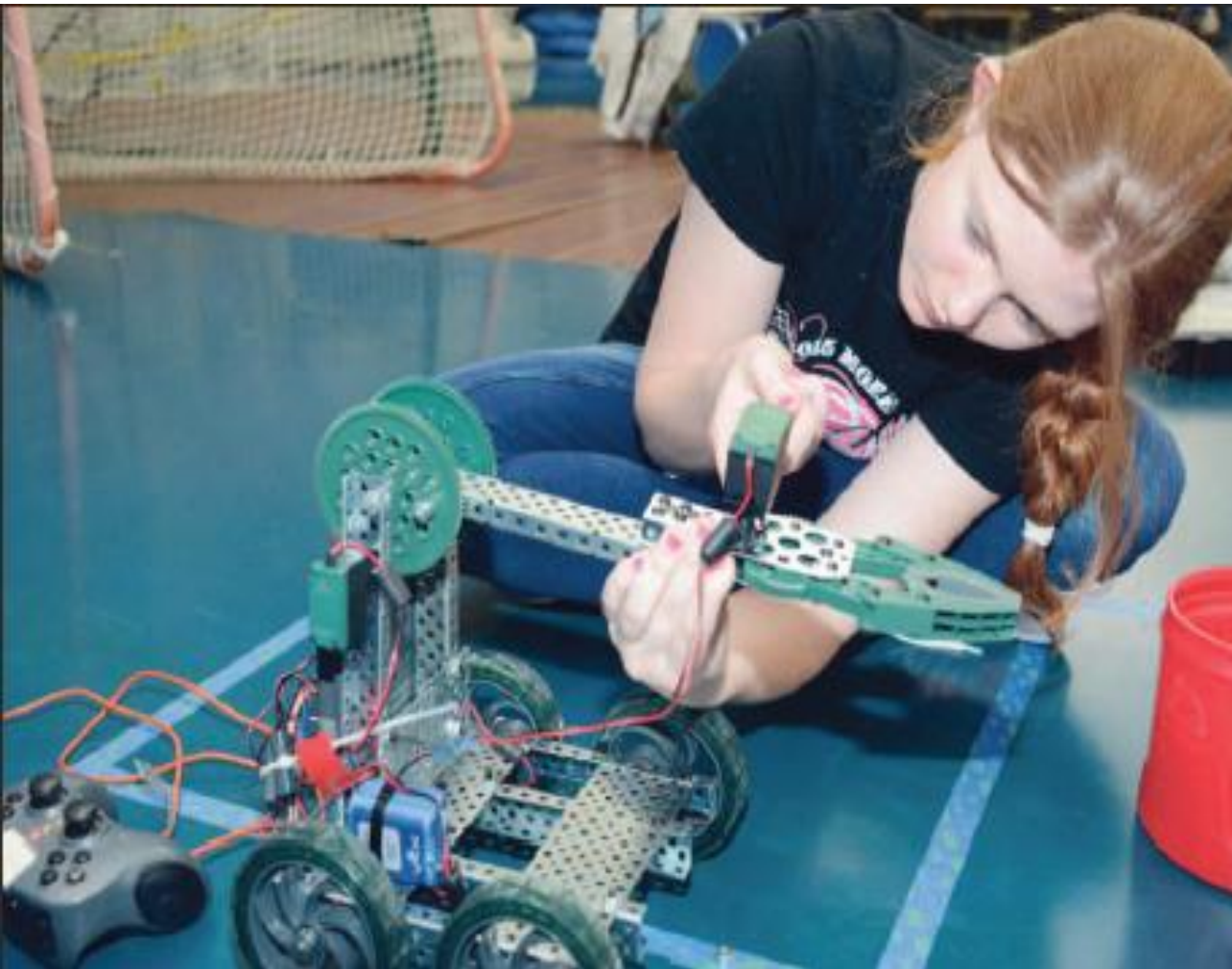




Impacting STEM in Michigan

A Collaborative Process



Our Mission

The mission of the Michigan STEM Partnership is to provide statewide connections and communications between employers, educators, students and parents, community and professional organizations, and policy-makers, providing strategic support for the development of resources and programs that provide for the effectiveness and sustainability of STEM education and talent development.

A Vision of Our Role in STEM for Michigan



The Michigan STEM Partnership positively impacts educational, economic, and talent development by connecting the P-20 educational system to relevant world-class skills, academic ambitions, and rewarding career pathways. Leveraging collaborative opportunities, assets, and resources, STEM education serves the workforce needs of STEM fields and creative demands of a diverse, innovative and thriving Michigan economy.

Our Plan to Achieve



1. **Promote** STEM and STEM opportunities, needs and solutions through information, opportunities and successes locally, statewide, nationally and internationally
2. **Engage** and connect industry (business), education (schools), and the community
3. **Connect** organizational, technical, funding and informational resources to drive STEM education development
4. The Michigan STEM Partnership will be self-sustaining through grant funds, donations, partnerships and other revenue sources.

How We're Structured

The Michigan STEM Partnership received its 501©3 status in December 2015. This allows the Partnership to seek resources that will meet identified operational and programming needs for STEM and STEM education.

