Monday, May 10, 2021
All times are listed in Central Time (CT)

10:00 am – 10:30 am
Welcome Plenary
Susan Renoe, University of Missouri/ARIS
David Phipps, York University, RIC

Welcome to the joint virtual conference “Summit 2021: Research Impact & Public Engagement at the Intersection of the Future Workforce,” an online conference jointly hosted by the Center for Advancing Research Impact in Society (ARIS) and Research Impact Canada (RIC).

Research and public engagement can drive workforce development by highlighting new technologies, opportunities and ideas relevant to policymakers, educators, entrepreneurs, jobseekers, investors, innovators and others.

The 2021 Summit will have concurrent tracks looking at emerging technologies, workforce readiness, diversity and inclusion in STEM, and building career resilience in a time of rapid change in the workplace.

Similarly, we hope you will take advantage of the Virtual Social Hour, Award Ceremony and Poster Session – in a format that allows you view materials at your leisure before interacting with the presenter during the designated Poster Session.

10:30 am - 12:30 pm
WORKSHOPS

Broader Impacts 101
Jory Weintraub, Duke University/ARIS

The NSF-funded Center for Advancing Research Impact in Society (ARIS) is the national leader in supporting BI professionals and providing BI training for researchers and grant-writers. This activity-based workshop will cover the history of the BI criterion, provide strategies for conceptualizing, developing, implementing and evaluating BI activities, and share tips on leveraging existing resources and establishing robust partnerships to build your “BI identity.”

Explore the Knowledge Mobilization Toolkit! (Research Impact Canada)
Helen Ng, York University
Dewi Hannon, VIVES University College
Srdjana Filipovic, SickKids Hospital for Sick Children

This presentation will introduce participants to the RIC KMb toolkit (co-created with ARIS), an online repository of freely accessible tools for planning, brokering, dissemination, evaluation, and monitoring. We will discuss the process in which the toolkit was created and break off into different groups to explore the different tools available in our toolkit. Participants will be rotating between
breakout rooms so that they can gain exposure to different tools. Participants will be encouraged to bring their own research projects so that they can apply it to the tools that they are exploring. The tools that we will be exploring our: Knowledge Mobilization Planning Template, 3 I’s Stakeholder Analysis Template, Disseminating Findings Checklist and Guide, and Guide to Impact Planning.

1:00 pm – 3:00 pm

**Workforce Development & NSF**
Tom Tubon, *Madison College*
Bryanne Peterson, *University of Missouri*

**ARIS Broader Impacts Tools**
Janice McDonnell, *Rutgers University*

In this two-part session, we will introduce the ARIS toolkit including: (1) the newly-redesigned Broader Impacts Wizard, a novel tool for developing effective, impactful public engagement activities while addressing the NSF's broader impacts criterion (2) the Guiding Principles and BI Checklist, developed to support the creation of effective BI projects; and (3) the BI Rubric, developed to help evaluate the rigor of a BI plan either to write or review the BI component of research proposals. Participants will receive hands-on training and will engage in discussion on how to use these tools in researcher consultations.

**Infographic Design for Knowledge Mobilization**
Julia Levin, *York University*

“A picture speaks a thousand words,” and although it may sound cliche, it can be true – especially in the case of knowledge mobilization (KMb). Infographics are one of the many visual representation tools used to communicate data and information. This 90-minute workshop will be on an online course module created by RIC on Infographic Design for KMb. By the end of this module participants will: learn the role of infographics in research and evidence mobilization, become familiar with basic design principles for infographics, understand how to summarize research evidence for lay audiences, and create your own infographic!

4:00 pm – 5:00 pm

**SOCIAL HOUR**

Networking “Social Hour” – Turn on your video and meet those you’ve been chatting with during the day “face-to-face.”

