

Gender Roadmap for Research & Innovation Systems: Addressing the Needs of Different Stakeholders

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Agenda

- What we're doing at Engineering Canada
- Inspiring Quotes
- Building Our Roadmap
- Key Conclusions from Parallel Roadmap Session Chairs
 - 5 minutes maximum for each
 - I'll stand when time is up – please start applauding
- Nancy Canfor,
- Your Ideas, Questions and Comments

Engineers Canada

Fast Facts

- 260,000 professional engineers
 - 35,000 ♀
- 272 accredited engineering programs
 - 70,201 undergraduates
 - 12,704 ♀
 - Last year enrolments grew by:
 - 8.8% ♀ and 5.2% ♂
 - 42.9% of biosystems engineering ♀
 - Only 3 others environmental geological, chemical engineering with critical ♀ mass
 - 9.9% of software engineering ♀

“...that incorporating the gender dimension in science benefits women and men.”

“We need you to sustain intellectual excitement when you return [home].”

Wanda Ward



We do this work because we believe in the power of women in the STEM fields. We must commit to engaging young women in STEM—to the lead the pack for science & math achievement over the next decade.

Valerie Jarrett



"A spark in their eyes becomes a fire in their belly"

“...diversity boosts creativity in research and innovation”

Dominique Ristori, Director General, DGJRC of the EC



“Benefits for all [Canadians] to tap the full pool of talent for STEM”

