

Executive Summary

bwtech@UMBC Research and Technology Park ("bwtech@UMBC") is the umbrella organization for a continuum of complementary and comprehensive facilities and services supporting business development from the earliest stages of business conceptualization through to the realization of mature, well-established companies. In operation since 1989, bwtech@UMBC has demonstrated a capacity to establish itself and grow dramatically and, perhaps more importantly, to learn and evolve as an incubator and supporter of new companies.

- Significant concentration of business activity

At present, bwtech@UMBC includes 118 tenants with almost 1,200 employees. These tenants can be categorized as affiliates; tenants in the three incubators; emerging companies that have transitioned from bwtech@UMBC's incubators, and mature and established businesses, government agencies and UMBC affiliated programs, including the administration of bwtech@UMBC. See Exhibit ES-1.

Exhibit ES-1: Tenants and employment at bwtech@UMBC, 2014

<i>Category of tenant</i>	<i>Number of tenants</i>		<i>Full-time and part-time employees</i>	
Affiliates--Life Science & Technology	5		7	
Affiliates--Clean Energy Technology	2		10	
Affiliates--Cyber Technology	6		10	
Affiliates total		13		27
Life Science & Technology Incubator	16		45	
Clean Energy Technology Incubator	3		5	
Cyber Incubator	27		100	
Incubator total		46		150
Emerging companies		17		151
Mature companies, and other tenants		42		870
Total		118		1,198

Source. bwtech@UMBC

The tenants of bwtech@UMBC spend roughly \$170 million annually in the regional and state economies. As shown in Exhibit ES-2, spending in the Baltimore County region is \$168 million. When all spending in state is included, total spending increases to \$174 million.

Exhibit ES-2: Annual spending by bwtech@UMBC tenants, 2014 (millions of dollars)

<i>Category of tenant</i>	<i>Spending in Baltimore County region</i>	<i>Spending in Maryland region</i>
Affiliates	1.3	1.4
Incubator companies	22.2	23.0
Emerging companies	24.7	25.6
Mature companies and other tenants	120.2	124.5
Total	168.4	174.4

Source: bwtech@UMBC, Sage, IMPLAN

- Substantial growth over the past eight years

This report follows a 2006 assessment of bwtech@UMBC by Sage. In the intervening eight years, there has been substantial growth in the number of tenants at bwtech@UMBC and significant evolution in the programming offered to those tenants. Employment on the two bwtech@UMBC campuses has also grown significantly compared to 2006 as shown in Exhibit ES-3.

Exhibit ES-3: Tenants and employment at bwtech@UMBC, 2014 versus 2006

<i>Category of tenant</i>	2014			2006		
	<i>Number of tenants</i>	<i>Full-time and part-time employees</i>	<i>Employees per tenant</i>	<i>Number of tenants</i>	<i>Full-time and part-time employees</i>	<i>Employees per tenant</i>
Affiliates	11	27	2.5	N.A.	N.A.	N.A.
Incubator companies	48	150	3.1	14	104	7.4
Emerging companies	17	151	8.9	7	105	15.0
Mature companies and other tenants	42	870	20.7	21	632	30.1
Total	118	1,198	10.2	42	841	20.0

Source: Sage Policy Group (SPG) survey; Nearing Group (NG) estimates; interviews with RTP staff; bwtech@UMBC

The growth presented in Exhibit ES-3 results from evolving programming which has increased the focus on early-stage companies, including in the case of affiliates, some companies that are not yet ready for tenancy in one of the incubators and others that are trying to establish a presence in Maryland. This increased focus on younger companies also helps to explain the decreased number of workers per tenant over the past eight years, a trend that applies to all types of tenants.

Another reason for growth has been the striking demand for cyber security which was not a factor at all in 2006. Cyber companies now account for a majority of all incubator companies and incubator jobs.

Yet another driver of growth has been the expansion of bwtech North which has added roughly 220,000 square feet of space since 2006. By 2009 bwtech North had been completely built out.

Growth in the number of tenants and employment has in turn increased the total economic impact or multiplier effect of bwtech@UMBC compared to the impacts in 2006. This greater economic activity has also led to increased fiscal benefits to the region. See Exhibits ES-4 and ES-5.

