

Maryland

WINNING THE DECADE

ECONOMIC STRATEGIC PLAN

Roadmap to an Equitable, Robust and Competitive Economy

Maryland
DEPARTMENT OF COMMERCE

In partnership with the Maryland Department of Commerce and the MEDC

MEDC
MARYLAND
ECONOMIC DEVELOPMENT
COMMISSION

A MESSAGE FROM THE SECRETARY OF COMMERCE



Dear Partners, Policymakers, and fellow Marylanders —

I'm very pleased to share with you our strategic roadmap for economic development in Maryland, "Winning the Decade: Roadmap to an Equitable, Robust and Competitive Economy." This plan is the culmination of many months of work by the Department of Commerce and the Maryland Economic Development Commission, and details a bold vision for getting our state's economy on track and achieving the growth and prosperity that all Marylanders deserve.

Governor Moore has already incorporated numerous elements of this plan in his recent executive order, his Fiscal 2026 budget proposal and the DECADE Act. These include establishing a strategic focus on three high-growth "Lighthouse Sectors" (quantum computing; computational biology; and positioning, navigation, and timing) and creating a Strategic Closing Fund to help attract significant economic development opportunities to Maryland.

The report will guide the state's economic development efforts, investments, and initiatives with our partners to meet our economic ambitions. Commerce's top priorities remain collaboration and coordination to achieve economic growth — working with our partners across the state to attract new businesses and investment, create meaningful jobs, and ensure our economy reaches its full potential.

Maryland's future looks bright, and with your help, we will **WIN THE DECADE**!

Harry Coker, Jr.,
Secretary of Commerce


Maryland
SIMON PEARCE

A MESSAGE FROM THE MEDC Chair Dana Stebbins



Dear Economic Development Partners —

Over the past two years, Maryland Department of Commerce and the Maryland Economic Development Commission have worked closely together to develop a new path forward for economic development in our state. Our goal was to offer a clear-eyed assessment of Maryland's key strengths, identify opportunities for growth, and present a clear, data-driven plan to make Maryland's economy more competitive.

"Winning the Decade: Roadmap to an Equitable, Robust and Competitive Economy" is the culmination of that work, and I'm very pleased to share it with you. This plan shines a light on the key areas of Maryland's economy that have the most potential for transformative growth, and calls for important investments in workforce development and strengthening our innovation pipeline.

It also illustrates the critical importance of partnership in moving Maryland forward. Building a stronger and more competitive Maryland economy will require collaboration and cooperation between the public and private sectors, state and local governments, industry and higher education. We all share the common goal of sustained economic growth that leaves no one behind. I want to thank the members of the MEDC, the team at the Maryland Commerce Department, and all of our economic development partners across the state for their help and support.

Let's move forward together!

Dana B. Stebbins

Dana B. Stebbins, Esq.
Chair, Maryland Economic Development Commission

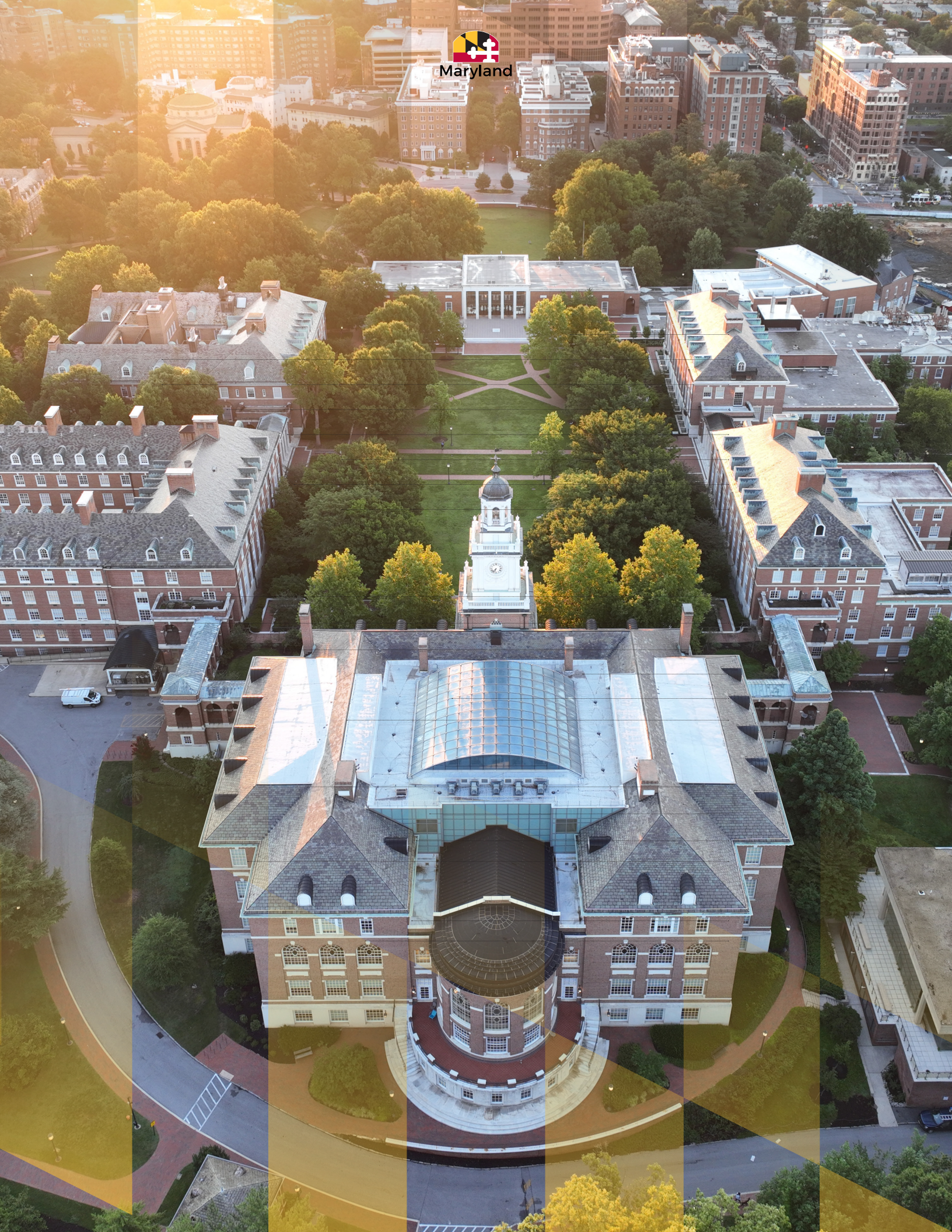

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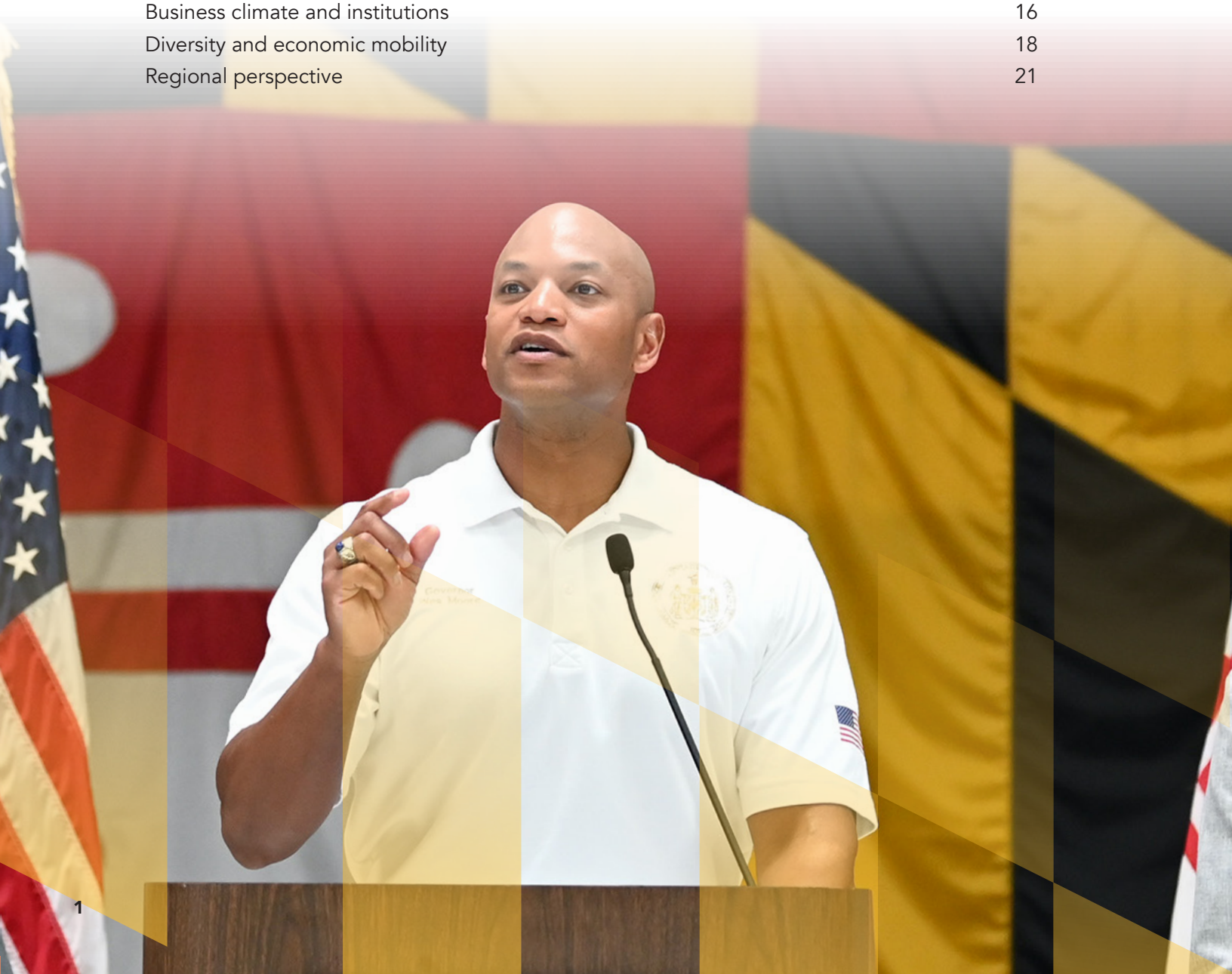
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EXECUTIVE SUMMARY

Maryland possesses enviable traits, from a diverse, talented workforce to world-class institutional assets. It is home to one of the highest median household incomes and lowest unemployment rates in the country. It is a national leader in research and development (R&D).

At the same time, the state faces economic headwinds. Growth has been stagnant since the pandemic. The historically low unemployment rate is driven partially by a declining labor force. And a competitiveness gap is widening between Maryland and high-performing peer states.

Harnessing Maryland's unrivaled strengths and addressing its most pressing challenges are key to "Winning the Decade." Its mission is to develop an equitable, robust and competitive economy, focused on the following strategic priorities:

1. Boosting target sectors and emerging big bets
2. Creating a world-class innovation pipeline that flows from R&D to firms
3. Extending Maryland's talent advantage by building an equity-forward, inclusive workforce

These strategic priorities will be addressed through a focused list of potential initiatives:

1. Lighthouse sector strategy: Prioritize two or three lighthouse sectors that are forecast to have a significant economic contribution, and provide proactive strategies, investments and capabilities to deliver outsized performance.
2. Strategic closing fund: Establish an at-scale, catalytic incentive program focused on winning anchor deals in target sectors that can boost the state's growth and competitiveness.

3. Idea challenge: Launch statewide challenge to incentivize the translation of R&D into technologies, potential startups and retention of top graduates.
4. Commercialization unit: Create unit with deep expertise in commercialization, deployed to support and coordinate among existing organizations.
5. Venture catalyst: Develop network of local and regional funders, including venture capital (VC) and institutional investors, to spur investment in the state's startups.
6. Focused sector/occupation EARN expansion (EARN+): Target key occupations and growth sectors with new funding for EARN, leverage robust network of training providers to co-create solutions, and incorporate EARN+ into business attraction efforts, connecting businesses to talent partnerships (could include training-focused business attraction incentives).
7. Enhanced Talent Innovation Fund (TIF): Increase investment in the TIF to drive high-quality job training with a focus on high-salary jobs that require sizable upfront costs in skills training (e.g., nursing, cybersecurity, machinists).

The focused set of strategic priorities and initiatives can also help to fulfill the state's economic development mission, which is to **create an equitable, robust and competitive economy**. An initial scorecard of the effort can embrace ambitious goals, such as: becoming **the #1 equitable state in the U.S.**, measured in terms of regional and demographic parity, rising to a **top 15** state for economic growth, creating **50k jobs** within target industries; and climbing to a **Top 10** state for startup creation and growth.

METHODOLOGY AND SOURCES OF INSIGHT

"Winning the Decade: Roadmap to an Equitable, Robust and Competitive Economy," which includes diagnostic insights, strategic priorities, and potential initiatives, was informed by four primary sources of insight:

1. Synthesis and review of existing efforts: 60+ documents from Maryland government entities and relevant stakeholders were reviewed.
2. Outside-in data analysis: Over ten public data sources (e.g., the US Census, Bureau of Labor Statistics, National Center for Education Statistics) and over five private, specialized data sources (e.g., Lightcast, Moody's Analytics) were used as the backbone for 100+ pages of economic development diagnostic analyses.
3. Stakeholder engagement: 17 individual interviews, seven topical and sector-specific focus groups, six regional workshops, and a digital survey were employed to gather insights into Maryland's economy. The stakeholder engagement component of the effort resulted in engagement with approximately 300 individuals across the State of Maryland
    A. Interviews: 17 individual interviews were held with officials from the Maryland State Government and affiliated entities, as well as institutional leaders (see below for list of stakeholders).

