.g., their alma mater is here) make a vested interest to stay here and help grow the ecosystem

Pain Points

- There is not a central directory to search for mentorship opportunities
- Today there is minimal financial incentive to participate in these programs as a mentor
- There are no formal State-funded opportunities for nonuniversity mentors

Example Quote

"Other than the altruism and passion to support Michigan's entrepreneurs, there is not much of an incentive to get involved."

Example Quote

"As a mentor, you have an opportunity and engage other industry leaders and work together to strengthen Michigan's entrepreneurial ecosystem."



Angel Investor



"We are the first money in, after family and friends."

ARCHETYPE: Individual Investor INVESTMENT EXPERIENCE: 5 years AVERAGE DEAL SIZE: \$30,000¹ SECTOR: Medical Device STATUS: Active

Bio

Mark is a physician and operates a successful family practice in Ypsilanti. He recently became associated with a local angel group after seeking ways to expand his due diligence in the medical technology sector. He has a strong regional focus and leverages his relationships with colleagues in the healthcare field to prospect new opportunities.

Michigan Angel Investor Characteristics¹

- 🛁 1,577 Angel investors in Michigan
- **111** Companies receiving investments from Michigan angels
- **\$38K** median invested per angel

Motivation

- An ability to diversify personal investment portfolio
- Opportunities to collaborate with other individual investors and syndicate
- Access pre-seed deal flow

Pride Points

- There is a growing network of angel groups across Michigan
- Angel investors who have a personal connection to the State are committed to investing in Michigan

Pain Points

- There is a lack of State-funded financial support or incentives targeted (e.g., tax credits) towards Angel investors
- Angel investors have limited visibility into the University and State-funded E&I pipeline

Example Quote

"We prospect investment opportunities through demo days and pitches. Many small investors depend on Angel Groups to provide a stamp of approval and find new investment opportunities."

Example Quote

"Much of our [Angel] group's deal flow is localized, but there are several groups that focus on out-ofstate deals, particularly where investment incentives are offered."

Example Quote

"Angel funds are often too small to carry entrepreneurs through the preseed stage alone. Entrepreneurs need an [investment] match from State or private funders to mature through preseed."

Senture Capitalist Investor





"Venture Capital is a long-term commitment."

ARCHETYPE: Early-Stage Investor FUND AGE: 2 years FUND SIZE: \$30 Million¹

SECTOR: High-Technology (artificial intelligence and biotechnology)

STATUS: Active

Bio

Å

5

Sara is new to the Michigan venture capitalist space and is focused on early-stage investing. She manages a \$30 million fund and is interested in seed investments for AI and biotechnology startups in Michigan. She has helped launch and exit several successful startup ventures in both California and Massachusetts.

Michigan VC Characteristics²

- 154 Venture-backed startups in Michigan
- 34 active VC firms headquartered in Michigan
- **\$5.4 Billion** total VC funds under management of Michigan-headquartered firms

Motivation

- Startup pipeline from major research universities
- Growth of Michigan's entrepreneurial community

Pride Points

- Michigan has emerged as the "middle coast" of VC investing in recent years, with the rise of local unicorns and a significant increase in total VC investments, which has grown 32 times since 2016³
- ▲ Venture capitalists who have a personal connection to the State are committed to investing in Michigan

Pain Points

- Most of Michigan's venture capitalist funds are small and medium-sized and face challenges with the high costs of performing due diligence, which can limit their ability to invest more
- There is a lack of State-funded financial support or incentives targeted toward VC investors

Example Quote

"Public programs tend to be more economic development-oriented; venture [capital] is more related to investment outputs. We need to find alignment so that we are identifying the right opportunities."

Example Quote

"Early-stage venture capitalists do not feel supported in Michigan. State support is focused on large deals and not fostering investment in tech startups."

Example Quote

"University innovation clusters are appealing to venture capitalists, particularly large research institutions that have had success spinning out startups."



