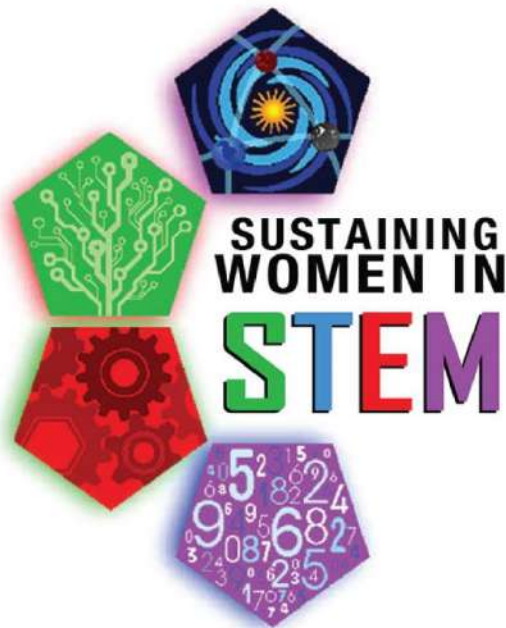




SUSTAINING WOMEN IN STEM: Making the Shift

Roundtable Discussion and Policy Forum
November 7, 2019



Presented by NASA's Goddard Space Flight Center,
in partnership with SAIC and Bowie State University

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SUSTAINING WOMEN IN STEM CHAMPIONS



Stephen Jurczyk, Associate Administrator, NASA

Stephen Jurczyk became NASA's associate administrator, the agency's highest-ranking civil servant, effective May 2018. Prior to this assignment, he was the associate administrator of the NASA Space Technology Mission Directorate since June 2015. In this position, he formulated and executed the agency's space technology programs, focusing on developing and demonstrating transformative technologies for human and robotic exploration of the solar system, in partnership with industry and academia.



Christyl Johnson, Ph.D., Deputy Director for Technology and Research Investments, NASA's Goddard Space Flight Center

Since December 2010, Christyl Johnson has managed NASA's Goddard Space Flight Center's research and development portfolio; formulated the center's future science and technology goals in Earth science, astrophysics, heliophysics, planetary science, and space communications and navigation; and led an integrated program of investments aligned to meet those goals.



Aminta H. Breaux, Ph.D., President, Bowie State University

Aminta Breaux has served as the visionary 10th president of Bowie State University since July 2017, bringing more than 30 years of diverse higher education leadership experience to the position. As president, she is committed to ensuring that every student at Bowie State University develops an entrepreneurial mindset to achieve success in the rapidly changing workplace and communities. She is dedicated to building on the legacy and rich history of Maryland's oldest historically black university with a strategic focus on ensuring the long-term viability of the institution.



Nazzic S. Keene, Chief Executive Officer, SAIC

Nazzic S. Keene is chief executive officer of SAIC, headquartered in Reston, Virginia. With annual revenues of \$6.5 billion and 23,000 employees, SAIC provides system integration, engineering and IT solutions to defense, intelligence and civilian agencies. She became CEO and was elected to SAIC's board of directors in August 2019. She joined SAIC in 2012 and has previously held several executive positions of increasing responsibility with the company, including chief operating officer, president of the company's global markets and missions sector, and senior vice president for corporate strategy. Keene has three decades of experience in the information systems and technology services industries, with more than 20 years in executive management.

SUSTAINING WOMEN IN STEM SPEAKERS



Kathy Warden, Chairman, CEO and President, Northrop Grumman Corporation

Kathy Warden is chairman, chief executive officer and president of Northrop Grumman Corporation. She was elected chairman of the Northrop Grumman Board of Directors on Aug. 1, 2019, and has served as CEO and president since Jan. 1, 2019. She was elected to the company's board of directors in 2018.



Thomas H. Zurbuchen, Ph.D., Associate Administrator, NASA's Science Mission Directorate

As associate administrator of NASA's Science Mission Directorate, Thomas Zurbuchen works to ensure NASA's science missions are part of a balanced portfolio that enables great science, helps us unveil the unknown and facilitates a better understanding of our place in the cosmos. He continues to bring a wealth of scientific research, engineering experience and hands-on knowledge to NASA's world-class team of scientists and engineers.



Lethia Jackson, Ph.D., Professor and Chair, Department of Technology and Security, Bowie State University

Lethia Jackson, a full professor in the Bowie State University Department of Technology and Security, holds a terminal degree in computer science from The George Washington University, a master's degree in computer science from North Carolina State University, and a bachelor's degree in computer science from North Carolina Agricultural and Technical University. She has acquired more than 20 industry and government partners that have provided support to the department.



Georgie Brophy, President, The Maryland Space Business Roundtable; Director of Strategic Growth for Space Ground Systems and Operations, General Dynamics Mission Systems (GDMS)

Georgie Brophy directs strategy and business development activities for GDMS's facility in Seabrook, Maryland. She focuses on developing business relationships and opportunities for the firm's federal civil space and intelligence market segment and defense segment. Brophy has served more than six years on the board of The Maryland Space Business Roundtable and is serving as president.



Joelle Allen, Chief Inclusion Strategist at Interaction Traction, Inc., and Director of Client Engagement at kpCompanies

Interaction Traction, Inc. helps organizations and individuals improve and leverage cross-cultural interactions using a mix of strategic planning, education, change management and engagement. Its powerful solutions help clients gain traction internally for supporting and retaining a diverse workforce, and externally for engaging broader audiences in ways that are socially relevant and culturally responsible.

PARTICIPATING ORGANIZATIONS AND COUNTRIES

- Amazon Web Services
- The ArdLen Group LLC
- ATA Aerospace
- Ball Aerospace
- Bowie State University
- Capgemini
- Challenger Center
- Columbus Technologies & Services
- ERT, Inc.
- General Dynamics Mission Systems
- George Mason University
- GirlUp, Walt Whitman High School Chapter
- Grant Thornton
- Inkquiry Visuals
- Interaction Traction, Inc.
- KBRwyle
- kpCompanies
- Leader Inspired, LLC
- MERC Aerospace
- Montgomery County Government, RecXtra Program
- NASA Headquarters
- NASA's Goddard Space Flight Center
- NASA's Wallops Flight Facility
- National Academy of Sciences
- National Institute of Aerospace
- National Science Foundation
- National Society of Black Engineers
- Naval Air Warfare Center Aircraft Division
- Northrop Grumman Corporation
- Office of Management and Budget
- Oregon State University
- Patriot Technology Training Center
- Pensacola State College
- Raytheon
- Sage Publications, Inc.
- SAIC
- Scribe America
- SSAI
- Stellar Solutions
- Universities Space Research Association
- University of Maryland, College Park
- The University of Texas at San Antonio
- University of the District of Columbia Community College
- U.S. Department of Education
- U.S. Geological Survey
- West Virginia University
- Wheaton High School

In addition, individuals from the following nations tuned into the event via webcast:

- Canada
- Colombia
- France
- India
- Puerto Rico
- Serbia
- South Africa
- Vietnam

MESSAGE FROM CHRISTYL JOHNSON



The topic of sustaining women in STEM, and the role that we can all play in it, is near and dear to my heart. I recognize that I would not be where I am today if it weren't for the support, mentorship and encouragement I received from those around me, from early childhood and throughout my career.

My personal journey has given me a passion for inspiring, encouraging and motivating the next generation of young STEM leaders, who may one day join our NASA workforce and possibly become the first women to set foot on the Moon as part of our Artemis program. In order to achieve these ambitious missions of the future, we must create workplace environments that are ripe for innovation. In order for true innovation and creativity to occur, we must have diversity and inclusion, and we must have the best and brightest minds at the table – and that includes women. These innovative environments are not established accidentally; they take deliberate thought and action. That is why I started these roundtable workshops – to discover those organizations that have been successful in creating these environments and engaging them to share best practices with those that may not be as far along the path on this journey. This year's event focused on the cultural shifts that are necessary to sustain women in STEM careers, as well as preparing organizations to be ready to take advantage of the next generation of innovative youth.

I challenge all of you reading this report to go back to your organizations and effect change, no matter how big or small. Think about what you can do (as an individual, and then broader) to shift the culture so that it becomes the kind of organization that encourages and supports the diverse innovative thinkers who will help your organization to prosper.

