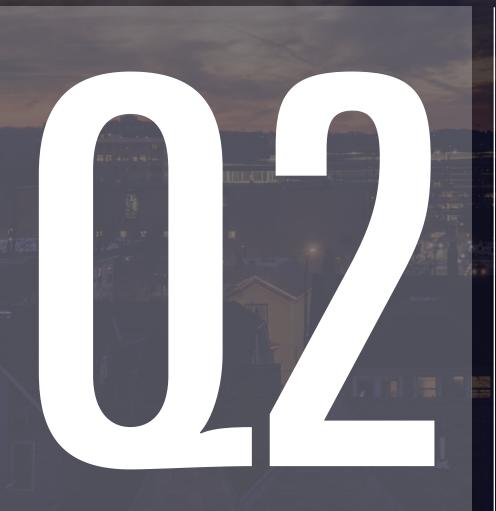
LDFA REPORT 2019 – 2020 ANN ARBOR/YPSILANTI SMARTZONE



141 COMPANIES SERVED
15.5 CREATED
10 COMPANIES CREATED
\$94N FUNDS RAISED INVESTMENTS & GRANTS
\$372K DIRECT SUPPORT



Ann Arbor SPARK will advance the economy of the Ann Arbor region by establishing it as a desired place for innovation, business location and growth, and for talented people to live and work. The Ann Arbor region will be recognized for its academic, business, and community resources, and its collaborative culture. For more information visit: www.annarborusa.org

Student Discovery Trek Introduces U-M Students to Ann Arbor's Entrepreneurial Tech Scene

Ann Arbor SPARK welcomed 50 students and 24 companies at its SPARK Central Innovation Center in October for a series of speed networking and meet-and-greet sessions. As a result of the Discovery Trek, two of the participating companies were able to fill open internship opportunities.

One of those companies was <u>Duo</u> <u>Security</u>, represented at the event by Deepak Bhaskaran, director of QA. "Duo receives an enormous amount of applications for internship positions and we continuously strive to ensure that our program is accessible and inclusive," said Deepak. "A key part of this effort is engaging with the local community,



meeting face-to-face with new candidates, and telling them about Duo and the opportunities we offer. These efforts broaden the channels into our company."

"Ann Arbor continues to rank as one of the best college towns in the U.S. and was recently identified by Bloomberg as a top new tech hub," said Jenn Queen, vice president of marketing and communications at Ann Arbor SPARK. "Our goal is to encourage more graduates to remain in Ann Arbor by showcasing the high-growth career opportunities available here."

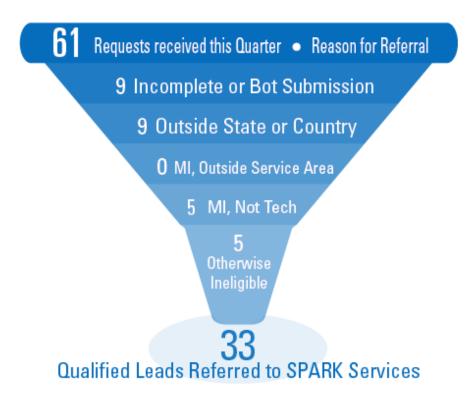
Participating Companies: AdAdapted, AGC Automotive Americas R&D, Amy Cell Talent, Arbor Interactive, Arbormoon Software, BestFoodFeed, Criteo, DaySmart Software, Duo Security, Domino's, EMU Digital Summer Clinic, Every Two Minutes, ICON Interactive, InfoReady, INTVO, Jottful, KLA, PassiveBolt, PocketNest, ProQuest, Refraction AI, Saganworks, Shoshana Technologies, and Voxel51. Students also visited Menlo Innovations, Barracuda Networks, and Cahoots.

The IEDC Annual Awards Ceremony took place on October 15 in Indianapolis. Ann Arbor SPARK received two awards this year, including the top entrepreneurship award for a population greater than 500,000. Inspired by the recognition, the IEDC Economic Development Journal asked Ann Arbor SPARK to submit an article for its fall publication. Refer to page 27 for the complete article.

Ann Arbor-Ypsilanti SmartZone Local Development Finance Authority

Ann Arbor SPARK Quarterly Report: October 1, 2019 – December 31, 2019

Business Accelerator Intake – Phase I



Companies Created

The following companies were created this quarter per the definition listed in the glossary:

Uniq ID	Description
11737	Pharmaceutical material and genetic analysis technology.
11770	A revolutionary way of buying, selling, investing, and managing commercial real estate.
11859	Helps companies make employee decisions connecting and analyzing disparate sets of data, particularly from employee surveys and HR IT systems.
11880	In-application music discovery competitions that reward listeners for competing and discovering new music.
8776	Custom computing solutions for genomics applications.

Uniq ID	Description
8230	Shared mobility on-demand by granting electronic access and multimodal management through smartphone-based platform.
11779	Development of machine learning solutions in artificial intelligence for a cost-effective solution for clients.
11944	Application showing the most fuel-efficient and fastest route to a desired destination.
11900	MetTech intelligence that produces connected vehicle sensor data for improved road safety, improved weather forecasting, and for monetization of data for owners.
11740	Augmented reality-based tool for training and teaching clinical research to medical students, physician-in- training, and trained physicians.
	Total (10 Companies)

Business Acceleration

Companies in the below tables are marked with the following codes:

- M = Mobility Company
- Y = Ypsilanti Company
- U = University of Michigan affiliated

The following companies were evaluated through [Phase II] Due Diligence:

Uniq ID	Company Description	FTEs	Billed Support
11857	Platform architecture processor that implements security in hardware.	4	\$2,000
	Total (1 Company)	4	\$2,000

The following companies received [Phase III] Business Acceleration Grant support:

Company Description	Project Description	FTEs	Billed Support
233		1	\$10,655
Treatment for the antibiotic-resistant intestinal disease known as Clostridium Difficile.	Prepare test article for animal testing.	1	\$1,725
	Production of recombinant secretory component by the University of Michigan High Throughput Protein Lab.	1	\$4,070
	Prepare test article for animal testing.	1	\$1,628
	Prepare test article for animal testing.	1	\$3,233
11105		2	\$21,377
Do it yourself financial planning in a digital platform.	Customer service agreement, financial institutions template, non-financial institutions template, partnership agreement with Customer 3 ("LDF"), equity	2	\$3,373

Autonomous drone designed to find a person overboard and to let them know that help is coming.Short production film and photography.2\$4,00011212Y2\$497A personal loan assistant that simplifies terms and guides students through lowering their aid package and automatically paying interest while in school.Visual map of customers for branding.2\$497112483\$7,200Money transfer service.Website development and UI/UX improvement.3\$3,60011312Y1\$1,588Decentralized cryptocurrency exchange.Patent application.1\$1,58811324MOperating agreement and customer service agreement continued.3.5\$1,455Human behavior prediction using artificial intelligence.Operating agreement and customer service agreement continued.3.5\$1,12011335MPowerPoint template and custom graphic designs.1\$2,500	Company Description	Project Description	FTEs	Billed Support
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with plaid.255,000Customer service agreement, financial institutions template, non-financial institutions template, non-financial institu		Regulatory compliance.	2	\$400
institutions template, part reship agreement with Customer 3 ("LDF"), equity incentive plan, and capital raise documentation for second round. Customer service agreement, financial institutions template, pon-financial institutions template, partnership agreement with Customer 3 ("LDF"), equity incentive plan, and capital raise documentation for second round. Two trademark applications; one for word mark, second for logo. 11147 Regulatory compliance. 2 3 4 4 4 4 4 4 4 4 5 4 5 4 5 4 5 4 5 4 5			2	\$3,000
institutions template, partnership agreement with Customers 3 ("LPC"), equity incentive plan, and capital raise documentation for second round. Two trademark applications; one for word mark, second for logo. 2 Statomerk agreement of place. 2 Statomerk agreement of place. 2 Statomerk 2 Statomer		institutions template, non-financial institutions template, partnership agreement with Customer 3 ("LDF"), equity incentive plan, and capital raise documentation for second round.	2	\$863
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Method to evaluate the safety of an autonomous vehicle.PowerPoint template and custom graphic designs.1\$2,500		Website branding and marketing.		
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	Method to evaluate the safety of an autonomous vehicle.		1	\$2,500
Marketing and branding support. 1 \$7,500		Marketing and branding support.	1	\$7,500

