

Department of Legislative Services
 Maryland General Assembly
 2022 Session

FISCAL AND POLICY NOTE
 First Reader

House Bill 1334 (Delegate Kerr)
 Appropriations

Labor and Employment - Workforce Development - Cybersecurity

This bill establishes the Cybersecurity Workforce Accelerator Program at the University of Maryland Baltimore County (UMBC) and the Cybersecurity Workforce Accelerator Fund, which is administered by the program. The purpose of the fund is to support innovative approaches to meeting cybersecurity workforce needs. The program must work with specified stakeholders to increase the cybersecurity workforce through targeted investments in educational opportunities, occupational training, and apprenticeship programs. The Department of Commerce and the Maryland Department of Labor (MDL) must assist in administering the accelerator program as necessary. The Governor must appropriate \$2.0 million for the fund in the annual budget bill for fiscal 2024 and 2025, plus additional annual appropriations totaling \$7.45 million as specified for cybersecurity workforce development and educational programs. **The bill takes effect July 1, 2022.**

Fiscal Summary

State Effect: No effect in FY 2023. General fund expenditures increase by \$9.45 million in FY 2024 and 2025 and by \$7.45 million annually thereafter to meet the bill’s mandated appropriations. Related effects, such as increased special fund and higher education revenues and expenditures, are discussed below. **This bill establishes mandated appropriations beginning in FY 2024.**

(\$ in millions)	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
GF Revenue	\$0	-	-	-	-
SF Revenue	\$0	\$3.45	\$3.45	\$1.45	\$1.45
ReimB. Rev.	\$0	-	-	-	-
Higher Ed Rev.	\$0	\$3.50	\$3.50	\$3.50	\$3.50
GF Expenditure	\$0	\$9.45	\$9.45	\$7.45	\$7.45
SF Expenditure	\$0	\$3.45	\$3.45	\$1.45	\$1.45
GF/SF/FF Exp.	\$0	-	-	-	-
Higher Ed Exp.	\$0	\$3.50	\$3.50	\$3.50	\$3.50
Net Effect	\$0.00	(\$9.45)	(\$9.45)	(\$7.45)	(\$7.45)

Note:(-) = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate increase; (-) = indeterminate decrease

Local Effect: Beginning in FY 2024, revenues and expenditures increase for local governments, community colleges, and local boards of education, as discussed below.

Small Business Effect: Potential meaningful.

Analysis

Bill Summary: The accelerator program is required to:

- work with major industry cybersecurity organizations to expand, market, and coordinate existing State cybersecurity workforce programs;
- work with the cybersecurity industry to ensure that State cybersecurity workforce programs address the needs of the industry;
- publish a strategy to fill open cybersecurity positions by 2025 and produce a strategic roadmap, in consultation with stakeholders, to fill positions by then;
- work with the federal Cybercorps Scholarship for Service Program to advertise positions and assist students with the application process;
- work with Commerce to identify the needs of cybersecurity employers in the State as specified;
- work with the Maryland State Department of Education (MSDE) to establish a summer K-12 teacher externship grant program for teachers, as specified, and develop and invest in educational and career pathways in cybersecurity;
- work with MDL to grow the Maryland Employment Advancement Right Now (EARN) for cybersecurity programs and the State's apprenticeship and training program for cybersecurity workforce development;
- work with appropriate partners to provide cybersecurity range training at all levels; and
- expand the Maryland Technology Internship Program (MTIP) to include local governments.

The bill establishes the purposes of the accelerator program. UMBC, in conjunction with MDL and Commerce, must submit a report on the operation and performance of the accelerator program to the Governor and the General Assembly by December 1 each year.

Mandated Appropriations

In addition to the \$2.0 million mandated appropriations to the fund in fiscal 2024 and 2025, the Governor must include in the annual budget bill, indefinitely, an appropriation of:

- \$1.0 million to the Maryland EARN for cybersecurity programs and administrative support;

- \$1.0 million to the Maryland Apprenticeship and Training Program for cybersecurity programs and administrative support;
- \$450,000 to UMBC to fund the accelerator program, including \$250,000 to manage the development of individuals who can meet cybersecurity workforce needs;
- \$2.5 million to the Cyber Warrior Diversity Program (CWDP);
- \$500,000 to fund the summer K-12 teacher externship grant program required under the bill;
- \$1.0 million for the University System of Maryland (USM) to develop cyber range scenarios based on industry demand;
- \$500,000 to fund education opportunities about cybersecurity careers in elementary and secondary education; and
- \$500,000 for MTIP.

