

Emerging Technology Fund (ETF)

Quarterly Report to the Legislature

October 1, 2022 to December 31, 2022

ETF Activity

- **As of December 31, 2022, the ETF had made loans and guarantees to 58 companies totaling \$96,897,115.**
- **Between October 1, 2022 and December 31, 2022, the ETF received \$848,117, in loan repayments, interest income, and fees. Operating expenses were \$128,928.**
- **As of December 31, 2022, the Fund had \$17.8 million available to make loan commitments and a pipeline of \$13 million of projects that are considering applying or are in the underwriting process.**
- **The uncommitted balance of the Fund exceeding current pipeline on December 31, 2022 was \$4,767,860.**

Featured Company



Cyvl, Inc.

Cyvl, Inc. (“Cyvl.ai” or the “Company”) is an infrastructure technology startup company out of the Worcester Polytechnic Institute (WPI) which is trying to change the way cities assess and manage their infrastructure. The Company has built a sensor module which makes a 3D map of the world and can be deployed on a variety of vehicles to collect high-quality data on infrastructure. Cyvl.ai’s technology helps governments, municipalities, and civil engineers survey, analyze, and monitor their infrastructure assets like roads, signs, etc. more effectively and affordably. They achieve this with their self-service, vehicle mounted 3D mapping sensors and proprietary artificial intelligence and machine learning models while also building a defensible 3D technology advantage that compounds in value over time. The ETF co-invested with MassVentures in early-stage equity to establish a Go-to-Market team (sales, marketing, customer success) and for engineering and product development (to finish development of shippable sensor packages and build out an online self-service system).

Closed Loan Activity

Loans Closed

Company	Loan Amount	Date Closed	Municipality	Industry
Intigua	\$1,000,000	4/9/2021	Boston	Software
Beeken Biomedical	\$1,500,000	4/8/2021	Stoughton	Medical Device
Armored Things	\$2,250,000	6/3/2020	Boston	Software
MentorWorks Education Capital	\$1,000,000	3/20/2020	Boston	Financial Technology
DynamiCare Health	\$1,250,000	12/5/2019	Cambridge	Digital Health
Massachusetts Materials Technologies	\$1,000,000	8/30/2019	Waltham	Advanced Manufacturing
Algorex Health Technologies	\$1,250,000	7/30/2019	Boston	Software
First Light Diagnostics	\$2,500,000	5/31/2019	Chelmsford	Medical Device
Nano-C	\$2,400,000	11/10/2018	Westwood	Advanced Material Manufacturer
Sub-Total	\$14,150,000			

Loans Closed and Repaid in Full

Company	Loan Amount	Date Closed	Paid Off	Municipality	Industry
XRHealth USA	\$2,000,000	11/16/2020	3/22/2021	Brookline	Digital Health
Dive Technologies	\$1,300,000	6/30/2020	1/27/2022	Quincy	Autonomous Underwater Vehicle Manufacturer
Lionano	\$2,500,000	2/1/2019	11/25/2019	Woburn	Battery Material Manufacturer
Zylotech	\$500,000	8/15/2018	1/20/2021	Boston	Analytics Software
Vyasa Analytics	\$1,800,000	6/27/2018	12/28/22	Newburyport	Analytics Software
MedMinder Systems	\$1,500,000	5/11/2018	3/16/2021	Needham	Medical Device
6K (formerly Amastan Technologies LLC)	\$2,000,000	6/30/2017	4/2/21	North Andover	Advanced Material Manufacturer
Lexington Medical	\$2,500,000	2/22/2017	6/12/2019	Billerica	Medical Device
Atentiv Holdings and Atentiv	\$3,000,000	3/4/2016	6/17/2017	Waltham	Medical Device
Biomedical Research Models (Replacement Facilities)	\$500,000 and \$500,000 (Guarantee)	12/29/2015	10/30/2019	Worcester	Contract Research (Biotechnology)
Dynamo Micropower	\$175,000	1/30/2015	5/12/2016	Somerville	Fuel Flexible Turbine Power
Ginkgo Bioworks	\$1,000,000	12/15/2014	10/5/2016	Boston	Biotech Engineering
Biomedical Research Models (Replacement Facilities)	\$500,000 and \$200,000 (Guarantee)	10/29/2014	10/30/2019	Worcester	Contract Research (Biotechnology)
Scencio Systems	\$650,000	8/18/2014	8/1/2019	Boxborough	Telemedicine
Persimmon Technologies	\$1,500,000	10/1/2013	12/18/2015	Wakefield	Vacuum Robotics
PoroGen Corporation	\$1,000,000	4/1/2013	10/2/2015	Woburn	Industrial Filtration
TeraDiode	\$2,000,000	12/6/2012	3/7/2017	Wilmington	Industrial Lasers
InVivo Therapeutics Corporation	\$2,000,000	10/5/2012	3/1/2019	Cambridge	Medical Device
Fusion Optix	\$1,500,000	8/30/2012	11/5/2018	Woburn	CleanTech
CryoXtract Instruments	\$800,000	5/15/2012	4/21/2017	Woburn	Medical Device
PowerHouse Dynamics	\$1,000,000	3/30/2012	3/1/2018	Newton	CleanTech
Court Square Group	\$500,000	3/28/2012	9/30/2016	Springfield	Software & IT
Quiet 3PF (formerly Quiet Logistics)	\$2,500,000	1/26/2012	12/28/2018	Devens	eCommerce and Fulfillment
ConforMIS	\$1,445,000	6/28/2011	12/23/2016	Burlington	Medical Device
T2 Biosystems	\$1,687,500	5/9/2011	12/30/2016	Lexington	Medical Device