The Partnership was recently awarded a planning grant funded through the Bosch Community Fund. This is a 12-month initiative designed to determine the best service role for the Partnership based on the evolving STEM landscape in Michigan. Information gathered through research, assessment and evaluation will be used to identify the necessary role, structure, functions and capacity needed for the Partnership to service/support, gauge, and report on overall STEM development activities statewide. This approach will serve to:

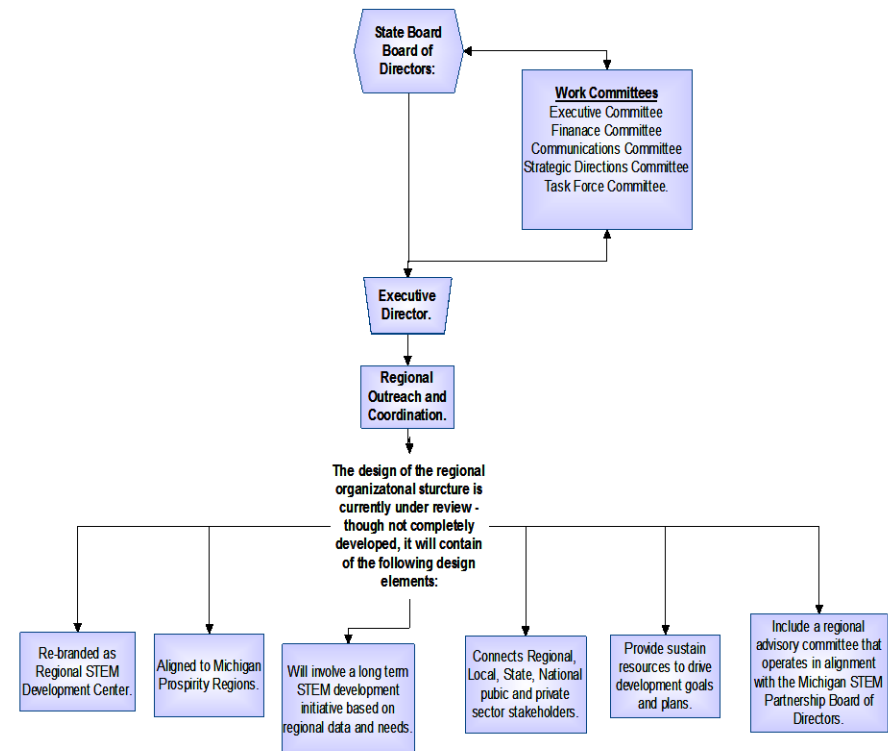
- Guide Vision and strategy
- Support the alignment of STEM activities
- Establish shared measurement practices
- Build positive public will
- Advocate policy
- Mobilize funding

Primary activities will include the development of a data collection and reporting model for common STEM metrics, identification of the elements required for a quality STEM program and what model/process elements are required for credentialing qualified instructional STEM programs. The Partnership will communicate and promote access to STEM information and developments to educators, business, policy makers, parents and students. The project design also supports efforts that seek funding for activities to grow and sustain research, development, and reporting activities.



The Partnership continues efforts in the development of a Regional STEM Network. Efforts are on-going to secure resources that can be used to influence the growth of STEM-based educational programs through demonstrational development programs at the Prosperity region level. These programs will be structured and sustained over multiple years. Additionally, the Michigan STEM Partnership operates in support of the effort of the Michigan STEM Advisory Council and ensures that all efforts align and support the needs and recommendation outlined by the council.

Our Organizational Structure



Our Resources

Finance – The Michigan STEM Partnership will be undertaking fundraising efforts to support both organization transition and long-term development funds. The Partnership now operates as its own fiscal agent, and has assigned a Fundraising Task Force work committee the responsibility of developing a fundraising plan to achieve long-term sustained funding.

Website and Social Media – The Michigan STEM Partnership launched a new and expanded website this year. The website provides information and resources for all STEM stakeholders; educators, business, students and parents. Efforts will continue to expand the content and scope of the resources. Additionally, efforts have increased in the utilization of social media to communicate, promote, and inform stakeholders statewide on all things STEM-related.

Programs – The Michigan STEM Partnership continues to focus efforts that are targeted to provide a more stable, effective and connected regional structure and provide development resources supporting long-term projects that fully develop a continuum of STEM education and talent development activities within schools. Inclusive will be efforts designed to fully engage and address under-served populations and communities.

<http://MISTEMPartnership.com>

MICHIGAN STEM PARTNERSHIP

Science Technology Engineering Mathematics

Home About What We Do STEM in Action in MI Our Blog Contact

Preparing Today's Learners for Tomorrow's Careers

We enable cross-sector collaborations that create powerful **STEM education** and **talent development opportunities** across Michigan.

[See Our Vision](#)

CLICK BELOW TO SEE HOW WE HELP:

- RESOURCES & PROGRAMS** [Learn More](#)
- RESEARCH & STATISTICS** [Learn More](#)
- ORGANIZATIONS/ INITIATIVES** [Learn More](#)
- LOCAL/STATE/NAT'L STEM EVENTS** [Find Events](#)



Getting Involved In Our Work



The Michigan STEM Partnership provides a wealth of opportunities for involvement from anyone interested in seeing the growth of STEM throughout Michigan. We encourage participation from the education community, non-profits, government and business so we may all work together to increase STEM education opportunities, student engagement in STEM, and career opportunities accessed by STEM training.