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**Tuesday, May 11, 2021**

All times are listed in (CT)

11:00 am – 12:30 pm

**Welcome Plenary/Leadership Perspectives at the Nexus of Societal Impacts**
Emily DeRocco, *E3 - Engage, Educate, Employ*
Manju Banerjee, *Vice President of Educational Research and Innovation, Landmark College*
Russ Read, *Executive Director of the National Center for the Biotechnology Workforce*
Matthew McKean, *BHER*
Gary Green, *GMG Strategy, LLC*

12:45 pm – 2:00 pm

**BREAKOUTS**

**Rethinking Virtual Professionalization Courses for Adult Learners**
Erika Machulak, *Hikma Strategies*

The e-learning industry is booming, and young professionals can access an endless stream of virtual course options available in many formats, from “microcredentials” to “challenges” and “master classes.” However, not all online courses are created with equal attention to the quality of content and
facilitation required to deliver an effective program. Virtual courses widely, and many sidestep best practices in adult learning. This workshop offers strengths-based strategies to design and facilitate an effective virtual professionalization program for adult learners.

This workshop models the strategies that our course design team at Hikma Strategies uses to teach professionalization courses online. Dr. Erica Machulak, Hikma's founder and the lead instructor of our Summer 2021 Entrepreneurship for PhDs course, will introduce the methods and approaches that we use to design our curricula. She will then deliver a segment from our programming so that participants can test drive the ways that we foster agency in adult learning environments. This segment will help participants achieve the following learning objective: to translate their core professional skills for multiple target audiences.

Our programs build from the premise that graduate students can optimize their career prospects by articulating and amplifying the skills they develop during their degrees. The proposed workshop will adapt this content for the ARIS-RIC community.

**Democraticizing Science Through Wonder and Awe**
Jeanne Garbarino, *RockEDU Science Outreach at The Rockefeller University*

Fundamentally, science is worth knowing because it is one of the great cultural achievements of our society—comprising historical and current moments of wonder and awe in the process of establishing scientific understandings that impact everyone on this planet. By centering experiences of wonder for science learners, they engage emotionally with science, while recognizing gaps in their knowledge that they are eager to fill. We believe this approach to science engagement is broadly accessible and perhaps particularly impactful for people from historically and systemically marginalized communities. In this workshop we will define wonder and awe based on current literature and offer strategies for prompting wonder. Together in small groups we will discuss these definitions and strategies as they apply to each of our broader impacts efforts. Finally, we will discuss how embracing wonder and awe through our broader impacts work can help to democratize wonder and appreciation for science.

**Developing country and global contextual diversity specific graduate attributes**
Priscilla Daniels, *University of the Western Cape*
Cornel Hart, *University of the Western Cape*
Vivienne Lawack, *University of the Western Cape*

There is a growing discontent regarding the state of graduate preparedness to adequately function in a work environment whilst being diversity sensitive and grounded in a country and global context of societal well-being. Higher Education Institutions (HEIs) must equip graduates with skills beyond disciplinary expertise, to function optimally at work. Graduate Attributes (GAs) not only grounds the Teaching and Learning (T&L) strategy of the HEI but should also represent its ‘brand’ founded on its ethos and historical context. GAs therefore provides one of the key ideas for HEI strategy and operational T&L policy. It must be evidence-driven actions and processes that drives curriculum improvement and student learning—founded on diversity consciousness. This requires for GAs to go beyond program Exit Level Outcomes (ELOs) as it incorporates a sense of self-awareness and resilience to adapt and function in a fast and ever-changing world.

Target Audience: Faculty Staff and HEIs T&L Management Executives.