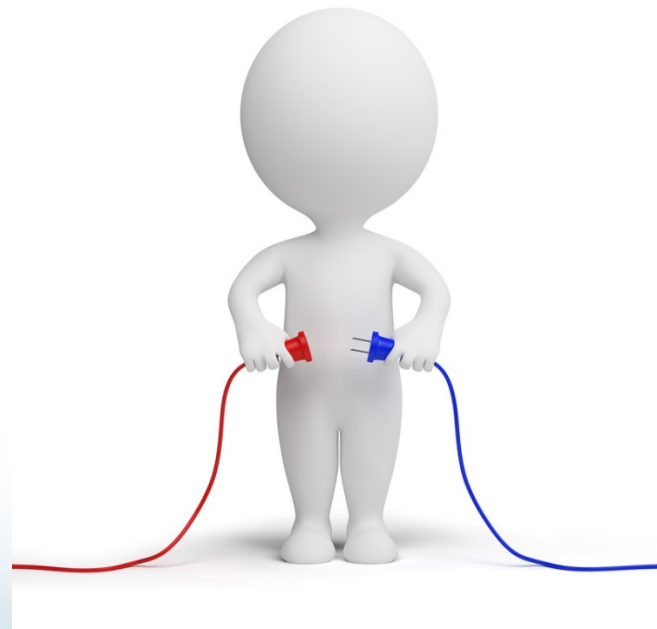
Isabelle Blain

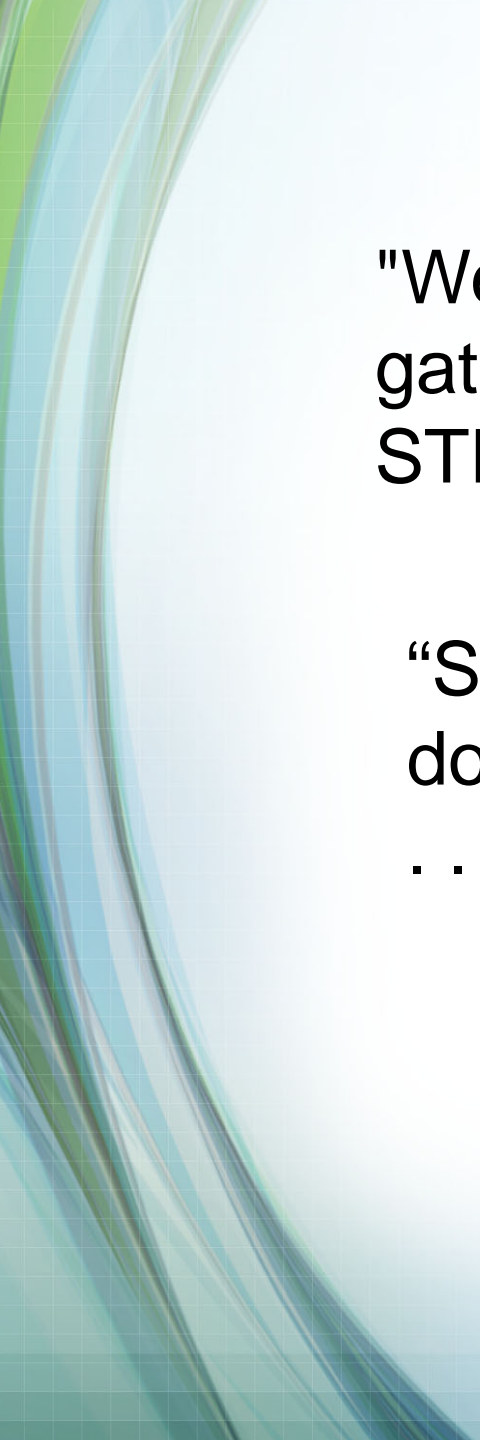


...Mexico's amendment to its Science & Technology law to help more women in STEM.

Exchange experience to lower barriers from all sides can make a real difference.

Dr. Taguena





"We need to have the courage to be gate openers for all women and men in STEM."

Allison Sekuler

"Sometime it is helps to have policies to do the right thing
. . . my mom made me do it"

Allison Sekuler

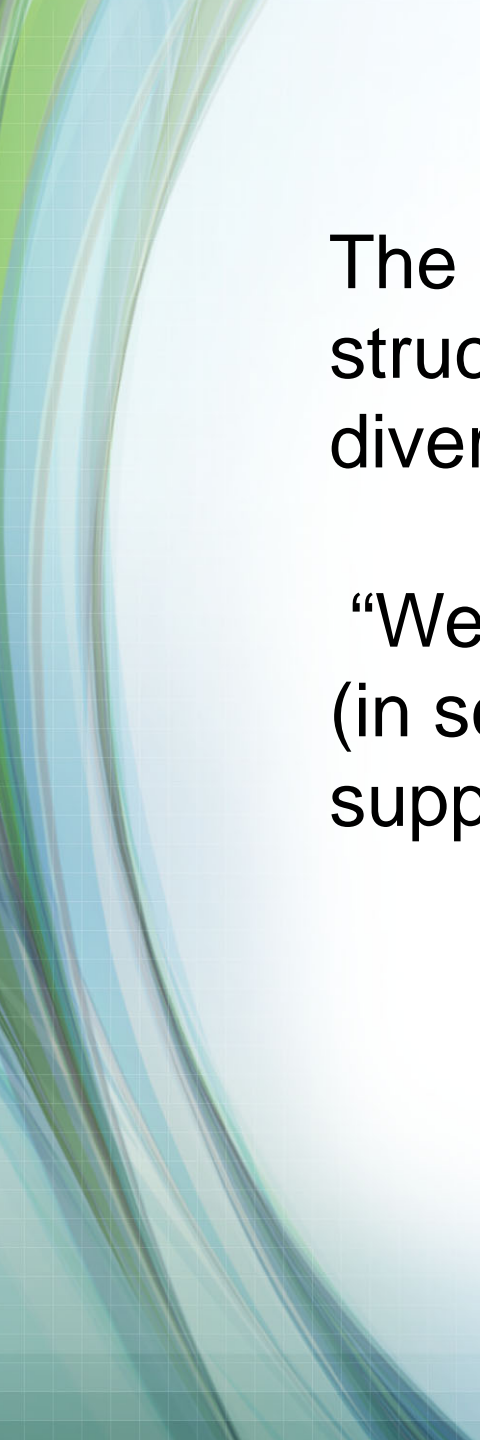
"You can never tell what will spark a child's interest."

Julie Payette

The Apollo missions inspired her to become an astronaut.

Increasing participation of girls in science:

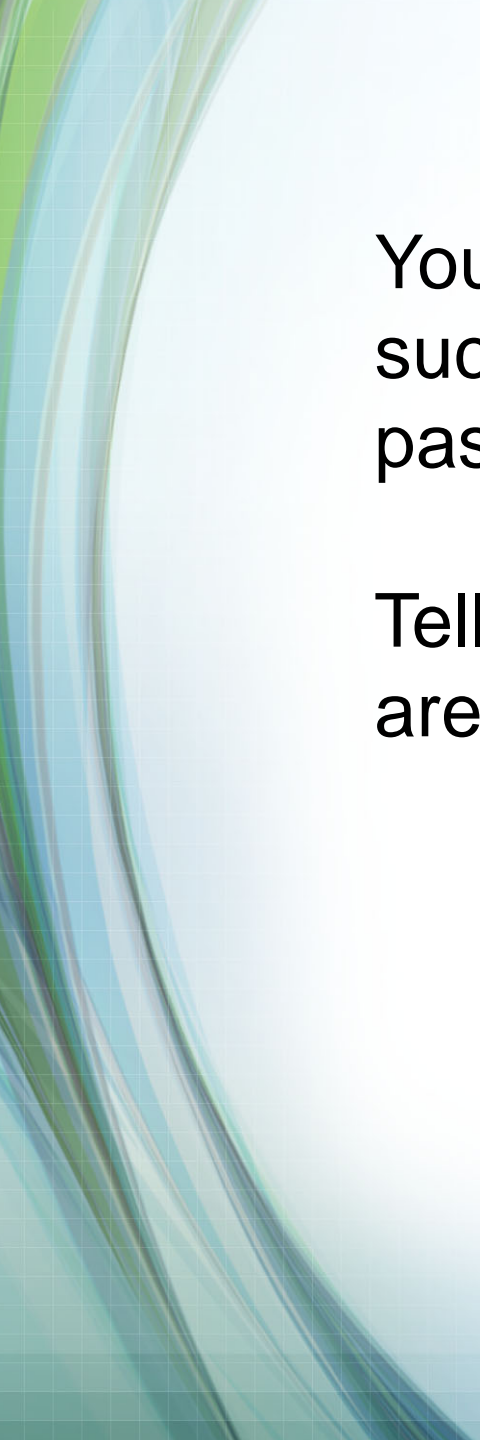
- Role models matter.
- Encouragement matters.
- Support matters.



The current scientific system has intrinsic structural elements that work against diversity.

“We need the full participation of women (in science) as women and not just as the supporters of men.”

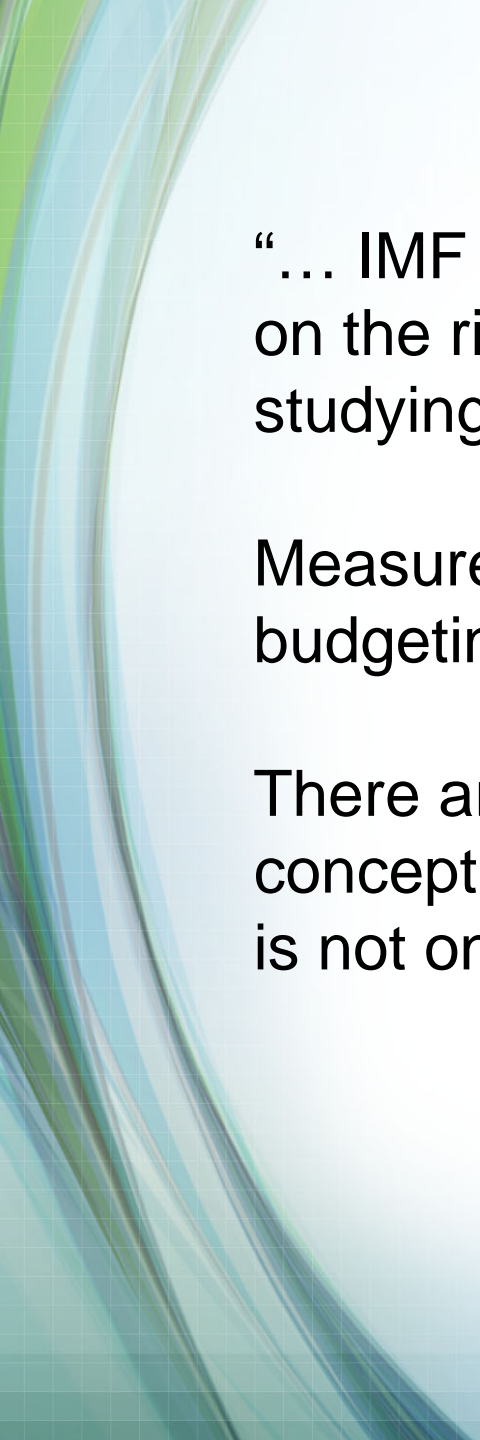
Ana María Cetto



You don't need all “As” in science to succeed - what you really need is passion.

Tell the great stories of science, they are far more interesting than history.

Teresa Stanek Rea




“... IMF reporting that women attending college is on the rise globally but still huge gap of women studying STEM.”

Measures to reduce gender inequalities in budgeting result in economic gains for all.