We accept applications for positions on our Board of Directors throughout the year. If this is of interest, you can learn more and apply via our website at <http://www.mistempartnership.com/about/our-board.html>

We also have a variety of committees and task force groups that are open for participation, these include:

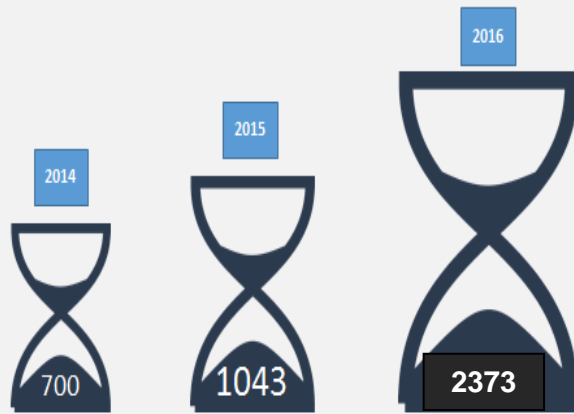
- Communications Committee
- Strategic Directions Committee
- Finance Committee
- Governance Committee
- Fundraising Task Force
- Planning Grant Task Force
- Professional Development Grant Task Force
- Grant Application Task Force
- Corporate Partnership Program Planning Task Force

Should you have interest in learning about these participation opportunities and how you can be involved, visit our website at

<http://www.mistempartnership.com/stakeholderparticipation>

The Value of Our Volunteers

Volunteer Hours



Cash Value of Volunteer Hours In 2016

2373 hrs x \$50 avg hr. rate = \$118,650

2373 hrs x \$75 avg hr. rate = \$177,975

The activities and events of the Michigan STEM Partnership are supported primarily by volunteers. This includes activities of its Board Members and volunteers from around the state. The figures provided in the graphic to the left are determined based on participation records for meetings and events via a tracking app for volunteer hours. The total includes activities by Board Members and other individuals directly connected to the Partnership. Some of the activities included are:

- Board and Work Committee meetings in which Board Members participate
- Meetings and events in the statewide regional STEM network
- Participation and/or attendance at STEM-related conferences, STEM events, or other activities on behalf of the Michigan STEM Partnership

As an organization, the Partnership is deeply grateful to the individuals that take the time to support the efforts of the Michigan STEM Partnership and for the in-kind value they provide to Partnership activities. The activities and events of the Michigan STEM Partnership continue to grow each year requiring more engaged people. Those interested in learning how they may support the efforts of the Michigan STEM Partnership should visit our website at MISTEMPartnership.com.

Board Members & Committee Chairs

BOARD MEMBERS

Paul Agosta, Owner, Applied Technology Systems

Doug Baltz, Albert Einstein Distinguished Educator Fellow / Adjunct Instructor, Oakland University

Greg Chappelle, Scientist/Engineer Liaison Officer, U.S. Army

Sidney Davis, Business Support Advisor, Consumers Energy

Jenny Deason-Copeland, Owner/Editor, Crazy Red Head Publishing

Linda Daichendt, CEO/Executive Director, Mobile Technology Assn of Michigan

Mel Drumm, Executive Director, Ann Arbor Hands-on Museum

Gary Gilger, Chief Development Officer, Michigan Crossroads Council, Boy Scouts of America

Jarrold Grandy, Director of Career Technical Readiness, Kent ISD

Lisa Gordon, Program Coordinator, Workforce Intelligence Network for Southeast Michigan (WIN)

Greg Johnson, Science Consultant, Wayne RESA

Jodie Ledford, Senior HR Analyst & Career Consultant, State of Michigan

Romulo Juarez, Director/Founder, iClinCloud

Brandon Lucas, Academic/Research Officer, University of Michigan

Greg Marks, Strategic Initiatives, MI Virtual University

Aaron Miller, Account Supervisor, FleishmanHillard

Kathleen Rafalko, HR Business Partner, Black & Veatch

Jennifer Seger, Associate Dean – Applied Technology, Automotive and Technical Education, Macomb Community College

Andrew Smart, Chief Technical Officer, American Center for Mobility

Mary Sutton, Executive Director, MI Afterschool Partnership

Michael Tanoff, Director, Kalamazoo Area Math & Science Center

Monique Wells, STEM Talent Acquisition, Consumers Energy

EXECUTIVE COMMITTEE

Paul Agosta, Chairman

Gary Gilger, Treasurer /Finance Committee Chair

Gary Farina, Executive Director

Jarrold Grandy

Brandon Lucas

Monique Wells

Doug Baltz

Jennifer Seger, Strategic Planning Committee Co-Chair

Linda Daichendt, Strategic Planning Committee Co-chair

COMMITTEE CHAIRPERSONS

Jenny Deason-Copeland, Communications

Gary Gilger, Finance

Linda Daichendt / Jennifer Seger / Sydney Davis, Strategic Planning

Governance – OPEN

Task Force – OPEN

FORMER BOARD MEMBERS

Patty Cantu, MI Dept of Education

Patty Farrell-Cole, Presidents Council – State Universities of Michigan

Heather Gallegos, Dow Chemical

Benjamin Gibert, Bishop/Sr. Pastor, Detroit World Outreach

Val Masuga, EUPISD

Victor Naidu, Ramssoft Systems, Inc.