The appropriations required under the bill are supplemental and not intended to supplant funding that otherwise would be appropriated for those purposes.

Cybersecurity Workforce Accelerator Fund

The Cybersecurity Workforce Accelerator Fund is a special, nonlapsing fund that may only be used for the administration of the accelerator program and providing grants to elementary and secondary schools, institutions of higher education, and nonprofit organizations to operate cybersecurity workforce development programs. Any interest earnings of the fund must be credited to the general fund.

Current Law: Chapter 683 of 2021 codified the Center for Cybersecurity at UMBC and required the Governor to appropriate \$3.0 million for the center annually beginning in fiscal 2023. The Center for Cybersecurity is housed within the College of Engineering and Information Technology at UMBC. The center provides interdisciplinary academic and research leadership, partnership, innovation, and outreach by streamlining academic research, workforce development, and technology incubation activities related to cybersecurity. By October 1 each year, the center must report on the use of State funds in the field of cybersecurity.

Division of Workforce Development and Adult Learning

The Division of Workforce Development and Adult Learning (DWDAL) in MDL oversees the EARN program and State apprenticeship programs. For an overview of registered apprenticeship programs in the State, please see the **Appendix – Apprenticeship**.

The EARN program was established in 2013 to create industry-led partnerships to advance the skills of the State’s workforce, grow the State’s economy, and increase sustainable

employment for working families. Specifically, the program provides general fund grants on a competitive basis for industry partnerships, workforce training programs, and job-readiness and skills training. Since fiscal 2018, EARN has received annual funding specifically for cyber and information technology (IT). DWDAL currently funds 17 active cyber/IT Strategic Industry Partnerships across the State.

Cyber Warrior Diversity Program

CWDPs are located at Baltimore City Community College (BCCC), Bowie State University (BSU), Coppin State University (CSU), Morgan State University (MSU), the University of Maryland Eastern Shore (UMES), and UMBC Training Centers to train students in computer networking and cybersecurity, including training to achieve specified CompTIA certifications. For fiscal 2020, and each fiscal year thereafter, the Governor must include an annual appropriation of \$2.5 million for the Maryland Higher Education Commission (MHEC) to provide grants to BCCC, BSU, CSU, MSU, UMES, and UMBC Training Centers for their CWDPs. MHEC must annually allocate funds to those institutions on a *pro rata* basis according to the most recent enrollment data for each institution's CWDP as reported to the commission. This funding must supplement, but not supplant, any funds that would otherwise be provided for each institution.

Maryland Technology Internship Program

Chapter 652 of 2014 created MTIP to increase student understanding of employment opportunities in the State and foster business retention and development, job creation, workforce development, and new investment in the State. UMBC and Commerce must collaborate to utilize an Internet site through which (1) students may learn about technology-based businesses and internship opportunities and (2) technology-based businesses may register, post information about internship opportunities, and apply for reimbursement of internship stipends.

The Governor must include in the State budget funds for the reimbursement of the stipends and for UMBC to administer the program. Money awarded may be used to reimburse a technology-based business, State agency, or local governments up to 50% of a stipend paid to an intern, capped at \$3,000 annually for each intern.

UMBC and Commerce must also (1) develop application and registration requirements; (2) develop orientation and training programs for program participants; (3) review applications and award reimbursements of internship stipends; (4) provide opportunities for students to meet entrepreneurs, visit technology-related industry incubators, and learn about starting a business in the State; (5) provide recruitment and training opportunities and support for participating businesses; and (6) track and assess program outcomes.

Eligibility requirements for individuals generally focus on in-state or out-of-state enrollment in an institution of higher education, grade point average, and history of military service. Eligible individuals must commit to working a minimum of 120 hours during a spring, fall, or summer semester; attend an orientation session provided or approved by UMBC; and meet any other criteria established by UMBC.