Company Description	Project Description	FTEs	Billed Support
11353		1	\$4,000
Low-cost full-page tactile display for blind people that would enable true digital access to tactile information.	Logo design, brand guidelines, collateral design, and website design.	1	\$4,000
11483		2	\$5,933
End-to-end e-commerce platform empowering social influencers to take their brand to the next level by creating, marketing and selling exclusively designed products to enable conversion of their loyal and engaged followers and monetize them into customers.	Coding, integration testing, questions and answer with bug fixes.	2	\$4,703
	Validate technology required to integrate with Shopify.com.	2	\$1,230
11541M		1	\$5,000
SaaS platform which allows authenticated revenue generating subscriptions to smart road services.	Strategic guidance, contract negotiations, and developing open network framework.	1	\$5,000
11560		2	\$4,145
A subscription platform giving entertainers and bands with large fan bases an outlet to share original content with paying subscribers.	Corporate formation, convertible debt, and trademark filing.	2	\$1,645
	Corporate formation, convertible debt, and trademark filing.	2	\$2,500
11564M		1	\$5,000
A vehicle level modeling software with fully populated vehicle data for any company to use the entire automotive supply chain to develop coherent technologies that are more likely to be adopted by the OEM.	Website redesign and branding.	1	\$5,000
11606Y		2	\$5,000
An exploration application that allows users to collect locations and attractions visited and be presented in the style of a fun game that lets user earn points, level up in eight different categories, and achieve milestones.	User interface experience services.	2	\$1,600
	User interface experience services.	2	\$1,600
	Establish brand personality, create brand story, and create a brand ad campaign including SEO and PPC approach.	2	\$1,800
11628		1	\$1,067
Marketplace for aircraft sales.	Corporate formation and legal counseling.	1	\$1,067
11735U		1	\$1,631
Live cell imaging using multiple independently controlled modules allowing multiple users at once.	Consultation and drafting of transaction documents.	1	\$1,631

Company Description	Project Description	FTEs	Billed Support
11779		2	\$1,040
Development of machine learning solutions in artificial intelligence for a cost-effective solution for clients.	C-Corp preparation and trademark filing.	2	\$1,040
11791		1	\$2,680
Addresses disruptive CO2 emissions convert into hydrocarbon fuels.	Logo design, business card design, and PowerPoint template design.	1	\$725
	Legal services.	1	\$1,955
11807UY		2	\$950
A medical device to treat atherosclerotic calcified plaque (CP) indicated for peripheral artery disease (PAD).	Corporate formation, licensing from Michigan's OTT, and counseling.	2	\$950
11868		1	\$10,000
Software that provides expert trained artificial intelligence assisted colonoscopy interpretation for disease assessment and therapeutic development.	Data analysis and potential interviews for target market.	1	\$5,000
	Data analysis and potential interviews for target market.	1	\$5,000
3965Y		1	\$350
Window products that let air in but keep the rain out.	Prepare employment related and sales related contracts.	1	\$350
6835M		19	\$20,643
Combustion cycle and injection technology.	Outfitting new building.	19	\$3,502
	Website enhancements project management, and ongoing support. Analytics and hosting.	19	\$6,647
	Discover, design, and development on website.	19	\$7,000
	Outfitting new building.	19	\$3,494
7531UY		3.5	\$805
Lactation simulation model and a breastfeeding education application.	Video marketing and production prep for social media, website, and email rollout.	3.5	\$150
	Video marketing and production prep for social media, website, and email rollout.	3.5	\$300
	Data analysis, correspondence and manuscript preparation.	3.5	\$355
7625U		5	\$1,264
An enzyme-linked immunosorbent assay (ELISA) used in technology for biological and biomedical research, pharmaceuticals, and clinics.	Intellectual property due diligence support.	5	\$1,264
7656		2	\$6,100
Platform matching corporations and law firms with vendors who provide ancillary legal services.	Implement UX/UI improvements based on customer feedback.	2	\$6,100

Company Description	Project Description	FTEs	Billed Support
7674		3	\$135
Platform of sensors, software, and analytics that harvest key data from manufacturing machines, processes, people, and translate it to actionable intelligence.	Trade secret and copyright protection, employment contracts, options agreements, and master license agreement.	3	\$135
7704U		1.5	\$7,550
Computer vision-based phone or tablet- based application for construction workers' safety and ergonomics monitoring and analysis.	Stock option plan, convertible documentation, C corporation switch, and related investor negotiations.	1.5	\$2,550
	Stock option plan, convertible documentation, C corporation switch, and related investor negotiations.	1.5	\$5,000
7815U		1	\$4,045
Online learning platform for contract lawyers.	Employment agreement and transaction bonus agreement.	1	\$2,000
	Video production.	1	\$2,045
7940M		3	\$6,500
Engine technology uses a helical drive to convert the linear motion of a piston into rotary motion.	Cam profile derived from valve positions calculated in this phase and a validated CFD model.	3	\$6,500
8132Y		3	\$8,700
DNA and bioinformatics analysis and collaboration platform.	Primary and secondary research with project management.	3	\$3,350
	Primary and secondary research with project management.	3	\$5,350
8364MU		2	\$3,700
Programming language for computer numeric control manufacturing.	Finalizing note financing. Support for the ModuleWorks OEM contract (including review by an attorney familiar with German law) and revisions. Drafting a new Terms of Service.	2	\$1,050
	Finalizing note financing. Support for the ModuleWorks OEM contract (including review by an attorney familiar with German law) and revisions. Drafting a new Terms of Service.	2	\$2,650
8366UY		3	\$8,200
Physiological performance data analytics company.	Develop data interfaces to three additional sensor solutions. Provide technical implementation of zephyr	3	\$3,760
	units, integration of athlete application, monitor data flows and run analytics.	3	\$4,440
8393		1	\$1,350
Business to business marketplace where businesses can easily find quality information technology professionals.	User interface (UI) and implement conversational artificial intelligence capabilities.	1	\$1,350

Company Description	Project Description	FTEs	Billed Support
8419M		5	\$500
Next-generation freight marketplace focused on better user experience, lower freight costs and regulatory compliance.	Applicability of electronic documentation in cross border trade and the use of PDFs in trade disputes.	5	\$500
8591		1	\$20,064
Compliance training SaaS platform, primarily focused on safety and security issues, in particular, workplace violence ("WPV") prevention and active shooter preparedness.	Generate 10-15 qualified leads per month.	1	\$2,000
p - p	Create a website and two marketing pieces.	1	\$14,064
	Generate 10-15 qualified leads per month.	1	\$2,000
	Generate 10-15 qualified leads per month.	1	\$2,000
8609		1	\$10,000
Quotation lifecycle management (QLM) applications focused on managing the interaction between our customer companies and their customers and suppliers.	SEO support.	1	\$10,000
8651		7	\$12,000
Proprietary chip, camera, and image processing software package, to verify that a tissue sample has enough tissue to make a diagnosis.	Draft and file an international (PCT) patent application.	7	\$12,000
8658		3	\$3,015
Builds and hosts complete, professionally designed, mobile-responsive websites.	Business to business marketing content.	3	\$2,415
	LinkedIn marketing campaign.	3	\$600
8774M		2	\$11,296
V2X software to make roads and vehicle- to-everything interactions safer.	Prosecuting previously filed patent applications.	2	\$11,296
8777U		7	\$4,000
Low cost, research-based program designed to enrich people's lives and reduce psychological distress.	Assist with finding additional talent, help to create a robust sales and customer success process, assist with fundraising efforts, and provide assistance with scaling both the customer base as well as operations.	7	\$2,000
	Assist with finding additional talent, help to create a robust sales and customer success process, assist with fundraising efforts, and provide assistance with scaling both the customer base as well as operations.	7	\$2,000
8797		10	\$2,750
Off-the-shelf machine learning applications.	Documentary footage of live event with 6-8 videos of individual presentations, 1 panel discussion, along with trimmed-down highlight reels of ESPN, Belle Tire + montage, pre- and post-production.	10	\$2,450

Company Description	Project Description	FTEs	Billed Support
	Still photography services.	10	\$300
8806		5	\$7,780
Turnkey passive home entry module.	Comcast agreement continued.	5	\$1,246
Turnkey passive home entry module.	Convertible note for Series A. Tech license with New York partner and sales agreement, and trademark protection.	5	\$6,062
Turnkey passive home entry module.	Convertible note for Series A. Tech license with New York partner and sales agreement, and trademark protection.	5	\$473
8807Y		2	\$100
Makerspace focused on electronics, and education offering a range of hands-on, application-based classes and workshops in programming and electronic design.	Brand identity design, and brand strategy development.	2	\$100
8862		2	\$3,900
Mobile learning platforms to help young people combat sexual violence and misconduct.	UX/web design.	2	\$3,900
9923		2	\$9,806
Software platform that makes augmented reality and virtual reality enterprise content creation and publishing super easy.	Development and production of content marking with measurables.	2	\$9,806
Total (45 Companies)		127.5	\$257,767

Talent Programs

Entrepreneur-In-Residence Program

This quarter, 14 companies utilized the entrepreneur-in-residence program. This program is designed to attract and retain C-level individuals in the community by leveraging their talent and experience to add substantial value to client companies.