Derhun Sanders, U.S. Army RDECOM/TARDEC

Jenny Schanker, MI Community College Association

Vass Theodoracatos, General Motors

Robert Warrington

Tom Wessels



Scan QR code with your mobile device to access Board Bio information

About STEM in the U.S. and MI

Understanding the Opportunity

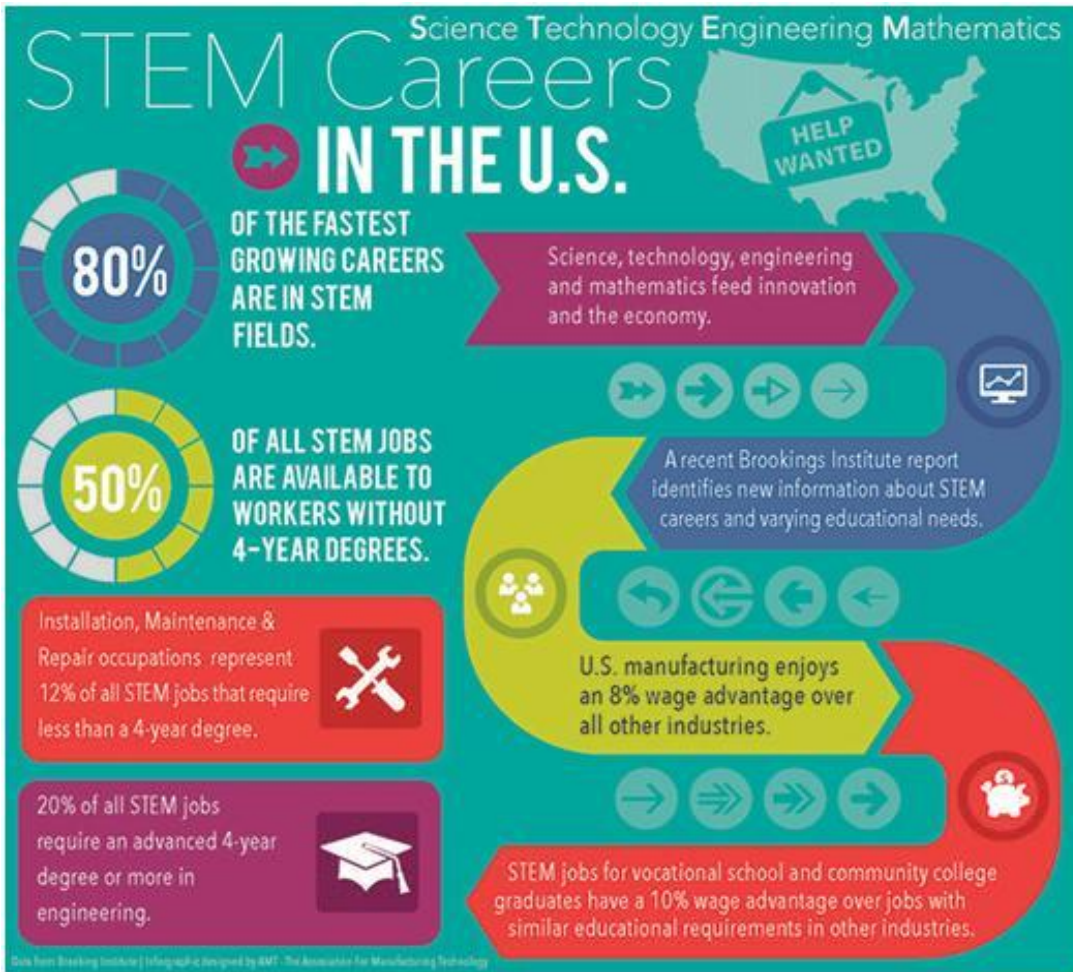
“Keeping STEM students from dropping out of the STEM Talent Pipeline is essential in meeting U.S. STEM Job Demands for the future.” (*Michigan STEM Profile 2016 – 2025*)

“The demand for qualified STEM professionals is high, but the supply of STEM workers to fill these positions is at risk if under-represented groups are not engaged in these fields.” (*National Action Council for Minorities in Engineering*)

“By 2018, careers in STEM fields are projected to grow by 17%, providing some 274,000 jobs in Michigan.” (*MyCollegeOptions® & STEMconnector®*)