Loan Closed and Repaid in Full (continued)

Company	Loan Amount	Date Closed	Paid Off	Municipality	Industry
Acacia Communications	\$3,000,000	2/25/2011	5/14/2015	Maynard	Information Technology
Biomedical Research Models	\$500,000 and \$200,000 (Guarantee)	11/17/2010	10/30/2019	Worcester	Contract Research (Biotechnology)
Qteros	\$2,000,000	10/29/2009	11/22/2010	Chicopee	Biofuel Developer
Premium Power Corporation	\$2,500,000	5/28/2009	4/13/2012	North Reading	POS Battery Manufacturer
E-Ink Corporation	\$1,000,000	5/15/2007	8/31/2009	Cambridge	Electronic Display
Luminus Devices	\$2,500,000	4/26/2007	8/22/2013	Billerica	Lighting
Nuvera Fuel Cells	\$2,500,000	1/31/2007	12/22/2010	Billerica	Hydrogen Fuel Cell Developer and Manufacturer
Valeritas	\$2,500,000	1/12/2007	5/19/2014	Shrewsbury	Medical Device
Middleton Aerospace Corporation	\$2,000,000	8/11/2006	8/31/2016	Haverhill	Military and Commercial Aircraft Component Manufacturer
BioVex Group	\$2,500,000	6/30/2006	3/1/2011	Woburn	Biotechnology
RenaMed Biologics	\$2,300,000	6/14/2006	12/29/2006	Westborough	Bioreplacement Therapies
Hyaluron	\$1,000,000	12/19/2005	6/14/2010	Burlington	Contract Manufacturer (Biopharma)
Blue Sky BioTech	\$150,000	9/28/2005	7/9/2007	Worcester	Contract Research
MicroTest Laboratories	\$799,340 (Loan) \$367,500 (Mortgage Guarantee)	7/6/2005	7/31/2012	Agawam	Contract Manufacturer (Biopharma)
Cytonome	\$600,000	6/30/2005	2/27/2009	Boston	Medical Devices
Aspen Aerogels	\$1,500,000	1/12/2005	12/2/2011	Northborough	Advanced Materials
Celldex Therapeutics (formerly Avant)	\$903,657	12/12/2003	3/30/2011	Fall River	Biopharmaceutical
Sub-Total	\$65,377,997				

Loans Closed and Principal Partially Charged Off

Company	Loan Amount	Date Closed	Charge Off Date	Municipality	Industry
N12 Technologies	\$2,500,000	12/12/2014	10/29/2019	Cambridge	Composite Materials
Advanced MicroSensors	\$2,000,000	10/13/2011	3/31/2014	Shrewsbury	Electronics
Lilliputian Systems	\$2,500,000	11/13/2009	6/30/2014	Wilmington	Portable Fuel Cell Power Developer
Konarka Technologies	\$2,500,000	2/11/2009	11/25/2013	New Bedford	Solar Power Consumer Product Manufacturer
Beacon Power	\$2,500,000	6/30/2008	3/7/2012	Tyngsboro	Renewable Energy
ECl BioTech	\$630,000	11/16/2007	1/31/2016	Worcester	Health Care Products
Spherics	\$2,500,000	7/12/2005	11/19/2008	Mansfield	Pharmaceutical
WorkshopLive	\$239,118	5/26/2005	6/30/2012	Pittsfield	Music Software and Technology
Acusphere	\$2,000,000	8/16/2004	5/19/2009	Tewksbury	Specialty Pharmaceutical
Sub-Total	\$17,369,118				
Total	\$96,897,115				

Financial & Technical Assistance

MassDevelopment assisted Acusphere, Celldex Therapeutics (formerly Avant Immunotherapeutics), and Cytonome in finding suitable facilities in Massachusetts. All loan applicants received assistance in structuring financing for their projects with MassDevelopment and other lenders.

Uncommitted Fund Balance

Between October 1, 2022 and December 31, 2022, the ETF received \$848,117, in loan repayments, interest income, and fees. Operating expenses were \$128,928. The uncommitted balance of the Fund on December 31, 2022 was \$17,767,860.