Interview agencies/departments/institutions	
Maryland Department of Labor	Maryland Department of Agriculture
Maryland Department of Transportation	Maryland Department of Planning
Maryland Department of Housing and Community Development	Commerce – Attraction, Retention, International, Military, and Federal Affairs
Commerce – Strategic Industries and Entrepreneurship	Maryland Economic Development Commission (MEDC)
Maryland Technology Development Corporation (TEDCO)	Maryland Economic Development Association
Maryland Economic Council	Office of Governor Wes Moore
Maryland Economic Development Corporation (MEDCO)	Blackbird Laboratories
Maryland Chamber of Commerce	Johns Hopkins Tech Ventures

B. Focus groups: Seven topical focus groups were facilitated with stakeholders from government, the private sector, community organizations, and educational institutions. A total of 35 individuals participated across the following topic areas.

Focus Group Topics	
Talent	Ideas and innovation
Business climate and institutions	Diversity and economic mobility
Life Sciences	Aerospace
Manufacturing	

C. Regional workshops: Six regional workshops were conducted, accounting for Maryland's geographic diversity. Participants in these workshops included local chambers of commerce, local governments, and regional/local economic development organizations. A total of 34 organizations participated across the following regions.

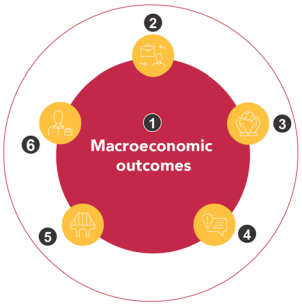
Workshop Regions	
Capital	Central
Southern	Western
Lower Eastern Shore	Upper Eastern Shore

4. Digital survey: 185 responses were collected and analyzed as part of a digital survey, which was distributed to a diverse group of economic development stakeholders in the state (some of whom were also participants in focus groups or workshops).

SELECTED DIAGNOSTIC INSIGHTS

The diagnostic is segmented into eight sections — macroeconomic outcomes, sectors, talent, ideas and innovation, infrastructure, business climate and institutions, diversity and economic mobility, and regional perspective. The latter two segments, while typically not separate pieces of the economic development framework (they are often embedded across the other components), were elevated here to highlight their importance to the State of Maryland.

Economic development diagnostic framework



Typical 6-part economic development diagnostic framework

Independent components pulled out of other sections due to importance for Maryland and Commerce

1. Macroeconomic outcomes
2. Sectors
3. Talent
4. Ideas and innovation
5. Infrastructure
6. Business climate and institutions
7. Diversity and economic mobility
8. Regional perspective

Macroeconomic outcomes

A state's ultimate economic development goals are often related to macroeconomic outcomes such as jobs, GDP and household income. Gauging where the state is today can help inform key gaps in the state economy, assess competitive deficits against peer states and measure potential success in the future.[1]

Strengths

Maryland is one of the richest states in the US, with a median household income of $98K, the third highest in the U.S.[2] It also has one of the lowest unemployment rates in the U.S., at 2.7%, which was 1.3 percentage points (p.p.) below the national figure.[3]

Challenges

The state's historically low unemployment rate may be driven by declining labor force participation, which has fallen from 69% in 2019 to 65% in 2023. Employment has not rebounded since the pandemic; in fact, the number of jobs in 2023 was below 2019 levels. GDP growth has been nearly stagnant between 2018-23, lagging behind the national average by 1.2 p.p.[4]

[1] Maryland peer states include California, District of Columbia (where data available), Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Virginia
[2] U.S. Census, American Community Survey (ACS), 2023 one-year estimates
[3] Bureau of Labor Statistics (BLS), May 2024
[4] BLS, accessed via Moody's Analytics
[5] Lightcast

Sectors

Sectors, and the firms and organizations that comprise them, drive economies. High-growth, high-impact sectors can help fuel economic growth, create job opportunities for residents and provide other benefits (e.g., fiscal) to states.

Strengths

Maryland has several asset sectors that are tradeable, high-growth and high-specialization. These include Technology, Aerospace & Defense, Life Sciences and Professional Services. Alongside Distribution and Manufacturing, they make up 73% of Maryland's nongovernment, traded employment. Additional sectors such as Tourism and Agriculture, which have a disproportionate economic footprint in regions such as Western Maryland and the Eastern Shore, make up a further 7%.[5]

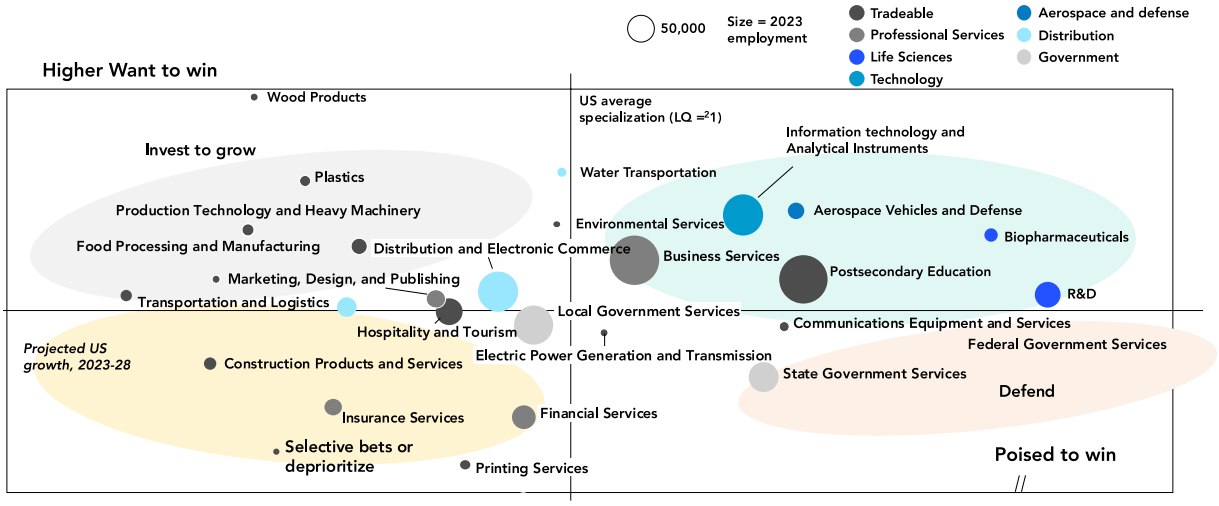
Major agencies related to Maryland's core sectors are headquartered in the state, including National Institutes of Health (NIH), Food and Drug Administration (FDA), Centers for Medicare & Medicaid Services (CMS), National Security Agency (NSA), United States Cyber Command (CYBERCOM), and NASA Goddard Space Flight Center, among others.

"We are one of the top three states for life sciences and a leader in aerospace."

– Focus Group Participant



Sectors in Maryland by growth, specialization and employment[1]



1. Customized sector classification system based largely on methodology of Harvard Business School's U.S. Cluster Mapping Project, with some modifications (e.g., separated "Education and Knowledge Creation" into two new sectors: "Postsecondary Education" and "R&D"; moved some 6-digit NAICS sectors from "Business Services" to "Information Technology and Analytical Instruments"); Does not include "local" sectors (except Local Government) or those with fewer than 2000 jobs in Maryland
2. Projected U.S. employment growth, 2023-28
3. Location quotient (LQ) measures how concentrated a sector is in each region compared to the nation; based on 2023 employment.

Source: Lightcast; Harvard Business School's U.S. Cluster Mapping Project

Challenges:

There is a potential lack of focus within Maryland's sector strategy. For example, the risk of a "peanut butter" approach, (i.e., underinvestment compared to peers) that is spread too thinly across many sectors, was often cited in stakeholder engagement sessions.[6] The six sectors noted above make up 73% of nongovernment, traded employment[7], yet only ~50% of Maryland's total incentive spending.[8]

> "We're spreading the peanut butter too thin…
> If we try to be good at everything, we'll be great at nothing."
> – Interviewee

Despite specialization in key sectors such as Technology and Life Sciences, growth has lagged high-performing peer states. For example, Maryland's employment compound annual growth rate (CAGR) in Technology was 2.1% between 2018 and 2023, half that of North Carolina (4.2%). Meanwhile for Life Sciences, Maryland's jobs CAGR over the same period was a robust 3.7%, yet still outpaced by Massachusetts (6.7%), Virginia (4.7%), and North Carolina (4.7%).[9]

Talent

Maryland's greatest strength is its people, and access to a skilled workforce is the primary location decision factor among companies in the state's asset sectors.[10] In a survey, 67% of respondents agree that Maryland's current talent base is a strength and helps the state attract, expand and retain businesses.[11]

[6] Stakeholder interviews
[7] Lightcast
[8] Maryland Commerce Consolidated Finance Tracker Data, accessed May 9, 2024; FDI Intelligence Incentives Flow, accessed April 8, 2024
[9] Lightcast
[10] Area Development Magazine, "Critical Site Selection Factor #1: Availability of Skilled Labor"
[11] 2024 Maryland Economic Development Survey, 185 respondents across key stakeholder groups

Strengths

Maryland has one of the strongest talent pools in the country. It ranks fifth in educational attainment, based on the share of population with at least a bachelor's degree.[12] It is a Top 10 state in job specialization, which compares the share of jobs in an occupation in Maryland to the share of jobs in an occupation in the U.S., in key roles such as Computer Occupations, Math Occupations, Engineers, Business Operations Specialists, and Life Scientists. In fact, Maryland has a specialization 2.5x greater than the U.S. average for Life Scientists.[13]

The state's talent strength is powered by world-class colleges and universities. These include three R1 institutions: Johns Hopkins University, the University of Maryland, Baltimore County (UMBC), and the University of Maryland, College Park (UMD).[14] Maryland is home to four renowned historically Black colleges and universities (HBCUs), including Morgan State University, Bowie State University, Coppin State University, and the University of Maryland Eastern Shore (UMES),[15] as well as 16 community colleges.[16]

> "Maryland has high-value talent where cost is less of a concern – this is a key factor for large Life Sciences companies."
>
> – Focus Group Participant

Specialization for selected occupational groups for Maryland and peer states
Specialization (LQ) and ranking (out of 50 states and DC), 2023[1]

Ranking: 1-10, 11-20, 21-30, 31-40, 41-51

State	Computer occupations[2]		Math occupations[3]		Engineers		Business Operations Specialists[4]		Life Scientists[5]	
Virginia	1.8	2	1.5	3	1.1	19	1.5	2	0.8	34
Maryland	1.5	4	1.8	2	1.3	9	1.4	4	2.5	2
Massachusetts	1.3	6	1.3	6	1.1	12	1.1	7	3.5	1
California	1.1	8	1.1	14	1.1	13	1.1	11	1.4	12
New Jersey	1.1	9	1.3	7	0.8	39	1.0	17	1.3	13
North Carolina	1.1	12	1.0	16	0.8	32	1.0	20	0.9	26
New York	0.9	21	1.2	8	0.6	50	1.1	12	0.7	37
Pennsylvania	0.9	25	1.0	17	1.0	20	0.9	26	1.0	24

1. A location quotient (LQ) measures how concentrated/specialized an industry is in a given region as compared to the nation (>1 means more specialized than the US); Occupations (3-digit SOC) selected here based on demand within potential prioritized sectors, such as Life sciences, Technology, Aerospace, and Professional services (list of sectors and occupations not exhaustive)
2. Includes Software Developers, Computer Systems Analysts, Information Security Analysts, among others. LQ for Software Developers for Maryland, however, is only 1.0, indicating potential for further development/attraction/retention of talent
3. Includes Operations Research Analysts, Statisticians, Data Scientists, Actuaries, Mathematicians, among others
4. Includes Management Analysts, Project Management Specialists, Logisticians, among others
5. Includes Medical Scientists (except Epidemiologists), Microbiologists, Biochemists and Biophysicists, among others

Source: Lightcast

Challenges

The state's talent challenges revolve largely around domestic outmigration, graduate retention, two-year postsecondary outcomes, and worker shortages among specific occupational groups, which largely mirror national trends. Net domestic outmigration spiked since the pandemic, rising from 11.7K in 2020 to 45.7K in 2022 (it has since dropped to 30.9K in 2023).[17] People are moving from Maryland to Pennsylvania and Sunbelt states like Florida, while newcomers often come from the District of Columbia (DC) and New York.[18] Maryland retains ~38% of its STEM grads, lower than peers such as North Carolina and Massachusetts, but marginally above Virginia and Pennsylvania.[19]

[12] U.S. Census, American Community Survey, 2022 1-Year Estimates, survey S1501
[13] Lightcast
[14] Carnegie Classification of Institutions of Higher Education, filtered for "Doctoral Universities Very High Research Activity"
[15] HBCU First, Map of HBCUs by State
[16] Maryland Association of Community Colleges
[17] U.S. Census, accessed via Moody's Analytics
[18] U.S. Census, County-to-County Migration Flows

Despite high bachelor's degree attainment, Maryland has a middling ranking in two-year postsecondary graduation rates (26th),[20] and fourth grade reading and math scores (40th).[21] In a pattern familiar to other states in the U.S., employers are struggling to fill specific roles: 80%+ of top STEM occupations (e.g., Software Developers, Information Security Analytics, Data Scientists) are regularly unfilled in Maryland, while stakeholders have also noted a dearth of skilled technical talent, from welders to machinists.[22] Finally, stakeholders working within innovative fields such as Technology and Life Sciences have underscored challenges around hiring managerial talent.