STEM is the Future

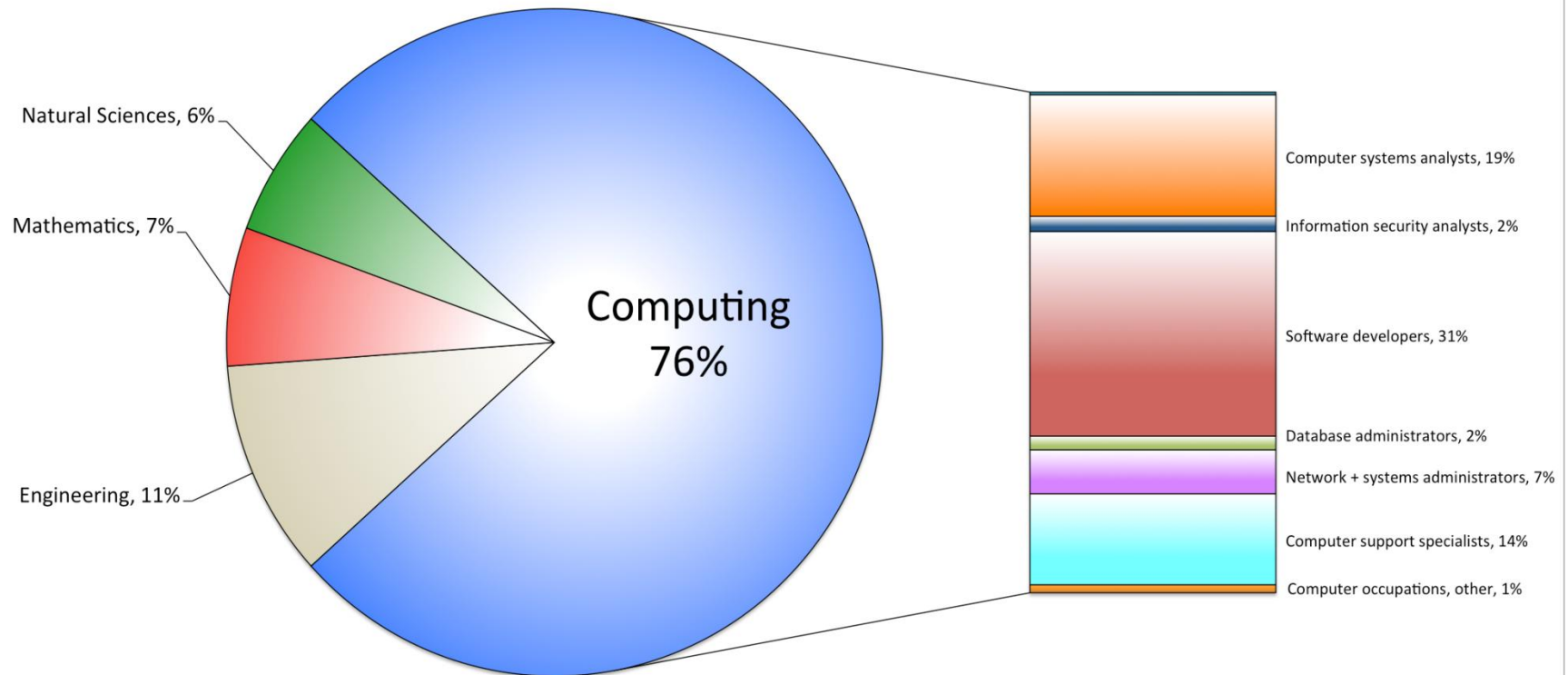


Our public education programs lack the necessary funding for much-needed STEM programs. With careers in STEM fields showing substantial growth that is expected to not only continue but also to increase, a critical need exists for STEM education in Michigan to provide access to training activities that can build skills and apply methodologies for problem-solving, innovation, and invention-on-demand in a wide variety of fast-growing fields.

“The US and Michigan are failing to produce enough skilled STEM workers to meet the needs of employers now – and certainly not enough to fill the needs of employers as demand continues to increase in the future. 60% of the new jobs that will open in the 21st century will require skills possessed by only 20% of the current workforce.” - (National Commission on Mathematics and Science for the 21st Century)

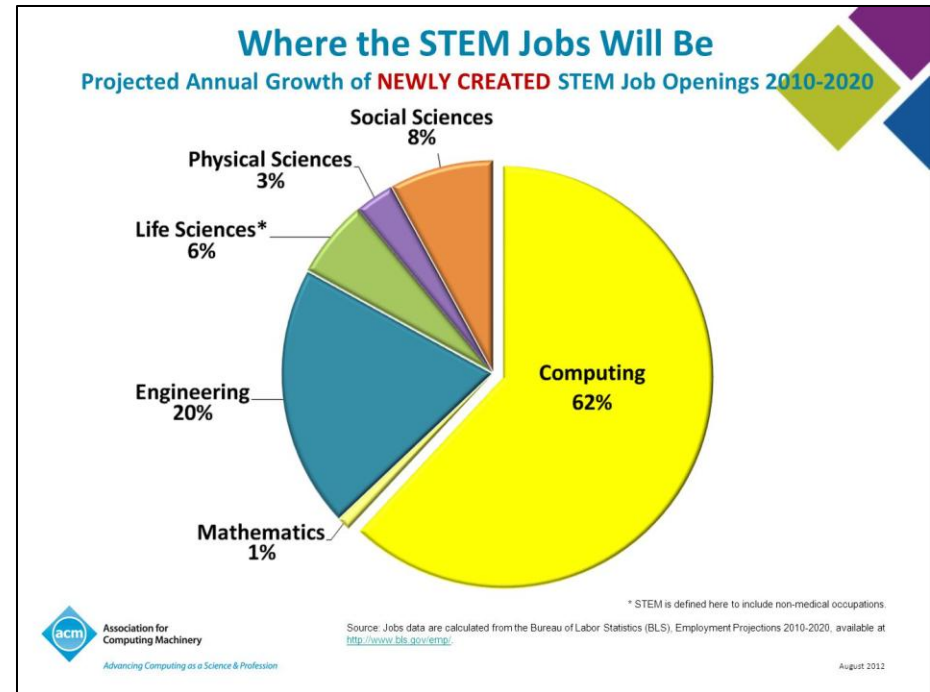
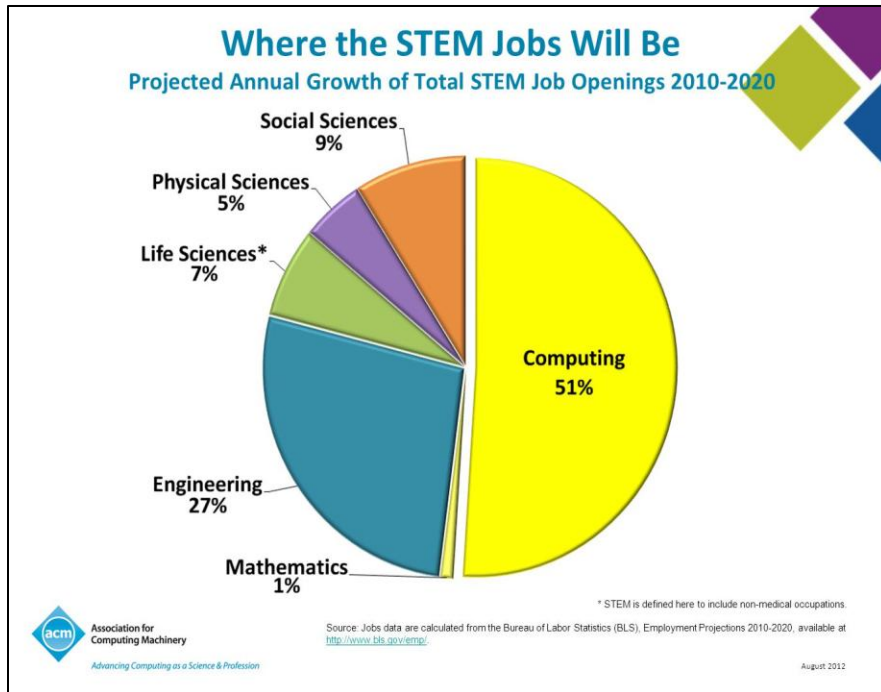
U.S. STEM Job Projections Thru 2024