As of 12/31/2022

Beginning Fund Balance	\$ 24,750,000
Fund Recapitalization (FY2007)	10,000,000
Fund Recapitalization (FY2008)	15,000,000
Total Funding	49,750,000

Cash Activity (accumulated):

Net Loan Disbursements*	(14,362,943)
Operating Income	11,757,836
Operating Expenses	(8,361,632)
Project Expense	(50,000)
Grant Expenses	(15,000,000)
Investment Income	10,993,895
Non-Operating Income	6,053,672
Accrued Expenses	1,000
Accrued Interest Income	(48,200)
Prepaid Insurance	(14,166)
Investment in Warrants	(363,215)
Deferred Income	0
Investment in Common Stock	(472,741)
Investment in Privately Held Companies	(1,146,836)
Equity Investment - Contributions	(5,593,463)
Subtotal	33,143,207

Less: Cash Commitments:

Reserved for Guarantees Closed	0
Undisbursed Loans and Guarantees	(5,368,809)
Approved Loans and Guarantees (not closed)	(5,600,000)
Available Equity Investment – MTDC Fund III	(720,509)
Available Equity investment – MTDC Fund IV	(3,686,029)
Available Cash:	17,767,860

Less:

Current Pipeline - Potential New Loans	13,000,000
Cash Exceeding Current Pipeline	4,767,860

* Total loan write-offs as of 12/31/2022 \$6,517,005

Geographic Distribution

As of December 31, 2022, the ETF has closed loans and guarantees with companies in each of Massachusetts' five geographic regions:

Region	Closed Loans	# of Companies
North	\$ 20,300,000	9
South	\$ 8,703,657	5
Central	\$ 13,980,000	7
West	\$ 3,905,958	4
Greater Boston	\$ 50,007,500	33
Total	\$ 96,897,115	58

Current ETF Portfolio



Currently, there are 20 companies in the ETF portfolio with an active loan, warrant, or equity position.

Program History

The mission of the Emerging Technology Fund (ETF) is to create jobs to Massachusetts by providing financing for facilities, equipment, and working capital that leverages private financing to growing companies employing or commercializing emerging technologies.

Since its creation in 2003, the ETF has helped cutting-edge companies locate or expand in Massachusetts, providing jobs and strengthening the innovation economy. The ETF has leveraged private investment for companies and maintained its ability to serve as an “evergreen fund,” providing unconventional risk capital in the form of debt to development-stage emerging technology companies seeking to commercialize their products. In an effort to increase both employment and production, Massachusetts passed legislation in 2010 that allowed MassDevelopment to offer a working capital term loan product from the Fund to help growing companies address staffing and other working capital needs. This new capability has been well-received especially in light of new technological developments in Deep Tech, Digital Health, and Artificial Intelligence (AI).

The ETF was recapitalized in 2007, and in 2010, the Legislature transferred \$15 million to launch the Massachusetts Growth Capital Corporation. Since then, the Fund has taken various measures to ration capital. These measures, as well as early loan payoffs from successful portfolio companies, have stabilized the Fund’s liquidity position so that it is now able to make loans of up to \$4 million. The ETF, however, continues to rely on loan repayments to capitalize new loans and may need recapitalization if new investments for business expansions and relocations outpace loan repayments.

Background

Chapter 141 of the Acts of 2003 created the ETF. The statute requires submission of this quarterly report to certain legislative committees. Established to leverage private investment and to recruit and retain technology-based and advanced manufacturing companies in Massachusetts, the approximately \$53 million fund provides loans and guarantees for the purchase, expansion, or improvement of real estate; purchase of equipment; and working capital needs. The Fund was initially capitalized with \$24.75 million, recapitalized in September 2006 with \$10 million as a result of an economic stimulus bill passed by the Legislature, and then recapitalized again in November 2007 with an additional \$15 million. In November 2010, \$15 million was transferred from the Fund to capitalize the Massachusetts Growth Capital Corporation in accordance with signed legislation. The Fund is governed by an Advisory Committee that has adopted the following mission statement:

The mission of the Emerging Technology Fund is to create jobs in Massachusetts by providing financing for facilities, equipment, and working capital that leverages private financing to growing companies employing or commercializing emerging technologies.

Emerging Technology Fund

Dan Rivera, *President and CEO*
MassDevelopment

Advisory Committee

Mark Leuchtenberger, *Chairman*
Chief Executive Officer, SpyBiotech

Joseph Downing
Designee of Patrick Larkin
Senior Advisor, Ex-officio member, John Adams Innovations Institute
Massachusetts Technology Collaborative

Charlie Hipwood
President, MassVentures

Peter Milano
Senior Director, Business Development
Massachusetts Office of Business Development

Juan Carlos Morales
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