Exhibit ES-4: Comparison of economic impacts in Baltimore County region, 2014 and 2006 (monetary values in 2014 dollars)

<i>Type of impact and location</i>	<i>2014</i>	<i>2006</i>	<i>Change 2014-2006</i>
• Baltimore County region			
Jobs (full- and part-time)	2,472	1,755	41%
Income (millions)	159.2	97.6	63%
Business sales (millions)	327.8	203.6	61%

Sources. bwtech@UMBC, Sage, IMPLAN

Exhibit ES-5: Comparison of fiscal impacts in Baltimore County region, 2014 and 2006 (values in thousands of 2014 dollars)

<i>Type of impact and location</i>	<i>2014</i>	<i>2006</i>	<i>Change 2014-2006</i>
• Baltimore County region			
Income tax	3,514	2,034	73%
Real property tax	492	231	113%
Total	4,006	2,266	77%

Sources. bwtech@UMBC, Sage

Additional economic impacts are associated with two groups of companies that are linked to bwtech@UMBC but operate elsewhere. One is the group of companies that have graduated from bwtech@UMBC and relocated to other sites in Maryland; the other is incubator and affiliate companies that operate at bwtech@UMBC and also have employees at other locations in Maryland. The impacts associated with these graduate companies and off-site workers are summarized in Exhibit ES-6 and are in addition to the impacts listed in Exhibit ES-4.

Exhibit ES-6: Total economic impacts in Maryland, 2014: Operations of bwtech@UMBC graduates and off-site workers (ongoing, annual effects; monetary values in 2014 dollars)

<i>Location of impacts</i>	<i>Jobs (full- and part-time)</i>	<i>Income (millions)</i>	<i>Business sales (millions)</i>
Graduate companies	644	42.6	88.1
Off-site workers	395	27.5	52.1
Total	1,039	70.1	140.3

- Maintaining leadership in a stronger and more diverse entrepreneurial community

Over the past decade the number and diversity of incubators, accelerators, startup hubs, innovation intermediaries and other organizations dedicated to the formation and success of new businesses in Maryland has grown dramatically. This growth in the entrepreneurial community is an enormous benefit for startups.

Throughout this period of growth and change, bwtech@UMBC has continually demonstrated leadership and innovation. The CYN program has many of the attributes that new models of early-stage business support have championed, particularly the integration of a major company

(Northrop Grumman in the case of the CYNC program) into the program as mentor and potential market for newly developed products. The role of site miners in the Maryland Innovation Initiative (MII) as evaluators of academically developed intellectual property and advisors to applications for MII funding is essentially what the ACTiVATE program was doing in 2006 to enhance the success of the women recruited for that effort. bwtech@UMBC's role in shaping policy for the VOLT program has created a non-dilutive funding stream for certain tech startups. By creating the ACTiVATE and INNoVATE programs, bwtech@UMBC has provided opportunities for women and scientists to create new businesses based on intellectual property created at universities and other research centers.

- Clarifying its position in the entrepreneurial community

One of the great strengths of bwtech@UMBC is that it offers support to a full spectrum of tenants, from those that are just trying to get off the ground to companies and agencies that are well established, mature organizations. With the advent of the Affiliate Program, bwtech@UMBC's services extend to companies that are not even located on-site and may even be at pre-incubator stage.

While this expanding breadth of services and broad array of tenants (and non-tenants) might lend confusion to the perception of bwtech@UMBC, the opposite is true. Interviews conducted for this review indicate that the perception of bwtech@UMBC is clear and rests on three interconnected factors.

- UMBC connections.
- Full spectrum of company support: early-stage (e.g., affiliate and incubator), emerging, and mature.
- Cyber and life sciences industry focus.

These three factors in combination give bwtech@UMBC its unique status in the Maryland entrepreneurial community. Other universities have incubators, but the ties to UMBC's research, students, and faculty, particularly in the cyber programs, are especially strong. bwtech@UMBC is the only Maryland enterprise to combine business incubators with a research and technology park serving mature companies. The desire to leverage the relationship with UMBC is also a reason tenants have come to the incubators and the research and technology park. The scale of operations and the full spectrum of company support also sets bwtech@UMBC apart from most of the early-stage support organizations. On the Baltimore Business Journal list of Maryland incubators, accelerators, and co-working spaces, only one organization had more tenants than bwtech@UMBC. While there are many other industries among tenants, the number of cyber and life sciences tenants at bwtech@UMBC helps to clarify its position as a specialist in these industries.