"If I could wave my magic wand, I'd want welders, welders, and more welders."
– Focus Group Participant

Ideas & Innovation

Today, strength across the innovation ecosystem, (i.e., from R&D to commercialization to company development), is a key differentiator between high-growth and low-growth regions.

Strengths

Maryland is a national leader in R&D: It is ranked first for academic sciences and engineering R&D as a share of GDP. In 2022, its institutions received $2 billion in Life Sciences R&D funding and $1.5 billion in Engineering R&D.[23] Maryland startups have attracted the 11th-most venture capital funding in the country, also normalized for economy size.[24] It has world-class state vehicles helping promote the innovation economy. For example, TEDCO has contributed $2.7 billion in economic activity and 12,082 jobs in Maryland,[25] and is the second-most prolific investor in the mid-Atlantic.[26]

Challenges

Despite its strength in the early phases of the innovation funnel, Maryland lags in converting world-class R&D investment into innovative technologies and startups. The state is ranked 35th in startup early survival rate and 50th in startup early job creation.[27]

"Maryland has untapped potential for innovation."
– Focus Group Participant

[19] Lightcast
[20] Integrated Postsecondary Education Data System (IPEDS), 2022
[21] National Assessment of Educational Progress (NAEP), 2022
[22] Lightcast
[23] National Science Foundation Higher Education Research and Development Survey
[24] Pitchbook
[25] University of Baltimore, Jacob France Institute analysis, "The Economic and Fiscal Impacts of TEDCO's Seven Core Programs—FY2023", which noted that "the companies created or supported by the seven core TEDCO programs generated a total of $2.7 billion in Maryland economic activity in 2023, supporting a total of 12,082 jobs"
[26] TEDCO, State of the Startup, FY23
[27] The Kauffman Indicators of Entrepreneurship

Performance of Maryland across innovation pipeline

Ranking (out of 50 states and DC)



Maryland rankings

- #1 Academic science/ engineering R&D, percent of GDP 2022[1]
- #22 Business-performed R&D, percent of private industry output 2021[2]
- #31 State agency R&D, percent of GDP 2022[3]
- #23 Patents, per capita 2021
- #9 Small Business Innovation Research/Technology Transfer, percent of GDP 2022
- #11 Venture capital (VC), per capita (3yr rolling total) 2021-23
- #29 Rate of new entrepreneurs 2021[4]
- #28 Startup density 2023[5]
- #35 Startup early survival rate 2022-23
- #50 Startup early job creation 2021
- #39 5-year business survival rate 2018-23
- #33 New employers as a share of all employer firms 2019
- #46 New businesses that make a first payroll within 2yrs of business application 2021

1. NSF Higher Education Research and Development (HERD) Survey
2. Latest data available; NSF Business Enterprise Research and Development (BERD) Survey
3. NSF Survey of State Government Research and Development (R&D) measures the extent of R&D activity performed and funded by the governments of each of the nation's 50 states
4. Rate of new entrepreneurs refers to the percent of the total number of new entrepreneurs who were not unemployed and not looking for a job as they started the new business
5. Startup density defined as the number of new firms (0-1 years old) as a percent of total firms

Source: United States Patents and Trademarks Office (USPTO), National Science Foundation (NSF), Kauffman Indicators of Entrepreneurship, Moody's Analytics, Pitchbook

> "Maryland confuses innovation and entrepreneurship, […] outstanding innovators in the state work at federal labs but may not take on risk to become entrepreneurs."
>
> – Focus Group Participant

Several factors may be contributing to Maryland's lagging outcomes in commercialization and beyond. There is an outsized influence of federal government R&D funding (e.g., 87% at Johns Hopkins vs. 17% at MIT) in the state,[28] and fewer partnerships between industry and academia (e.g., 6% of Johns Hopkins collaborators are industry compared to 18% at the University of Maryland and 28% at Harvard).[29] Meanwhile, stakeholders noted that some Maryland institutions may have less of an entrepreneurial culture among faculty compared to leaders in this area (e.g., Stanford University), and a potential undersupply of entrepreneurial education. Other factors that were cited include scarcer local VC firms, shortage of space (i.e., wet labs), deficiency of managerial skills, and a scarcity of mentors that have built successful companies.

[28] Higher Education Research and Development Survey
[29] Analysis of PatSnap, Lens.Org, and Innography



Infrastructure

From transportation of people and goods, provision of utilities, and maintenance of other public needs, infrastructure is the connective tissue that helps the economy function.

US News Best States for Infrastructure, Maryland and peer states
Ranking (out of 50 states), 2024

Rank 1 50

		MD	NC	NY	CA	VA	NJ	MA	PA
Overall infrastructure		33	31	29	32	38	16	39	43
Energy	Power grid reliability	14	36	10	37	42	11	13	27
	Renewable energy usage	44	25	21	16	38	47	39	42
Transportation	Bridge quality	13	33	39	25	10	27	38	45
	Commute time	49	27	50	46	42	48	47	37
	Public transit usage	10	29	1	9	31	4	7	15
	Road quality	45	19	38	35	28	17	40	41
Internet access	Access to gigabit internet	23	30	14	22	42	27	41	43
	Broadband subscription rate	10	31	29	4	22	6	7	34

Source: US News Best States

Strengths

Maryland is a Top 15 state in power grid reliability and bridge quality, notwithstanding the recent Francis Scott Key Bridge collapse, and is Top 10 for public transit usage and broadband subscription.[30] The state's high quality of life, driven by social infrastructure such as education, health care, and recreational amenities, was touted among stakeholders as a significant advantage. In addition, the state is well-connected physically, situated on Amtrak's Northeast Corridor, the busiest in the U.S., and home to BWI airport, 23rd largest in the U.S. by passenger enplanements.[31]

> "Baltimore is the last livable city on the East Coast."
> – Focus Group Participant

Challenges

Maryland ranks 33rd in overall infrastructure. It is among the bottom 10 states for renewable energy usage and the bottom five for commute time and road quality.[32] In Baltimore City, more than 20% of respondents have needed to reschedule appointments or cancel plans because of transportation issues.[37] Focus group participants noted limited public transit options in many parts of the state. However, action is being taken in these areas. The Maryland Energy Administration offers a variety of grants, loans and tax credits to promote the use of renewable energy.[33] The 2050 Maryland Transportation Plan (MTP) commits to improving roadways, environmental stewardship, and transit and active transportation use.[34]

> "Our biggest drawback is probably the availability of housing, which is hard when trying to get people to choose to live here."
> – Focus Group Participant

[30] U.S. News Best States, Energy, Transportation, and Internet rankings, 2024
[31] Bureau of Transportation Statistics, Passengers Boarded at the Top 50 US Airports
[32] 2024 Infrastructure, Energy, and Transportation US News Best States rankings
[33] Maryland Energy Administration
[34] Maryland Department of Transportation, The 2050 Maryland Transportation Plan (MTP)



Stakeholders reported that challenges with housing, child care, and transportation are barriers to economic development. Residents face higher housing costs than the U.S. average, with the state ranking 35th in housing cost burden.[35] 51% of Maryland residents live in a child care desert, a figure that increases for low income, Black, and Hispanic residents.[36]

Business climate and institutions

A state's business climate encapsulates several areas that are critical to economic competitiveness, including regulatory environment, tax structure, incentive programs, and licensing.

Strengths

Maryland's cost of doing business ranks in the middle of its peer set and is lower than states such as Massachusetts, California, New Jersey and DC. In addition, proximity to federal agencies was cited by stakeholders as a significant advantage, notably in industries where interactions between regulators and companies occur frequently (e.g., Life Sciences).[38] Finally, Maryland achieves a significant return on investment (ROI) on its incentive spending, with $4K spent per retained job and $9K per new job, the lowest among peers.[39]

Challenges

There is room for Maryland to improve its business climate. More than half of private sector survey respondents do not believe that Maryland's overall business climate is a core strength and enables the attraction, retention and expansion of businesses in the state. An even greater share (~70%) of survey respondents feel that Maryland's regulatory environment (e.g., business licensing, corporate taxation) does not help the state's competitiveness, a sentiment that was echoed in focus groups and workshops.[40] The state's cost of doing business, while lower than states such as Massachusetts and California, as noted above, is nevertheless higher than states such as North Carolina, Virginia, Pennsylvania and New York.[41]

Incentives, while efficient in terms of ROI, are subscale. The state's incentive spending is the second lowest among peers (only DC is lower) as a share of GDP. Leading states in this area, North Carolina and New York, invest ~10x more than Maryland, even after controlling for economy size.[42]

> "Maryland's business environment and taxes are hindering growth, while neighboring states have cleaner regulatory environments and attractive tax incentives."
>
> – Focus Group Participant

[35] America's Health Rankings, Housing Cost Burden by State
[36] Center for American Progress, 2020; term Hispanic used in this document, encapsulates Hispanic/Latino/Latina/Latinx
[37] A Portrait of Baltimore: Results of the 2023 Baltimore Area Survey by the Johns Hopkins 21st Century Cities initiative
[38] Maryland Federal Facilities Directory; 60+ federal facilities exist in Maryland
[39] FDI Intelligence Incentives Flow, accessed April 8, 2024
[40] 2024 Maryland Economic Development Survey, 185 respondents across key stakeholder groups
[41] Moody's Analytics
[42] FDI Intelligence Incentives Flow, accessed April 8, 2024



In addition, Maryland's incentives are more oriented towards company retention, rather than attraction, compared to peer states. 3% of incentive value and 24% of deals are channeled towards retention projects, the highest among peers. Maryland also uses more loans and fewer grants, subsidies and tax incentives than peer states.[43]

Financial incentives analysis for Maryland and peer states 2019-2023

	Input		Output					Efficiency (Lower number = higher efficiency)		
	Incentive amount, $B	Incentive as share of 2023 GDP, %[1]	Number of deals, #	Incentive per deal, $M	Capex, $B	Retained jobs[2], K	New jobs[2], K	Incentive per $1,000 capex dollars, $K	Incentive per retained job, $K	Incentive per new job, $K
NY	12.7	0.59	1,830	7	134.8	28	717	94	32	17
NC	4.9	0.64	873	6	47.4	62	125	103	22	37
CA	4.7	0.12	1,448	3	34.0	0	209	138	41	22
VA	0.7	0.09	511	1	46.3	3	65	14	5	10
PA	0.6	0.07	793	1	6.5	59	49	97	4	12
MA	0.6	0.08	744	1	6.2	9	31	94	19	19
NJ	0.5	0.06	151	3	0.5	0.5	14	1,056	70	30
MD	0.3	0.06	469	1	1.8	8	33	183[3]	4	9
D.C.	0	0.01	15	1	N/A	N/A	1	N/A	N/A	17

1. Compares total 5-year (2019-23) incentive value to 2023 GDP; 2. Job metrics are projected; 3. Does not include projected $974M CapEx investment from Carillon development

Source: FDI Intelligence Incentives Flow, accessed 4/08/2024

Diversity & economic mobility

Maryland is a proudly diverse state: 51% of residents are Black, Hispanic, or Asian.[44] Developing equal opportunities for all is crucial to ensure that no Marylander is left behind.

