



Technology

The state of Maryland plays a leading role in science and technology research and development in the United States. Recent scientific achievements include:

- Decoding of the human genome
- Identifying black holes in our galaxy
- Identifying Ebola antibodies to aid in vaccine development
- Landing a spacecraft on an asteroid

The resulting explosion of knowledge has made the state a center for genomics, proteomics, cyber security, computer science, aerospace engineering, bioinformatics, and nanotechnology.

Maryland's prominence as a business location for advanced technologies rests on:

- The presence of leading academic research organizations that develop new technologies and train highly skilled technology workers.
- The proximity of the federal government as a source of funding, technology transfer, and regulation.
- A mature base of industry that includes prime contractors and small tech-savvy R&D companies in all areas of technology.

This powerful triangle of government, business, and academia makes it possible for technology executives in Maryland to meet with regulators, customers, and R&D powerhouses in a single day, without going through an airport. Maryland is where technology works.

Technology Workforce

A talented workforce makes technology work.

- Maryland has also attracted a core workforce of science and engineering workers, ranking second among the states in the concentration of employed doctoral scientists and engineers. As a share of workers, the state is second for employed PhD's in health and biological sciences; third in physical science; second in mathematics and statistics; fourth in sociology; and eighth in psychology.
- Maryland ranks second among the states in the percentage of professional and technical workers (30.2 percent) in the workforce.
- Maryland ranks fourth among states in the percentage of the population age 25 and above with bachelor's degree or higher (43.7 percent) and second in the percentage with a graduate or professional degree (21.3 percent).

This talented workforce is possible due to the vast network of academic, military, and government resources, including federal research centers.

Research Centers

Federal and academic institutes and research centers in Maryland receive some \$20.7 billion of federal research obligations. This massive, on-going research effort occurs at more than 350 locations of federal and academic research centers in the state. Maryland's level of funding for research eclipses all other states and is second among states on a per capita basis.

According to the Federal Laboratory Consortium for Technology Transfer, Maryland is home to 77 federal laboratories, more than twice as many as any other state.

Academic R&D

Four major academic institutions—the University of Maryland College Park; the University of Maryland, Baltimore; the University of Maryland, Baltimore County; and the Johns Hopkins Institutions—have created more than 250 research centers in science and technology. Some of these centers are operated in conjunction with federal agencies, state government, major universities around the U.S., and non-profit R&D foundations. Maryland higher education institutions collectively perform \$5.17 billion in research and development annually.

Educational links to business include:

- The USM Institute for Bioscience and Biotechnology Research
- The Maryland Technology Enterprise Institute at College Park (Mtech)
- Fraunhofer USA Center Mid-Atlantic CMA and University of Maryland
- The UMBC Cybersecurity Institute (UCI)
- The Johns Hopkins University Applied Physics Laboratory (JHU-APL)
- The Johns Hopkins University Information Security Institute
- The University of Maryland School of Medicine Center for Vaccine Development and Global Health

In addition, research and scientific facilities at the U.S. Naval Academy in Annapolis can be made available to industry by special arrangement.

Maryland's universities, and most federal research centers, have business offices that coordinate with private industry to develop, evaluate, or transfer technology. Maryland businesses benefit from development and evaluation services that are easy to access and that save program development time and expenses. These unique assets are distributed around the state in suburban, urban, and rural locations.

Companies in Maryland are well served not only by the access to the technology transfer occurring daily in these R&D centers but also by the potential to reach these agencies as customers for goods and services.

Federal R&D

An important engine of R&D in Maryland and the U.S., the National Institutes of Health (NIH) in Bethesda employs leading scientists, doctors, technicians, and administrators. These individuals conduct research primarily in medical fields, but also in bioscience, computer science, and engineering.

More than a dozen federal agencies conduct R&D work in over 77 federal research centers in Maryland. In addition to NIH, some of the federal government facilities performing R&D in Maryland are:

- Department of Agriculture – Beltsville Agricultural Research Center (BARC)
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- NASA Goddard Space Flight Center
- National Institute of Standards and Technology (NIST)
- National Oceanic and Atmospheric Administration (NOAA)
- National Security Agency (NSA)
- U.S. Geological Survey (USGS)

Military R&D

Federal R&D comprises important work being done at the state's military installations. Military research facilities include:

- Armed Forces Radiobiology Research Institute
- Army Center for Environmental Health Research
- Army Combat Capabilities Development Command Chemical Biological Center
- Army Medical Research Institute of Infectious Diseases
- Army Research Laboratory
- National Biodefense Analysis and Countermeasures Center
- National Interagency Confederation for Biological Research
- Naval Medical Research Command
- Naval Surface Warfare Center
- Naval Air Warfare Center, Aircraft Division

Technology Transfer

Maryland Technology Development Corporation (TEDCO)

www.tedcomd.com

(410) 740-9442 / (800) 305-5556

TEDCO brings innovations from universities and federal labs into the state's economy by facilitating the transfer of technology to the private sector and by providing emerging technology companies and university researchers with vital seed funding and specialized technical assistance.