**Entrepreneurial Skills: the predominant skills of the future of work and the future of our cities**
Juanita Lee-Garcia, *Venture for Canada*

The resourcefulness of Canadians is essential to overcoming our country’s most significant challenges. In 2019, the ILO Global Commission on the Future of Work stated, “Today's skills will not match the jobs of tomorrow, and newly acquired skills may quickly become obsolete.” While big tech launches corporate ran reskilling programs, a gap between those who have access to career opportunities and those who don’t will increase. The majority of reskilling programs require prior experience or advanced education. Necessary skills such as financial literacy have a high reskilling cost. Entrepreneurial skills, we propose, can be taught and can be the foundation of all reskilling
and the backbone of human resources in the future workforce. Venture for Canada is a catalyst of systemic social change by equipping young Canadians to build a more prosperous and inclusive society. Through our programs, participants develop the network, knowledge, and entrepreneurial skills to lead impactful careers.

**ARIS FELLOWS SHOWCASE**

2:15 pm – 3:00 pm  
**Keynote: Vision 2030- A Roadmap for Science & Engineering from The National Science Board**  
Vic McCrary, National Science Board, University of the District of Columbia

Where should the U.S. scientific and engineering (S&E) enterprise be in 10 years? What actions do the government, industry, academia, and professional organizations like ARIS need to take to ensure that the Research and Development ecosystem delivers benefits to society, including growing the workforce of the future? The National Science Board's Vision 2030 offers a roadmap. A top priority is developing the STEM workforce, ranging from skilled technical workers to scientists and engineers.

This session is sponsored by Michigan State University, University of Outreach and Engagement

4:00 – 5:00 pm  
**AWARD CEREMONY**

Wednesday, May 12, 2021  
All times are listed in (CT)

10:00 am – 11:00 am  
**BREAKOUTS**

**On-the-Spot Feedback: Developing an Important Workforce Communication Skill**  
Dennis Schatz, Senior Fellow, Institute for Learning Innovation  
Greg Schultz, Senior Scientist & Educator, Astronomical Society of the Pacific (ASP)  
Suzanne Gurton, Director of Education and Public Outreach, National Radio Astronomical Observatory (NRAO)  
Kari O'Connell, Senior Researcher, Oregon State University (OSU)

Session participants will explore strategies to: (1) obtain on-the-spot feedback from audiences during public engagements, and (2) use that feedback to inform the direction of their presentations to serve the needs of the audience. These on-the-spot tactics are useful for a wide range of audiences, from community engagement events (e.g. science festivals, science cafes, classroom presentation) to professional conference interactions (e.g. oral presentations, poster paper conversations). The tactics may be used to improve engagement during one-to-one conversations, small group interactions, or to connect with a large audience. Come learn about the eight on-the-spot feedback tactics identified and the research being done in this NSF-funded project. See how this effort can benefit your public engagements and the presentations of the scientists with whom you work.

**Expanding Horizons: Promoting Inclusive Science Communication**  
Celia Du, Lotus STEMM  
Priya Iyer, Lotus STEMM  
Roopali Chaudhary, Founder/CEO & Lead Researcher, Lotus STEMM

While “know your audience” is the golden rule of public engagement, cultural identity and language are often overlooked in science communication (SciComm) practices. With ~20% Canadians speaking a non-French/English language, SciComm must diversify in its approach while expanding beyond the primary use of English or Eurocentric perspectives. Though Canadians are interested in science, only 20% pursue a university science degree (Science Culture: Where Canada Stands, 2019). Furthermore, there are few Canadian SciComm training programs, let alone blueprints for multilingual/multicultural SciComm, including reaching Indigenous populations. Sparking from the infodemic that accompanied
the pandemic, Lotus STEMM embarked on a mission to develop 72 SciComm videos by scientists in 12 languages. Now, Lotus STEMM holds a NSERC grant to train individuals in multicultural and multilingual SciComm. In this session, we will discuss the barriers to multilingual/multicultural SciComm, identify tools to overcome them, and discuss what inclusive SciComm can look like.