Within the next few months, we will check in and invite you to share your success stories about changes you've made within your organizations to support and sustain women in STEM. We may share some of these reflections on @NASAGoddard social media and/or include them in a set of Sustaining Women in STEM resources.

Christyl Johnson
Deputy Director for Technology and Research Investments
NASA's Goddard Space Flight Center

EXECUTIVE SUMMARY

In 2016, NASA's Goddard Space Flight Center started this roundtable, in partnership with Lockheed Martin, with the goal of increasing female participation in STEM careers and breaking down barriers that impede progress. Women are underrepresented across all ranks in the STEM fields, and those who achieve success must constantly overcome obstacles and prejudices to move forward in their careers.

The Sustaining Women in STEM: Connecting STEM Trailblazers inaugural event featured STEM leaders whose organizations had demonstrated success in breaking down these barriers and creating workplace environments that sustain women in STEM fields. Attendees from organizations across industry, government, academia and the nonprofit sector came together to discuss challenges they faced, as well as brainstorm solutions to help address these issues.

In 2017, with new partner Northrop Grumman aboard, Goddard and Lockheed continued the momentum of the first event, but this time taking the slightly different approach of focusing on "The Role of Men in Sustaining Women in STEM." In STEM fields in which men still represent the majority, it is utterly important that they are part of these discussions. Men play a crucial role in helping to bridge the gender gap and supporting and sustaining their female colleagues in the workplace.

On Nov. 7, 2019, Goddard, in partnership with SAIC and Bowie State University, hosted the third edition of the Sustaining Women in STEM roundtable at the Bowie State University Student Center in Maryland.

Under the theme "Making the Shift," this latest event focused on cultural shifts organizations can make to prepare them for the workplace of the future. Participants received insights from STEM experts and other attendees on changes they can make within their own environments to increase and sustain women in STEM, as well as enable them to thrive in the workplace.

This event featured more than 40 organizations from across STEM fields and included online participation from eight countries. Similar to past roundtables, the event included morning presentations, a panel discussion, a question-and-answer segment, and several afternoon breakout sessions on the following topics, enabling attendees to engage, network and partake in candid dialogues:

- Session I: Strategic Inclusion
- Session II: Removing Personal Limitations
- Session III: Network Your Way to Success
- Session IV: Redefining the Ideal Workplace
- Session V: Be a Catalyst for Change
- Session VI: Reverse Mentoring
- Session VII: Develop Your Growth Mindset

We invite you to read this report and encourage you to share it with others. Let's work collectively to make change.

HIGHLIGHTS FROM STEM SPEAKERS



Kathy Warden – Chairman, CEO and President, Northrop Grumman Corporation

For the past decade, Kathy Warden and Northrop Grumman have been on a mission to drive diversity and inclusion within their company because, as she put it, the company believes that creating a workforce and a workplace that value diversity and foster inclusion is pivotal to innovation.

According to Warden, “You never get to a final destination in diversity and inclusion; it’s a journey.” This journey includes a lot of work, purposeful actions and tangible commitments by everyone in the organization, not just its top leadership team. After all, company culture is just a mirror of the behavior of the people within that organization. This means that in order to reach a specific, desired outcome within your workplace, it is imperative that everyone in the organization is moving toward the same objective. Everyone needs to be committed to being on the same journey.

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Since embarking on this journey of diversity and inclusion, Northrop Grumman has seen measurable results. Of the 12 members of the company’s senior executive team, seven are now women. Female representation on its technical leadership team has increased from 19 percent to 27 percent. To accomplish this, she said, “We had to change the way we think about hiring, promoting and developing talent within the company.”

Long ago, Northrop Grumman began having conversations with educators to better understand why diversity wasn’t better represented in the pipeline of talent. The answer, they found, was that by the time children reached 12 years of age, girls were dropping out of STEM fields. Partly because of situations like being the only girl in a room full of boys, questioning their ability to be successful in a STEM career, or having a teacher tell them not to pursue a STEM discipline because they’re not good enough and directing them down another path. To address this issue, educators realized it took a cadre of mentors, friends, parents and others to let young girls know they can do this, and to stay the course. In addition, government agencies and companies have a responsibility to conduct outreach within schools, so students can see STEM role models and gain a different perspective on what is possible for them. While this might not enable organizations to reach their short-term objectives, these types of investments in youth will provide talent and innovation in the long run.

Warden went on to discuss the importance of having programs in place to help women thrive once they’re in the workplace, such as flexible work schedules and the ability to job-share. Women in Leadership is one of Northrop Grumman’s programs that specifically focuses on the unique issues women face in the workplace. This program, she mentions, puts women in a group of other

colleagues going through shared experiences, enabling them to get ideas and practices they too can put in place based on what has worked for others, and provides encouragement to “stay on the path,” Warden said, “when things get hard.” These types of programs take investments – not just dollars, but time – from leaders who come in and share their perspectives and support, and are engaged in meaningful learning in these programs to help women continue to progress in their career objectives.

Warden echoed the concept that men have to be actively involved in these initiatives. As a board member for Catalyst – an organization that focuses on the advancement of women in the workplace – Warden spotlighted its key program, Men Advocating for Real Change. As its name implies, this program – exclusively for men – shows them the important role they play in being supporters and sponsors of diversity and inclusion in the workplace. Northrop Grumman participants have expressed how this program changed their lives, professionally and personally, and was an eye-opening experience for them, and how they viewed diversity and the role women play in society.

If an organization deems this issue important for its future success, Warden urges organizations to measure it and hold their leaders accountable. Northrop Grumman established its first plan on representation more than 10 years ago, and that included numbers around diversity. Visibility is essential when organizations are trying to measure something and see how they’re doing in a particular area.

Once Northrop Grumman leaders saw the data, they had a desire to change it and that type of sentiment trickled throughout the organization. Northrop Grumman uses census data to determine what representation looks like in the communities where they live and work, and that is used as its bar for representation inside the company. It has made a difference.

“Diversity is like air; inclusion is actually breathing in that air. You need diversity, but it doesn’t keep an organization alive unless you use it. That’s inclusion.”

Warden strongly believes, “Diversity is like air; inclusion is actually breathing in that air. You need diversity, but it doesn’t keep an organization alive unless you use it. That’s inclusion.” For her, inclusion represents having women engaged in discussions, not just sitting at the table. It’s about sponsoring and advocating for minorities in organizations to ensure their success.

Today, Northrop Grumman continues to distribute company surveys to collect feedback on diversity and inclusion. This regular input from employees helps the company to set its goals and continue to raise the bar for the organization.



Thomas H. Zurbuchen, Ph.D. – Associate Administrator,
NASA’s Science Mission Directorate

When he thinks about diversity and inclusion, Dr. Thomas Zurbuchen does so with two lenses, his and that of his daughter. Growing up in his village, everyone was involved in some aspect of farm life, but he knew early on he had a passion for science. There were some, however, who did not nurture his enthusiasm and thirst for science.

He shared two memories. One of overhearing a teacher call people from his village – his parents included – “dumb,” simply because of where they came from. The other was when he decided to pursue STEM, another teacher insisted that he didn’t go down that path, telling him, “It is hard; you will surely fail.” Fortunately, he had other individuals who encouraged him to try. It was those voices that propelled him to obtain a doctorate in astrophysics, and now, he gets to work for the premier space agency and lead NASA’s Science Mission Directorate. Because of his experiences, he roots for the underdog, like himself. “In those underdogs are some of the best leaders of the future; their viewpoints do not come from academics but reflect their upbringing and environments which are unique in the team and thus valuable,” explained Zurbuchen.

During his daughter’s early adolescent years, she came to him upset one day because a school test revealed she was the best in science, but only third best in English. For her, she wanted it to be in the reverse order. However, as a father, Zurbuchen was happy about her science capabilities because he could see the possibilities for her in STEM even if she was unable to see them at that time.

He states, “The work we do [at NASA] is hard. We work on the best ideas from anywhere, so in order for us to be successful, we need all those best ideas in the room.” In a team setting, we all benefit from being able to brainstorm with one another, test ideas and potentially clash ideas with each other. That type of environment of struggle and growth births great ideas and innovation. In this type of environment in which we present a solution, we are confident it’s the best because we’ve already vetted and rejected 10 inferior solutions that came across the table. According to Zurbuchen, “This is the difference between excellent and good.” An excellent team humbles you.

