University of Massachusetts Lowell

CICEP | INNOVATION AND ECONOMIC PROSPERITY UNIVERSITIES AWARDS PROGRAM

CASE STUDY 2014

Massachusetts Medical Device Development Center (M2D2)

The Massachusetts Medical Device Development Center ( ) leverages the engineering, business and clinical strengths of the University's Lowell and Worcester campuses to support the development and launch of new medical device startup companies across Massachusetts. Since its founding in 2006, the startup companies M2D2 has worked with have raised over $44 million dollars in private investment funds, $7 million dollars in federal and state grant and loan guarantees, directly employ 61 people and support the employment of another 200 people in the medical device supply chain.[1]

Established as a grant-funded program without space in 2006, M2D2 originally focused on assisting medical device companies to develop an early stage prototype that would in turn assist these startups to secure investment funding. However, as the program grew it became clear that many medical device startups needed assistance beyond prototyping in order to establish and grow their companies. In 2008, M2D2 secured $4M in state funding to develop incubator space in the Wannalancit Mill complex in the city of Lowell. This 14,000 sq. ft. facility opened in 2010 and currently houses 15 medical device startups. Its location on the University's east campus facilitates startup engagement with University researchers, students and alumni investors. Startup companies in the M2D2 incubator, or affiliated with our broader client network, work with campus researchers, utilize the campus core research facilities and hire undergraduate and graduate student interns (over 30 students placed over the past 3 years). Most recently, with the launch of the University's River Hawk New Venture Fund, our alumni are now able to invest in these med device spin-in companies, confident they will receive support, resources and mentoring from the M2D2 facility and the broader M2D2 network

What is particularly unique about M2D2 is first, the very successful partnership between the UMass Lowell campus and the UMass Worcester Medical School. Engineering and business development expertise from Lowell and the medical, regulatory and clinical trials expertise of the Worcester campus are powerful resources for nascent medical device companies. The M2D2 facility and programming are managed by an Executive Board, comprised of representatives from each campus' technology transfer office, development office and from the respective academic departments supporting the effort (engineering, nursing, business, research). M2D2 is led by three co-directors, Dr. Stephen McCarthy (Plastics Engineering, UMass Lowell), Dr. Steven Tello (Assoc. Vice Chancellor, UMass Lowell) and Dr. Nate Hafer (Clinical and Translational Research, UMass Worcester.

A second unique aspect of this program is M2D2's focus on attracting medical device startup companies to Lowell, Massachusetts, a post-industrial city 35 miles north of Boston that is challenged by the flight of the textile and later the computer mainframe industries. Of the approximately 100 medical device startups M2D2 has worked with since its formation, only 5 are based on University IP, the others have been attracted to Lowell from the Boston-Cambridge Life Science cluster and beyond. The University's commitment to M2D2 is a commitment to the

1. This data is collected on an annual basis as part of M2D2 reporting metrics. Funds raised per company and employee counts were accurate as of January 2014.

greater Lowell community, a commitment to attract new companies to Lowell that will in turn create new jobs and perhaps a sub-cluster. This commitment on the part of the University is appreciated by the City of Lowell, which recently produced an economic development video featuring M2D2 and client startup InfoBionic (available online at https://www.youtube.com/watch?v=vaRDOidatcA).

Dr. Howard Loree demonstrates FlowForward Medical Device to Congresswoman Niki Tsongas

Without the University commitment to M2D2, and M2D2's affiliation to the Lowell engineering program and to Worcester's medical school, it is unlikely that these startup companies would relocate from Boston to Lowell. Life science startup companies require wet labs, clean rooms, and specialized testing labs that are expensive to build and operate. While these resources and facilities do exist in the academic and research institutions that line the Charles River in Boston, the number of established and emerging life science companies competing for access to these resources in the Boston-Cambridge Life Science cluster limits access for many of the smaller startup companies. Their ability to access M2D2 and the University facilities of Lowell and Worcester in a less competitive region of the state improves startup access to needed knowledge, human resources and facilities.

The impact and success of M2D2 is assessed in several ways. First, as mentioned above, M2D2 has assisted 25 medical device startup companies in raising $44 million dollars in private investment funds, $7 million dollars in federal and state grant and loan guarantees. These companies support the direct employment of 61 people and support the employment of another 200 people in the medical device supply chain. The $51 million dollars raised by these M2D2 companies represents a 10X return on the Commonwealth's initial $5 million investment in facilities and operations.

M2D2 Metrics

Private Investment Funds	$44M raised
Federal/State grant and loan guarantees	$7M
People directly employed by current M2D2 tenants	61
Estimated number of people employed in the medical device supply chain	200
Number of medical device start-up companies housed at UMass Lowell	15
Students placed in companies	30
Number of startup medical device companies	100
Number of startup medical device companies receiving assistance from M2D2	40

From a University perspective, M2D2 is a focal point for interdisciplinary research commercialization efforts, bringing faculty and students from different disciplines and campuses together as part of the effort supporting medical device startups in Massachusetts. The success of this effort was recently recognized by the Massachusetts Life Sciences Center, which awarded M2D2 a $4.05 M capital grant to add 11,000 sq. ft. of incubator space that will serve both medical device and biotech startups.

The University's success in incubating medical device companies has attracted other types of startup companies to our ecosystem. Clean-tech, materials and robotics companies have contacted M2D2 and University staff, requesting incubation and startup space. For the past year, University staff have explored options and funding mechanisms to address this need, and in May, Governor Deval Patrick awarded $1 million dollars to support the creation of an additional 11,000 sq. ft. Innovation Hub adjacent to the new M2D2 facility for startups in other technology sectors. The University is matching this investment with its own multi-year $2.4 million dollar commitment to support the operational costs of the expanded M2D2 and Innovation Hub programs.

A complete list of press releases and news articles documenting M2D2's efforts is available online at: http://www.uml.edu/Research/Centers/M2D2/News-Events/default.aspx.