Uniq ID	Company Description	FTEs	Billed Support
6828	Software for the analysis of genetic data.	6	\$5,500
8364	Programming language for computer numeric control manufacturing.	2	\$2,300
8636	Guided meditation and respiratory biofeedback application.	2	\$7,300
11376	Analytics-ready data sets from various government departments at the municipal, county, state, and federal levels. Products include map- and report- based analytics, as well as web-based dashboards and decision tools.	11	\$1,667
8209	Crowd-gifting platform designed specifically for Latin Americans and their families.	3	\$4,200

11110	Web-based software package that allows patients to complete their personal and family history at home.	8.5	\$4,650
11324	Human behavior prediction using artificial intelligence.	3.5	\$7,000
11635	A one-stop shop where customers can purchase all of their nightlife products in one place.	5	\$3,000
8132	DNA and bioinformatics analysis and collaboration platform.	3	\$5,388
8806	Turnkey passive home entry module.	5	\$9,451
7674	Platform of sensors, software, and analytics that harvest key data from manufacturing machines, processes, people, and translate it to actionable intelligence.	3	\$6,700
7815	Online learning platform for contract lawyers.	1	\$2,875
8797	Off-the-shelf machine learning applications.	10	\$8,000
11399	Non-thermal plasma devices that prevent airborne transmission of infectious diseases to and from livestock.	3	\$9,100
	Total (14 Companies)	68	\$81,830

Intern Matching Funds Program

The Ann Arbor SPARK internship program provides up to \$3,000 of matching funds to a qualified, growing company to support a three-month intern. This frees up additional funds for other purposes and provides a de-risked way to try out a potential permanent addition to the team - an opportunity that is invaluable during the pivotal period of initial hires. Often the talent is retained at the company after the matched period ends. Special consideration is given to applicants who are considering moving to Ann Arbor and Ypsilanti from another tech hub or have skillsets in high demand. While originally conceived as a summer program, it continues to meet the needs of startups year-round. Any amount invoiced or billed above the matching amount is paid in part by the client.

Uniq ID	Company Description	FTEs	Billed Support
4519	Platform giving independent app publishers technology for customized native ads and access to advertisers.	20	\$2,763
11350	Autonomous last mile delivery trailer.	5	\$4,400
8293	Low-cost high-accuracy micro electromechanical system (MEMS) gyroscope for space, aviation, and underwater applications.	2	\$1,029
11476	Postmodern ERP, enabling businesses to run more efficiently and eliminate wasteful activities.	1	\$657
8393	Business-to-business marketplace where businesses can easily find quality information technology professionals.	1	\$622
7940	Engine technology uses a helical drive to convert the linear motion of a piston into rotary motion.	3	\$880
7531	Lactation simulation model and a breastfeeding education application.	3.5	\$691
11105	Do it yourself financial planning in a digital platform.	2	\$2,444
11367	Software for school exit loan counseling guidance process.	2	\$2,004
11335	Method to evaluate the safety of an autonomous vehicle.	1	\$980

7754	Sensors and measurement devices for electromagnetic radiation enabling essential technologies.	5	\$100
11606	An exploration application that allows users to collect locations and attractions visited and be presented in the style of a fun game that lets user earn points, level up in 8 different categories, and achieve milestones.	2	\$3,280
	Total (12 Companies)	47.5	\$19,849

Boot Camp

The following teams progressed through the Boot Camp program. Kickoff was October 17, check-in day was held October 29, and the two Mentor Days were held November 18 and 19. Celebration for the graduating teams was held on December 11.

Uniq ID	Team Description	FTEs
11672	Reduce childhood obesity by developing a classroom fitness app.	1
11723	A vibrating seat belt strap designed to prevent people from falling asleep while driving.	3
11731	Technology platform for college advisors planning out academic portfolios.	1
11740	Artificial reality-based tool for training and teaching clinical research to medical students, physician-in-training and trained physicians.	1
11770	A revolutionary way of buying, selling, investing and managing commercial real estate.	3
11848	A high-torque, high-efficiency continuously variable transmission (CVT) with mechanical drive.	0.5
11849	Warning system to alert vehicles about motorcycles nearby.	1
11857	Platform architecture processor that implements security in hardware.	4
11858	Free online budgeting tool, designed to show if your ahead of, or behind, your purchasing plan at a glance.	1
11859	Helps companies make employee decisions connecting and analyzing disparate sets of data, particularly from employee surveys and human resource information technology systems.	1.5
11862	A mobile application delivering Cognitive Behavioral Therapy to the hands of the people who need it most.	5
11864	Mobile app that allows constituents to contact their local, state and federal public officials.	1
11865	Ad-tech platform that makes local advertising faster, less expensive, and more accountable.	3
	Total (13 Companies)	26

Digital Engagement Clinic

Client startups received a digital marketing boost through a collaborative program between Ann Arbor SPARK and Eastern Michigan University's Center for Digital Engagement (CDE). This quarter, there were four interns that worked directly for the Digital Engagement Clinic (DEC) on initiatives in house where they receive hands-on digital marketing, and the clinic interns receive valuable work experience that builds their resumes. Additional expenses for the quarter include; October marketing workshop (\$9,000), November EMU RPSSA Conference sponsored tables (\$1,000), and December reimbursement for expenses on the program (\$907.70).

Uniq ID	Intern Description	Billed Support
11587	DEC social media intern.	\$1,655
11587	DEC social media intern.	\$850
11587	DEC Alumni Reconnect Project.	\$2,277
11587	DEC Alumni Reconnect Project.	\$509
	Total (4 Interns)	\$5,290

Since 2015, 120 interns have completed the internship in its entirety. To mark the clinic's fiveyear anniversary, the Alumni Reconnect Project was developed to track the outcomes of the clinic's interns through primary and secondary research on where they ended up post clinic. The following tables show these outcomes. The following are some of the companies some of the interns have gone on to work for; DTE, Ford, Tespo, AdAdapted, Level One Robotics, Hyundai, iProspect, Industry Star, NAVYA, Ripple Science, Amesite, Mi Padrino, Passive Bolt, Liquid Gold, PocketNest, ShopWindow, Perisense and LawnGuru.

Year	Interns Per Year	Percent Growth
2015	11	
2016	18	64%
2017	22	22%
2018	24	9%
2019	45	88%
Total	120	

Position	Number	Percent
Marketing (Digital)	59	49%
Technology	23	19%
Other	22	18%
Student	13	11%
N/A	3	3%
Total	120	100%

Location	Number	Percent
Southeast MI: Washtenaw County	52	43%
Southeast MI	52	43%
Other: West Coast	2	2%
Other: Mountain West	3	3%
Other: Midwest	6	5%
Other: East Coast	1	1%
Other Countries	2	2%
Michigan: Other	2	2%
Total	120	100%

SPARK Central Innovation Center

Lower Level

Incubator clients are charged a license fee per seat, or person(s) using the space. Exit dates may have passed as some clients have a month-to-month arrangement.

Virtual Clients

The Virtual Client program at SPARK Central is ideal for those who need drop-in co-working space and amenities at an affordable rate, with month-to-month terms. Some examples are the earliest "investigative stage" founders looking to network and validate their concept, companies at a later stage of growth who want to remain plugged into the core of the entrepreneurial community, or community partners who leverage the location and flexibility this option allows.

Third Floor

The third-floor incubator space is composed of a shared open office environment and two smaller offices complete with a kitchen, conference rooms, phone booths, and controlled entry. Due to the open layout of the space, clients are free to expand as needed while "seats" only correspond to their billed rate. This model is designed for the stage of company building their strategy, product, and team after attaining investment or revenue.

Fourth Floor

The 6,000 square foot space is ideal for growth stage companies that are either grown in-house or moving to the area. This workspace has space for over 60 people.

SPARK East Innovation Center

Virtual Clients

The Virtual Client program at SPARK East is ideal for those who need drop-in co-working space and amenities at an affordable rate, with month-to-month terms. Some examples are the earliest "investigative stage" founders looking to network and validate their concept, companies at a later stage of growth who want to remain plugged into the core of the entrepreneurial community, or mission-aligned community partners who leverage the location and flexibility this option allows.

Seated Clients

Incubator clients at SPARK East have designated work spaces, and access to the facility 24/7. They are able to use conference rooms and flex spaces freely to have working sessions with remote staff or host client meetings and events.