“The work we do [at NASA] is hard. We work on the best ideas from anywhere, so in order for us to be successful, we need all those best ideas in the room.”

When he began working for NASA, he thought his focus would be on program excellence, not diversity. In meetings, he noticed how easily and quickly people made decisions, even the hardest ones. He realized what he was witnessing was groupthink, and “excellence and groupthink,” he says, are opposing values. To address this, he became intentional about talking to those individuals he noticed didn’t say much in meetings and reminded them of their value to the team and how what they had to offer to the discussions mattered. Conversely, he had to engage in difficult conversations with some of the most experienced members of his team, letting them know that he appreciates what they bring to the table. However, in order to encourage more dialogue and engagement from other team members, it was best if they spoke last, not first.

Otherwise, they wouldn't hear all ideas, because nobody speaks following their remarks. He acknowledges this is something he too needs help with, and that together they can hold each other accountable.

Within his directorate, three of the four science divisions are led by women, something he feels is not hard to accomplish. First, you ensure that you start with a diversified pool of candidates by pursuing and getting the right resumes. Zurbuchen took time to call female colleagues, including those currently in the positions, to let them know he viewed them as top leaders and told them about the impact they could have in the organization if they applied. Secondly, you run an absolutely fair process and one that is aware of implicit biases. For example, you talk about strengths and weaknesses in specific desired characteristics required by the job. We do not want to blurt out "this is the best candidate" before we think more deeply. In fact, that ranking discussion never occurs during interview panels, except perhaps at the very end as individual input from each panel member to the chair. This process helps to reduce implicit bias. An excellent team, he points out, is full of people with weaknesses. During the interview process he runs, for instance, he has his panel discuss the strengths and weaknesses for each applicant in specific dimensions such as "strategic leadership," "operational excellence," etc., and then each of them sends him an email with their top candidate for the position. This process has been shown to significantly reduce groupthink and allows talent to float to the top.

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Finally, empowering is important. There was a two-year period when they received no mission proposals from female principal investigators in multiple disciplines. People in these positions are highly visible and are often on television talking about missions. When a situation like this occurs, it makes it impossible for girls like his daughter to have STEM role models to look up to. That's why empowerment and diversity and inclusion, he explains, are important. As a team, the NASA science leaders tackled that with a specific set of actions. Not all will work, but we recognize that it is important and we will not back off taking steps in the right direction. The actions are already showing positive impacts today.

Zurbuchen concluded by saying, "If you want to do big leaps, you need to honor small steps. Learn where we are and keep going. Diversity and inclusion is a continuing, cultural type of action-focused process that is not one-size-fits-all. Excellent teams always look for the upside, not because they're unhappy about the people at the table, but because they don't ever want to get to a place where they say we're good enough, because 'good enough' and 'excellent' are not the same."



Lethia Jackson, Ph.D. – Professor and Chair, Department of Technology and Security, Bowie State University

Lethia Jackson shared her personal experiences and what helped her sustain in the STEM field.

She began her work with Project Kaleidoscope (PKAL) in 2012 – Association of American Colleges & Universities’ center of STEM higher education reform dedicated to empowering STEM faculty, including those from underrepresented groups, to graduate more students in STEM fields who are competitively trained and liberally educated. Her involvement with this project was life-changing.

It was during her work with PKAL, and her training of colleges and universities on working with people in STEM, that she discovered What Women Want (WWW) to feel supported and sustained in STEM. Dr. Jackson defined WWW as:

- Diversity – Involves all ages and faces
- Inclusion – To be a part of a contributing factor to excellence and greatness
- Empathy – Put yourself in my shoes, or for men, your daughter’s shoes
- Exposure – Gain in-depth knowledge (a breadth of knowledge) of something that you’re able to use later to deliver a task as a team
- Equity – Can I treat you like you treated me?

“There’s so much importance in encouragement, role models, coping skills, commitment, the heart of others, and knowing that there is a journey and a process,” explained Jackson.

Starting from early childhood taking us all the way through college, she provided a visual timeline of how we got to where we are today.

She observed that in daycare settings kids are initially exposed to the same things. These types of environments, she explained, are naturally nurturing kids’ interest, learning, and ability to interact with and play with one another. However, this type of environment begins to change as children progress through the organization of the education system.

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The percentage of male instructors increases significantly through all grade levels, from elementary school all the way through college. Students begin echoing phrases like “this is a girls’ thing or this is a boys’ thing,” and inclusion begins to fall away as cliques form and bullying emerges. The percentage gap between students’ level of exposure to STEM starts to widen as they enter high school, making it impossible for teachers to teach everyone at the same level. And while diversity remains consistent during the youth and adolescent years, its lack thereof is evident as women enter the STEM track in college. What’s also missing at this level is inclusion, empathy, exposure and equity.

As Jackson recalls her collegiate years, she discusses the need for that encouragement, role models and coping skills she mentioned earlier to help her navigate the environment and stay on the STEM path. It was something that was hard to do, given the overwhelming percentage of male professors within her STEM field. While working with PKAL, a few easy tips she shared with male STEM professors included repositioning their chair so they’re facing the door. This simple action, Jackson

explained to them, gives the impression that they're open to receiving people. Placing photos of loved ones in their office shows empathy and the ability to love something.

Jackson continued by further reiterating the importance of offering encouragement during difficult times. As she reflected on one of those challenging times in college, she remembers being ready to quit, not only the STEM program but college altogether. However, her father told her not to give up, that she could do this. That moment and encouragement made a huge impact on her life.

In the workplace, everybody is “fighting for equity and excellence.” In the early 1990s, she had an opportunity to work as a programmer for Ross Perot, and out of 200 people, she was the only woman and the only African-American. Similar to the scenarios played out in the “Hidden Figures” movie, she had to face implicit bias, such as the men commenting “good, she’s here to make the coffee” or speaking for her in meetings. Despite this, she stayed focused, she did her work and excelled. She also learned she was outperforming her colleagues, producing twice as much code as all the men.

In closing, Jackson reminded the audience that “in order to move forward, we need to keep communication going like we’re doing now.”

Her father told her not to give up, that she could do this. That moment and encouragement made a huge impact on her life.





Georgie Brophy – President, The Maryland Space Business Roundtable; Director of Strategic Growth for Space Ground Systems and Operations, General Dynamics Mission Systems

As Georgie Brophy thought about it, and discussed it with colleagues, the theme for this year’s event raised two questions for her. How will I know if I’ve succeeded in this? What will it look like?

Before she dives into this, she takes us back to her freshman college years of being one of five women in a 65-person aerospace engineering program. For the first time ever, she found herself struggling with classes. It was so bad that her aerospace engineering advisor told her “Georgie, I think you’d do better in the liberal arts,” suggesting she leave the program. Upon sharing the conversation with a female professor, a mentor, outside her department, it took her encouraging, matter-of-fact advice of telling her that she could either decide her life for herself or allow her advisor to do it. According to her, “That one single voice saying to me that something could happen differently than what someone else was telling me, that changed my life forever. That’s when I first started making the shift.”

Over the past two decades, she’s witnessed change in companies she’s worked for, such as being the only woman on a team to one of several. The demographic, she says, of leadership has transitioned from majority white-male to one that’s more diversified.

There’s a program that she’s a part of that includes another director of strategic growth from a different engineering company, and together, they lead a diverse team of men and women with various backgrounds and ethnicities. “Corporate STEM is starting to look like America,” according to Brophy. This team is just one representation of that.

She goes on to outline three places where she’s seen the culture change and shift in the environment in which women are being sustained in STEM: corporate, team and individual levels.

Over the past two decades, she’s witnessed change in companies she’s worked for, such as being the only woman on a team to one of several.

She quotes Darlene Hart, General Dynamics’ innovation and research and development lead, who said, “To innovate, we must look for and capture the jobs of tomorrow while executing the jobs of today.” At the corporate level, she talked about how her company created programs that enable employees to do just that, within a supportive and inclusive environment. Three of these programs are:

- Innovation Initiatives IRAD (I3) Program – Open to anyone, at any level. Principal investigators propose ideas that are matched to a business need and funded. The goal is to flesh out new technologies.

- Systems Engineer Architect Leadership (SEAL) Program – Strengthens the systems architect talent base and includes a leadership and academic component. The goal is to get participants to envision, communicate and drive technical solutions across the breadth of the firm.
- Employee Resources Group – Employee-driven groups, organized around a particular need, with the goal of promoting diversity and inclusion. These groups help attract, recruit and get the right people in place, increasing diversity. They increase job satisfaction, morale and productivity. One such group is called ForWARD, For Women’s Advancement Recognition and Development.