Strengths

Maryland celebrates its diversity and has achieved remarkable economic outcomes. It has the 3rd-lowest poverty rate for Black residents (13%) and the 7th-lowest for Hispanic residents (13%) in the U.S.[45] The state is home to some of the most prosperous Black and Hispanic communities in the country (e.g., Howard, Calvert counties).[46] Additionally, the Maryland state government has made LGBTQIA+ inclusion a priority. It passed the Trans Health Equity Act and has approved the 2024 Policy Priorities, Recommendations, and Best Practices for LGBTQIA+ Inclusion, developed by the Maryland Commission on LGBTQIA+ Affairs.[47]

The state has a strong pipeline of diverse STEM talent, whereby 29% and 10% of STEM graduates are Black and Hispanic,[48] compared to their respective population share of 32% and 12%.[49] These figures are led by the University of Maryland Global Campus (UMGC), which produces over 8K STEM graduates per year, of whom 36% are Black and 12% are Hispanic. Maryland's HBCUs outperform the state's other colleges and universities in educating female STEM talent. For example, 48% of Bowie State University and 45% of Morgan State University STEM graduates are women, compared to 39% across all institutions.[50]

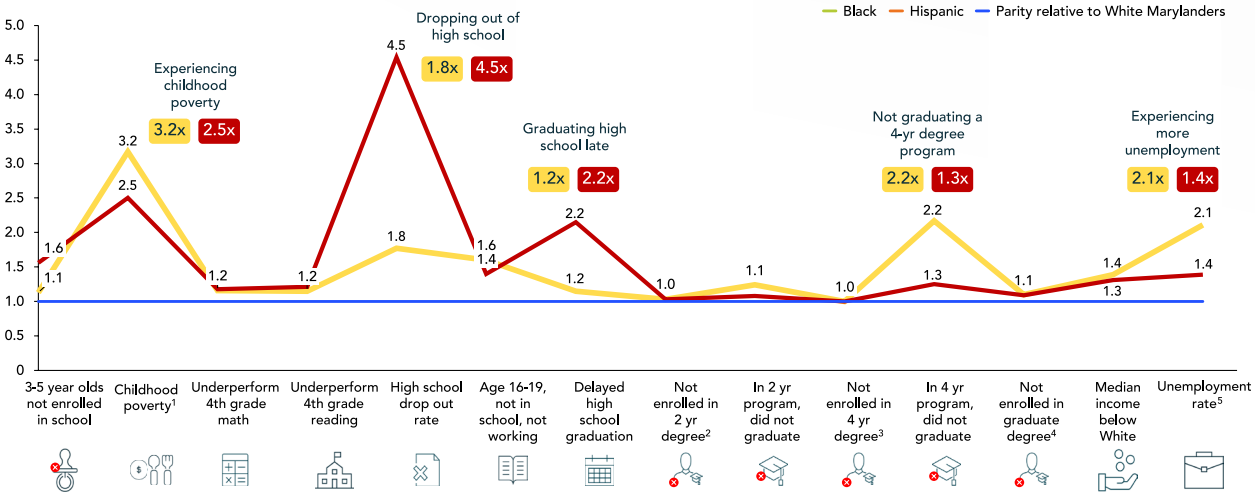
[43] FDI Intelligence Incentives Flow, accessed April 8, 2024
[44] U.S. Census, QuickFacts, Population estimates, July 1, 2023
[45] U.S. Census, American Community Survey (ACS), 2022 1-Year Estimates, survey 1701
[46] McKinsey Institute for Black Economic Mobility
[47] Maryland Commission on LGBTQIA+ Affairs, 2023 Annual Report
[48] Lightcast
[49] U.S. Census, American Community Survey (ACS), 2022 1-Year Estimates



Challenges

Despite these strengths, challenges remain. Black and Hispanic Marylanders are more likely to face negative life circumstances, including child poverty,[51] dropping out of high school,[52] late graduation,[53] and unemployment,[54] compared to White residents. These disparities begin early in life and extend to college degree attainment,[55] representation in high-paying occupations,[56] and business ownership.[57]

Likelihood that Black and Hispanic Maryland residents will experience selected life circumstances, compared to White residents



1. Born from 2013 to 2024 ("Generation Alpha") | 2. Population not enrolled divided by population ages 18-24, only considered enrolled if degree-seeking | 3. Population not enrolled divided by population ages 18-24, International students not included | 4. Population not enrolled divided by population ages 25-29 | 5. 16 y.o. +

Note: No meaningful difference in pattern was noticed between degree and non-degree-seeking students across racial/ethnic groups; Race categories exclude people of Hispanic or Latino ethnicity

Source: 2022 American Community Survey from the US Census Bureau; KidsCount; National Assessment of Educational Progress (NAEP), the Nation's Report Card; National Center for Education Statistics (NCES); NCES - Integrated Postsecondary Education Data System (IPEDS)

Despite being home to some of the most prosperous Black and Hispanic counties in the nation, outcome gaps persist. Maryland has some of the largest gaps in parity across the country between Black, Hispanic, and White residents. Baltimore City and Montgomery County, the lowest ranked for Black-White parity in Maryland, fall into the lowest 10% of counties for Black-White parity nationwide. Montgomery County is also the lowest ranked county for Hispanic-White parity in Maryland and falls into the lowest 2% of counties for Hispanic-White parity nationwide. Closing these gaps, when measured in terms of median household income, could add $11-37 billion in wages to Maryland's economy.[58]

[50] Lightcast and the National Center for Education Statistics
[51] KidsCount
[52] National Center for Education Statistics, 2021
[53] National Center for Education Statistics, 2019-2020
[54] U.S. Census, American Community Survey, 2022 1-Year Estimates
[55] Integrated Postsecondary Education Data System (IPEDS), 2022
[56] Lightcast
[57] U.S. Census, Nonemployer Statistics by Demographics Series, 2020; specifically for employer businesses
[58] McKinsey Institute for Black Economic Mobility

Regional perspective

From the mountains of Western Maryland to the beaches of the Eastern Shore, Maryland's regions are as diverse as its people. Given this diversity, the economic development roadmap for the state cannot have a one-size-fits-all approach, but must reflect the varied needs, challenges and economic conditions of different places.

Strengths

One cause for celebration is that disparities in unemployment rates across regions have shrunk over the last ~30 years. In 1990, there was a 4.99 percentage point difference between the region with the highest (Western Maryland) and lowest (Capital) unemployment rates. In 2024, the gap was reduced to 0.41 percentage points.[59] Meanwhile, some industries with relatively low specialization in the state have significant concentration in particular regions, offering the potential for a tailored regional sector strategy. For example, Western Maryland excels in tradeable sectors such as Environmental Services, Production Technology and Heavy Machinery, Wood Products, and Chemicals.[60]

Challenges

Nevertheless, regional disparities continue to exist. While unemployment gaps have fallen, differences in median household income have widened by 14 percentage points between the most and least prosperous regions from 1967 to 2022.[61] The Eastern Shore and Western Maryland lag in key macroeconomic indicators, with labor force participation rates in counties such as Allegany and Somerset ~20 percentage points below counties such as Montgomery and Howard. Allegany, Garrett, Kent, and Somerset counties lost population between 2012 and 2022.[62] Furthermore, only 13% of survey respondents considered assistance and resources to be allocated equitably across the state.[63]

> "We feel forgotten about."
>
> – Stakeholders from the Western, Eastern Shore, and Southern counties

[59] Bureau of Labor Statistics, accessed via Moody's Analytics
[60] Lightcast; Harvard Business School's US Cluster Mapping Project; Maryland Department of Commerce
[61] U.S. Census, accessed via Moody's Analytics
[62] U.S. Census, American Community Survey (ACS), 2022 5-year estimates
[63] 2024 Maryland Economic Development Survey, 185 respondents across key stakeholder groups

STRATEGIC PRIORITIES

The diagnostic insights led to the elevation of three strategic priorities, critical to Maryland creating an equitable, robust and competitive economy. These will be developed in collaboration with state of Maryland agencies and other stakeholders. They are:

1. Boosting target sectors and emerging big bets
2. Creating a world-class innovation pipeline that flows from R&D to firms, and;
3. Extending Maryland's talent advantage by building an equity-forward, inclusive workforce

	Boost target sectors and emerging big bets	Create world-class innovation pipeline that flows from R&D to firms	Extend Maryland's talent advantage by building an equity-forward, inclusive workforce
Initiatives	• Lighthouse sector strategy • Strategic closing fund	• Idea challenge • Commercialization unit • Venture catalyst	• Bespoke talent solution program • Enhanced Talent Innovation Fund (TIF)
KPIs	• GDP Growth • Employment growth • Jobs created and retained in target sectors	• Venture capital invested in Maryland startups • Startup density • Startup early job creation	• Labor force participation rate • Share of workers in occupations that earn at or above the state's living wage • Number of people upskilled/reskilled



The strategic priorities can be addressed through a focused list of potential initiatives:

Boosting target sectors and emerging big bets

1. Lighthouse sector strategy: Prioritize two or three lighthouse sectors that are forecast to have a significant economic contribution, and provide proactive strategies, investments, and capabilities to deliver outsized performance.
2. Strategic closing fund: Establish an at-scale, catalytic incentive program focused on winning anchor deals in target sectors that can boost the state's growth and competitiveness.

Creating a world-class innovation pipeline

3. Idea challenge: Launch statewide challenge to incentivize the translation of R&D into technologies, potential startups and retention of top graduates.
4. Commercialization unit: Create unit with deep expertise in commercialization, deployed to support and coordinate among existing organizations.
5. Venture catalyst: Develop network of local and regional funders, including venture capital and institutional investors, to spur investment in the state's startups.

Extending Maryland's talent advantage

6. Focused sector/occupation EARN expansion (EARN+): Target key occupations and growth sectors with new funding for EARN, leverage robust network of training providers to co-create solutions, and incorporate EARN+ into business attraction efforts, connecting businesses to talent partnerships (could include training-focused business attraction incentives).
7. Enhanced Talent Innovation Fund (TIF): Increase investment in the TIF to drive high-quality job training with a focus on high-salary jobs that require sizable upfront costs in skills training (e.g., nursing, cybersecurity, machinists).

Beyond the focused set of initiatives noted above, four additional initiatives were considered for their high potential to drive impact in the state. These included two within the first strategic priority, deal excellence operating model and advanced analytics and AI for opportunity generation, and one each for the following two strategic priorities: "EcosysteMD" innovation district competition and regional coaching, training and skills collaboration.

Strategic priority 1: Boost target sectors and emerging big bets

Objective

With finite state resources, Maryland can develop an informed and focused sector development strategy, which boosts industries most likely to ensure an equitable, robust, and competitive economy.

Rationale

Despite its many strengths, Maryland has been caught in a period of economic stagnation over the last five years. Today, the number of people employed in Maryland is lower than it was in 2019, and GDP growth has been outpaced by the U.S. average.[64]

Incentives, while efficient in terms of ROI, are subscale. The state's incentive spending is second-lowest among peers (only DC is lower) as a share of GDP. North Carolina and New York, leaders in incentive spending among peers, invest ~10x more than Maryland, even after controlling for economy size. 59% of private sector stakeholders surveyed believe that the state's financial incentives (e.g., tax credits, grants, loans) are not a core strength when it comes to the attraction, retention and expansion of businesses.[65]

In addition, Maryland's incentives are more oriented towards company retention, rather than attraction, compared to peer states. 3% of incentive value and 24% of deals go towards retention, the highest among peers. Maryland also uses more loans and fewer grants/subsidies and tax incentives than competitive states.[66]

About 38% of Maryland's current incentives are dedicated to real estate and construction, which provide a degree of economic impact, but are not tradeable sectors that contribute directly to economic growth.[67]

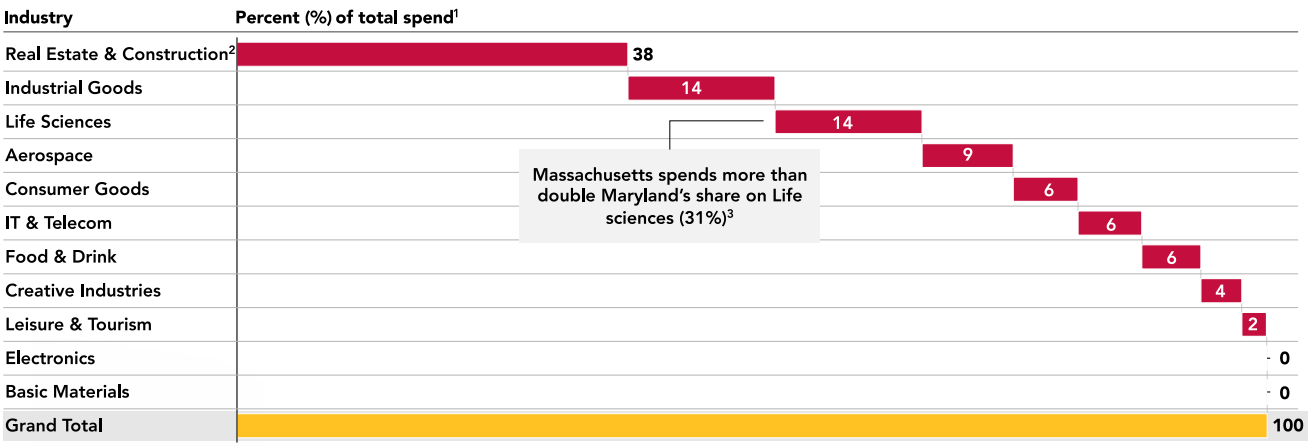
[64] Bureau of Labor Statistics and Bureau of Economic Analysis (BEA), accessed via Moody's Analytics
[65] 2024 Maryland Economic Development Survey, 185 respondents across key stakeholder groups
[66] FDI Intelligence Incentives Flow, accessed 04/08/2024
[67] Maryland Commerce Consolidated Finance Tracker, accessed 05/09/2024

As noted by various stakeholders, other states have invested significantly in their target sectors. In 2008 Massachusetts committed a $1 billion investment over ten years in Life Sciences.[68] In 2024, Governor Healey proposed a $1 billion, 10-year reauthorization of the Life Sciences Initiative.[69] In terms of incentives, Massachusetts spends more than double Maryland's share on Life Sciences (31% compared to 14%).[70]

> "We don't even come close to Massachusetts' serious commitments."
> – Focus Group Participant

Texas voters launched the $3 billion Cancer Prevention & Research Institute of Texas (CPRIT) in 2007 and passed an additional $3 billion in funding in 2019, "the largest state cancer research investment in the history of the United States."[71] CIPRIT's impact includes the recruitment of 313 researchers and their labs to the state, over "$3.29 billion in direct follow-on funding raised by CPRIT grantees" and "67 companies started, expanded, or brought to Texas with CPRIT investment totaling $714 million."[72]

Financial incentives in Maryland by sector
Percent, 2019-2023



1. Data from Maryland Commerce Consolidated Finance Tracker, accessed May 09
2. Includes NAICS sectors: non-residential building construction, real estate, rental, and leasing, and management of companies
3. Massachusetts data from FDI Intelligence Incentives Flow

Source: Maryland Commerce Consolidated Finance Tracker Data, accessed May 09; FDI Intelligence Incentives Flow, accessed 4/08/2024

Certain sectors can deliver an outsized economic contribution across different metrics, from job growth to regional equity. The figure below shows a short list of asset sectors in Maryland, analyzed according to various economic metrics. In it, two broad groups of sectors emerge: those that drive job quality, growth and economic impact (i.e., the number of jobs in the greater economy that are generated from one job created in the sector) on one side (e.g., Professional Services, Technology, and Life Sciences), and equity/diversity on the other (e.g., Manufacturing, Tourism).