To qualify for participation in MTIP, a business, which includes nonprofit organizations, must (1) be located in the State; (2) be a technology-based business; (3) commit to hosting an intern for a minimum of 120 hours during a spring, fall, or summer semester; (4) provide a detailed description of an intern position with the business; and (5) provide proof that a representative has attended an orientation or training program provided or approved by UMBC. “Technology-based business” is defined as a commercial or an industrial enterprise that is engaged in the application of scientific knowledge to practical purposes in a particular field. In addition, units of State and local governments may register to participate in the program. At least 50% of the internships supported by the program each year must be with businesses that have no more than 150 employees.

Career and Technical Education Committee

Chapter 36 of 2021 (Blueprint for Maryland’s Future – Implementation) created the Career and Technical Education (CTE) Committee as a unit within the Governor’s Workforce Development Board. The purpose of the committee is to build an integrated, globally competitive framework for providing CTE to Maryland students in public schools, postsecondary institutions, and the workforce. One of Maryland’s CTE programs of study is IT, with cybersecurity being an increasingly important part of IT programs.

State Fiscal Effect: The Governor must appropriate \$2.0 million for the Cybersecurity Workforce Accelerator Fund in the annual budget bill for fiscal 2024 and 2025, and the Governor must make additional annual appropriations totaling \$7.45 million as specified for cybersecurity workforce and educational programs, as shown in **Exhibit 1**. The effects of these appropriations are discussed below. The bill’s mandated appropriations are supplemental to existing funding, so ongoing funding cannot offset the bill’s mandated appropriations.

Exhibit 1
Mandated Appropriations
Fiscal 2024-2027

Bill Reference	Appropriation	FY 2024	FY 2025	FY 2026	FY 2027
(E)10	Accelerator Fund	\$2,000,000	\$2,000,000	\$0	\$0
(G)(1)	EARN Program	1,000,000	1,000,000	1,000,000	1,000,000
(G)(2)	Apprenticeship Program	1,000,000	1,000,000	1,000,000	1,000,000
(G)(3)	UMBC Accelerator Program	450,000	450,000	450,000	450,000
(G)(4)	Cyber Warrior Diversity Program	2,500,000	2,500,000	2,500,000	2,500,000
(G)(5)	K-12 Teacher Externship	500,000	500,000	500,000	500,000
(G)(6)	USM Cyber Range Scenarios	1,000,000	1,000,000	1,000,000	1,000,000
(G)(7)	Education Opportunities	500,000	500,000	500,000	500,000
(G)(8)	MTIP	500,000	500,000	500,000	500,000
	Total	\$9,450,000	\$9,450,000	\$7,450,000	\$7,450,000

MTIP: Maryland Technology Internship Program
 UMBC: University of Maryland Baltimore County
 USM: University System of Maryland

Source: Department of Legislative Services

Cybersecurity Workforce Accelerator Program

The Governor’s proposed fiscal 2023 budget includes \$1.0 million over two years to establish the Maryland Institute for Innovative Computing at UMBC to accelerate innovation in computing, especially in cybersecurity, artificial intelligence, and data science and \$3.9 million as mandated in Chapter 683 of 2021, of which \$3.0 million is to establish the Center for Cybersecurity, and \$0.9 million is for funding guideline attainment. This analysis assumes existing staff and funds for UMBC are used in fiscal 2023 to create

the framework for the accelerator program, with the program becoming fully operationally in fiscal 2024 when the mandated funding begins.

In accordance with the bill’s mandated appropriation, general fund expenditures for the Cybersecurity Workforce Accelerator Program at UMBC increase by \$3.45 million in fiscal 2024 and 2025, and by \$1.45 million annually thereafter. Special fund revenues and expenditures increase correspondingly. General fund revenues increase minimally from interest earned on the new special fund.