Brophy states that across industry, companies are creating programs such as these to create a new, diversified environment that can sustain a STEM workforce.

At the team level, her colleague Hart pointed out that she believes “team-level innovation can be driven by just a single voice. I know we can do this better. Let’s look beyond the status quo.”

Approximately 25 years ago, Brophy described how while working in her first job supporting mission operations for the space shuttles’ Hitchhiker Program, she noticed all of the operational procedures and scripts had pronouns such as “him,” “he” or “his” as they outlined steps to be performed by operations personnel. Her manager, who happened to be young and male, offered his full support in allowing her to update those procedures. As she puts it, “they both made the shift.”

In her local office, she sees firsthand how diversity drives technological innovations. By combining early career professionals with seasoned professionals, General Dynamics has ignited innovation, leading to noticeable improvements at both the customer and company levels. At the team level, diversity can also influence process improvements. It only takes one person to have that “a-ha” moment, when they realize there’s a better way of doing something. When Brophy joined General Dynamics eight years ago, she was that person. As a new addition to a now four-person senior team, it was her outside-of-the-box thinking that suggested the creation of a business development training class for engineers, ultimately leading to tangible business growth.

Participate in your company’s activities and what it’s doing. Come to your teams prepared to help them grow and be innovative. Diversify yourself so you have new skills you can bring to the table.

At an individual level, Hart observed “that innovation is at the core of the human spirit.” Brophy’s interpretation is that by diversifying ourselves, we drive individual innovation. How do we do this? We embark on a journey of new experiences, growth, learning, roles and jobs.

To make the shift within organizations, she tells attendees to do three things:

- Participate in your company’s activities and what it’s doing.
- Come to your teams prepared to help them grow and be innovative.
- Diversify yourself so you have new skills you can bring to the table.



Joelle Allen – Chief Inclusion Strategist at Interaction Traction, Inc., and Director of Client Engagement at kpCompanies

In her role at Interaction Traction and kpCompanies, Joelle Allen’s most important responsibilities include bringing talented individuals into organizations, ensuring they’re supported once there and can be retained by those organizations. According to Allen, she accomplishes this through the lens of diversity and inclusion.

“What’s the work behind the words?” and “How do we actually get to where we need to go?” are two questions Allen posed to the group. She then kicked off her presentation with a video by the Harvard Business Review (HBR), entitled “When Will We Reach Gender Equality?”

When business students around Boston were interviewed, answers ranged from five years to 50 and beyond. One student believed gender equality would never happen. According to HBR, U.S. research estimates we have another 208 years (year 2227) before we reach gender equality.

According to Harvard Business Review, U.S. research estimates we have another 208 years (year 2227) before we reach gender diversity.

Even Melinda Gates, philanthropist and founder of Pivotal Ventures, was in disbelief when hearing this because she estimated we were closer to 60 years. In the video, Gates challenged organizations to ask the following:

- Is this working for families and for women?
- Do we have a true paid family medical leave policy?
- Do we have the right networks for women?
- Are we creating pathways into these jobs for women?
- Are we making sure that once they’re here, they’re supported in terms of mentorship and sponsorship into really key roles?
- What are the barriers that hold women back?
- Where do we have bias in our systems and in our workplace, and how do we tear that down and change things so women have the same opportunities as men?

In addition to the video, Allen offered thoughts on going beyond the words and doing the work:

- Men and women have to build deeper networks. Most of us know many individuals, but we’re unable to speak to actual achievements preventing us from serving as an advocate to help them reach the next level in their careers. Get to know your network!
- Acknowledge the implicit bias. These systems were designed intentionally, so it will require that same level of intent “to get us out of this mess.”
- Men and women need different types of support, and that’s okay. You allow people to flourish by giving them what they need.
- Teach people how to support female leadership. When female leaders are in charge, subordinates question directives or seek validation from male colleagues on whether an idea is good. In meetings, we encounter the “repeat three-peat idea” in which ideas aren’t acknowledged until they’re said by a man.

She concluded by invoking a call to action for attendees, to remember three times implicit bias was observed in the workplace, devise a plan and be prepared with a response should it happen again.

Q&A DIALOGUE WITH PANELISTS

In-person and virtual attendees were given the opportunity to engage the panel in a question-and-answer session. Select questions are listed below along with accompanying responses:



How do you integrate an entire team toward the same STEM, diversity and inclusion goals?

Joelle Allen – When a new leader comes into an organization, they have to already be acclimated to the culture and goals of the organization. Part of getting the team onboard is coming in with a very clear vision, agreeing that the vision is appropriate for the goals at hand and then ensuring that skill sets align with each part of the goal. Everybody has an important part to play in achieving the mission.

Georgie Brophy – I would add that when you have an existing culture that needs to make that shift, getting people onboard may be an exercise in looking at individuals first. The leaders and key stakeholders need to be in agreement and going in the same direction. Everybody is going to be in a different place in their journey around this topic, so addressing each leader individually with where they are now, what they've been successful with and where they need to go may help the engine move forward. It may take individual attention to help shift the culture.

Lethia Jackson – I agree with Georgie, except that I would also put it at a personal level. What does each individual person feel and think? It is buy-in. We are all here together as one team to complete the job.

How do you build up the courage to say something different?

Thomas Zurbuchen – Let me tell you what I do as a leader: I sometimes deliberately say stupid things first, especially with a new team. The reason for this is that it is okay to be wrong. The moment you do that, people say, “Hey, he is wrong, so I can be wrong, too.” There is no downside to that in an innovative team. If you are in the game of innovation, excellent ideas and crazy ideas tend to live very close to each other, so you have to be able to cross the boundary and be pushed back. One of the other things that I’ve learned is that you are not successful on your own. The team is responsible for your success, too. We talk about mentorship and champions with our new leaders, especially those without much experience. It is not uncommon that I see a champion speak up to help or encourage others to speak. We all need help. The only way we get somewhere is because other people help us. Don't feel you have to do it on your own. Find a champion, a trusted person. Perhaps practice presentations or new activities with your champion. You'll get courageous over time. As a leader, don't feel like all of the pressure is on your shoulders.

Christyl Johnson – I'll take that one step further. How do you deal with people saying, “Why does she have to stir the pot/be the outlier?” It starts with you developing a true confidence from within, being aware of the fact that you deserve to be there and that you have a right to speak up no matter what your opinion is about something. Many times we have an imposter syndrome. We tell ourselves that we are not as good as the men/boys sitting here and don't know as much as they know. This keeps us from expressing our voice and being a part of the team. You should be 100% confident in who you are, your uniqueness that you bring to the table and your value that your uniqueness brings. Know that it is okay for you to speak up, and it doesn't matter what they think about you or say about you. What matters is that you're awesome and you are going places. Start there. Then realize that some of the best ideas come from “outlier comments.”

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Joelle Allen – It's important for leaders to set the expectation for everyone to contribute. In kindergarten, everyone took turns and was expected to say something. When we expect that men and women, young and old, are expected to say something, it changes the dynamic of the room. It's not about courage. It's about being prepared. That's what we need to set up our organizations to do. I have one client who does a one-minute brainstorm, and everyone in the room has to throw out as many ideas as possible. They write them all down and then, as a group, they determine what makes sense. People have permission to say something silly or off base, because it a brainstorm. They get a lot of ideas that way, and everyone participates.

What are your thoughts for encouraging young men to be advocates for women in the STEM fields?

Lethia Jackson – In my classroom, sometimes I'm the only female and the teacher. I ask for empathy in the classroom. I ask students to rehearse words and thoughts. If you say something to me and I did not like the way it came across, I will ask you to reword or think about how it was said. I'm not offended or upset. We go through that process in the classroom and with some of my faculty to help

us understand that we may mean well, but the tone can come across as arrogant or like talking to a child. I think conversation and role playing are important. I think leaders could say, “How does this sound? What do you think about this? Or, how would you take it?” People don't necessarily mean what they say, and they definitely don't mean the way it's perceived, most of the time.

Stephen Jurczyk – To add to what Lethia said, you won't remember what someone said, but you will remember how they made you feel. I think about that. Words matter, tone matters and how you interact matters.