> "We should focus on one or two sectors for significant scaled investments, while still making regional plays."
> – Focus Group Participant

[68] Government of Massachusetts, Life Sciences Initiative, FY2010 House 1 Budget Recommendation: Policy Brief
[69] Government of Massachusetts, Press Release, 2024
[70] Compares Maryland Commerce Consolidated Finance Tracker Data (used for Maryland share) and FDI Intelligence Incentives Flow (used for Massachusetts data)
[71] Cancer Prevention & Research Institute of Texas (CPRIT), Website
[72] Cancer Prevention & Research Institute of Texas (CPRIT), May 2024 "Real Momentum" report

Maryland

Selected sectors in Maryland by job growth, economic impact, regional equity and diversity

Impact — Subsector deep dives on following pages — High — Medium — Low

Sector	Job quality, avg. wages, $K, 2023[1]	Job growth, 2023-28 by scenario, K[2]	Econ. impact, avg. jobs multiplier, 2023[3]	Region. equity, avg. LQ W + ES regions[4]	Diversity, % Black and/or Latino workers, 2023[5]
Technology	$159	12-19	2.3	0.3	27%
Life Sciences	$169	5-12	3.2	0.6	24%
Aerospace and Defense	$166	1-10	2.4	0.2	18%
Tourism	$55	3-4	1.7	1.3	37%
Agriculture	$54	<1	1.5	1.2	22%
Professional Services	$142	15-25	2.0	0.5	31%
Manufacturing	$93	1-5	2.2	1.2	30%
Distribution	$97	9-18	2.6	0.9	38%

1. Average wage per job within the industry; figures intended to be directional and for comparison across industries, as wages represented here are higher than the median wage; 2. Includes the lowest and highest number of potential jobs added to Maryland's priority sectors through 2028 based on 4 scenarios: 1) MD matches projected US '23-'28 growth trend, 2) MD matches US '18-'23 growth trend, 3) MD meets projected '23-'28 growth trend, 4) MD matches top peer state '23-'28 growth trend, see appendix for more details. For tourism, the smallest positive values were considered given disruptions to the industry from COVID-19; 3. Measures the number of jobs likely to be created by one job in the specified sector, e.g., for every job in professional serves, 2.0 jobs are created elsewhere; 4. Average of LQs between Eastern Shore and Western Maryland; 5. Percent of workers in the sector that are Black and/or Latino, 2023. According to 2022 ACS 1-Year estimates, 44% of the population in Maryland is Black or Latino

Source: Lightcast, 2022 ACS 1-Year Estimates from survey DP05

Within the asset sectors noted above, several targeted subsectors emerge for which Maryland can be a world leader. These have a current competitive advantage in the state — also referred to as Poised to win (e.g., existing employment, growth and specialization) alongside positive trends nationwide and globally — also referred to as Want to win (e.g., employment and growth in the US, VC activity, wages).

Potential for focused portfolio featuring three subsectors:

Life Sciences

Computational Biology

The reframing of biological systems and questions into mathematical models to which cutting edge technologies can be applied to discover novel or otherwise unobservable insights.

Technology

Quantum Computing

The application of quantum physics to drive exponential improvements in computation, sensing and communications.

Aerospace

Position, Navigation & Timing

The development of application and cutting-edge technologies to enable precision guidance, navigation, and positioning equipment in aviation, maritime navigation and space exploration.

Quantum Technology is a foundational technology with the potential to drive new capabilities and efficiencies across industries. University of Maryland, College Park (UMD) has already dubbed Maryland "The Capital of Quantum" and is a leader in the space through the Quantum Technology Center (QTC), Joint Quantum Institute (JQI), and The National Quantum Laboratory (QLab), among other centers and collaborations. UMD is home to more than 200 quantum researchers and is ranked second among public institutions in quantum physics.[73] In addition, agencies such as NASA, the Department of Defense, the NSA, and the National Institute of Standards and Technology (NIST) are making significant investments in the technology, including in Maryland. The Quantum Technology market is expected to reach $173 billion by 2040.[74]

Position, Navigation & Timing is key to the future of aviation and critical for space exploration, defense, logistics and nautical navigation. It has an existing, sizeable talent base in Maryland, with more than 13,000 workers and specialization nearly six times the US average.[75] The state is home to world-class institutions and companies at the bleeding edge of this area, including NASA, Lockheed Martin, and Northrop Grumman. Position, Navigation & Timing is a critical component of the industry value chains for other innovative and fast-growing areas of specialization in aerospace and defense-related industries, including both crewed and uncrewed flight, advanced air mobility and Electronic Vertical Takeoff and Landing (eVOTL).

Computational Biology, which "involves applying computational methods to address biological questions and challenges," is an interdisciplinary driver of innovation in the life sciences.[76] Its specialization in Maryland is more than two times greater than the US average.[77] The state is home to Johns Hopkins University, ranked fifth in the country for "Best Undergraduate Bioinformatics/ Biotechnology" by U.S. News.[78] This emerging segment is buoyed by Maryland's existing ecosystem of agencies and firms in both the Life Sciences and Technology sectors, and relates closely to the Baltimore Tech Hubs designation at the intersection of AI and Biotechnologies.[79]

Winning across the sectors and subsectors noted above will require proactivity, strategic focus, concerted investment and capabilities (e.g., sector expertise). The strategy proposes two signature initiatives — a lighthouse sector strategy and a strategic closing fund — to accomplish this. They are detailed below.

Measuring success

Success within this strategic priority can be measured by:

- GDP growth, for state overall and by region
- Employment growth, for state overall and by region
- Jobs created and retained in target sectors, for state overall and by region

[73] University of Maryland, "Quantum at Maryland"
[74] McKinsey, "The quantum technology ecosystem in 2024"
[75] Lightcast
[76] Johns Hopkins, Whiting School of Engineering, "Computational Biology and Medicine"
[77] Lightcast
[78] U.S. News, "Best Undergraduate Bioinformatics/Biotechnology Programs"
[79] U.S. Economic Development Administration (EDA), "Baltimore Tech Hub"

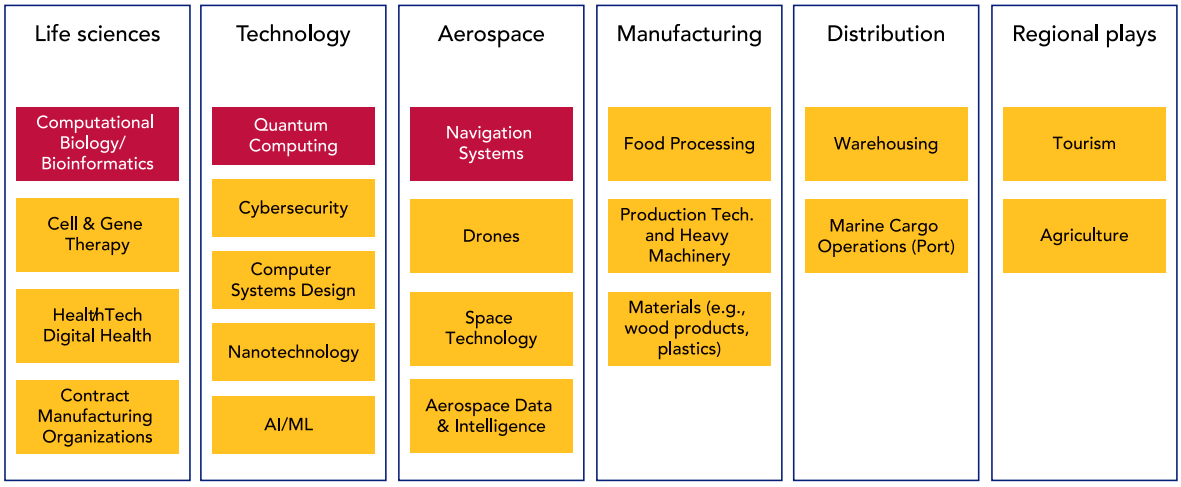
Initiative 1: Lighthouse sector strategy

The strategy will prioritize lighthouse sectors that are forecast to have a significant economic contribution, and provide proactive strategies, investments, and capabilities to deliver outsized performance (e.g., deals, jobs, capital investment).

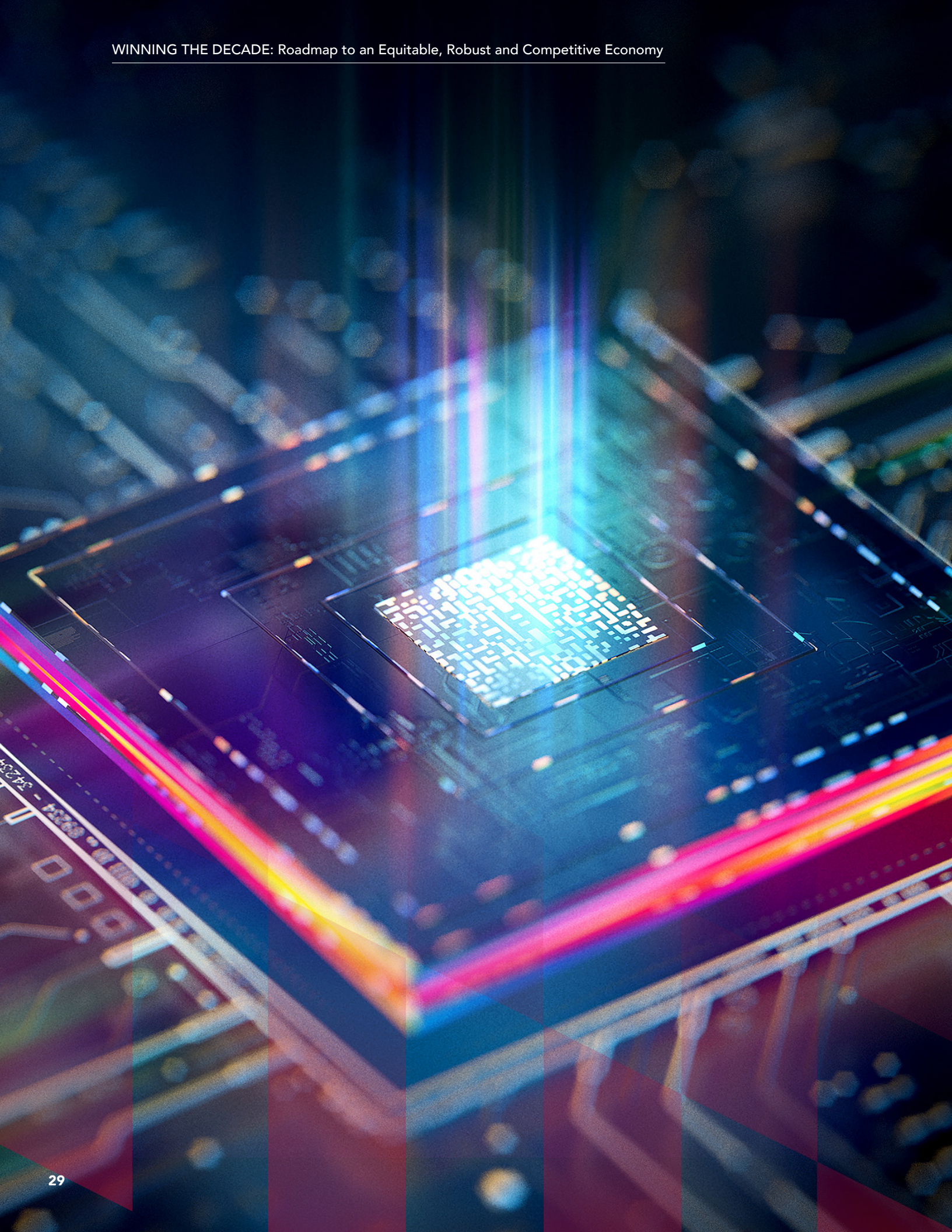
There were numerous high-potential subsectors identified through the diagnostic analyses (see "Potential focus sectors and subsectors" below). As noted above, Quantum Technologies, Position, Navigation & Timing, and Computational Biology represent a compelling and high-potential portfolio on which to focus the state's efforts to establish and extend industry leadership and leverage existing economic assets for the benefit of Marylanders. Maryland's unique assets, which include a highly educated workforce, world-leading academic and federal institutions, and an existing leadership role within these cutting-edge industries, position the state to drive these particular subsectors forward, creating exciting avenues of growth and advancement for adjacent subsectors in their respective industries. Advancements in the conversion of technologies into commercial opportunities will unlock significant economic growth and place Maryland in the cockpit of these nationally — and globally — important segments of the national economy.