Maryland Technology Enterprise Institute (MTECH)

mtech.umd.edu

(301) 405-3906

The Maryland Technology Enterprise Institute (MTECH), a unit of the A. James Clark School of Engineering at the University of Maryland, arms top students with the knowledge of how to successfully launch companies. They guide aspiring and existing entrepreneurs through the entire lifecycle of launching and maintaining technology-based ventures, and they support technology product development partnerships in both fledgling and mature ventures.

Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR)

The SBA Office of Technology administers the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs. Through these two competitive programs, SBA ensures that the nation's small, high-tech, innovative businesses are a significant part of the federal government's research and development efforts. Eleven federal departments participate in the SBIR program, and five participate in the STTR program, awarding over \$4 billion to small, high-tech businesses.

Many federal agencies have offices dedicated to working with small businesses for their research and development needs.

- SBA Office of Investment and Innovation
www.sba.gov/about-sba/sba-locations/headquarters-offices/office-investment-innovation
- Aberdeen Proving Ground
Office of Small Business Programs
<https://osbp.apg.army.mil/Home/Business>
(443) 861-9369
- Aberdeen Proving Ground
DEVCOM Chemical Biological Center
<https://www.cbc.devcom.army.mil/>
- Army Research Laboratory, Adelphi
DEVCOM Army Research Laboratory
<https://arl.devcom.army.mil/>
- Naval Surface Warfare Center, Carderock
Small Business Office
www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/Business/Contracting-Small-Business
(301) 227-3061
- Naval Air Systems Command Patuxent River
Office of Naval Research – Small Business Innovation and Research Program
www.navysbir.com
(301) 757-7178

- Naval Support Facility, Indian Head
Office of Naval Research – Small Business Innovation and Research Program
www.navysbir.com
(703) 696-0342
- Goddard Space Flight Center (GSFC)
Strategic Partnerships Office
partnerships.gsfc.nasa.gov/index.html
(301) 286-5810
- National Institutes of Health (NIH)
Small Business Education and Entrepreneurial Development (SEED)
seed.nih.gov
- National Institute of Standards and Technology (NIST)
Small Business Innovation and Research Program
www.nist.gov/tpo/sbir/index.cfm
(301) 975-8235

Business Incubators

Maryland is home to more than several business incubators, with more in the planning stages. Please see the list of incubators in the “Buildings & Sites” section of this data book.

Statewide Incubator Resources

Maryland Technology Development Corporation (TEDCO)

www.tedcomd.com

(410) 740-9442

(800) 305-5556

The goal of TEDCO’s business incubator assistance program is to promote the growth of technology companies in the state of Maryland through support of business incubators. Since its inception in 2001, TEDCO has been instrumental in building the incubation network in Maryland to become the most comprehensive and cohesive in the country. This includes a variety of support services available to the incubators and their companies.

Maryland Business Innovation Association (MBIA)

mdinnovate.org

The Maryland Business Innovation Association (MBIA) is an association of business incubators dedicated to sharing resources, information, and best practices among the members with the overall goal of promoting business incubation excellence within all Maryland's incubators. As a community, MBIA member organizations provide space and entrepreneurial services in both urban and rural areas. The network supports what entrepreneurs need – from lab space for longer gestating engineering and bio technologies – to incubators, coworking space and accelerator models for technology companies and a myriad of other emerging industry and startup ventures.

Technology Organizations

Maryland has made a priority of providing technology resources to Maryland companies. From the transfer of new technologies to business applications to providing workforce solutions for growing technology companies, Maryland has it all.

Technology Organizations in Maryland

Name / Telephone	Description	Web site
Statewide		
TEDCO (Maryland Technology Development Corporation) (410) 740-9442	Enhance economic empowerment by fostering an inclusive and entrepreneurial innovation ecosystem. Identify, invest in, and help grow technology companies in Maryland.	www.tedcomd.com
Maryland Tech Council (MTC) (240) 243-4026	Support member companies who are driving innovation through advocacy, education, workforce development, cost savings and connecting entrepreneurial minds.	mdtechcouncil.com
Regional / County		
Carroll Technology & Innovation Council (443) 244-1262	Assist in the advancement of technology and business innovation in Carroll County.	www.carrolltechcouncil.org
Northeastern Maryland Technology Council (NMTC)	Regional partnership to create collaboration opportunities for industry leaders, build a workforce for the future and accelerate tech transfer and innovation in Harford and Cecil counties.	www.nmtc.org
TechFrederick (443) 277-8195	Connect, educate, and empower a strong technology community and its partners in Frederick County.	techfrederick.org
The Patuxent Partnership (301) 866-1739	Alliance of regional partners to advance tech environment and broader economy of area.	www.paxpartnership.org