Christyl Johnson – It is important to find young men and boys who are awake to this issue – people whom you know already kind of get it. You can use those people to help reach out to other males, because they can have a significant impact. They can help in many subtle ways when they see other males disrespect a female. Those “woke” males have to be prepared to speak up. Find those people in your networks who get it and have them help communicate that forward to other males.

There's a need for more professionals in my field, but there isn't always a desire for entry-level employees that need to be trained. How do young women get experience in that type of environment?

Georgie Brophy – We are actively engaged in working with local universities, in particular with intern programs. I mentioned in my talk the operational aspects of bringing young people in to work hand in hand with our mid- or late-career professionals, whether it's an internship or full-time. We've found some of our most diverse and female employees through these roles, and it's been phenomenal and a really good experience. We're bringing them in at a level at which everyone needs to get trained. If you're looking at the mid level or senior level, you can make a phone call. I was able to fill a position on my team with a phone call eight months ago. She was an outstanding female in an entirely different part of the country and in a different business, but I knew she'd be phenomenal. I talked with my boss and made the call. The stars aligned, and we've been teammates since May. You seek it. You look at the bottom of the barrel and then you get another barrel and look at it for what's different and what you need.

Joelle Allen – As a person who spends the majority of the day recruiting, it's statistically impossible in any city of any size to not find one woman who's qualified for the job. People are out there. Instead, we tend to advertise golf in a hunting magazine, and we wonder why we don't get results. We have to go where folks are. We have to go where professional women are. We make sure that we bring them along and let them know the value of the position. We also have to create cultures in which people aren't afraid to fail. It's often a tremendous risk for professional women to make a leap to another organization because of implicit bias. I think it's a two-fold problem. We need to figure out the places to go, and we need to make sure that we develop the cultures to support them.

Christyl Johnson – There are many specific programs directed at that. I'm on the board of advisors for the Intelligence Community – Centers of Academic Excellence. It's a cohort of universities, up and down the Eastern Seaboard, that are historically black colleges and universities. They are focused on ensuring minority representation in organizations that need STEM professionals, including female

representation. They make sure that these underrepresented students get work experiences and obtain clearances so that they can go straight into classified positions after graduation.

Is true diversity possible in STEM, and how do you define it?

Joelle Allen – First, there’s a difference between diversity and inclusion. We already have diversity. What we don’t have is inclusion, such that what everyone brings to the table is equally valued and utilized fully to support the goals of the organization. I do believe it’s possible, or I wouldn’t be doing this work. It’s going to take a lot of hard work to look beyond the words and get into the thick of it. Why is it that we believe we can’t find women to do certain jobs? That’s an implicit bias that we’ve got to get beyond and figure out a solution for. Maybe it’s a long game. Those women aren’t here yet, and we need to start getting those girls in the pipeline.

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Thomas Zurbuchen – I think it’s a profound question, but at the heart of it is an implicit bias. When someone says STEM, they think of certain people doing things a certain way. I understand that the average STEM person looks and behaves a certain way, but I know introverts, some of the craziest extroverts, actors, writers, dancers, and people of all genders and orientations who are incredible STEM people and innovators. There are not enough of them, but they’re doing wonderfully. One issue that we want to work on is that we talk about our STEM work not as a domain of geniuses. When I first came to NASA and met writers there, one of the first things I did was say, “If I can’t understand it, we won’t put it out.” I want our communications to be simple, because science is always about making things simple, not about making things as complicated as possible. Also, what I’d like to contribute is the fact that scientists are a diverse group of people. All of them have weaknesses and strengths, but they can participate in one of the most exciting human endeavors. This is to look at nature and see things that no one ever saw in all of history and see patterns that make us feel in awe, in the same way that many generations back felt when they looked at the night sky. It is that deeply human feeling. This is what science is all about. So who are we, the people in STEM? For me, I hope we are humans excited about one of these innately human drives that we have in us. I see it in the stars. Perhaps you see it in the microscope, or when you look at the oceans. Science is in all of us.

In all of the conversations about making the shift in our workplaces and personal lives, it’s about taking risks. What advice would you give the people attending this workshop as they go back to their own organizations and think about making the shift within their workplace cultures to be less risk averse, particularly in the realms of diversity and inclusion?

Georgie Brophy – I think the message is that you’re taking a huge risk if you’re not. If you don’t, other organizations will outpace you. It’s really true – diversity begets innovation. If we don’t take risks because that’s the way we’ve always done it, you’re going to be stuck. That’s not good, whether you’re in a private organization, a civil servant or in academia. It’s too risky not to change.

Stephen Jurczyk – What we do is risky. If we were a risk-averse organization, we’d never fly or launch anything, and we surely wouldn’t launch people. We accept residual risk in everything we do. There were a couple of times that we had an environment that was not inclusive, when we shut people down – people who look like me. And we had really bad days – Challenger and Columbia. When we’re

doing risky things, we have to create an environment in which people can speak up without fear of being ostracized, criticized or pushed out of the conversation. If you extend that to everyone, then we can take risks, manage it and be successful in creating an environment in which everyone can come forward and express their viewpoints. We can argue with data, analyses and test data, whether it's time to go or not go, whether it's time to do more and reduce risk more, but everyone in the room can speak up without fear of retribution, etc. It's imperative in the business world that we do that to be successful, and it's imperative that we have people with a diverse set of experiences speaking up so that we can continue to do the even more risky things that we want to do.

What advice do you have for a woman of color who's struggling as she's working toward a degree in STEM?

Lethia Jackson – One, don't take it personally. Two, look past the conversation and deeper into the instruction. People say words that hurt, and it's not always directed at you. It could be some other past experience that they had. When I think about my trajectory of getting a doctorate and how I made it through, it was because I had a strong support network at that time. I had my parents and friends who had gotten doctorates, although maybe not in that particular field. I had to lean heavily on them in order to stay in place. I had to deal with coping skills, be committed, understand that everyone's heart does not look or feel like mine, and that there was a finish line. It was tough, but you can do it.

Christyl Johnson – Never quit. Do not quit. Find other people who will be your allies. Find other students who will be in your study group. Find people you can work practice exams with. Find a good roommate whom you make the journey with. I'm fortunate to have my college roommate here in the audience today. We spent many long nights studying together and preparing each other to make it through graduation with physics degrees. When you have a strong support network, there is nothing you can't do.

In situations in which your voice is not heard and you have to work in that group for a while, how do you encourage them to listen to you but do it gracefully?

Joelle Allen – Find an ally in the group. Most of the time when sitting on teams and panels, we listen, and we know when something is not right and someone's voice is not being heard. A lot of times, we don't want to take the risk to stand up and say something, but when asked, we often rise to the challenge. Have enough courage to stop the team, if necessary, and say, "We have an idea on the table, an idea that others are glossing over that I think is worthy of additional consideration." When people start doing that, and you do that for someone first, you will start to change the culture of the team. Eventually people will start to do that for you. All of a sudden, we have a space in which everyone is being listened to.

HIGHLIGHTS FROM THE BREAKOUT SESSIONS

Session I: Strategic Inclusion

Insights on how to gain new perspectives on how leadership creates a stronger inclusion-focused culture that will provide an appropriate environment to attract and retain women in STEM.

- **Thought Leader:** Joelle Allen; Chief Inclusion Strategist, Interaction Traction, Inc.; Director of Client Engagement, kpCompanies



What is a stereotype? It is often considered “a widely held but fixed and oversimplified image or idea of a particular person or thing.” It presupposes that we make assumptions. However, we share hidden traits with others, and we should never judge a book by its cover.

A survey collected data for five years, and the findings demonstrated that there is a growing number of women in leadership positions, but some pipeline issues still exist and will not go away over the next five to 10 years. Furthermore, a Harvard Business Review video titled “When Will We Reach Gender Equality?” suggested that gender equality may not really happen until 2227.

To help mitigate the negative impacts of the challenges ahead, implicit bias must be addressed as it pertains to gender. Failure to do so could create a culture that limits the growth of women in STEM positions. For the culture bias that currently exists, we must learn how to move past the status quo by asking key questions. Essentially, what kind of culture do we have at the moment, and how do we move forward to get to where we want to be?