Lighthouse Sectors include fast-growing subsectors where Maryland is strong

Sectors and potential subsectors[1]



1. Identified using "Poised to win" "Want to win" metrics identified on page 14; mix of Porter clusters and Pitchbook verticals, which are used as NAICS classification not suitable to many tech industries
2. Includes Administrative Management and General Management Consulting Services, Other Scientific and Technical Consulting Services
3. Source: Lightcast; Pitchbook; Interview Insights



Maryland can leverage existing assets to help bring the strategy to fruition. These include anchor firms in target sectors and the state's world-class academic and research institutions. In addition, the state is home to teams within government (e.g., Department of Commerce, Office of Strategic Industries and Entrepreneurship) and entities (e.g., TEDCO) with experience and expertise in driving priority sectors.

Additional partner entities within this initiative may include the Maryland Department of Labor, Maryland Department of Transportation, and local and regional EDOs that are home to valuable assets within the target sectors.

Enacting this strategy involves a collaborative, multilateral approach. A first step is selecting lighthouse sectors by reviewing, refining and focusing sector and subsector strategies (see above for recommended sectors and subsectors).

New lead generation approaches can be developed, leveraging data and analytics and proactive sources (e.g., supply chain analyses) and building a hunting list to pursue with local economic development organizations. Developing expertise, teams and partnerships to enhance existing capabilities at the Maryland Department of Commerce can also help focus efforts behind high-growth, high-specialization sectors. Engaging with incumbent firms on expansion plans and key partnerships is also critical, as is identifying and adapting key enabler programs (e.g., talent, infrastructure) to align with sector needs.

Similar strategies have been employed in other states. One of the most successful examples is the target industry focus employed by JobsOhio, which has centered on nine priority industries for the last 10 years by building dedicated in-house sector teams of experts with over 10 years of industry experience. In the first decade of the effort, Ohio jumped from 49th to 27th in the state employment growth ranking.[80]

> "If I could wave my magic wand, it would be for more and deeper partnerships between our institutions, government and industry."
>
> – Focus Group Participant

Initiative 2: Strategic closing fund

The fund will be a new, at-scale, catalytic incentive program focused on winning anchor deals in target sectors that can boost the state's growth and competitiveness.

Maryland and the Department of Commerce offer a plethora of incentive programs to help attract and retain companies, but most lack the scale needed to land anchor deals (i.e., $500 million+ investments). The exception is the Economic Development Opportunities Program Fund (also known as the Sunny Day fund), which can provide large incentive packages. However, the program is funded on an ad hoc basis, and has been used most recently for retention deals (rather than attraction), including $20 million to Northrop Grumman to retain 10,000 jobs, and $20 million to Marriott to retain 3,250 jobs in 2017.[81]

The implemention of the strategic closing fund will involve several steps. The first is announcing a Maryland Moves fund, potentially through the resconstitution of the Sunny Day fund, with tailored financial packages that are tied to specific requirements (e.g., ROI threshold, target industry, job creation, regional considerations) to incentivize companies to move to Maryland. The incentive fund could be tiered, based on size of impact, type of business and investment gaps with key competing states. Local tools (e.g., TIF finance) could be incorporated to create a customized experience for companies seeking to relocate or expand in Maryland (e.g., involving real estate assistance, agents to help navigate resources). Existing assets (e.g., site selection, local government, research institution and sector player resources) can also be leveraged to further enhance the experience for companies seeking to grow in Maryland.

[80] JobsOhio 10-Year Results
[81] Maryland Office of Financial Programs, The Economic Development Opportunities Program (Sunny Day), Annual Financial Status Report, Fiscal Year 2020

Potential organizations to partner with include local economic development agencies (e.g., county- and city-level) and the Maryland Economic Development Corporation (MEDCO), which assists in the "expansion, modernization, and retention of existing Maryland business" via innovative financing and property development (42 industrial parks and eight incubators and innovation centers developed to date).[82]

Similar strategies have been employed in other states. The Texas Enterprise Fund awards deal-closing grants to companies considering a new project for which a Texas site is competing with out-of-state sites. The funds are awarded after an 11-step due diligence process with award amounts influenced by jobs and revenue impact calculations. The result of this program has been 114K jobs through $834 million awarded between 2004-2022.[83]

Additional high potential initiatives

Two additional initiatives have potential to drive impact in Maryland.

Deal excellence new way of working operating model entails revamping the deal process to deliver leading customer experience. Maryland lags behind peers (e.g., North Carolina and Virginia) in perceived business friendliness, competitiveness, and the ability to land major attraction deals. In economic development, customer experience (in this case, companies in Maryland or those interested in locating in the state) is central to deal performance. This effort would redefine the end-to-end deal process to ensure excellence in operations and customer experience, combining expertise within economic development leads across all of government to bring the best of the state to bear in attracting new businesses.

Advanced analytics and AI for opportunity generation means utilizing cutting edge analytics to help Maryland gain an edge over competitive peers in lead generation. On a tactical level, it would require securing a vendor with expertise in using advanced analytics/AI to generate economic development leads. These analytics models could be based on a range of creative sources, from social media, alumni networks, supply chain analyses, company reports and more.



Strategic priority 2: Create a world-class innovation pipeline that flows from R&D to firms

Objective

By building a world-class innovation pipeline, Maryland can turn its strengths in ideas and R&D into startups and growth companies that stay in-state.

Rationale

Maryland is a leader at the early end of the innovation funnel, which includes areas such as academic science and engineering R&D (1st, as a percent of GDP), Small Business Innovation Research/Technology Transfer (9th, as a percent of GDP),[84] and venture capital (11th, as a percent of GDP).[85]

However, as the funnel progresses into commercialization, startups and company growth, its competitive position falls. In fact, Maryland is 23rd in patents per capita,[86] 35th in startup early survival rate, and 50th in startup early job creation.[87] Key stakeholders have highlighted this fact as well. The Greater Baltimore Committee's 10-year economic opportunity plan notes that the region could "strengthen the connections between its superior innovation prowess and its emerging entrepreneurial system."[88]

As noted in the selected diagnostic insights chapter, several factors contribute to these outcomes. The state has world-class institutions and STEM graduate talent, but not enough entrepreneurs starting innovative firms in Maryland. Additionally, Maryland is losing large portions of this STEM talent, with 38% of STEM graduates remaining in-state after graduation, lower than North Carolina and Massachusetts, but slightly higher than Virginia and Pennsylvania.[89]

There is also a need for diversity within the startup ecosystem. Maryland has a strong pipeline of diverse STEM talent, whereby 29% and 10% of STEM graduates are Black and Hispanic,[90] compared to their respective population share of 32% and 12%.[91] Yet this may not translate to startup founders. In the US in 2022, only 1.1% of VC went towards Black-founded startups.[92] A study commissioned by UpSurge Baltimore and conducted by the Johns Hopkins 21st Century Cities Initiative found that large gaps exist for Black employees, executives, and board members within Baltimore City startups.[93]

Women STEM graduates and startup founders are underrepresented in Maryland. 39% of STEM graduates in Maryland are female.[94] Meanwhile, in 2023, 7% of VC deals funded female-only founded startups, and 19% funded female and male cofounded startups.[95]

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[84] U.S. Small Business Administration, SBIR-STTR
[85] Pitchbook
[86] United States Patents and Trademarks Office (USPTO)
[87] The Kauffman Indicators of Entrepreneurship
[88] Greater Baltimore Committee All In | 2035: A Ten-Year Economic Opportunity Plan for the Baltimore Region
[89] Lightcast
[90] Lightcast"
[91] U.S. Census, American Community Survey (ACS), 2022 1-Year Estimates
[92] Crunchbase, "Drop In Venture Funding To Black-Founded Startups Greatly Outpaces Market Decline"
[93] Measuring Diversity in Baltimore's Startup Ecosystem – A Baseline Report. By Lindsay Thompson, Mac McComas, and Kelli Tubman-White. March 2023, Johns Hopkins 21st Century Cities Initiative. Commissioned and sponsored by UpSurge Baltimore.
[94] Lightcast, 2021
[95] Pitchbook, "US VC female founders dashboard"

The state has a scarcity of local VC investors, especially those willing to write larger checks for companies in Series A funding rounds and beyond (i.e., $2 million and up). Approximately 25% of VC funding into Maryland startups from 2021 to 2024 was from in-state investors, compared to 80% in Massachusetts.[96] Moreover, a majority of survey respondents from the private sector believe that accessing capital to start and grow a business is a challenge in Maryland.[97]

Measuring success

Success within this strategic priority can be measured by:

- Venture capital invested in Maryland startups, for state overall and by race and gender
- Startup density, for state overall and by sector
- Startup early job creation

Initiative 3: Idea challenge

Idea challenge is a statewide competition to encourage students and professors at Maryland's universities and colleges to commercialize their ideas and research, and potentially transform them into businesses. In so doing, it can facilitate the retention of a diverse group of graduates in the state. Innovative asset sectors for the state, such as Technology (e.g., cybersecurity, AI, nanotechnology), Aerospace (e.g., drones), and Life Sciences (e.g., computational biology), will be the focus of the competition.

> "When tech businesses get to the messy middle in Maryland, we feel forgotten about."
> – Focus Group Participant

Maryland has existing assets and know-how which can be leveraged. The Maryland Innovation Initiative (MII), housed within TEDCO, has provided $52.3 million in commercialization funding and investment over 11 years in collaboration with five research universities.[98] It has supported 176 companies to date, leading to the creation of 370 jobs and over $737 million in follow-on investment.[99]

Maryland's colleges and universities offer early-stage entrepreneurship support. Johns Hopkins Technology Ventures (JHTV) and UM Ventures aid in the translation of academic research into technologies and startups. The University of Maryland runs the Pitch Dingman Competition, an annual student startup competition with $90k in funding.[100] At Morgan State University, the HBCU Startup Scholars Program "empowers and supports Black student entrepreneurs through $10,000 scholarships and a variety of resources like business consulting, workshops, and networking events."[101]

[96] Pitchbook, data accessed June 2024; Deal Type: All VC Stage; Investor Types: Angels/Incubators, Venture Capital, Private Equity
[97] 2024 Maryland Economic Development Survey, 185 respondents across key stakeholder groups
[98] Maryland Innovation Initiative, 2023 Annual Report; collaborating universities: Johns Hopkins University, Morgan State University, University of Maryland Baltimore, University of Maryland Baltimore County, and University of Maryland College Park
[99] TEDCO, 2023 State of the Startup report
[100] University of Maryland, Pitch Dingman Competition
[101] Morgan State University, Morgan Innovation and Entrepreneurship Center

However, stakeholders have noted that entrepreneurial education, support, and capability-building could be bolstered in the state, from high school through postsecondary education and beyond. This would include a focus on demographic groups currently underrepresented among startup founders (e.g., Black, Hispanic, women).

Several actions could be launched to develop the strategy. First, a set of stakeholders interested in sponsoring the competition can be convened (e.g., companies to provide funding, a first-customer promise, mentorship). Second, a competition framework can be designed (e.g., three-part competition like MIT $100K or another approach). Finally, prizes and nonmonetary support can be coordinated, including mentorship, managerial or entrepreneurship education, free lab, incubator, or prototyping space.

This initiative can draw inspiration from MIT $100K, an entrepreneurship competition that brings together students and researchers from MIT and the surrounding region to launch ideas and technologies into companies. It is a three-phase competition, which includes Pitch (90-second patch with small prize), Accelerate (i.e., emphasis on prototyping with a final at Media Lab and $10K prize), and Launch (i.e., requiring a full business plan). Final winners receive $100K in funding alongside mentorship. It has spawned successful companies, including HubSpot ($29 billion market cap), and Akamai ($13.5 billion market cap).[102]

> "Companies are desperate to collaborate with the University of Maryland and Johns Hopkins University."
> – Focus Group Participant

Initiative 4: Commercialization unit

A team with deep expertise in commercialization can be deployed to support and coordinate among existing organizations (e.g., TEDCO MII, JHTV, UM Ventures, Blackbird Labs). There is also potential for the unit to assess the impact of various existing efforts and help scale those programs with the greatest outcomes.

Existing, similar assets in Maryland include the MII, with detailed description in the previous initiative, the Maryland Stem Cell Research Fund (MSCRF), a TEDCO program that has supported ~600 research and development projects involving stem cell-based technology with over $200 million in funding,[103] and Blackbird Labs, an accelerator with $100 million in initial funding to bridge the gap between academic science and industry in life sciences.[104]

Another resource is JHTV, which facilitates the translation and commercialization of discoveries into accessible technologies, products and services. In 2023 it awarded $2.2 million to faculty to develop technology with translational potential, and $800K in grants to students. A select 20 startups within its network raised $552 million in venture capital.[105] UM Ventures has created 70+ startups and is a growing hub for end-to-end support in upscaling inventions and startups.[106] Additional partner entities can include Morgan State I-Works and the University of Maryland, Baltimore County (UMBC) Technology Catalyst Fund.

[102] MIT $100K
[103] TEDCO, 2023 State of the Startup report
[104] Blackbird Laboratories
[105] Johns Hopkins Technology Ventures, FY2023 Annual Report
[106] UM Ventures

Enacting this strategy could involve hiring top commercialization experts to run the unit, supporting existing efforts in the state, and assessing where additional commercialization funding can be deployed. This can be done by analyzing best practices and commercialization programs in other areas to bring the latest and greatest thinking back to Maryland. As the commercialization efforts grow, additional commercialization capital can be pursued to deploy throughout the state.