There are 50-60 countries that incorporate some concept of gender biasing in the budget - the US is not one.

Janet Stotsky



"Women should not have to choose between their family and the lab bench"

Subra Suresh

Make diversity a cornerstone of excellence.

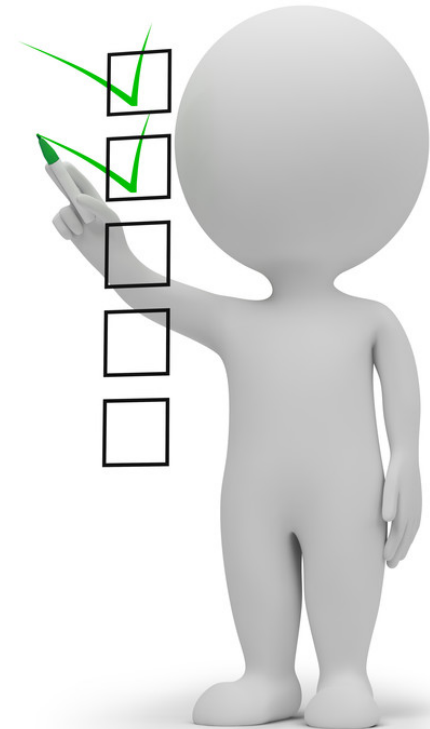
Joan Reede

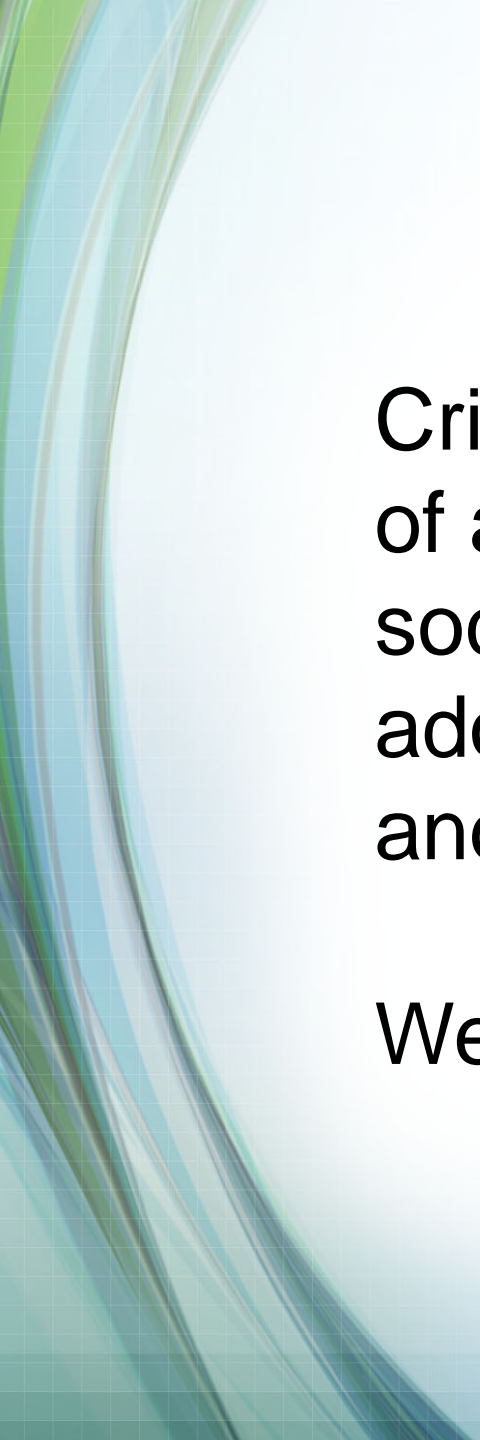
Need a constellation of mentors, multiculturalism better than colorblindness.

Kecia Thomas

Building the Roadmap

- Find and focus on the bottlenecks
- Pilots must build in a component to be sustainable.
- Critical Mass and move on
- Celebrate success . . .
Positive stories





Critical mass is a sufficient number of adopters of an innovation in a social system so that the rate of adoption becomes self-sustaining and creates further growth.

We use 30% as that number.

Key Conclusions and Reports from Parallel Roadmap Sessions



No 1: Cultivating and Promoting Future Leaders

Chair: Serge Villemure

The practices and processes that can ensure more effective promotion and progress of women already in the system, and ready to take on leadership roles. Speakers will provide specific examples from academia and industry how this can be achieved.