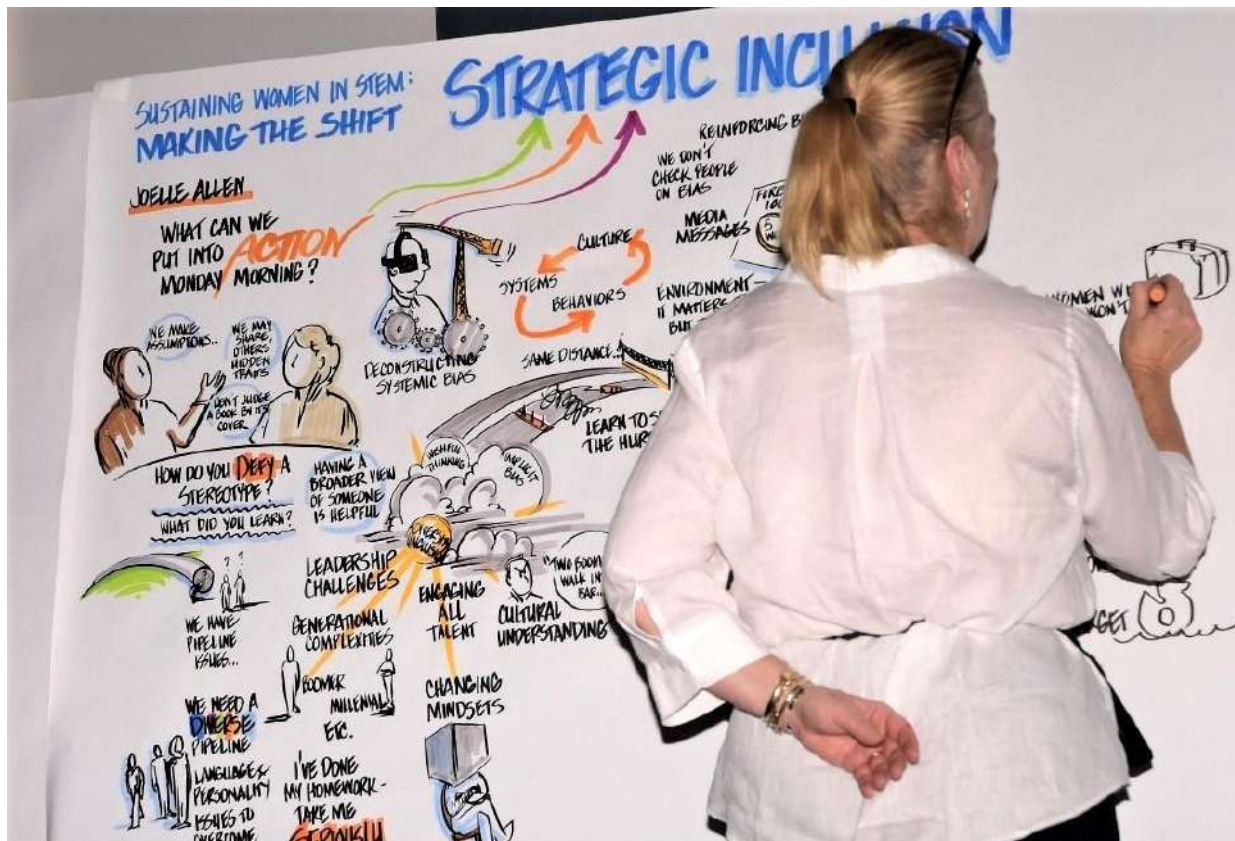
In addition, unconscious bias may still exist in many workplaces, in the form of posters, jokes and behaviors that have been identified as offensive and problematic. Actions must be taken to address such biases. There are also leadership challenges, and self-reflection is a key component for encouraging women to move up the career ladder.

Strategies for Improvement:

- Encourage leaders to mentor those outside their own demographic groups. This pushes them beyond their comfort zones and helps create a more diverse workforce.
- Integrate coaching and mentoring into management performance plans. This will help create a real outcome-based mentoring and coaching program.

In addition, unconscious bias may still exist in many workplaces, in the form of posters, jokes and behaviors that have been identified as offensive and problematic. Actions must be taken to address such biases.

- When recruiting new employees, identify the minimum skills and experiences necessary and place them in job advertisements. For other criteria, rely more on transferable skills and be willing to train for others.
- Ensure that an employee's goals for acquiring skills and gaining a broad range of new experiences enhance their career opportunities and are provided through training, project assignments, mentoring and coaching.
- Managers need to conduct "self-audits" of their own performance reviews to highlight areas for improving their assessment and evaluation skills. It is a good way to also "catch" any unintended biases in their assessment and evaluation of employees.



Session II: Removing Personal Limitations

Strategies and ideas for implementing actions were proposed to help women identify, reframe and discard limiting perspectives and establish habits to help tear down self-imposed restrictions.

- **Thought Leaders:** Mina Samii, Executive Vice President of Aerospace, Columbus Technologies and Services, Inc.; Tammy Ashraf, Senior Systems Engineer and Strategist, NASA's Goddard Space Flight Center



All employees experience distractions at one point or another. Conflicts with team members are inevitable and not all co-workers will be supportive. Sometimes, women can be affected by these unavoidable conflicts

more than men. There are several ways to “ignore the noise.” For example, present yourself with confidence. Focus on doing your best and present your ideas and work to be excellent. If you are told there is room for improvement, assume the best intentions.

Many women have personally struggled with imposter syndrome. Even though they are qualified and have a sufficient amount of skills and experience, especially in a new job or when considering a career growth opportunity, they can feel particularly inadequate. It has been said that a significant number of women only apply for jobs if they feel that they can unequivocally prove that they have experience in every element of a job description, but they must remember that they were hired in the first place because a hiring manager noticed the required skills and experience. If they continue to struggle to understand if an opportunity would be a good fit, they should connect with a mentor, supervisor or other supportive colleague and discuss the opportunity.

In terms of participating in team dialogues, brainstorming and solution development, sometimes women don't share ideas as readily as others. Some women express discomfort at doing so, especially if there is a potential to negatively impact a relationship.

Research has indicated that it is harder at times for women to find allies, sponsors and mentors in their careers. A support network is critical. They should lean into the relationships of those supervisors, co-workers and other colleagues who already support them as well as build their own networks.

In addition, conflicts in the workplace are inevitable, but conflicts can be used as an opportunity to strengthen relationships, identify different expectations and work together to come to a resolution.

Strategies for Improvement:

- Use soft skills and people skills. These skills are often more important than technical capabilities which can more readily be acquired through training. It isn't always about pursuing the metrics.
- Continue to better understand the expectations of managers and what success means to them. Don't be afraid to ask questions, and don't assume you already know what is important to them.
- Know the strategic direction of your organization. Ensure that most of your efforts are directed toward accomplishing your organization's objectives. Find additional ways to support these objectives, if possible.
- Build respect for yourself by spending more time on developing your knowledge, capabilities and expertise in a specific area. In time, you may become the organization's expert on a specific subject matter.
- Leadership should establish expectations and a process for all employees to participate in outreach programs that attract representation from all groups in STEM careers, especially women. This will allow leaders to appreciate perspectives outside of their own. In turn, this helps create diverse teams with more new and innovative ideas.

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Session III: Network Your Way to Success

An open discussion about long-term mutually beneficial relationships developed through networking and becoming a resource for others.

- **Thought Leader:** Georgie Brophy, President, The Maryland Space Business Roundtable; Director of Strategic Growth for Space Ground Systems and Operations, General Dynamics Mission Systems

The term “networking” often gets a bad reputation and many people, especially women, have a negative association to it. In reality, though, it’s just another way of saying “professional relationship.” Networking is not about begging for favors; it’s about long-term mutually beneficial relationships. Just as important, it’s about being a resource for others as well.



These relationships can take many forms: friends, work acquaintances, people you meet and exchange business cards with at an event, interns, or mentors. Relationships change as you grow, and a co-worker may leave and pop up again at a different job. A strong approach is to nurture your network, contact people frequently and ask how they’re doing. Setting personal goals that are achievable is another good strategy, such as when you go to a specific event you want to meet one person from company X or one customer from organization Y.

In order to better network in a competitive environment, remain confident and always believe that you deserve a seat at the table. Remember that negativity you receive from someone else is a reflection of them, not you. Insecurities are still one of the biggest reasons for trying to bring others down.