US-BLS New STEM Job Projections Through 2024 By STEM %



Data Source: US-BLS Employment Projections (www.bls.gov/emp/ep_table_102.htm)

STEM Jobs - Openings vs. Newly Created



- In careers related to connected technologies – which includes most industries - analysts project a national shortage of up to 1M skilled workers by 2020, and further expect up to 20% of that shortage (up to 200,000 jobs) will be in Michigan.

- US Dept. of Labor project 1.4M computer specialist openings by 2020, though at the same time, universities are projected to produce qualified candidates for only 30% of those jobs.

STEM Job Projections by Field

Middle-skill positions – which require post-high school education but not necessarily a four-year degree – are expected to feature the highest number of job postings, notably in STEM fields.

- *Workforce Intelligence Network (WIN)*



US-BLS Annual New U.S. STEM Jobs Through 2020



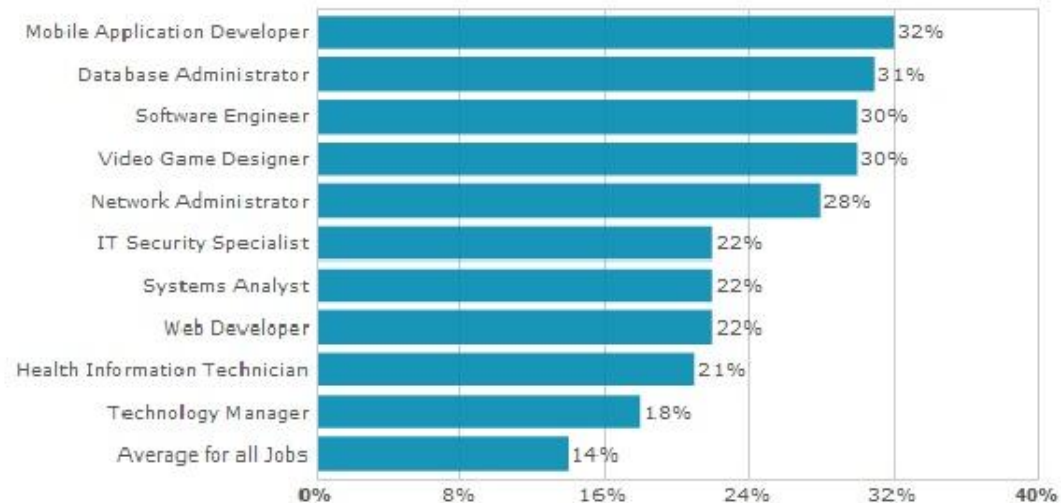
Data source: US-BLS Employment Projections, 2010-2020 (http://www.bls.gov/emp/ep_table_102.htm)

Ten Fastest Growing STEM IT Careers

Chart Ten Fastest Growing IT Careers

- 2/3 of IT jobs are posted by employers in industries such as healthcare, manufacturing, and banking with the remaining third in information technology and technology services.
- 75% of open IT jobs are in the middle or entry-level
- Top 10 cities with greatest demand for IT jobs are New York, D.C., Philadelphia, Atlanta, Chicago, **DETROIT**, Dallas, Houston, Seattle & Baltimore
- For every 8 IT jobs in the Top 10 demand cities, the current talent pool only yields 5 workers

IT Career Path Growth Percentage | 2010 through 2020



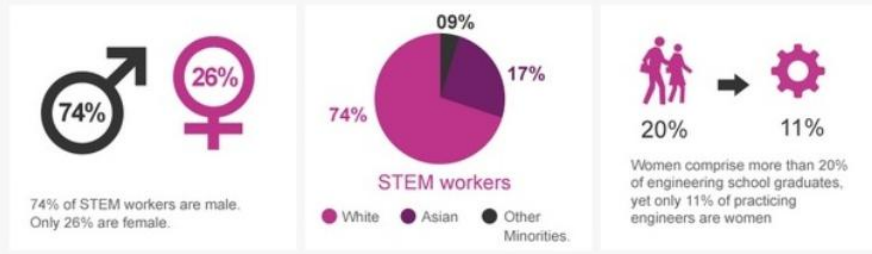
Source: U.S. Bureau of Labor Statistics' 2012-2013 Occupational Outlook Handbook (OOH)

Gender Gap in STEM

“One of the things that I really strongly believe in is that we need to have more girls interested in math, science, technology and engineering. We’ve got half the population that is way under-represented in those fields and that means that we’ve got a whole bunch of talent..... not being encouraged the way they need to.”