**Building Inclusive Communities: Focusing on Mentorship Education**
Odaelys Pollard, *The Rockefeller University*
Disan Davis, *RockEDU Science Outreach at The Rockefeller University*
Elizabeth Krisch, *RockEDU Science Outreach at The Rockefeller University*

At its core, the scientific enterprise is hallmarked by the propagation of knowledge from skilled scientist to research apprentice. Yet, despite being embedded in a system completely dependent on people training other people, there has been little focus on how we can most effectively build and nurture the human relationships required to conduct science, let alone how to reward those who do implement mentorship best practice. In this session, we present a suite of mentorship education opportunities that can accommodate a diversity of goals and time constraints for scientists who wish to build inclusive engagement skills. By meeting scientists where they are and offering flexible frameworks that allow for the development of tailored mentorship strategies, our programs have helped to shift the needle in building an inclusive culture at a biomedical research institution.

**Pivoting during the pandemic: Strategies to support educators and engage the public**
Katherine O'Brien, *The Ohio State University*
Wayne Schlingman, *Planetarium Director, The Ohio State University*
Cynthia Canan, *Lecturer and Outreach Specialist, The Ohio State University*
Jason Cervenec, *Education and Outreach Director, The Ohio State University - Byrd Polar and Climate Research Center*
Monica Delgado, *Associate Director of Outreach, The Ohio State University - Department of Mathematics*
Courtney Price, *Education & Outreach Specialist, The Ohio State University*

Throughout the pandemic, everyone, from kindergarteners to seasoned professionals, has had to find new ways to learn and work. Broader impacts practitioners are no exception. The transition to hybrid and virtual classes and a pause on public events made our audiences seemingly inaccessible. In response to this challenge, STEM educators at The Ohio State University formed an interdisciplinary working group at the start of the pandemic with the goal of finding innovative ways to transform our work to a virtual world. The result has been the creation of virtual professional development workshops for K-12 and informal educators, new teaching resources designed for digital or hybrid instruction, STEM office hours to support the education community, and new ways to virtually engage the public in outreach programs. This project shares a model for how universities can support and build community with K-12 educators and expand the reach of broader impacts activities.

1:00 am – 12:00 pm
**POSTER SESSION**

Join live poster sessions for discussion

Each poster presenter is asked to upload a PDF version of their poster, a three-minute-long video describing their poster and any supplemental documentation or links they would like to provide.

Poster exhibitor content can be found via the Poster Tab.

For our live Poster Session on May 12 from 11 am - 12 pm, please join via the virtual meeting link embedded to each individual poster landing page to interact live in Zoom with the poster authors.

Please take time prior to the meeting to explore and preview this material.

- Poster 001: Creative Collaborations in Science Communication: #SciCommMake
- Poster 002: Working Partners: Industry-Education Partnerships for Technological Workforce Development
- Poster 003: Elementary Educators as a Linchpin of STEM Workforce Development
- Poster 004: Community-Based Strategies for Engaging Rural Populations in Science
- Poster 005: A New Tool for Building a Public Engagement Plan
• Poster 006: Enhancing graduate student training by accelerating collaborative research: A positive feedback loop
• Poster 007: Moving outreach online to reach under-resourced audiences: How COVID made our outreach more inclusive
• Poster 008: Creating a career readiness ecosystem to support students and businesses
• Poster 009: Workforce Development and STEM: A Document Analysis of State of the States
• Poster 010: Institutional Partnerships to support PIs developing Broader Impacts: What we've learned
• Poster 011: Rewarding Research Impacts for a More Inclusive Academy
• Poster 012: Undergraduate Research Projects at The Micro Nano Technology Education Center (MNT-EC)
• Poster 013: The STEMentors eLearning Program University of Nebraska 4-H
• Poster 014: Ahead of the curve: Discovering the potential of broader impacts to support youth work-based learning during COVIDdemy

12:00 pm – 12:45 pm

Keynote: Advancing Workplace Equity, Diversity & Inclusion: A Systems-Level Approach
Wendy Cukier, Founder, Diversity Institute; Professor, Ted Rogers School of Management, Ryerson University

As Canada begins to rebuild from the economic impacts of the COVID-19 pandemic, there is an opportunity to make workplaces more inclusive than ever before. However, workplaces do not operate in a vacuum: broad social and cultural factors influence external perceptions of an organization and have a profound impact on producing the talent necessary to succeed. In this session, Dr. Wendy Cukier, founder and Academic Director of the Diversity Institute, will introduce an ecological systems approach to understand diversity and inclusion at the societal, organizational and individual levels. This analysis will provide a framework for organizations to consider actionable goals to promote EDI within their organizations and in the broader skills and employment ecosystem.