Uniq ID	Company Description	Start Date	Exit Date	Seats	FTEs
SPARK Centra	I - Lower Level Designated Desk			12	21
11701	Mobile application for autonomous vehicles and pedestrians to help avoid collisions.	8/1/19	1/31/20	1	1
8631	Productizing marketing growth tools.	11/1/19	4/30/20	2	2
8419	Next-generation freight marketplace focused on better user experience, lower freight costs, and regulatory compliance.	10/11/19	10/10/20	3	5
5634	Multi-sided reviews platform that allows users and restaurants to discover and engage each other.	6/1/17	11/30/17	2	4
11865	Ad tech platform that makes local advertising faster, less expensive, and more accountable.	10/11/19	10/10/20	1	3
8189	UAVs to detect methane at solid waste landfills.	4/12/19	6/30/19	1	4
11864	Mobile app that allows constituents to contact their local, state, and federal public officials.	12/1/19	2/29/20	1	1
11373	Software development studio with a focus on digital games, entertainment, and tools.	10/15/18	4/15/19	1	1
SPARK Centra	I - Flex Desk			3	12.5
11919	Provide automated machines for cleanly removing coatings from parts.	11/6/19	5/5/19	1	1
8776	Custom computing solutions for genomics applications.	11/6/19	5/5/20	1	5.5
8143	Secure vehicle data harvesting product.	11/1/18	4/30/19	1	6
SPARK Centra	l - Virtual Desk			0	119
8778	Portable oxygen concentration device.	10/1/18	3/31/19	-	1
8364	Programming language for Computer Numeric Control manufacturing.	6/1/18	10/31/18	-	2
6545	Software platform applies predictive analytics to strategic decisions regarding intellectual property management.	2/1/17	7/31/17	-	2.5
9923	Software platform that makes augmented reality and virtual reality enterprise content creation and publishing super easy.	5/23/19	11/23/19	-	2
11164	Low cost capnography device with continuous remote- monitoring capabilities to improve outcomes and lower the cost of care for cardio-respiratory patients.	7/23/19	1/23/20	-	5
11310	Continuous, non-invasive, wearable blood pressure monitoring device.	9/1/19	9/1/20	-	1
8769	Automated legal document generation software.	8/1/19	1/31/20	-	1
7982	Drug discovery SaaS product.	1/1/19	6/30/19	-	5
8774	V2X software to make roads and vehicle-to-everything interactions safer.	1/15/18	7/16/18	-	2
8534	New chemical entity to treat Metabolic Syndrome and Type II diabetes.	7/1/17	12/31/17	-	2

Uniq ID	Company Description	Start Date	Exit Date	Seats	FTEs
8393	Business to business marketplace where businesses can easily find quality information technology professionals.	7/15/17	7/15/18	-	1
11540	Manufacture and sell steel fiber for Ultrahigh Performance Concrete (UHPC).	5/2/19	11/2/19	-	2
11918	Health management platform connecting patients, providers, and caregivers to effectively manage patients with chronic conditions.	11/7/19	5/6/20	-	2
7336	Supply chain software.	10/1/19	9/30/20	-	15
8206	Personality testing insights for kids aged seven to 13.	2/1/18	10/15/19	-	4
11900	MetTech intelligence that produces connected vehicle sensor data for improved road safety, improved weather forecasting, and for monetization of data for owners.	10/23/19	10/22/20	-	2
8789	Digital health platform that assists patients in navigating through the complex processes before and after surgery.	4/15/18	10/31/18	-	2
11560	A subscription platform giving entertainers and bands with large fan bases an outlet to share original content with paying subscribers.	3/15/19	12/31/19	-	2
11105	Do it yourself financial planning in a digital platform.	5/1/18	11/30/18	-	2
11483	End-to-end e-commerce platform empowering social influencers to take their brand to the next level by creating, marketing, and selling exclusively designed products to enable conversion of their loyal and engaged followers and monetize them into customers.	4/3/19	11/30/19	-	2
9936	Disposable oxygenating technology that can be integrated into existing dressings and therapies.	3/1/18	7/31/18	-	3.5
11770	A revolutionary way of buying, selling, investing and managing commercial real estate.	8/6/19	1/6/20	-	3
8609	Quotation Lifecycle Management (QLM) applications focused on managing the interaction between our customer companies and their customers and suppliers.	10/1/17	3/31/18	-	1
8384	Application and cloud service to connect dietitians and their clients for efficient, timely interaction.	7/1/17	12/31/17	-	2
6600	Medical device for vision enhancement in persons with partial loss of sight.	6/1/13	12/31/16	-	2
11335	Method to evaluate the safety of an autonomous vehicle.	6/25/19	12/25/19	-	1
8645	Personal protection modular system which will protect a person from pistol shots, knife attacks, and tasers.	10/1/17	3/31/18	-	2
11541	SaaS platform which allows authenticated revenue generating subscriptions to smart road services.	10/25/19	10/24/20	-	1
11308	Electronic platform to deliver communication skills.	3/14/19	10/21/19	-	1
7777	SaaS enabled ride-sharing platform.	5/1/16	10/31/16	-	14

Uniq ID	Company Description	Start Date	Exit Date	Seats	FTEs
8591	Compliance training SAAS platform, primarily focused on safety and security issues, in particular, workplace violence ("WPV") prevention and active shooter preparedness.	7/19/17	1/18/18	-	1
8323	System for recording, displaying, and interpreting human eye movements, and a method for recognizing emotional reactions to visual content.	12/15/16	2/1/19	-	27
11850	A cloud based robo-advisory platform for commodity hedging.	9/20/19	9/19/20	-	1
SPARK Centra	I – Lower Level Suite			8	8
2203	Online furniture inventory management that allows targeted retailer interaction.	10/1/19	9/30/20	8	8
SPARK Centra	l - 3rd Floor Suite			18.5	18.5
8521	A SaaS platform enabling healthcare providers to better understand their potential patient's decision patterns, language, and preferences.	10/1/19	9/30/20	3.5	3.5
8806	Turnkey passive home entry module.	10/1/19	9/30/21	5	5
8797	Off-the-shelf machine learning applications.	7/26/19	7/25/20	10	10
SPARK Centra	l - 4th Floor Designated Desk			48	109
4519	Platform giving independent app publishers technology for customized native ads and access to advertisers.	4/23/19	10/23/19	15	20
4803	An intuitive integrated display that retrieves medical data.	4/29/19	10/29/19	6	5
11661	Industry 4.0, smart inspection for manufacturing.	3/1/19	8/31/19	1	1
8116	Social media listening and analysis software utilizing machine learning.	6/1/19	1/31/20	8	9
11662	Automation company. Automation and custom panel build industry.	9/9/19	9/8/20	1	35
8588	An investment vehicle to purchase a small business.	8/1/17	1/31/18	1	1
11476	Postmodern ERP, enabling businesses to run more efficiently and eliminate wasteful activities.	3/12/19	9/12/19	3	1
8050	Employee engagement SaaS app.	12/1/17	5/31/18	5	12
11324	Human behavior prediction using artificial intelligence.	5/15/19	11/15/19	1	3.5
11635	A one-stop shop where customers can purchase all of their nightlife products in one place.	10/1/19	12/31/20	2	5
11738	Protects the shipment of business-to-business parcels via its IoT-enabled, reusable, traceable, and secure packaging solution.	9/27/19	9/26/20	1	3
7754	Sensors and measurement devices for electromagnetic radiation enabling essential technologies.	3/25/19	9/25/19	1	5
10190	Visual recognition and machine learning technology utilizes a knowledge base that correlates body shape and proportion to silhouette and design to automatically curating clothing assortments into custom boutiques built for each shopper's shape and proportion.	6/1/18	12/31/18	2	7.5