The Cybersecurity Workforce Accelerator Fund includes \$2.0 million in fiscal 2024 and 2025, which may only be used for administering the accelerator program and for providing grants to elementary and secondary schools, institutions of higher education, and nonprofit organizations to operate cybersecurity workforce development programs. Additionally, the accelerator program includes an appropriation of (1) \$450,000 of which \$250,000 is for managing the development of individuals who can meet cybersecurity workforce needs; (2) \$500,000 for K-12 teach externship grants; and (3) \$500,000 to fund education opportunities about cybersecurity careers in elementary and secondary education. UMBC estimates hiring a coordinator, IT technical trainer, a career center employee for conducting K-12 outreach, and a part-time business manager. The estimate includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	3.5
Salaries and Fringe Benefits	\$307,946
Accelerator Fund Grants	2,112,152
K-12 Externship Grants	500,000
Funds for Education Opportunities	500,000
Operating Expenses	<u>29,902</u>
Total FY 2024 State Expenditures	\$3,450,000

The mandated funding can be used for ongoing administrative costs, and it reflects salaries with annual increases, employee turnover, other operating expenses, and residual funding for cybersecurity workforce development.

The accelerator program must work with MSDE to establish a summer K-12 externship grant program and develop and invest in educational and career pathways in cybersecurity. This analysis assumes the funds for these purposes are disbursed to the accelerator program, as shown above. MSDE advises that it currently has a career pathway in cybersecurity and collaborates with the Maryland Chamber of Commerce to implement a teacher externship program, so the bill does not change how MSDE operates, and MSDE can provide assistance to the accelerator program with existing staff.

Commerce can use existing staff to assist in administering the accelerator program.

Cyber Range Scenarios

The bill mandates a \$1.0 million annual appropriation for USM to develop cyber range scenarios based on industry demand, so general fund expenditures for USM increase by \$1.0 million annually, and higher education revenues and expenditures increase correspondingly. USM may need additional personnel to develop the scenarios, but any personnel expenses are taken from the bill's mandated appropriation.

Cyber Warrior Diversity Program

The Governor's proposed fiscal 2023 budget includes \$2.5 million for CWDP in MHEC. The bill mandates an additional appropriation of \$2.5 million annually in the budget for MHEC to provide grants to BCCC, BSU, CSU, MSU, UMES, and UMBC Training Centers for their CWDPs. Thus, general fund expenditures increase by \$2.5 million annually beginning in fiscal 2024. Higher education revenues and expenditures for BCCC, BSU, CSU, MSU, UMES, and UMBC Training Centers increase by a total of \$2.5 million annually beginning in fiscal 2024. The amount available to each institution depends on its share of total enrollment for CWDPs as reported to MHEC and may change from year to year. To the extent that the CWDPs at the institutions increase enrollment, tuition revenues increase further. MHEC can administer the grants with existing staff.

Maryland Technology Internship Program

The Governor's proposed fiscal 2023 budget includes \$350,000 for MTIP at UMBC. General fund expenditures increase by \$500,000 annually beginning in fiscal 2024 to meet the bill's mandated appropriation to MTIP. The accelerator program is required to expand MTIP to include local governments, but local governments are already included in the program. Reimbursable fund revenues for multiple State agencies increase minimally beginning in fiscal 2024 from internship reimbursements from UMBC. State expenditures (all funds) for technology internships increase minimally to the extent that the bill results in internships that would otherwise not have been created.

Maryland Department of Labor

The Governor's proposed fiscal 2023 budget includes \$9.1 million for grants through the EARN program, of which funding for EARN cyber programs increases by \$1.0 million to \$3.8 million. MDL expects that this enhanced funding for cyber programs in fiscal 2023 will provide training to approximately 150 additional individuals. The Governor's proposed fiscal 2023 budget also includes \$4.4 million for the State's apprenticeship program.

General fund expenditures for DWDAL in MDL increase by \$2.0 million annually beginning in fiscal 2024, reflecting the bill’s mandated appropriations of \$1.0 million to the EARN cyber program and \$1.0 million to the apprenticeship and training program. DWDAL is staffed largely with federally funded personnel who cannot work on State-funded programs without the program reimbursing the federal government for their time. The bill authorizes the use of the mandated funds for program administration, so the costs of administering the programs are taken from the mandated appropriation. Thus, general fund expenditures increase by \$2.0 million in fiscal 2024, which reflects the cost of hiring one EARN program manager and one registered apprenticeship navigator to administer the additional funds under the programs, along with program funding and reimbursing existing federally funded personnel. The estimate includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	2.0
Salaries and Fringe Benefits	\$266,467
Program Funding	1,691,680
Operating Expenses	<u>41,853</u>
Total FY 2024 State Expenditures	\$2,000,000

Future years reflect salaries with annual increases, employee turnover, other operating expenses, and residual funding (of approximately \$1.7 million each year) being used for the EARN cyber program and the apprenticeship program.