We have identified "pride points" that show areas of strength across key stakeholder groups that the State can leverage to strengthen their programs

Pride points (Strengths) Uni. Iniversity-affiliated founders are focused on R&D, which creates more opportunity for translational research in the state entrepreneurs ▲ Universities collaborate and communicate to connect entrepreneurs and innovators to appropriate mentors located across the state & innovators Non-uni. The State has put effort into creating a geographically diverse set of SmartZones that provide State-funded programming in most regions entrepreneurs Several innovation hubs located in the State are gaining a national reputation that helps to attract interest and resources & innovators A Mentors bring vast industry knowledge, hands-on experience, and connections to resources, which can greatly help entrepreneurs Program People who have a connection to the State make a vested interest to stay and help grow the ecosystem mentor There is a growing network of angel groups across Michigan Angel investor Angel investors who have a personal connection to the State are committed to investing in Michigan ▲ Michigan has been mentioned as the "middle coast" of VC investing in recent years, given significant increase in total VC investments from 2016 Venture to 2021¹ capitalist Venture capitalists who have a personal connection to the State are committed to investing in Michigan investor



We have also identified a series of pain points across all five stakeholder groups that indicate opportunities for process and programmatic improvement

	Pain points (Weaknesses)	What is the Impact to the State?	
Uni. entrepreneurs & innovators	 University-affiliated founders often prioritize R&D, and need guidance to build business networks and fundraising Early-stage technology often evolves rapidly, which can be out of sync with program timelines and processes 	These types of hurdles in MI's E&I journey can discourage (or prevent) local innovators and	
Non-uni. entrepreneurs & innovators	 There is a lack of fundraising experience and guidance on how to raise capital There is a lack of available mechanisms to identify and retain qualified talent Program application processes tend to be burdensome and time-consuming 	entrepreneurs from advancing, leading them to abandon their commercialization efforts or seek out-of-state assistance.	
Program mentor	 There is not a central directory to search for mentorship opportunities There is minimal financial incentive to participate in these programs as a mentor There are no formal State-funded opportunities for non-university mentors 	Prospective qualified industry experts will not enter mentor pool, meaning that the State loses out on expertise and coaching that can help to propel entrepreneurs and innovators forward.	
Angel investor	 There is a lack of State-funded financial support or incentives targeted towards Angel investors There is limited visibility into the University and State-funded E&I pipeline 	The State risks losing early-stage capital efforts to other states, further limiting the ability of	
Venture capitalist investor	 Most of Mi's VC funds are small and medium-sized and face challenges with the high costs of performing due diligence, which can limit their ability to invest more There is a lack of State-funded financial support or incentives targeted at VCs 	entrepreneurs and innovators to effectively fund their businesses here in Michigan.	



This study has interviewed with four groups of stakeholders: the MSF and MEDC teams, grantees, program mentors, and local investors

MSF/MEDC	Grantees	Investors
 MEDC Program Managers E&I Senior Vice President E&I Grant Managers E&I Grant Managers E&I Portfolio Managers E&I Portfolio Managers E&I University Relations Director E&I Equity Capital Program Director MSF Board Board Members Others MSF Fund Manager MEDC Chief Financial and Procurement Officer MEDC Budget Manager MEDC Chief Strategist MEDC Legislative Affairs Director MEDC DE&I Lead 	 Universities Michigan State University University of Michigan Wayne State University Michigan Technological University Michigan Technological University SmartZones Detroit Metro Director Southeast Director Upper Peninsula Director Southeast Director East Central Director BDC – Tech Town Staff SBIR/STTR Training Director 	 Venture Capitalists VC Trade Association President VC Fund Executive Manager VC Fund Founder VC Fund Senior Partner Angel Investors Statewide Angel Fund Partner Angel Fund Founder Angel Group President Mentors University Affiliated Michigan State University Mentor University of Michigan Mentor SmartZone Mentor

Entrepreneurs & Innovators: In addition to the four groups listed above, entrepreneurs and innovators participating in Michigan's E&I programs were also engaged through surveys for consultation.