Similar strategies have been employed in other geographies. North Carolina Innovation dedicates $500 million from the state to commercializing research coming from North Carolina's public universities.[107] Massachusetts Technology Transfer Center (MTTC), within MassVentures, works with technology transfer offices at Massachusetts research institutions to facilitate tech transfer with $2 million in initial funding.[108]

> "We lack a robust funding network at the local level."
>
> – Focus Group Participant

Initiative 5: Venture catalyst

The program will increase access to venture capital funding in the state through two main levers. First, it will establish a regional (e.g., DMV) network of VC funders that may also include other funders with an interest in Maryland (e.g., those that have consistently funded Maryland firms). Second, the program will encourage institutional investors (e.g., pension funds) to orient their sizable funding vehicles towards venture capital.

Existing assets in Maryland include TEDCO, which uses six vehicles to fund companies and in 2023 had an estimated impact of 12K jobs.[109] However, stakeholders have noted that while TEDCO is a formidable resource for earlier stage companies, there is a gap in Maryland for those firms seeking Series A investment and beyond. Additional entities that could serve as partners within this initiative include industry organizations (e.g., Maryland Tech Council), and Maryland-based pension fund and wealth management funds (e.g., Maryland State Retirement and Pension System).

To enact this strategy, several actions could be undertaken. First, the state can convene a VC partnership (including MD, regional, and outside investors) to drive increased funding activity in Maryland, notably in response to closing of Mid-Atlantic Venture Association in 2023.[110]

Second, the state can explore a revival of the Maryland Venture Capital Trust (or similar entity), formed in 1990 and closed in 2013, which enabled state and local pension funds to invest in venture capital limited partnerships ($19 million distributed in fund of funds).[111] This new Maryland Venture Capital Trust could be leveraged to entice additional private investments within the state.

Similar strategies have proven successful in other states. From a regional perspective, Rocky Mountain Venture Capital unites venture and angel investors in an eight-state area. As far as leveraging institutional investment for VC, MassPrim manages the assets of the public employee pension fund in Massachusetts and committed $111 million to three venture capital firms in early 2024.[112]

[107] WRAL TechWire, "NCInnovation kicks off grant selection for high-value university research"
[108] MassVentures, "Long History of Venture Success"
[109] TEDCO, 2023 State of the Startup report
[110] Washington Business Journal, "Mid-Atlantic Venture Association closing its doors after 35 years"
[111] Maryland State Archives, "Maryland Venture Capital Trust"
[112] AltAssets, "MassPRIM picks VC pair for latest alts fund commitments

Additional high potential initiatives

An additional initiative was identified as having high potential to drive impact in Maryland.

EcosysteMD innovation district competition is a grant competition intended to bolster existing innovation hubs in the state, with the aim of translating Maryland's R&D success into technologies, startups and growth firms. Each competing bid would be led by an anchor institution (e.g., universities, medical centers, large developers) and ideally include a broad set of partners and stakeholders (e.g., economic development organizations, firms, K12 institutions, etc.). The bids would be assessed using clear parameters for impact, including opportunity for commercialization, jobs creation and equity considerations.

Strategic priority 3: Extend Maryland's talent advantage by building an equity-forward, inclusive workforce

Objective

Maryland can leverage its existing talent strengths while developing equity-forward programs that serve the dual purpose of ensuring no Marylander is left behind and helping companies locate to — and thrive within — the state.

> "The workforce challenges in Maryland are all solvable, community colleges working with industry is key."
> – Focus Group Participant

Rationale

Talent is the No. 1 location decision factor for companies, especially those within Maryland's target sectors. It is also a strength for Maryland, which is Top 10 in specialization for key roles, from Computer Occupations to Engineers to Life Scientists. It was cited by public and private sector stakeholders as a significant competitive advantage for the state.

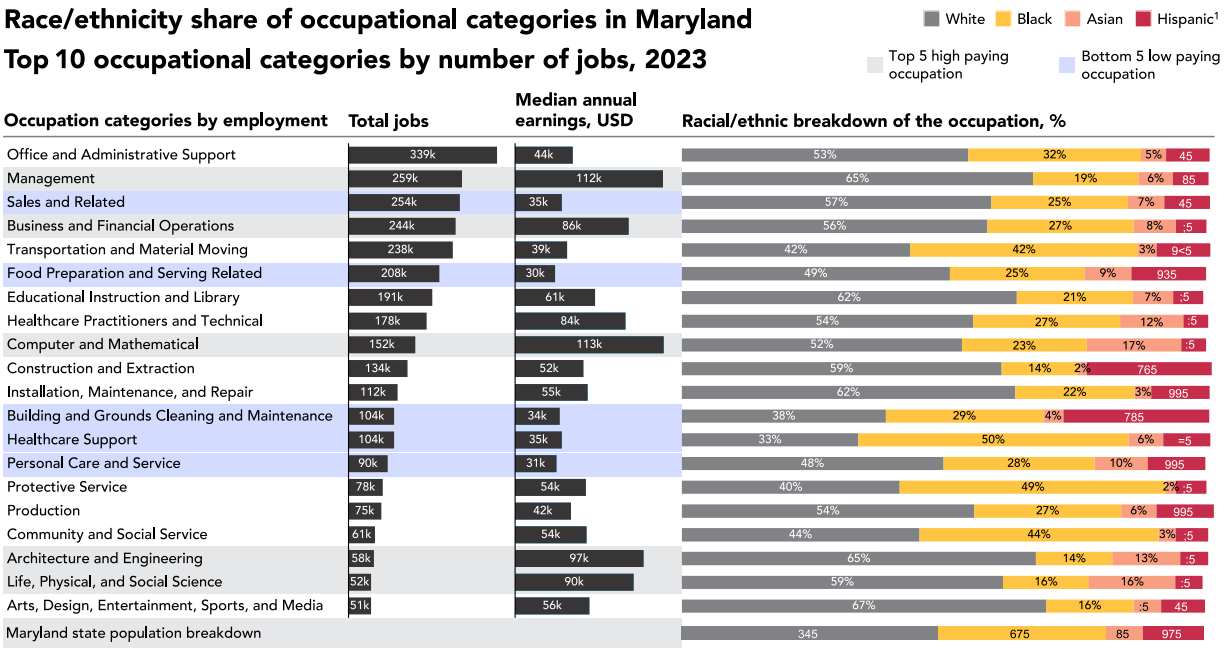
The Moore-Miller Administration has continued to invest in the state's talent. According to the 2024 State Plan, it has funded "$8.7 billion in K-12 public education, $900 million for the education Blueprint, $422 million toward Maryland's Historically Black Colleges and Universities (HBCUs), and $393 million for Maryland's community colleges."[113]

However, challenges persist. Some groups of Marylanders continue to be underrepresented in high-income occupations, impacting their ability to earn a living wage and furthering demographic and regional disparities in the state. For example, Black and Hispanic residents are underrepresented in the five highest paying occupations in the state, and largely overrepresented in the five lowest paying occupations. This trend is similar for women, who are underrepresented in four of the five highest paying roles.[114]

[113] Moore-Miller Administration 2024 State Plan
[114] Lightcast; among the top 20 most in demand occupations in Maryland in 2023

Race/ethnicity share of occupational categories in Maryland

Top 10 occupational categories by number of jobs, 2023



Occupation categories by employment	Total jobs	Median annual earnings, USD	Racial/ethnic breakdown of the occupation, %
Office and Administrative Support	339k	44k	53% 32% 5% 45
Management	259k	112k	65% 19% 6% 85
Sales and Related	254k	35k	57% 25% 7% 45
Business and Financial Operations	244k	86k	56% 27% 8% :5
Transportation and Material Moving	238k	39k	42% 42% 3% 9<5
Food Preparation and Serving Related	208k	30k	49% 25% 9% 935
Educational Instruction and Library	191k	61k	62% 21% 7% :5
Healthcare Practitioners and Technical	178k	84k	54% 27% 12% :5
Computer and Mathematical	152k	113k	52% 23% 17% :5
Construction and Extraction	134k	52k	59% 14% 2% 765
Installation, Maintenance, and Repair	112k	55k	62% 22% 3% 995
Building and Grounds Cleaning and Maintenance	104k	34k	38% 29% 4% 785
Healthcare Support	104k	35k	33% 50% 6% =5
Personal Care and Service	90k	31k	48% 28% 10% 995
Protective Service	78k	54k	40% 49% 2% :5
Production	75k	42k	54% 27% 6% 995
Community and Social Service	61k	54k	44% 44% 3% :5
Architecture and Engineering	58k	97k	65% 14% 13% :5
Life, Physical, and Social Science	52k	90k	59% 16% 16% :5
Arts, Design, Entertainment, Sports, and Media	51k	56k	67% 16% :5 45
Maryland state population breakdown			345 675 85 975

1. Hispanic/Latino residents are also included in racial groups
2. Out of the Top 20 in-demand occupations in Maryland

Source: Lightcast

Furthermore, Maryland employers have struggled to fill specific roles. 80%+ of top STEM occupations (e.g., Software Developers, Information Security Analytics, Data Scientists) are regularly unfilled in the state.[115] Stakeholders also noted a dearth of skilled technical talent, from welders to machinists, which is particularly acute in regions with disproportionately large employment in sectors such as Manufacturing and Transportation (e.g., Western Maryland). Extending Maryland's talent advantage has the potential to double-down on one of Maryland's core strengths while filling critical gaps, charting a future that is more prosperous and equitable.

Measuring success

Success within this strategic priority can be measured by:

- Labor force participation rate, for state overall and by region
- Share of workers in occupations that earn at or above the state's living wage, for state overall and by region
- Number of people upskilled/reskilled, for state overall and by region

Initiative 6: Focused sector/occupation EARN expansion (EARN+)

The program will target key occupations and growth sectors with new funding for EARN Maryland, a workforce development program based on employer-led industry partnerships. It will leverage the state's robust network of training providers to co-create solutions, (e.g., by matching companies with universities, community colleges, or bootcamps). EARN+ can also be incorporated into business attraction efforts, including training-focused business attraction incentives, and a workforce concierge service for companies moving to or expanding within Maryland. EARN+ will not only boost talent supply in key industries and occupations and encourage companies to locate and grow in Maryland, it can also help a diverse set of Marylanders access quality jobs.

[115] Lightcast

Additional relevant assets in Maryland include Maryland Apprenticeship, which pairs employers with trainees for a tax credit to the business.[116]

The initiative would be largely driven by the Maryland Department of Labor, with additional partners including the Maryland Higher Education Commission (MHEC), the Maryland Association of Community Colleges (MACC), and K-12 (focusing on high schools) and postsecondary educational institutions.

The state can leverage its robust network of training institutions to co-create custom solutions for target sectors. These may also include low-cost digital credentials to deliver on-time, in-demand skills. Examples of sectors and roles to emphasize could include Cybersecurity (e.g., Cybersecurity Technicians) and Life Sciences (e.g., Biological and Lab Technicians). These efforts can be enhanced by marketing Maryland as the #1 state in the U.S. for firms' talent needs in target sectors.

An explicit goal of the program would be increasing diversity in target sectors and ensuring that new jobs created in Maryland are filled by a diverse group of Marylanders. Today, 27% of Technology workers are Black and Hispanic. In Life Sciences, this figure drops to 24%. Even in Manufacturing, historically seen as a source of gateway jobs that do not require a four-year degree yet offer relatively robust wages, it is 30%.[117] These figures are far below the Black and Hispanic share of the Maryland population, which is 44%.[118]

Related strategies have been used in other states. For example, the Virginia Talent Accelerator Program provides free, customized workforce recruitment and training programs for employers seeking to relocate or expand within Virginia. It partners with the Virginia Community College System and has helped secure ~2,600 jobs across the state per year since its inception.

Initiative 7: Enhanced Talent Innovation Fund (TIF)

The Talent Innovation Fund (TIF) was created within the Maryland Department of Labor via a departmental bill in the 2024 legislative session. It is "intended to increase access to high-quality job training by using innovative and sustainable talent financing mechanisms to help meet skill needs in the State's prominent and emerging industry sectors."[120]

This initiative suggests bolstering investments in the TIF with a focus on high-salary jobs that require sizable upfront costs in skills training (e.g., nurses, cybersecurity professionals, machinists, and other skilled roles within advanced manufacturing). These would overlap with — but not be limited to — target sectors and would focus on specific in-demand skills and occupations.

[116] Maryland Apprenticeship, Maryland Department of Labor
[117] Lightcast
[118] US Census, 2022 American Community Survey 1-Year Estimates
[119] The Office of the Governor of Virginia, "Virginia Ranked No. 1 in Nation for Customized Workforce Training"
[120] Government of Maryland, Maryland General Assembly, Labor and Employment – Workforce Development – Talent Innovation Program and Fund

The fund would aim to boost equity in these occupations as well. For example, current estimates indicate that 31% of information security analysts (i.e., cybersecurity professionals) are Black — a share that closely resembles the population of Maryland — yet Hispanic and women residents are greatly underrepresented, at 5% and 21%, respectively. Roles such as machinists are even less diverse, at 12% Black, 5% Hispanic, and 5% female (regional demographics may play some role in race/ethnicity figures, with these jobs concentrated outside of major cities).[121]

Stakeholders have noted that economic parallels exist between Black communities in places such as Baltimore City and White communities in some of Maryland's rural counties. The most notable is a similar occupational mix that is currently oriented towards lower-wage work, driving disparities in income and wealth compared to other groups in the state. This initiative intends to mitigate these challenges by providing skills training for in-demand, well-paying jobs for a diverse set of Marylanders.