Networking with men often involves different interactions compared to networking with women. Firm handshakes and eye contact are necessary, as well as business cards. Keep in mind there are nuances to networking with people of different ethnic backgrounds as well. These differences will become self-evident, but it is best to enjoy them as opposed to letting them negatively impact you.

Relationships change as you grow, and a co-worker may leave and pop up again at a different job. A strong approach is to nurture your network, contact people frequently and ask how they’re doing.

Strategies for Improvement:

- Get out of your comfort zone. Try to identify champions or mentors among those you must network with, even if you are shy. These champions may act as a bridge to others.
- It's not about quantity, but rather quality. Identify those you are most likely to remain in contact with instead of just trying to connect with a large number of individuals – especially in forums like LinkedIn.
- When you meet someone, ask them about themselves. By building a rapport, you are making them feel comfortable, showing interest in them and they walk away with a positive feeling of the interaction. Always be sincere and genuine during these interactions.
- Be an advocate for other women who do not yet have their own voice. This will prove beneficial in the long run and exhibit your leadership qualities.
- Set networking goals that are achievable, such as the number or type of contacts you would like to make or reinvigorate in one event, one week, one month or one year.



Session IV: Redefining the Ideal Workplace

An in-depth conversation to gain new perspectives on what redefining the ideal workplace really means, as well as what new or current challenges need to be addressed to help create an inclusive workplace and attract new talent.

- **Thought Leaders:** Charisse Carney-Nunes, Esq., Senior Staff Associate, National Science Foundation; Joan Centrella, Ph.D., Astrophysicist, NASA's Goddard Space Flight Center

At organizations such as the National Science Foundation (NSF), terms and agreements that address issues such as sexual harassment have recently been incorporated.

There are now programs that encourage ethics training and best practices at many institutions. One such

program, called ADVANCE, focuses on gender equity in STEM academic professions and how the highest level of management can buy in. Changing practices, such as offering child care services at conferences, have been introduced. Another program, INCLUDES, has a broader focus that addresses the collective impact of change, resulting in a STEM workforce that is better reflective of the nation's population. NSF now has many programs that focus on specific audiences and is providing funding to institutions in order to help them create the ideal workplace. Within NSF itself, teleworking has become a standard option, and training is offered to supervisors and employees who telework. There are also employee assistance programs, affinity groups and a "work-life for you" program to help with family issues.

Similar offerings are also available at NASA. However, at locations such as NASA's Goddard Space Flight Center, not everyone is familiar with these programs or knows where to go to find additional details. For example, lactation rooms exist on center, but very little is known about the support available for breastfeeding mothers who need to travel. These and other similar issues echo across various organizations. Sharing this information with employees on a routine basis would make it readily available and accessible, as well as eliminate the need for employees to conduct their own research when the need arises.

Accountability within the organization is essential. When there are problems within the organization, such as a low-performing or difficult employee, that individual's behavior and actions impact all within the organization. Management needs to deal with these problems quickly, directly and with transparency instead of playing the "shell game" with offenders.



Strategies for Improvement:

- Supervisors and project leaders should undergo training on how to communicate and set reasonable expectations. They should not, for example, send emails on nights and weekends and expect replies back prior to the next working day.
- All employees should undergo implicit and unconscious bias training.
- Top leaders should serve as models for inclusion and impacting change. Subjects such as diversity and inclusion should be added to their performance plans so they become more of a priority.
- More emphasis needs to be placed on work-life balance. The current culture expects employees to remain connected to their work. Otherwise, they will fall behind. Rigid policies should be put in place in order to eliminate the expectation that employees must always be on call.
- The work environment needs to shift from one in which employees are always competing with each other to one in which everyone helps everyone else succeed.
- New employees should be paired with sponsors or advocates.
- Employees must always continue to feel valued. As part of this process, they should be able to speak up about any of their concerns without the fear of retribution.
- Organizations should implement a paid parental leave program.

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Session V: Be a Catalyst for Change

A discussion on how actionable items need to be part of your plan to move beyond simple conversations and to start implementing change, as well as to create a community of support for sharing successes, exchanging ideas and airing out grievances to help determine next steps toward achieving this goal.

- **Thought Leader:** Diana Hipp, Deputy Chief Information Officer, Information Technology, KBR

A catalyst is often defined as someone or something that brings about change, and this begins at the individual level.

Many workplaces are faced with the dilemma of how to create a more diverse, inviting and inclusive culture for all employees, especially women and minorities. While creating change throughout an organization may seem like a daunting task, there are steps that can be taken to move the needle tactically, and this involves exerting influence within your own individual spheres. For example, as a supervisor or leader of a team, you can create a flexible workplace policy to accommodate the personal and familial responsibilities of your employees and others. During performance reviews, you should not only assess your direct reports on their ability to do the job, but also on their ability to interact with colleagues.



Many organizations may not be ready to have these conversations, and a reasonable goal would be to have enough pockets of success to the point at which the entire endeavor will be sustainable and succeed in the long run. Some of the initial conversations may be difficult and require some hard truths, but they should be based on facts and clearly define the elements of the workplace that need to change. Regardless, take time to appreciate people and where they are in their thinking, but continue to have conversations and celebrate small victories while building your coalition of supporters.

Going forward, actionable items need to be part of the plan to move beyond simple conversations. During the onboarding process, for example, an organization should be intentional about creating welcoming spaces and defining expectations for new hires when it comes to interactions within the workplace. Similarly, organizations should continuously assess their succession plans from one group of leaders to the next, evaluating candidates every couple of years to determine if they will advance a diverse and inclusive workplace culture.

Some of the initial conversations may be difficult and require some hard truths, but they should be based on facts and clearly define the elements of the workplace that need to change.

Being a catalyst will inevitably pose many challenges along the way, especially given the time it takes to implement lasting change. Support groups and advisory committees create a community of support for sharing successes, exchanging ideas, airing out grievances and determining next steps. Such groups should include male counterparts, using their perspectives to formulate effective action

plans, because such groups go beyond sharing subject matter expertise. They are also about navigating the nuances and difficulties of the workplace.

Strategies for Improvement:

- Take individual actions. Share your own stories and challenges. Others may use your stories to understand their own and know where they stand. Mentor individuals and stay connected with your own mentors.
- In the workplace, create accountability for midlevel managers and discuss what success should look like when it comes to diversity and inclusion. Midlevel managers are the ones who make the most hiring decisions, not those in top level management. Address potential biases in job descriptions. Interact with colleagues who are not like us and learn from their experiences. Say hello to everyone at work and introduce people in professional settings.
- Be a catalyst for change in the community. Visit male-dominated spaces, because many men are allies in the endeavor. Put time aside to help move women and minorities along the pipeline, such as by visiting high schools, mentoring students and spotting new talent. Use social media to build a bridge across generations, bringing together audiences with different generational perspectives.
- Recognize that politics exists in every workplace. Don't be afraid to discuss unconscious biases. This requires internal reflection, as you may have your own privileges that you previously were not aware of.
- Treat being a catalyst for change as a work project in itself. Otherwise, it will inevitably get lost in the shuffle with all your other job responsibilities. Measure yourself against goals and put together action items to keep the plan in place.



Session VI: Reverse Mentoring

A discussion on how organizations benefit from reverse mentoring, in which junior and younger employees engage in knowledge sharing practices with senior employees.

- **Thought Leader:** Dan Krieger, Diversity and Inclusion Program Manager, NASA's Goddard Space Flight Center

Organizations such as NASA's Goddard Space Flight Center ensure that new employees feel respected and heard. The center has a long-standing Power and Privilege training series and New and Developing Professionals Advisory Committee to help bring voices to the table. These institutions often engage directly with the center director to discuss any and all topics of interest. In turn, those who participate in these opportunities eventually become ambassadors and motivators for their colleagues



Goddard's Reverse Mentoring Program, which began about three years ago, exposed some challenges. Senior managers, for example, had to remain in a mindset of continual growth if they were to continue as mentees. There were, however, several benefits. Many gained perspectives from those coming from different generations. Participants were exposed to different communication styles. Bonds were created, allowing ideas to be exchanged between participants

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An ideal reverse mentoring program takes into account the intimidation junior employees may face when taking on mentorship roles. Therefore, participants' comfort levels should be taken into account when pairings are determined. Furthermore, there are various pairings that organizations can try if the one-on-one approach isn't working or is a deterrent for some. These include: woman to woman, two or more junior employees with one senior-level mentor, a panel structure of multiple junior employees with one senior employee, or even looking externally to complete matches. Less formal settings, even those that are external to the organization, may be more comfortable and attractive to participants, thereby encouraging them to open up more. When deciding whether to implement these types of programs, organizations should consider that large segments of the workforce are eligible to retire each year. Therefore, it's in their best interest to bring along the next generation of employees.