- President Barack Obama

STEM Facts on Women & Girls



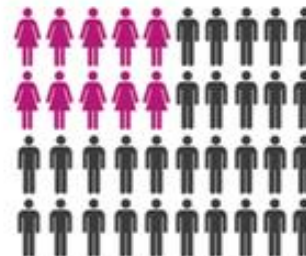
71% of jobs in 2018 will require STEM skills.⁽²⁾

In 2013 only **12%** of engineers and **26%** of computing professionals were women.⁽²⁾

Women are **50%** of the workforce



Women are **24%** of the STEM workforce



But **50%** drop out in the first 10 years⁽¹⁾



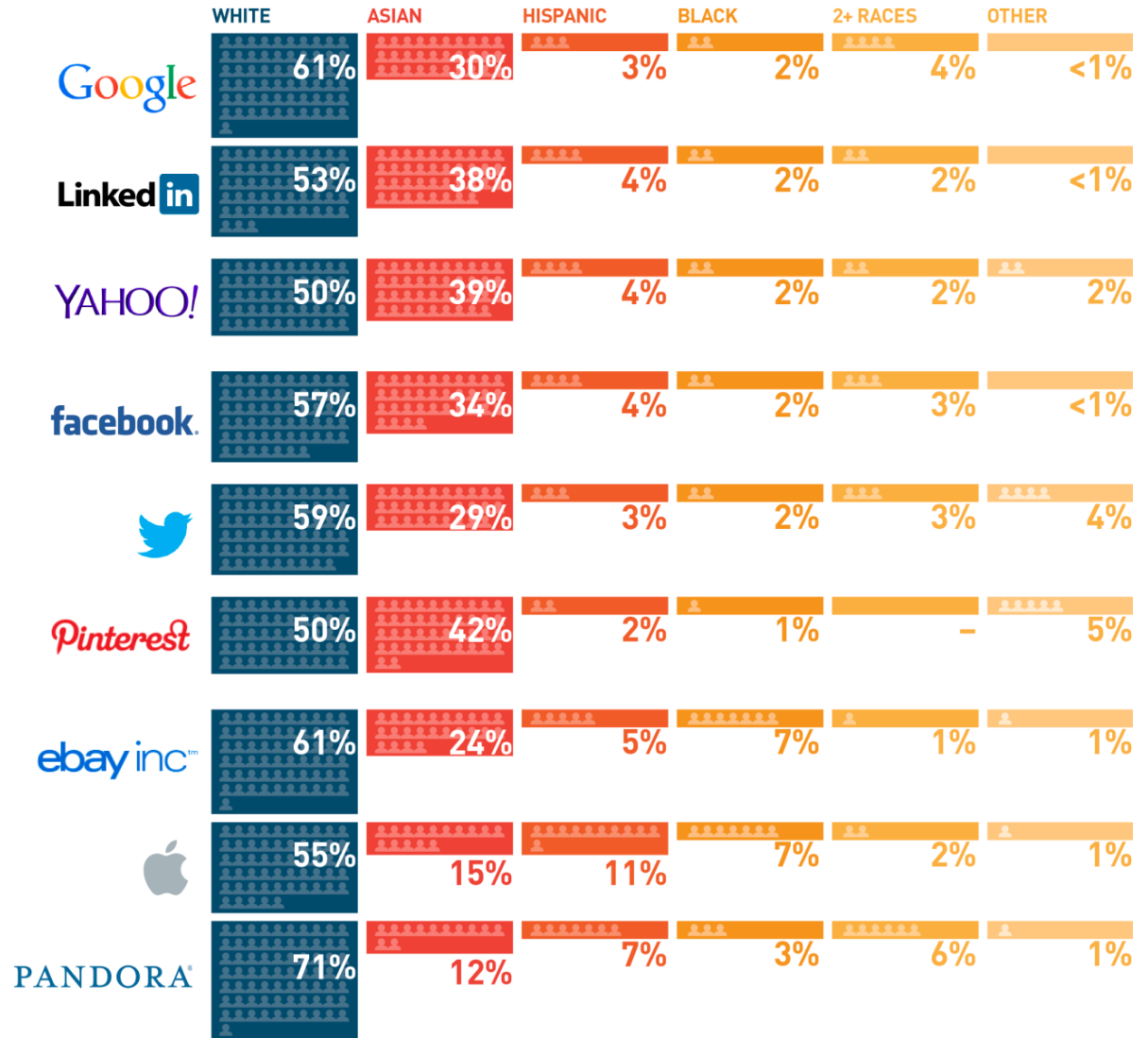
Diversity in STEM

“The current STEM workforce is dominated by White and Asian males, with women and minorities under-represented in STEM fields. Research has shown that although about 1 in 4 high school students expresses an interest in STEM careers, gender and racial gaps are large and growing.”
 (MyCollegeOptions® & STEMconnector®)

“Despite a national focus on directing more students toward science, technology, engineering and math fields – particularly women and minorities – the STEM workforce is no more diverse now than in 2001.”
 (Change the Equation)



Racial Distribution



STEM in Michigan

“Business leaders in Michigan cannot find the Science, Technology, Engineering and Math (STEM) talent they need to stay competitive...”