Uniq ID	Company Description	Start Date	Exit Date	Seats	FTEs
11866	Platform that makes it easy to create and deploy web applications at scale.	9/19/19	9/18/20	1	1
SPARK Centra	al - 4th Floor Flex Desk			4	19
6835	Combustion cycle and injection technology.	12/23/19	6/23/21	4	19
SPARK East -	Designated Desk			6	6
8912	Strategic marketing communications agency.	7/17/19	1/17/20	4	1
11807	A medical device to treat atherosclerotic calcified plaque (CP) indicated for peripheral artery disease (PAD).	8/27/19	8/26/20	1	2
7940	Engine technology uses a helical drive to convert the linear motion of a piston into rotary motion.	8/6/19	10/9/19	1	3
SPARK East -	Flex Desk			3	5.5
8255	Communications software for business-to-business or business-to-consumer.	6/14/19	12/14/19	1	3
11172	Pharmaceutical to treat NASH and vascular anomalies.	11/1/18	4/30/19	1	0.5
8636	Guided meditation and respiratory biofeedback app.	6/18/19	6/17/20	1	2
SPARK East -	Virtual Desk			0	31
11723	A vibrating seat belt strap designed to prevent people from falling asleep while driving.	9/24/19	9/23/20	-	3
3965	Window products that let air in but keep the rain out.	12/1/17	12/31/18	-	1
11672	Reduce childhood obesity by developing a classroom fitness app.	6/1/19	12/1/19	-	1
11252	Two wheeled 'series hybrid' for developing markets.	3/21/19	9/21/19	-	1
8457	A music technology company that provides 24/7 self- service music rehearsal and electronic production rooms studio space.	11/1/19	10/31/19	-	0.5
8366	Physiological performance data analytics company.	10/10/19	1/9/20	-	3
11880	In-application music discovery competitions that reward listeners for competing and discovering new music.	10/29/19	4/28/20	-	0.5
3549	Disposable patient lifting system.	9/7/10	3/31/16	-	3
7531	Lactation simulation model and a breastfeeding education application.	9/10/19	9/9/20	-	3.5
8885	Streetwear clothing company.	3/1/18	8/30/18	-	3
6977	Human capital management software optimizing hiring, evaluations, and workflows for education and healthcare.	10/24/18	8/26/19	-	1.5
8132	DNA and bioinformatics analysis and collaboration platform.	6/27/19	12/27/19	-	3
5604	Online language learning platform.	8/9/19	1/31/20	-	1
11312	Decentralized cryptocurrency exchange.	9/1/18	12/31/18	-	1
11212	A personal loan assistant that simplifies terms and guides students through lowering their aid package and automatically paying interest while in school.	9/24/19	9/23/20	-	2

Uniq ID	Company Description	Start Date	Exit Date	Seats	FTEs
11831	Provides chronic pain specialists with quantitative evaluations on treatment performance to help optimize the long-term care of patients.	11/1/19	10/31/20	-	1
11606	An exploration application that allows users to collect locations and attractions visited and be presented in the style of a fun game that lets user earn points, level up in eight different categories, and achieve milestones.	5/1/19	11/1/19	-	2
SPARK East -	Suite			18	18
7591	Talent consultants, human resource expert,s and matchmakers focused on supporting Michigan companies and communities with their talent needs.	6/1/19	12/1/19	8	8
7940	Engine technology uses a helical drive to convert the linear motion of a piston into rotary motion.	10/10/19	1/9/20	3	3
1782	Laser imaging systems integrator, for combustion diagnostics, materials, and spectroscopic analysis.	3/15/19	3/15/24	7	7
	Total (90 Companies)			120.5	367.5

Hosted Networking and Educational Events

This quarter's events are broken down by month in the following table.

Event Name	Event Date	# of Attendees	Purpose of Event
SPARK.ed with Corey Fernandez	10/3/19	10	Leadership development training.
Salesforce Lunch and Learn	10/8/19	6	Internal Salesforce training over lunch.
BioArbor	10/9/19	37	Educational networking for the life sciences industry in the greater Ann Arbor area exploring technology commercialization.
SPARK.ed with Mike Flanagan	10/9/19	12	Fundraising 101, potential sources, what investors want to see in businesses on a range of criteria.
A2 R Users Group Meetup	10/10/19	5	An open-source language for statistical computing and graphics, tips, training, insights, and applications.
Community Lunch	10/11/19	20	Internal client networking and sharing lunch.
A2 New Tech Meetup	10/15/19	Sponsored	Pitches from five startups.
Student Discovery Trek	10/18/19	99	40+ entrepreneurially minded students connecting with startups to showcase tech and innovation in the Ann Arbor entrepreneurial ecosystem.

Event Name	Event Date	# of Attendees	Purpose of Event
SPARK.ed with Jeff Dolowy	10/23/19	9	Understanding of the following: LLC versus C corporation exit, research and development tax credits, sales tax considerations, tax implications of stock options.
NLP Meetup	10/24/19	18	Group for all-Natural Language Processing (NLP) and Machine Learning (ML) researchers, students, practitioners, and enthusiasts in the Ann Arbor and Detroit area.
RXA Symposium	10/25/19	100	A2.AI conference focusing on how machine learning and applied artificial intelligence enable businesses to make more informed and actionable decisions with their data.
SCIC Halloween Party	10/31/19	50	SPARK hosted lunch Halloween party for incubator tenants.
A2 Machine Learning Meetup	11/5/19	29	Dr. Raed Al Kontar discussed predictive analytics for IoT enabled systems.
SPARK.ed w/Ted Dacko	11/13/19	10	The five stages of a CEO.
A2 R Users Group Meetup	11/14/19	15	Andrew Moore presenting on analyzing textual data using the tidytext R-package.
A2 NewTech Meetup 11/19/19 Sponsored F		Pitches from five startups.	
A2 FinTech Meetup	11/20/19	12	Deepesh Desai speaking on global currency exchange and about his FinTech startup "Novoces."
IGDA Gamers Meetup	11/21/19	24	How to talk about your game; having the right words can help how your game is received, understood, remembered, and design.
Nostrum Graduation Party	11/22/2019	75	Celebrating Nostrum High Performance graduation from SPARK Central.
Tech Homecoming	11/27/19	240	Network with area companies looking to hire connecting talented professionals with the vibrant tech ecosystem.
A2 Biosocial	12/3/19	30	Local life sciences community meetup and networking at Pretzel Bell.
Ann Arbor Tech Community Holiday Party	12/10/19	NA	2nd Annual holiday party with Arbormoon Software, Comcast Business, Bløm Meadworks, Ann Arbor SPARK, and Gradient Valley.
A2 R Users Group Meetup	12/12/19	3	An open-source language for statistical computing and graphics to share tips, training, insights, and applications.
Community Lunch	12/12/19	25	Internal client networking and sharing lunch.

Event Name	Event Date	# of Attendees	Purpose of Event
Ecosystem Holiday Gathering	12/13/19	39	Sharing 2019 accomplishments with local companies.
A2 New Tech Meetup	12/17/19	Sponsored	Five presenters' take the stage for ten minutes each, five minutes to demo and five minutes to answer questions, followed by open announcements and community networking.
IGDA Gamer Meetup	12/19/19	17	Community show and tell with a 5-minute demo and pitch.
Total (27 Events)		885	

Microloans

Number of loans currently outstanding:	10
Current total loan amount outstanding	\$476,947.67
Loan amounts repaid this fiscal year	\$3000.00
Loans written off this fiscal year	\$0
Cumulative Jobs retained	97
Cumulative net Jobs created	22
Payment made back to LDFA this fiscal year	0
Current balance of the microloan account	\$13,751.86

Capital Raised

Capital transactions reported this quarter are more numerous than other quarters due to the inclusion of data captured by the annual survey. The following table lists transactions reported by companies previously served by LDFA funded programs:

Uniq ID	Investors	Total Amount
Venture Capital		\$87,789,000
8341	Toyota Motor Corporation	\$50,000,000
7692	M Ventures, Innospark Ventures, Loup Ventures and Point Judith Capital	\$6,000,000
6285	McRock Capital, Equinor Energy Ventures, Evergy Ventures, (KCP&L) and Westar Energy, Statkraft Ventures, UL Ventures, Capital Midwest Fund, and Venture Investors.	\$17,000,000
4432	Dundee Ventures, Mercury Ventures, Springtime Ventures, M25, and Rise of Rest	\$2,150,000

Uniq ID	Investors	Total Amount	
6285	McRock Ventures, Statkraft, UL, Capital Midwest, Endeavor, Venture Investors and Huron River	\$12,639,000	
Angel		\$5,640,188	
7032	Berkeley Catalyst Fund and University of Michigan's MINTS program	\$4,000,000	
11324	Undisclosed	\$100,000	
4432	MI Angel Fund	\$200,000	
7032	Undisclosed	\$1,000,000	
6285	MI Angel Fund	\$340,188	
MEDC (PSF, PSF 2	.0, FSF, FCF, etc.)	\$650,000	
4432	MI PreSeed 2.0 and First Capital Fund	\$175,000	
7032	MINTS and Invest MI	\$475,000	
Corporate/Univer	Corporate/University/Foundation		
4432	MINTS and Red Cedar Ventures	\$300,000	
	Total (13 Companies)	\$94,379,188	

Integrated Marketing Plan



Marketing Performance Metrics | Q2

Using an integrated marketing strategy to increase LDFA brand awareness

Marketing Communications Tool	Description	LDFA FY 19 – 20, Q2	Compared to Last Quarter
Website Visits	Visits to our website will raise awareness and provide valuable tools and resources.	71,486	+ 58%
Video Views	Video views on multiple platforms to reach wider audiences.	91,638	+ 33%
Social Media Impressions 🔘	General visibility on a variety of popular social media platforms.	1,293,600	+ 69%
Social Media Interactions 🖵	Direct, positive interactions with people from all over the world.	45,677	+ 87%

Strategic Marketing and Communication Services

The newest addition to the SPARK services for our clients is strategic marketing and communication services. This is an in-house marketing strategy and service for our clients through the LDFA, dedicated to helping clients effectively reach their target audience. A few of the services offered through this expansion are strategy and planning, market targeting, support and advice on the execution of specific tactics, and connecting clients to additional community resources. This quarter there were a total of 85 sessions with clients.