Strategies for Improvement:

- To determine the outcomes of the program, it would be better to measure results over a longer period of time instead of over three months.
- Use feedback tools, such as Survey Monkey, to capture the effectiveness of the program.
- Decrease monthly commitment hours if longer time frames are problematic for participants, and be open to various communication channels. Meetings do not always have to be conducted face to face.
- Engage more senior fellows with the program. Perhaps they could meet once a month with new and developing professionals, many of whom already participate in the program.
- Establish a larger forum to go over lessons learned and provide more retrospectives, as well as determine what has worked well and what hasn't.
- Women across center should consider having “office hours” for other women to go over personal matters and discuss other relevant topics.



Session VII: Develop Your Growth Mindset

A dialogue on why mindset is essential to developing positive habits that put you on a path to success, understanding the difference between fixed and growth mindsets, and identifying ways of developing a growth mindset.

- **Thought Leader:** Lethia Jackson, Ph.D., Professor and Chair, Department of Technology and Security, Bowie State University; Shelley Johnson, Vice President and Deputy for Space and Mission Solutions Business Unit, KBR



Developing a growth mindset requires “wider thinking” instead of just thinking “up and down.” This doesn’t necessarily require a promotion. Rather, individuals can participate on particular teams, explore other opportunities and develop more skills. Eventually, doors will open up that were previously closed.

This will require overcoming any doubts along with making oneself uncomfortable in the search for progress. Regardless, individuals always have the opportunity to lead from their current positions so long as they maintain a positive mindset. To help facilitate the process, organization is key, both at home and in the workplace. If there are others who express reservations, their doubt can be used as motivation to keep progressing.

It’s important to maintain a positive mindset about the work you do, even if it’s not your dream job. Use this time to take an introspective look at yourself to figure out what you’re passionate about and what you really want to do. With that in mind, you can devise a plan and begin to set it in motion. Repeat this process, as many times is needed, to execute your goals. Seeing your goals and actions in writing creates a different level of accountability.

Strategies for Improvement:

- Women need to have more than one mentor. Many men have several mentors for a myriad of reasons. However, women often think just one mentor will help address all of their concerns. This is hardly true.
- Managers should focus more on performance instead of on presence. This would help create more flexible schedules for women. Furthermore, presence in the traditional sense is not always required to produce quality work.
- Work-life balance should move toward “work integration.” This focuses more on the whole individual and takes into account their personal needs as well as the demands of their career.

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- Managers should undergo more unconscious bias training so they can become more aware of their own perceptions, especially when it comes to women.
- Offer more courses on “managing up.” It is often difficult to change the perceptions of others, so women should feel more empowered to improve their own prospects in the workplace.
- Women should have more safe spaces to ask for what they want and allow them to explore it. This could be in the form of training, detail assignments, mentors and a flexible work schedule.





AGENDA



Sustaining Women in STEM: Making the Shift

Thursday, November 7, 2019

Bowie State University Student Center
14000 Jericho Park Rd, Bowie, MD 20715



- 8:00 a.m.** Registration, Continental Breakfast and Networking
- 8:40 a.m.** Welcome and Opening Remarks
Christyl Johnson, Ph.D. - Deputy Director for Technology and Research Investments, NASA's Goddard Space Flight Center
Aminta H. Breaux, Ph.D. - President, Bowie State University
Nazzic Keene - Chief Executive Officer, SAIC
Stephen Jurczyk - Associate Administrator, NASA
Kathy Warden - Chairman, CEO and President, Northrop Grumman Corporation
- 9:50 a.m.** Panel Discussion
Thomas Zurbuchen, Ph.D. - Associate Administrator, NASA's Science Mission Directorate
Lethia Jackson, Ph.D. - Professor and Chair Department of Technology and Security, Bowie State University
Georgie Brophy - President, The Maryland Space Business Roundtable; Director of Strategic Growth for Space Ground Systems and Operations, General Dynamics Mission Systems
Joelle Allen - Chief Inclusion Strategist at Interaction Traction, Inc. and Director of Client Engagement at kpCompanies
- 10:50 a.m.** Brief Intermission/Break (10 minutes)
- 11:00 a.m.** Question-and-Answer Dialogue with Panelists and Stephen Jurczyk, Moderated by Christyl Johnson
- 12:00 p.m.** Lunch (Networking Hour)
- 1:15 p.m.** Breakout Sessions
- Session I: Strategic Inclusion**
Thought Leader: Joelle Allen, Chief Inclusion Strategist at Interaction Traction, Inc.; Director of Client Engagement at kpCompanies
- Session II: Removing Personal Limitations**
Thought Leaders: Mina Samii, Ph.D., Executive Vice President of Aerospace, Columbus Technologies and Services, Inc. and Tammy Ashraf, Senior Systems Engineer and Strategist, NASA's Goddard Space Flight Center
- Session III: Network Your Way to Success**
Thought Leader: Georgie Brophy, President, The Maryland Space Business Roundtable; Director of Strategic Growth for Space Ground Systems and Operations, General Dynamics Mission Systems
- Session IV: Redefining the Ideal Workplace**
Thought Leaders: Charisse Carney-Nunes, Esq., Senior Staff Associate, National Science Foundation and Joan Centrella, Ph.D., Deputy Director, Astrophysics Science Division, NASA's Goddard Science Flight Center
- Session V: Be a Catalyst for Change**
Thought Leader: Diana Hipp, Deputy CIO, Information Technology, KBR
- Session VI: Reverse Mentoring**
Thought Leader: Dan Krieger, Ph.D., Diversity and Inclusion Program Manager, NASA's Goddard Space Flight Center
- Session VII: Develop Your Growth Mindset**
Thought Leaders: Lethia Jackson, Ph. D., Professor and Chair Department of Technology and Security, Bowie State University and Shelley Johnson, Vice President and Deputy for Space and Mission Solutions Business Unit, KBR
- 3:45 p.m.** Report Outs, Commitments and Next Steps, Moderated by Christyl Johnson
- 5:45 p.m.** Closing Remarks
- 6:00 p.m.** Event Concludes

PARTNERS

NASA's Goddard Space Flight Center

Based in Greenbelt, Maryland, NASA's Goddard Space Flight Center is a global provider of scientific research, technology and missions that transform our knowledge of Earth and space. Expert in the study of our world, the solar system and beyond, Goddard has been working since 1959 to increase scientific understanding, answer humanity's big questions, and benefit the society and communities we serve. The center's work in science, engineering, technology and communications strengthens our ability to envision the origins of life, preserve our way of living and define our place in the universe. We identify requirements and innovations; design, build and launch spacecraft; and manage and support entire space missions. Our fundamental communications infrastructure enables NASA and others to bring back knowledge from space, share it with diverse customers and apply it to society in countless ways.

SAIC

Headquartered in Reston, Virginia, SAIC is a premier technology integrator solving our nation's most complex modernization and readiness challenges across the defense, space, federal civilian and intelligence markets. Its robust portfolio of offerings includes high-end solutions in systems engineering and integration; enterprise IT, including cloud services; cyber; software; advanced analytics and simulation; and training. With an intimate understanding of its customers' challenges and deep expertise in existing and emerging technologies, SAIC integrates the best components from its own portfolio and its partner ecosystem to rapidly deliver innovative, effective and efficient solutions.

Bowie State University

Founded in 1865 in Maryland, Bowie State University is the oldest historically black college or university in the state and one of the 10 oldest in the country. It is also a diverse university whose students, along with faculty and staff, represent many ethnic and cultural backgrounds.

Bowie State provides high-quality and affordable educational opportunities for students with ambitions to achieve and succeed. In addition to its 22 undergraduate majors, Bowie State offers 35 master's, doctoral and advanced certification programs with a specific focus on science, technology, business, education and related disciplines. The university's advanced teaching and research facilities include a FlexPod, one of the latest computing innovations with the capabilities of a supercomputer in a box the size of two student desks. Bowie State is also home to an all-Steinway Fine and Performing Arts Center, equipped with the latest technologies for digital media arts and music production.