“As it stands, not enough students – least of all minorities – have the chance to learn rich and challenging content that prepares them for college and careers.... Teachers say they lack the resources to succeed.”

- (*Change the Equation; Michigan*)

Since 2010, gains in STEM employment (+12.8%) have outpaced the 2.1% growth seen in overall occupational employment.

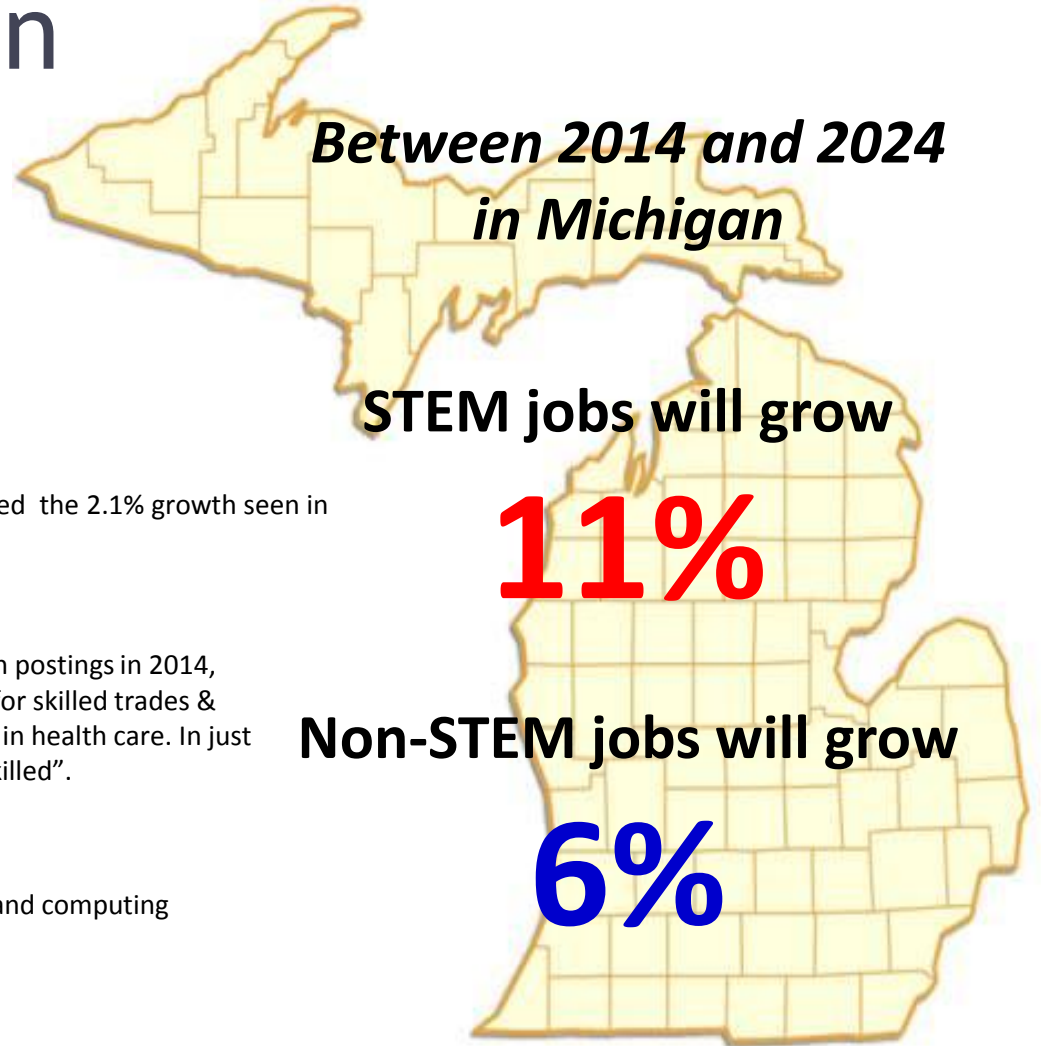
- (*DTMB, Bureau of Labor Market Information*)

In SE Michigan alone, STEM occupations experienced very high postings in 2014, including over 52k jobs for engineers and designers, 35k jobs for skilled trades & technicians, 86k jobs in information technology and 108k jobs in health care. In just these fields alone, roughly 1/3 could be considered “middle skilled”.

- (*Workforce Intelligence Network*)

As of January 2017 there are 15,000 *currently open* software and computing jobs in Michigan, with a median salary of \$97,850.

- (*Code.org*)



Contact us

www.MISTEMPartnership.com

Michigan STEM Partnership

Gary Farina, Executive Director

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Email: info@MISTEMPartnership.com

Scan the QR Code below to access our digital **Contact Form** if you would like to become involved with the Partnership, or we can help you with:

- Information
- STEM resources & initiatives
- promoting your events
- STEM news
- other areas where you need STEM-related assistance