Uniq ID	Service Provided
2203	Marketing Referral
4803	Content Development, Content Review and Edits, Marketing Needs Assessment, Marketing Referral, Strategic Marketing Session
6828	Marketing Resources and Educational Materials, Strategic Marketing Session
6977	Marketing Needs Assessment, Marketing Referral, Strategic Marketing Session
7531	Strategic Marketing Session
8255	Strategic Marketing Session
8393	Content Review and Edits, Marketing Referral, Strategic Marketing Session
8521	Marketing Referral, Strategic Marketing Session
8658	Strategic Marketing Session
8769	Content Review and Edits, Strategic Marketing Session
8806	Content Review and Edits, Marketing Referral, Strategic Marketing Session, Marketing Resources and Educational Materials
8862	Content Review and Edits, Strategic Marketing Session
11172	Marketing Referral, Strategic Marketing Session
11212	Marketing Needs Assessment, Strategic Marketing Session
11351	Content Development, Content Review and Edits, Strategic Marketing Session
11770	Content Development
11779	Strategic Marketing Session
11864	Content Review and Edits, Strategic Marketing Session
11918	Content Review and Edits, Marketing Needs Assessment, Strategic Marketing Session
	Total (19 Companies)

Software

During this quarter, the software line in our budget was used in the following ways:

- 1. Salesforce: \$919.94 Customer relationship management (CRM) platform.
- 2. Zendesk: \$1,125.00 Customer experience tool to help manage the incubators.
- 3. Clicktools: \$1,497.00 Online survey creation and distribution apparatus that automatically synchronizes with our CRM.

Lenawee Now

Our satellite accelerator Lenawee NOW located in Adrian, Michigan has been included on Ann Arbor SPARK's 15-year LDFA extension as a SmartZone. Their office is involved in SPARK's entrepreneur services weekly pipeline meeting, boot camp, MEDC gateway, and our services as a whole. Thus, the following is a few takeaways from their performance over the last quarter.

Business Accelerator Intake [Phase I]

7 Total requests received3 Requests non-tech1 Qualified lead

Company Created

None during this quarter.

The following company were evaluated through [Phase II] Due Diligence:

None during this quarter.

The following company received [Phase III] Business Acceleration Grant support:

None during this quarter.

Talent Programs

Lenawee NOW does not have an EIR program but utilizes the members of their LION fund to assess early stage projects.

Hosted Events

None during this quarter.

Capital Raised

Lenawee Now's portfolio companies did not raise any private capital this quarter. In order to meet this metric Lenawee Now uses sales. To date we have used the sales numbers for Vision Marine, which for the year projects sales of 150 units at \$8K per unit. For purposes of reporting we can use sales of 32 for the quarter for a total of \$256K.

Methodology

Initial Data Entry

A procedure was implemented in late 2008 requiring all entrepreneurs requesting assistance of Ann Arbor SPARK for Business Acceleration services, Incubator space or Boot Camp to fill out an online form which could be accessed through the SPARK website. Basic information including name, address, phone, email and brief description of company are required. This information is automatically fed into Salesforce. An effort is made to connect with all inquiries within 48 hours. In an initial communication, additional data gathered by SPARK personnel determines if the entrepreneur meets minimum criteria to warrant further discussion and assistance. At that time, a better description is captured of the applicant's needs.

Retained FTEs

We capture the number of FTEs that a company had at the start of an engagement of any kind. This number becomes our retained jobs number and is not altered. However, for reporting purposes it is possible the retained jobs number can change for a company if that company takes advantage of multiple services and their FTE count changes between those services. For example, when a team attends Boot Camp there may be only one FTE: the entrepreneur. When that team returns for Business Accelerator services there may be additional FTEs: co-founders or initial hires. When reports are generated on Boot Camp attendees the team's retained FTE number would be one. When reporting on Business Accelerator clients, the retained FTEs would be more than one.

Current FTEs

Throughout the year 'current jobs' is collected from entrepreneurs through three methods. When SPARK staff meet with entrepreneurs FTE updates are gathered and recorded in the CRM system. Starting midway through this contract year, written documentation is being obtained from every company at the start of each engagement. This document is attached to their file to corroborate the FTE count listed as start of engagement.

Annual Survey

All current and former clients are surveyed annually using Clicktools: an online survey tool that synchronizes with Salesforce. Our survey asks for data including current employment and other vital company information. Unfortunately, the response to our surveys has been less than 100%. The response rates for each of the four areas are listed in each section. If an entrepreneur sends SPARK data via the survey that does not pass a visual inspection they are contacted and asked to verify the data. If an adjustment is made to the CRM data, written documentation from the entrepreneur is attached to the file.

Jobs Created

New FTEs or "Jobs Created" are calculated by subtracting the retained jobs for the particular service we provided from the current job count, which gives us the added jobs since that particular engagement started.

Glossary

In an effort to reduce unnecessary complication, SPARK and the LDFA keep definitions of terms consistent with MEDC. Included for reference are applicable definitions provided by the MEDC:

Companies Served

The number of tech companies that contractor provided services to, including accelerator grants, incubator space, mentoring, consulting, training, etc.

Full-Time Equivalent

All W-2 employees and full-time workers compensated in equity. All part-time employees count as 0.5 FTE. Interns and independent contractors (1099) are not included in this definition.

Jobs Created

Number of jobs created by the companies that contractor served or are incubator clients. Does not include contract positions, only full-time equivalents.

Jobs Retained

Number of jobs retained by the companies that contractor served or are incubator clients. Does not include contract positions. Basically, includes the number of positions or employees at the companies that have been retained because of the funding from the incubator or because of the services that the incubator provided.

New Companies Created

Number of new companies created as a result of contractor's involvement. Companies can be defined as sole proprietorship, LLC, Corp, etc. Involvement can mean: 1) contractor provided services or funding to the company, 2) the company is located in contractor's incubator, 3) the company is a university spin-out, 4) contractor spoke with the newly formed company and provided them help with the next steps in building his/her company for example other resources, training classes, etc., or 5) contractor spoke with the CEO/CTO prior to the company formation. A company is only counted as 'new' if it is incorporated within the subsequent 12 months of the service provided.

Tech Company

A business in which research and development brings forth an innovative product or process. The innovation typically involves intellectual property that contributes to a strong competitive advantage in the marketplace and serves as a foundation for a high rate of growth.

ann arbor SPARK

By Laura Berarducci

Ann Arbor SPARK's entrepreneurial services provide resources for startup companies, spurring jobs and business growth in southeast Michigan.

nn Arbor, home to the University of Michigan, is earning its repu-tation as a thriving hub of entrepreneurial innovation. In the past five years, startup successes based in the area have garnered national headlines - most notably the acquisition of Ann Arbor-based startup Duo Security by Cisco for \$2.35 billion in 2018.

While the Ann Arbor region is currently a thriving destination for entrepreneurship, this was not always the case. In the early 2000s, leaders at the University of Michigan were concerned that Ann Arbor was not fostering the caliber of entrepreneurial community expected around a major research university. When the Michigan Economic Development Corporation (MEDC) earmarked funding through the statewide SmartZone program to help drive regional economic development, Ann Arbor's community, business, and university leaders saw an opportunity to unify and strengthen economic development efforts, resulting in a new regional economic development organization - Ann Arbor SPARK.

Ann Arbor SPARK has a dedicated 12-person team implementing the various entrepreneurialfocused programs at two locations - one in downtown Ann Arbor and the other in the neighboring city of Ypsilanti. Referred to as the Ann Arbor SPARK Regional Incubator Network, the two locations serve as startup incubators, business accelerators, co-working spaces, and event venues.

ABOUT ANN ARBOR SPARK

Ann Arbor SPARK, a non-profit organization, is advancing the Ann Arbor region by encouraging and supporting business



acceleration, attraction, and retention. The organization identifies and meets the needs of business at every stage, from startups to large organizations. Ann Arbor SPARK collaborates with business, academic, government, and community investor partners to achieve its mission. SPARK Entrepreneurial Services are financially supported by the Ann Arbor/ Ypsilanti SmartZone Local Development Finance Authority (LDFA) which receives funds from the state of Michigan designated for local company and product development.

Since its inception in 2006, Ann Arbor SPARK Laura Berarducci is has fulfilled the founders' vision to support the growth of a vibrant entrepreneurial ecosystem neighboring the University of Michigan, which in 2018 was the top public research university in the country with a \$1.55 billion fiscal year research budget. Ann Arbor SPARK's entrepreneurial services program received IEDC's 2019 Gold Award for Entrepreneurship.