- **Key Recommendations** for greater and more effective promotion of women, including women from minority groups, to leadership positions.

No 2: Empowering Voices of Early-Career Scientists

Chair: Risa Sargent

The importance of the early career stage: the decisions made here can have huge consequences for the evolution of future career direction. Understanding the science landscape, and how the science system functions, is essential to effective career development planning. Support measures that make this knowledge - of opportunities and obstacles – less opaque can facilitate more informed, realistic, and effective career development decisions.

- **Key Recommendations** for greater and more effective promotion of women of color in STEM fields and leadership positions.

No 3. Integrating Gender into Research Content and Methods

Chair: Julia Taguena Paraga

The idea that science is gender neutral has been challenged by the evidence of numerous omissions of sex/gender as a variable in study design; of gender bias in research analysis; and under- or non-reporting of data analyzed by sex.

- **Key Recommendations** for more systematic approaches to understanding when, how and why sex/gender differences should be part of science knowledge production, application and communication, including implications for policy making.

No 4: Improving Career Life Balance

Chair: Elizabeth Pollitzer

Science work practices and traditions are rooted in times when women were largely excluded from research and innovation and their own as well as the society's expectations were vastly different to the realities of today. Providing women and men with the same opportunities to do scientific work and have time for family life and other commitments should be entirely possible in the 21st century.

- **Key Recommendations** for greater and more effective organization of work enabling women and men researchers to achieve their professional and family aspirations.

No 5: Creating and Sustaining Networks

Chair: Sophie D'Amours

No scientist can work in isolation and professional networks form an essential component of how science is done today. Speakers will demonstrate a variety of successful approaches from linking different fields and sectors to using networks as tools for professional empowerment of women and opportunities to influence attitudes to their advancement.

- **Key Recommendations** - gender/diversity issues, important examples of best practice, and 4-5 Key Recommendations for greater and more effective use of networks.

No 6: Transforming the Role of Gender in STEM & in Communication

Chair: Shari Graydon

Both in terms of the deliverer's and receiver's perception, the session will explore whether women communicate differently than men, and whether the public perceives communication by men and women differently.

- **Key Recommendations** for greater and more effective, accurate and unbiased discussion, presentation and communication of gender roles and identities.

No 7: Ensuring Inclusive Excellence through Merit/Peer Review

Chair: Stephen Meacham

Peer review forms the most important component of effective science knowledge making, but the fairness and efficiency of the process has been under scrutiny for some time and in particular the potential for gender bias.

- **Key Recommendations** for more effective, accurate and fair assessment of women and men in science, including their roles and work at different stages of their career, reflecting the needs of different disciplines and cultures, and preventing occurrence of influence of gender stereotypes or bias in decisions.

No 8: Enabling Organizational Systems and Processes

Chair: Elizabeth Croft

Structural changes needed to improve established institutional practices and processes, where evidence shows inequalities in how institutions treat their female and male researches can arise. Structural changes are often necessary to achieve better research cultures and greater fairness in how women and men advance in science and academia.

- **Key Recommendations** for greater and more effective recruitment, retention and advancement of women, including women from minority groups, in research and innovation.

No 9: Pioneers Trailblazing the Future

Chair: Kelly Mack

The visible progress to advance women and women's needs in science, which has been made in the last decade, was made possible in big measure by the influential actions of particular individuals working within the science system who used their leadership positions to create a vision and the right conditions to carry out actions capable of challenging established cultures and attitudes to gender roles. These trailblazing the future pioneers are honored in this session for their influential efforts, and to encourage others to follow their lead.

- **Key Recommendations** for individuals to influence cultural transformations, see need for change and create opportunities to challenge established practices and structures that create barriers to gender equality in science.

No 10: Creating Bridges with European Funders

Chair: Ines Snachez Madariaga

Making science endeavor more sensitive and responsive to the needs and talents of both women and men requires cross-boarder and cross-institutional collaborations at a number of levels, from setting out research priorities to creating research environment that recognizes and prevents gender inequalities and biases in knowledge production, application and communication.

- **Key Recommendations** for more effective gender equality measures that funders can take, recognizing the fact that Europe has the opportunity not available elsewhere of gaining added value through the EU-wide mechanisms.

Looking Forward

Nancy Canfor, PhD
Chancellor and President
Syracuse University

Ideas, Questions & Comments



enhancing the profession
and **protecting** the public



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