Potential initiative leaders and partners include the Maryland Department of Labor, the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), individual trade unions, MHEC, and the MACC.

Investments in TIF could be secured through several sources, including the Maryland State Government, colleges and universities, philanthropic organizations or industry leaders. The program can be promoted not only as support for employers to access skilled talent across in-demand roles, but also as an opportunity for traditionally underrepresented Marylanders to access education and career support.

Additional high potential initiatives

An additional initiative was identified as having high potential to drive impact in Maryland. Regional coaching, training, and skills collaboration increases coordination among existing workforce development resources. These include career coaches in every high school in the state (funded by the Blueprint for three years), American Job Centers (providing employment services), regional Commerce representatives, and local economic development staff.

Roadmap for execution

Budgetary implications and estimated impact

The six prioritized initiatives are estimated to cost between $35-75M and generate between 5-15K jobs annually.

[121] Lightcast, Q2 2024

Estimated cost and impact of selected initiatives

Preliminary, to be finalized

Strategic Priority	Initiative	Estimated cost	Estimated Impact (jobs)
Boosting target sectors and emerging big bets	Lighthouse sector execution	$5 - 10M	2 - 4K
	Strategic closing fund for winning anchor deals in priority sectors	$25 - 50M	3 -6K
Creating a world-class innovation pipeine	Statewide idea challenge, focusing on diversity of MD students	$100 - 200M	5 - 15[1]
	Commercialization unit to support and assess existing efforts	$500K - 1M	10 -30[1]
	Venture catalyst to increase access to funding from regional investors	$100 - 300K	300 - 800
Extending Maryland's talent advantage	Bespoke talent solution program for company attraction/retention	$5 - 10M	2 - 4K
	Enhanced Talent Innovation Fund (TIF)		
	Total Estimate (annual)	$35 - 75M	5 - 15K

1. Potential for far greater job creation if the program spawns a handful of successful firms: e.g., Hubspot emerged from MIT 100K in 2006 and currently has 7K+ employees

Success in the short, medium and long term

Scorecard for success

The focused set of strategic priorities and initiatives can also help to fulfill the state's economic development mission, which is to create an equitable, robust, and competitive economy. In this way, Maryland can assess its success based on the following ambitious goals.

- Equitable: #1 equitable state in the U.S., measured in terms of regional and demographic parity
- Robust Top 15 state for economic growth
- Competitive: 50K jobs created within target industries and Top 10 state for startup creation and growth

Appendix: Long list of initiatives considered

Prioritized initiatives in bold, with additional initiatives considered in italics. Those initiatives in bold and italics were viewed as high-potential but not prioritized in the final set of seven.

- **Lighthouse sector strategy: Prioritize two or three lighthouse sectors that are forecast to have a significant economic contribution, and provide proactive strategies, investments and capabilities to deliver outsized performance**
- **Strategic closing fund: Establish at-scale, catalytic incentive program focused on winning anchor deals in target sectors that can boost the state's growth and competitiveness**
- ***Deal excellence new way of working operating model: Revamp the deal process to deliver leading customer experience***
- ***Advanced analytics and AI for opportunity generation: Secure vendor with expertise in using advanced analytics/AI to generate economic development leads***
- *Specialized hunting team(s): Develop new lead generation teams, supported with tech tools like an early warning system for growth companies*
- *Create landing zones for target sectors: Create special designations for locations for specific sectors to promote clusters and colocation*
- *Infrastructure readiness for competitiveness: Establish partnerships to fill infrastructure gaps between current-state and future needs for true competitiveness (e.g., high-speed internet for IoT)*
- *Collaboration with large-scale investors: Build relationships with investors (e.g., private equity firms, family offices) to support attraction/expansion of mature firms through financing of major projects*
- *Growth grants for target sectors: Provide direct grants to expansion or attraction companies to make Maryland-based investments*
- *Digitization and capital investment grants: Provide access to capital for existing businesses to invest in digital capabilities or capEx investments*
- *Site readiness overhaul: Prioritize site readiness within incentive toolkit, including planning and predevelopment support (e.g., engineering surveys, environmental studies), infrastructure (e.g., water, power), site clearing, demolition, etc.*

Appendix:

Creating a world-class innovation pipeline:

- **Idea challenge: Launch statewide challenge to incentivize the translation of R&D into technologies, potential startups and retention of top graduates**
- **Commercialization unit: Create unit with deep expertise in commercialization, deployed to support and coordinate among existing organizations**
- **Venture catalyst: Develop network of local and regional funders, including venture capital and institutional investors, to spur investment in the state's startups**
- **EcosysteMD innovation district competition: Run a competition for anchors to compete for grants to build startup ecosystems as state hubs for innovation**
- *Government-adjacent VC challenge: Help government employees start companies and commercialize technologies*
- *Sector-specific applied technology institutes: Connect startups, researchers, government, and incumbent firms to invest in priority research fields and commercialize/disseminate technology through partnerships and pilot-testing opportunities*
- *Startup accelerator catalyst: Provide co-funding for entrepreneurship and accelerator programs (including university-adjacent) with startup funding, resources (e.g., free office space), and mentorship*
- *R&D incentives: Encourage incumbent firms in priority sectors to increase R&D investments, adding new or scaling existing programs*
- *Entrepreneurial talent pool: Provide high schoolers and two- and four-year degree-seeking students with exposure to entrepreneurship education*

Appendix:

Extending Maryland's talent advantage:

- **Focused sector/occupation EARN expansion (EARN+): Target key occupations and growth sectors with new funding for EARN, leverage robust network of training providers to co-create solutions, and incorporate EARN+ into business attraction efforts, connecting businesses to talent partnerships (could include training-focused business attraction incentives)**
- **Enhanced Talent Innovation Fund (TIF): Increase investment in the TIF to drive high-quality job training with a focus on high-salary jobs that require sizable upfront costs in skills training (e.g., nursing, cybersecurity, machinists)**
- ***Regional coaching, training, and skills collaboration: Coordinate existing resources, including career coaches in every high school in the state (funded by the Blueprint for three years), American Job Centers (providing employment services), regional Commerce and local economic development staff***
- *Connecting education to industry needs: Align secondary and postsecondary education with industry needs and increase students' early connections to employment through CTE instruction, apprenticeship (Blueprint), internship, externship and other career-connected learning*
- *Infrastructure workforce preparation: Leverage major infrastructure projects to advance access to good jobs and healthy communities, (e.g., partnership with MDOT and potentially with MEA/MDE)*
- *Retention boost: Incentivize students and young people to study, work and stay in MD (e.g., loan repayment, housing support)*
- *Apprenticeship programs: Advance apprenticeship development and utilization in key sectors to strengthen critical career ladders and ensure employers have the high-skill talent they need*
- *Removing labor force participation barriers: Increase labor force participation of underrepresented groups, such as women aged 25-54 and young adults through targeted interventions (e.g. returnship program, targeted child care supports)*
- *Wraparound services: Offer services to individuals pursuing skilling programs that may face barriers to completion without support such as transportation, child care and housing*

Appendix:

Other:

- *Ease of doing business: Make Maryland a Top 5 state for business through regulatory, tax code, and government operations reform*
- *Infrastructure investment: Make rail, transit, and digital/smart cities investments to drive quality of place and in-migration*
- *Urban density: Invest in mixed-use development for companies and residents; leverage Opportunity Zone designations for revitalization (e.g., in Baltimore)*



Appendix: Selected subsector analysis

Within selected asset sectors, subsectors were analyzed based on current competitive advantage in the state (e.g., existing employment, growth and specialization) alongside positive trends nationwide and globally (e.g., employment and growth in the US, VC activity, wages). This exercise is intended to show high-level, relative performance across subsectors, but not to create a formal ranking. Most subsectors have uneven strengths across the range of metrics, yet those that are highlighted in grey demonstrated the most overall potential (i.e., all have potential merit as part of an economic development strategy).

Life Sciences: Subsector "Poised to win" and "Want to win"

Strong Nascent

	"Poised to win"				"Want to win"				
Subsector	P2W score[1]	Est. current MD jobs, 2024[2]	MD demand growth, CAGR, 2018-23[3]	MD specialization, LQ[4]	W2W score[1]	Est. current US jobs, 2024[2]	US demand growth, CAGR, 2018-23[3]	US VC funding growth, CAGR, 2018-23	Est. MD Annual Salary, $K, 2023[5]
Biologics		3,916	20%	2.00		91,085	30%	3%	$82
Cell & Gene Therapy		1,762	65%	2.19		37,358	105%	2%	$109
Computational Biology & Bioinformatics		3,547	45%	2.01		81,929	54%	0%	$99
Contract Manufacturing Organizations		1,550	48%	0.85		84,333	51%	38%	$108
Contract Research Organizations		1,708	88%	1.10		72,147	69%	-12%	$100
Diagnostics		6,599	39%	1.21		252,915	45%	-4%	$73
Healthtech & Digital Health		1,438	96%	0.96		69,556	91%	8%	$102
Medtech & Medical Devices		8,022	30%	0.90		411,738	47%	-2%	$79
Neurotech		6,831	44%	1.40		226,663	47%	1%	$81
Personalized Medicine		429	46%	2.21		9,011	51%	-21%	$106
Small Molecules		1,223	72%	1.41		40,186	84%	0%	$95
Synthetic Biology		271	N/A	1.83		6,884	81%	13%	$83

1. Calculated by assigning a value of 1-6 to individual metrics based on performance, then taking the average of those values
2. Based on total current online profiles (e.g., LinkedIn) as of May 2024 (updated since 2018)
3. Based on number of unique job postings; comparing 2018 to 2023
4. Specialization or location quotient (LQ) measures a region's focus area specialization in online profiles compared to the US (>1 more specialized than the US)
5. Median annual advertised salary of job postings analyzed

Source: Lightcast; Pitchbook

Technology Sciences: Subsector "Poised to win" and "Want to win"

Strong Nascent

		"Poised to win"				"Want to win"				
Activity-focused / Subsector		P2W score[1]	Est. current MD jobs, 2024[2]	MD demand growth, CAGR, 2018-23[3]	MD specialization, LQ[4]	W2W score[1]	Est. current US jobs, 2024[2]	US demand growth, CAGR, 2018-23[3]	US VC funding growth, CAGR, 2018-23	Est. MD Annual Salary, $K, 2023[5]
	AI & Machine Learning		15,021	106%	0.99		702,453	96%	20%	$118
	Cybersecurity		14,964	65%	3.19		217,736	78%	4%	$124
	Internet of Things		4,568	82%	1.12		189,124	58%	0%	$119
	Nanotechnology		714	146%	1.24		26,783	47%	0%	$82
	Quantum Technology		239	116%	1.71		6,472	135%	16%	$125
	Robotics & Drones		4,302	53%	0.98		203,776	47%	9%	$96
Industry application-focused	AgTech		77	62%	0.77		4,619	69%	1%	N/A
	CleanTech		269	155%	0.90		13,874	87%	8%	$106
	FinTech		1,386	73%	0.64		100,904	65%	7%	$121

1. Calculated by assigning a value of 1-6 to individual metrics based on performance, then taking the average of those values
2. Based on total current online profiles (e.g., LinkedIn) as of May 2024 (updated since 2018)
3. Based on number of unique job postings; comparing 2018 to 2023
4. Specialization or location quotient (LQ) measures a region's focus area specialization in online profiles compared to the US (>1 more specialized than the US)
5. Median annual advertised salary of job postings analyzed

Source: Lightcast; Pitchbook

Maryland

Appendix: Selected subsector analysis

Aerospace Sciences: Subsector "Poised to win" and "Want to win"

Strong ■■■■■■■ Nascent

Subsector		"Poised to win"				"Want to win"			
		P2W score[1]	Est. current MD jobs, 2024	MD demand growth, CAGR, 2018-23	MD specialization, LQ	W2W score[1]	Est. current US jobs, 2024	US demand growth, CAGR, 2018-23	Est. MD Annual Salary, $K, 2023
Subset one[2]	**Aircraft Engine and Parts Manufacturing**	●	103	10%	0.07	●	83,338	32%	N/A
	Aircraft Manufacturing	●	2,066	101%	0.50	●	231,670	106%	$128
	Other Aircraft Parts and Equipment Manufacturing	●	301	15%	0.17	●	98,987	49%	N/A
	Other Guided Missile and Space Vehicle Parts and Equipm. Manu.	●	107	N/A	0.71	●	8,433	79%	$62
	Search, Detection, Nav., Guidance System and Instrum. Manu.	●	13,625	213%	5.80	●	131,325	129%	$124
Subset two[3]	**Drones**	●	1,951	45%	1.12	●	80,582	51%	$102
	Electric Flight	●	46	N/A	1.16	●	1,844	206%	$155
	Space Technology	●	1,337	109%	1.88	●	33,029	98%	$118

1. Calculated by assigning a value of 1-6 to individual metrics based on performance, then taking the average of those values
2. Methodology analyzes (1) 2023 employment data for estimated current jobs figures; (2) change in job postings numbers for demand growth figures; (3) employment location quotient for specialization figure; (4) median advertised salary in job postings for estimated Maryland salary figure
3. Methodology analyzes (1) online profiles count returned when completing a keyword search related to the subsector, as of May 2024; (2) change in job postings numbers for demand growth figures; (3) online profiles count location quotient for specialization figure; (4) median advertised salary in job postings for estimated Maryland salary figure

Source: Lightcast


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