Ann Arbor SPARK focuses its efforts on the four innovation-driving industries identified by the state's SmartZone program: automotive and mobility; life sciences and healthcare; data and information; and technology.

CENTERS OF INNOVATION

Ann Arbor SPARK has a dedicated 12-person team implementing the various entrepreneurialfocused programs at two locations - one in downtown Ann Arbor and the other in the neighboring city of Ypsilanti. Referred to as the Ann Arbor SPARK Regional Incubator Network, the two loca-

DEVELOPING AN ENTREPRENEURIAL TECH HUB IN THE MIDWEST

Since its inception in 2006, Ann Arbor SPARK has supported the growth of a vibrant entrepreneurial ecosystem through the creation and management of services, tools, and resources. With funds earmarked by the Michigan Economic Development Corporation and budget oversight provided by the Ann Arbor/Ypsilanti SmartZone Local Development Finance Authority (LDFA), Ann Arbor SPARK's entrepreneurial programs are available to bootstrapped entrepreneurs. Reporting a measurable impact on the region, Ann Arbor SPARK's entrepreneurial services program received IEDC's 2019 Gold Award for Entrepreneurship.

Director of Marketing for Ann Arbor SPARK. (laura@annarborusa.org) One of the benefits of engaging with Ann Arbor SPARK is access to the numerous public and inviteonly events designed to inform and encourage entrepreneurship. From casual networking events to strategic workshops, these events help entrepreneurs engage with like-minded individuals and develop everything from their soft skills to their business acumen while cultivating camaraderie and collaboration across the ecosystem.

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The SPARK Central Innovation Center is based in Ann Arbor and is the heart of the entrepreneurial ecosystem for the region, occupying three floors of a building on a major downtown corridor. The SPARK East Central Innovation Center is located in downtown Ypsilanti and recently underwent a major renovation, updating many of the amenities and modernizing the space.

Throughout both centers, there are open desks for virtual tenants to use when they drop in, seated tenants at dedicated desks, larger startups working in clusters and suites, and spacious event spaces where SPARK and community partners host curated workshops and networking events. There is a number of amenities as well, from access to Wi-Fi to all the freshly brewed, locally roasted coffee an enterprising founder may need to fuel his or her work throughout the day. In 2018, 68 startups identified the SPARK Innovation Centers as their headquarters.

WHAT'S IN THE ANN ARBOR SPARK ENTREPRENEURIAL TOOLBOX

While providing a physical space for early stage startups to establish themselves, the real advantage to participating in the Regional Incubator Network is access to the services, tools, and resources curated by Ann Arbor SPARK. Investors considering potential companies for investment have greater confidence financially backing startups being supported by a world-class startup incubator and business accelerator.

Events Designed to Inform and Grow Networks

One of the benefits of engaging with Ann Arbor SPARK is access to the numerous public and invite-only events designed to inform and encourage entrepreneurship. From casual networking events to strategic workshops, these events help entrepreneurs engage with like-minded individuals and develop everything from their soft skills to their business acumen while cultivating camaraderie and collaboration across the ecosystem.

On average, SPARK hosts 70 events per year including Meetups that fulfill a very specific need for networking. By sponsoring partner and club events in its spaces, community stakeholders and potential clients gain valuable exposure to SPARK's available resources. In addition to hosting events, Ann Arbor SPARK listened to the entrepreneurial community and identified a need to provide for more in-depth training opportunities. Designed to both inspire and inform, SPARK entrepreneurial educational programs present best practices, targeted skills training, and opportunities to check-in with knowledgeable business leaders.

Entrepreneur Boot Camp

Twice a year, Ann Arbor SPARK invites a dozen development stage, pre-revenue startups to participate



in Entrepreneur Boot Camp. This eight-week program based on The Lean Startup methodology is designed to guide entrepreneurs through market evaluation and validation. Seasoned entrepreneurs, angel investors, and business executives are paired with each startup, providing guidance and support while asking the tough questions and pushing the entrepreneurs out of their comfort zones. Over the eight weeks, participants will either confirm their ideas or pivot to viable paths.

While it is not uncommon for businesses to "fail" during Boot Camp, it is more common for those entrepreneurs to reformulate their ideas and try again. Ultimately, Boot Camp participants experience a shortened time to attract capital, customers, and are more assured of their path to commercialization and confident in the ability to scale in the future.



SPARK Entrepreneur Bootcamp participants and mentors participate in Mentoring Days, two intensive days of Lean Startup methodology presentations and one-on-one feedback sessions.

SPARK.ed

After Boot Camp, entrepreneurs can look to Ann Arbor SPARK to fill the gap for continuing education and guidance by attending SPARK.ed. Twice a month, SPARK invites business experts to present specific, actionable strategies to a small group of attendees. Topics such as hiring best practices, auditing sales functions, and series fund raising are specifically tailored for a growing startup. The goal of these workshops is to provide focused attention on answering questions in a small, safe group environment. For anything that needs a deeper dive or a more private discussion, attendees can schedule one-onone sessions with the expert during office hours.

SUCCESS VIGNETTES

SkySpecs

In the fall of 2012, SkySpecs joined the SPARK client roster as a Boot Camp participant. Since then, it was a tenant at the SPARK Central Innovation Center, received funding from the Michigan Angel Fund, and was awarded grants for legal,



business development, and marketing services that were critical to the company's growth. In 2018, SkySpecs raised an impressive \$8 million Series B and moved into new, expanded office space in downtown Ann Arbor to accommodate its growing team. The company also expanded internationally, opening an office in Amsterdam.

Groundspeed

From its start as a Boot Camp participant in 2015 to its \$2 million Series A in 2017 and its



\$30 million Series B in 2018, insurance data automation and analytics firm Groundspeed Analytics' growth has been meteoric. Prior to expanding from the SPARK Central Innovation Center to its current office, Groundspeed tapped into a range of SPARK services. From grants to produce its brand identity to funding for intern support, Groundspeed Analytics benefited from SPARK's programs designed to help startups grow at an accelerated speed. Groundspeed also received support from the Michigan Angel Fund. In 2019, Groundspeed continues to grow its team of 90 employees (and counting).

Spellbound

Spellbound is a startup that uses patented aug-



mented reality technology to reimagine patient experience through pain management, patient education, and helping patients engage with treatment. It graduated from the SPARK Central Innovation Center in 2018, to an office in downtown Ann Arbor that affords the opportunity to grow. Prior to the move, Spellbound had been incubated by SPARK since 2015. Spellbound has benefited from numerous SPARK services, including grants to support marketing, legal, and internship needs, and Entrepreneurin-Residence mentoring. Supporting the move was its recently closed seed round, which was oversubscribed by investors from the Midwest and Washington, DC.

While both Boot Camp and SPARK.ed provide valuable connections between entrepreneurs and the broader business community, they also help showcase the tools, services, and resources available at Ann Arbor SPARK to influential business leaders. Many referrals to SPARK come through these connections.

Business Accelerator Grants

For bootstrapped startups, founders often have to make decisions based on limited financial resources versus what may be best to grow the business. Fortunately, Ann Arbor SPARK can award business accelerator grants to eligible companies to help pay for consultants, vendors, and talent on a project- or time-based engagement to overcome hurdles and achieve growth. The worth of these grants often extends beyond the actual monetary value. Between 2013-2018, SPARK awarded \$4.62 million in business accelerator grants as part of our contract with the MEDC and the Ann Arbor/Ypsilanti SmartZone Local Development Finance Authority (LDFA).

Professional Business Services

Some of the most frequent grant requests are to help cover business services such as legal, accounting, and marketing. For example, a SPARK client might apply for a grant to help with the legal costs that come with patent applications or developing user agreements. Eligible startups must apply for the grant specifying a specific business need, work with a SPARK approved consultant, and agree to the contractual obligations detailed in the agreement.

Internships

Business accelerator grants also help fund the Ann Arbor SPARK internship program which contributes to talent development and retention within the region. Companies can apply for one-off grants and recruit their own interns or participate in the Summer Digital Engagement Clinic internship program, a partnership between SPARK and the Eastern Michigan University's Center for Digital Engagement.

"The internship program is win-win," said Bill Mayer, Ann Arbor SPARK vice president of entrepreneurial services. "Cash-strapped startups are pulled in a lot of different directions financially and often can't afford to bring interns – who provide valuable support – on board. Interns who want to work in a dynamic startup environment are left without options as a result. Ann Arbor SPARK is bridging that gap while showing soon-to-be graduates there are dynamic and exciting career opportunities available in our region."