1:00 pm – 2:00 pm

BREAKOUTS

The Future of Mobilizing: Webinars, Online Courses and Engagement in a Socially Distant World
Cynthia Belaskie, Managing Director, Canadian Housing Evidence Collaborative, McMaster University
Mihaela Gruia, Founder and Director, Research Retold
Julia Levin, York University

Spurred by the rise of COVID-19, the past year abruptly and unforgivingly threw bright light on the challenges and opportunities of working and learning from home. The pandemic also underscored the importance of moving research to action quickly, effectively and accessibly. How do we broker relationships, share knowledge, and train the future workforce when our very social profession, along with much of the rest of the world, is mandated to keep our distance? These three presentations will talk through the trials, tribulations and celebrations of online learning and teaching for Knowledge Mobilizers. The presenters are all at different stages in their online journey. From complete newbie to experienced slick online educators we will discuss what has worked and what hasn't and share some cool content along the way.

ENGAGE: The Value of Age-Inclusive Approaches in Amplifying Our Research Impacts
Teresa Wu, Arizona State University
Neil Charness, William G. Chase Professor of Psychology, Florida State University
Jennifer Margrett, Iowa State University
James Oliver, Iowa State University
Diane Rover, Professor, Iowa State University
Jessica Bell, Project Manager, Iowa State University
Derrick Rollins, Iowa State University

Projections indicate that the fastest growing segment of the labor force comprises older workers, age 65 and older. As a transdisciplinary group promoting resilient aging, we will describe several intergenerational and interdisciplinary learning opportunities and engage the audience in generating
ideas for age-inclusive approaches to amplify research impacts. First, barriers to improving productivity for aging persons in the workforce will be shared then a framework for using technology to mitigate negative age-related changes and improve labor force productivity will be introduced. Second, we will describe our approach to deploying technologies in concert with data science to transform the community for older citizens. Next, we will discuss two projects, the grandparent project and an interdisciplinary design charrette, that capitalize on and foster students’ skills and passions to advance the longevity economy. The interactive session concludes with a discussion of broadening participation opportunities involving older adults, workforce, and intergenerational collaboration.

Enhancing Organizational Research Impact Capacity: The ARIS ORIC Program
Jory Weintraub, Duke University
Megan Heitman, Iowa State University/ARIS
Janice McDonnell, Rutgers University

For several years, ARIS and its predecessor (NABI) have delivered BI workshops at individual institutions across the US. As the demand for this training steadily increased, ARIS realized we could amplify our impact by working with organizations and institutions to help them build/expand their own capacity to support research impact (RI) efforts. This led us to develop the ARIS Program to Enhance Organizational Research Impact Capacity (ORIC). Institutions and organizations participating in this year-long program receive training, resources and mentorship, allowing them to substantially enhance their internal capacity to support RI efforts, and become part of an RI community of practice. This session will provide an overview of ORIC, share program evaluation data from a recently completed pilot study and allow attendees to hear from pilot participants about their experiences. Attend to learn more about ORIC, with an eye towards applying to be a part of our next ORIC cohort!