Effect on Higher Education Formulas

Since the total State appropriation for selected public four-year institutions, which includes UMBC, is used to calculate the statutory funding amounts for the Senator John A. Cade (local community colleges) and the Joseph A. Sellinger (independent institutions) funding formulas, general fund expenditures increase for these formulas beginning in fiscal 2024. Actual funding depends on enrollment and the actual distribution of funds.

Local Fiscal Effect: Local community college revenues and expenditures increase due to additional State aid under the Senator John A. Cade Funding Formula beginning in fiscal 2024.

Revenues and expenditures for local boards of education may increase to the extent that they receive grants to operate cybersecurity workforce development programs.

Local governments may benefit from the expansion of MTIP. Local revenues increase minimally beginning in fiscal 2024 from stipend reimbursements. Local expenditures increase minimally to the extent that the bill results in internships that would otherwise not have been created.

Small Business Effect: Small cybersecurity companies, or small businesses that have a need for cybersecurity services, may benefit from increased coordination by State entities regarding cybersecurity workforce development and from a potentially larger cybersecurity workforce. Small businesses may also benefit from the expansion of MDL programs. The bill may bolster a more skilled and prepared cybersecurity workforce to meet the staffing demands of small businesses.

Eligible technology-based small businesses may benefit from MTIP receiving additional funds, as more small businesses could qualify to host eligible interns and receive up to \$3,000 per intern in State funds to be used to pay intern stipends. However, to receive the State funds, the small business must at least match that amount.

Additional Comments: Eligible private, nonprofit institutions receive additional State aid through the Seller formula annually beginning in fiscal 2024.

Additional Information

Prior Introductions: None.

Designated Cross File: SB 753 (Senator Hester) - Finance and Budget and Taxation.

Information Source(s): Department of Commerce; Maryland State Department of Education; University System of Maryland; Department of Budget and Management; Maryland Higher Education Commission; Maryland Department of Labor; Department of Legislative Services

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Appendix – Apprenticeship

Generally, apprenticeship is a voluntary, industry-sponsored system that prepares individuals for occupations typically requiring high-level skills and related technical knowledge. Apprenticeships are sponsored by one or more employers and may be administered solely by the employer or jointly by management and labor groups. An apprentice receives supervised, structured, on-the-job training under the direction of a skilled journeyman and related technical instruction in a specific occupation. Apprenticeships are designed to meet the workforce needs of the program sponsor. Many industry sponsors use apprenticeship as a method to train employees in the knowledge necessary to become a skilled worker. This also means the number of apprenticeships available is dependent on the current workforce needs of the industry and the capacity and willingness of employers to supervise them.

Apprenticeships are available to individuals age 16 and older; an employer, however, may set a higher entry age. By law, individuals must be age 18 to apprentice in hazardous occupations. Apprenticeships last from one to six years, although most are three to four years, and involve a minimum of 144 hours of classroom instruction per year and at least 2,000 hours per year of on-the-job training. A national apprenticeship and training program was established in federal law in 1937 with the passage of the National Apprenticeship Act, also known as the Fitzgerald Act. The purpose of the Act was to promote national standards of apprenticeship and to safeguard the welfare of apprentice workers.

Along with [26 other states and the District of Columbia](#), Maryland has chosen to operate its own apprenticeship programs under the federal law. The Division of Workforce Development and Adult Learning (DWDAL) within the Maryland Department of Labor is responsible for the daily oversight of State apprenticeship programs. More specifically, DWDAL approves new apprenticeship programs, changes to current programs, and compliance with State and federal requirements. The approval process involves assessing the appropriateness of an apprenticeship program in a proposed industry, the education that will be provided to the apprentice, the current staffing level of the entity proposing the program to determine whether adequate supervision can be provided, recruitment and retention efforts, and the overall operations of the entity. The Maryland Apprenticeship and Training Council serves in an advisory role for legislation and regulations, recommending changes to update apprenticeship laws.

As of December 2020, there were 11,076 apprentices registered, and there were 3,713 participating employers. During calendar 2020, the State added 25 new apprenticeship programs.