Students from the University of Michigan, Eastern Michigan University, and Washtenaw Community College join local tech startups in a speed networking event hosted at the SPARK Central Innovation Center.

The Summer Digital Engagement Clinic Interns work in teams of two for companies housed in Ann Arbor SPARK's centers of innovation. Example projects include digital advertising, social media, content creation, analytics, web design and development, SEO, video production and graphic design, mobile app development, and project management. The internships are for 10 hours per week over a nine-week period, culminating in a graduation ceremony where students are awarded a Digital Media Certificate. For the students to earn their CDE/SPARK Digital Media Certificate, they must complete the 90hour internship with their assigned local startup, attend weekly panel discussions, and get certified in Google Analytics or AdWords. In the past five years, more than 120 students have participated, many of whom remain in the region post-graduation working within the tech ecosystem.

Entrepreneur-in-Residence

Business accelerator grants are also available to connect executive leaders who have a proven record of success in early-stage companies with up-and-coming startups. The Entrepreneur-in-Residence (EIR) program can help first-time founders overcome specific challenges or develop meaningful deliverables. The program also helps retain experienced leaders in the region who may

ANNUAL EVENT: a2Tech360

An Ann Arbor SPARK initiative, a2Tech360 dedicates



itself to promoting the Ann Arbor region as an area of innovation during a week of tech-related events. Each event is designed to connect key stakeholders – innovators, researchers, investors, businesses, educational institutions, non-profits, job seekers and the general public – to generate discussion, ideas, and new opportunities.

The series of events launched in 2014 with the premier of A2 Tech Trek. A self-guided open house tour of leading technology companies, businesses open their doors to the public and showcase their latest in-



novations. Over the years, more events were added to the program including Tech Talk, Ann Arbor Mobility Summit, and the Women in IT Leadership Conference, presented by DaySmart Software.

"a2Tech360's growth demonstrates that there is a strong desire for collaboration and cohesion between the organizations and businesses looking to promote the region as a desirable place to grow a business and a career," said Paul Krutko, Ann Arbor SPARK president and CEO. "It's a labor of love for these organizations, including Ann Arbor SPARK, to put our collective best foot forward in an impactful way that leaves no doubt that the tech-related activity taking place here year-round is worthy of attention and excitement."



Local startup Backyard Brains shows 2019 A2 Tech Trek attendees some of its cutting-edge tech being built in Ann Arbor.

be transitioning from other positions, or it provides a soft landing for C-level talent interested in relocating to Ann Arbor.

In 2018, Kinetica Labs – a University of Michigan spin out that develops technology for occupational safety and health – applied for and received an EIR business accelerator grant. As Kinetica's EIR, Brenda Jones helped the company's founder, Professor SangHyun Lee, create a business plan, finalize a license agreement with the University of Michigan, and negotiate the company's first distribution agreement. "While working together during the EIR program, Dr. Lee and I found that we had complementary skills and a great working chemistry. I was able to assess the market potential of the technology, and Dr. Lee was able to assess my abilities to launch a successful company. This led to Dr. Lee asking me to become the CEO of the company."

Marketing and Communications Strategist

Marketing support is one of the most requested services from our entrepreneurial services clients. One of the newest resources – two dedicated marketing and communications professionals, a strategist and an associate – addresses this need. Working in tandem, these two can help early stage startups with one-off requests, like a press release announcing a product release or a successful funding round, or be available to advise on higher level strategy development, like ramping up a social media presence. This differs from the SPARK business accelerator grants that are ideal to hire an outside vendor for more robust projects, especially those involving graphic design. Now, startups that need a marketing advocate to help guide strategy have access to one.



Attendees of A2 Tech Trek get first-hand experience with the technology being developed in the region.

Capital Programs

Ann Arbor SPARK also administers capital programs with support from state and local stakeholders. These programs fill an important funding gap by investing in very early stage companies across the state that are not yet primed for venture and other sources of capital. The Pre-Seed Capital Fund made investments between 2007 and 2014 and continues to reinvest returns. The Michigan Angel Fund (MAF) is a for-profit, pooled, and professionally managed equity fund which focuses on nearor at-revenue, Michigan-based tech companies with the ability to acquire customers, expand markets, and grow the company. MAF is the largest angel organization in Michigan with 120 members and 16 companies in its portfolio.

MAF added only four early stage companies to its portfolio in 2018 – all of them with women at the helm. "We didn't intentionally seek out only women entrepreneurs in 2018," acknowledged Skip Simms, managing partner of the Michigan Angel Fund and senior vice president of Ann Arbor SPARK. "However, I do believe it's indicative of a larger trend that we've seen over the past few years throughout the state. It's noteworthy – and perhaps a tipping point – for one fund to have 100 percent of new investments go to women-led organizations in a single year."

In 2018, MAF invested \$13.8 million into 24 Michigan-based companies with 259 employees. These companies attracted \$156 million in funding to the state.

THE SUM OF SUCCESS

Ann Arbor SPARK tracks multiple parameters to measure the effectiveness of its entrepreneurial services program, including the total number of companies served, full-time equivalent employees (FTEs), FTE jobs created, and companies graduating from the incubator to establish their own office. SPARK staff reports these metrics on a one-year and a five-year basis, with the fiscal year running from July – June. (See chart.) One of the most telling metrics is the survival rate for companies that receive SPARK entrepreneurial services: 97 percent have a one-year survival rate and 82 percent have a five-year survival rate. Comparatively, according to the Small Business Administration (SBA) Office of Advocacy, roughly 80 percent of U.S. small businesses survive the first year and only half of all establishments survive five years or longer (https://www.sba.gov/sites/ default/files/advocacy/Frequently-Asked-Questions-Small-Business-2018.pdf).

Supporting the survival of early-stage companies is the ultimate goal. By joining the Ann Arbor SPARK Regional Incubator Network, startups have access to more resources to grow and eventually transition from a sustainable company to a profitable one. It is when companies benefiting from SPARK's entrepreneurial programs reach this milestone that they graduate to their own offices. From 2013-2018, 135 startups graduated from the Regional Incubator Network.

INSIGHTS AND LESSONS

Ann Arbor SPARK's success is anchored by three key principles which other communities can apply when building their own entrepreneurship services programs: industry specificity, private-public partnerships, and targeted service-based solutions.

Industry Specificity

Critical to creating a program that is meaningful for entrepreneurship and growth is first identifying the industries that will have the most impact within a community. Look to amplify what is already present versus cre-

Ann Arbor SPARK EntrepreneurialServices Results

	1-Year Results	5-Year Results
Unique Companies Served	175	419
Companies Served FTEs	695	2,954
Incubator Tenants Nurtured	68	186
Incubator Graduates	4	135
Job Creation	152	913

Data for 2017/18 FY. Cumulative data 2013 - 2018 FY

One of the most telling metrics is the survival rate for companies that receive SPARK entrepreneurial services: 97 percent have a one-year survival rate and 82 percent have a five-year survival rate. Comparatively, according to the Small Business Administration (SBA) Office of Advocacy, roughly 80 percent of U.S. small businesses survive the first year and only half of all establishments survive five years or longer. ating from scrap. This will also focus the program goals that produce measurable results. Casting a net too wide will dilute results. There will always be an opportunity to grow and expand once the program is established.

Private-Public Partnerships

Michigan's SmartZone program, which financially supports SPARK's entrepreneurial services, specifically sought to promote resource collaborations between universities, industry, research organizations, government and other community institutions. With all of these entities working toward a common goal – to grow technology-based businesses and jobs – there's a sense of ownership across all stakeholders.

Targeted Service-Based Solutions

Small efforts add up and help businesses take off in a number of significant ways. Business accelerator grants are awarded to help achieve specific milestones that will help further advance a company's path to commercialization and profitability. Keep a well-vetted list of mentors and seasoned entrepreneurs who can help founders develop their own leadership skills. Cultivate a community of business professionals who have a shared appreciation of entrepreneurship.

CONCLUSION

For more than a decade, the Ann Arbor area has flourished as an entrepreneurial tech hub with guidance from Ann Arbor SPARK, the region's economic development organization. The organization's entrepreneurial services program fosters startup incubation and business acceleration through its tools and resources while working closely with the University of Michigan. Ann Arbor SPARK also manages capital programs such as the Michigan Angel Fund which provides an important funding gap by investing in very early stage companies across the state that are not yet primed for venture and other sources of capital. ④

ADDITIONAL RESOURCES

Ann Arbor SPARK	annarborusa.org
a2Tech360	a2tech360.org
Michigan Economic Development Corporation	michiganbusiness.org
Michigan Angels Fund	michiganangels.org
University of Michigan Office of Research	research.umich.edu
Eastern Michigan University Center for Digital Engagement	centerfordigitalengagement.org



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