Liaisons as Boundary Spanners: Creating Institutional Insiders to Promote Inclusivity in STEM
Kimberly Keith, VT-PK12 Liaison and ITRT, Virginia Tech and Floyd County Public Schools
Jamie Little, K12-University Liaison
Lisa McNair, Professor, Engineering Education & Director, Center for Educational Networks and Impacts (CENI), Virginia Tech
Julee Farley, University-K12 Liaison, Virginia Tech
Chelsea Lyles, PhD, Postdoctoral Associate for Outreach, Engagement, and Evaluation, Virginia Tech
Phyllis Newbill, Outreach and Engagement Coordinator, Virginia Tech and Science Museum of Western Virginia

This regular session is appropriate for all audiences looking to form partnerships external to their organization. We will focus on the implementation of a unique and innovative liaison model as a practical tool for Broader Impacts work. The liaison is someone who is a member of both organizations, spends time in both locations, and is able to serve as a boundary spanner between the groups. Attendees of this session will learn what to consider when forming partnerships between organizations, common themes regarding the evolution of the partnerships, and also learn about examples of successful projects resulting from the partnerships. After this session, attendees will know more about creating long-term, mutually beneficial relationships that can be used to engage diverse communities in STEM careers in an inclusive way.

Accommodations in Work-Integrated Learning: Developing Research
Hilda Smith, Knowledge Mobilization Specialist, York University
Nastaran Dadashi, George Brown College
Ashley Franks

Students with disabilities need support to succeed in their education, including work intergraded learning opportunities. There are well-developed details for supporting students with disabilities in their course work. Yet, the knowledge and skills needed to accommodate students with disabilities during work-integrated learning are inconsistent. This situation leaves students with disabilities set up for failure, meaning they are more likely to leave their programs or be limited in their potential employment.

AcTinSite (Accommodation to include students with disabilities in placement sites) aims to improve access
to accommodations for students with disabilities within work-integrated learning. We do so through a collaborative project between three education institutions and two institutions that host students for work-integrated learning. AcTinSite’s research is a concurrent design and knowledge mobilization project. **Our goals are to design an online platform where tools that support accommodations in work-integrated learning are easy to access and adapt.** The project’s concurrent nature means that both the design and knowledge mobilization components work and adjust together.

Our work at AcTinSite focuses on improving workforce diversity using collaborative partnerships, design, and knowledge mobilization. This regular session’s goals are for people to

- learn about the needs and benefits of accommodation in work intergrade learning,
- find out about AcTinSite, and
- how they can get discover more about our concurrent design and knowledge mobilization project.

**STEM Learning Ecosystems: A Strategic Pathway for Strengthening Broader Impacts**

Amanda Smith, *Penn State University*
Kathleen Hill, *Penn State University*
Matthew Johnson, *Penn State University*

The National Science and Technology Council (NSTC) along with 15 federal funding agencies, listed STEM Learning Ecosystems as the No. 1 priority and a pathway towards success in STEM Education. Ecosystems build meaningful regional connections among educators, business/industry, STEM expert institutions, and more to prepare students for opportunities and future challenges. Penn State leads one of the 89 nationally recognized ecosystems, ENGINE of Central PA. The ecosystem structure allows Penn State to leverage other regions, states, and countries for cross-sector partnerships and outreach to K-12 and other community sectors to strengthen broader impact components of research grants. Since spring 2019, ENGINE has partnered on two federally funded awards from NSF and NIH, and eight federal grants currently in review. ENGINE is cultivating initiatives to increase precollege career readiness including (1) supporting entrepreneurship college programs into K-12, (2) hosting Remake Learning Days, and (3) establishing a Chief Science Officer program.

2:30 pm – 4:00 pm

**Plenary: NSF Convergence Accelerator**

Linda Monar, *Program Director, National Science Foundation*
Robby Robson, *CEO, Eduworks Corporation and PI of SkillSync*

A Fireside Chat about the NSF Convergence Accelerator and an update on the 2019 pilot cohort

**Track: AI and the Future of Work and the National Talent Ecosystem**

**CONFERENCE WRAP UP**

Susan Renoe, *University of Missouri/ARIS*
David Phipps, *York University*