



Impact of Science

14-15 June 2018, Ottawa

The opening will commence at 09.00

Words of Welcome

Koenraad Debackere

Chair of the Conference

AESIS

What did we achieve?

How to link to today?

{ Co-creating the science of impact

⌘ Impact

- ⌘ Is not an “agenda”
- ⌘ Structured insights, structured questions, metrics with appropriate granularity complemented with expert opinion
- ⌘ Appreciation of evidence
- ⌘ Ecosystem “metrics”
- ⌘ → MULTIPERSPECTIVISM

⌘ Students

- ⌘ Vectors of impact
- ⌘ Science front-end to support impact role
- ⌘ → STUDENTS AS AGENTS OF IMPACT

What did we focus on?

- ⌘ Two cultures
 - ⌘ Science and Policy
 - ⌘ Co-creation
 - ⌘ → FOSTER DIALOGUE AND APPRECIATION
- ⌘ Overselling
 - ⌘ → ETHICS, INTEGRITY, SOCIAL
- ⌘ Multidisciplinarity
 - ⌘ → “Du choc des idées jaillit la lumière”
- ⌘ Smart incentives, {knowledge & understanding + economy + society}
 - ⌘ → AT PERSONAL & INSTITUTIONAL LEVEL

What did we focus on?

- ⌘ How should research councils deal with those insights? *The multi-nature of impact ...*
- ⌘ From ecosystems to institutions and back? *What does this mean to combinatorial metric design ...*
- ⌘ Leveraging impact with funding? *From PRFS to IRFS (Impact Based Research Funding Systems) ...*
- ⌘ Ecosystems and regional innovation? *The localized effects of global science ...*
- ⌘ How to blend this into a “science of (science) impact”? *Blending combinatorial metrics, evidence-based information gathering and validation, and expert opinion at relevant levels of granularity, involving the relevant judges ...*
- ⌘ *And what about the CULTURE of research?*

Link to today's sessions ...



Impact of Science

14-15 June 2018, Ottawa

Drawing Room, 9.15-10.10

The Government as a user of Science

Molly Shoichet

Louise Poissant

Jeremy Ayers

The Government as a user of Science

Molly Shoichet

Chief Scientist of Ontario, Canada



Ontario Chief Scientist:

Molly S Shoichet, PhD, O.C., O.Ont

Presentation to the Network for Advancing & Evaluating the Societal
Impact of Science (AESIS)

Theme: The Government as a user of Science

Friday June 15, 2018

Chief Scientist Interests

Building a Culture of Science

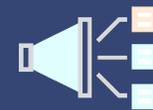
**PUBLIC
SERVICE**



**RESEARCH
ECOSYSTEM**



**PUBLIC
TRUST**



Accelerating Pace of Change



Considerations

- Public expectations
- Competition for talent
- Economic growth
- Income inequality
- Changing demographics
- Disruptive technologies

Approaches

- Public engagement
- Delivering evidence-based, outcome-focused policy
- Providing people-centred service
- Empowering Ontarians
- Promoting open delivery systems
- Harnessing disruptive technologies

Delivering more Evidence Based & Outcome Focused Policy

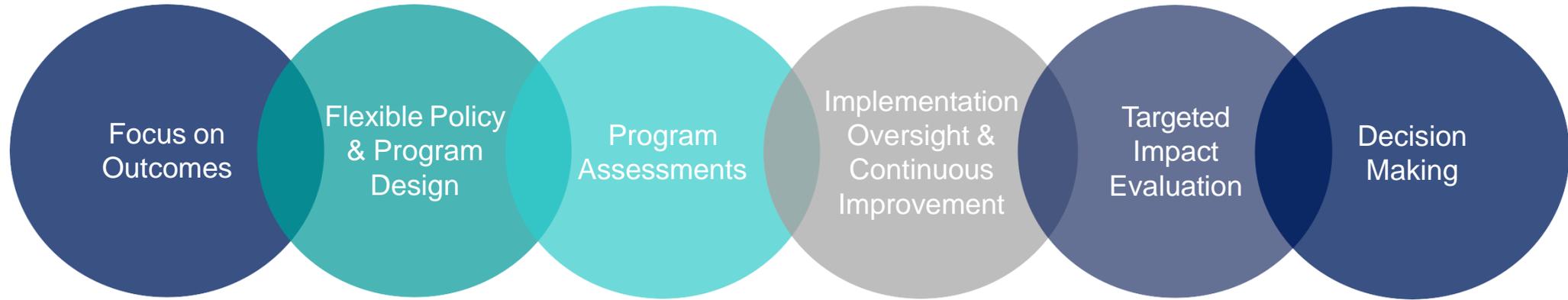
Using Evidence to Create Better Results

Methods



- Finding what works
- Highlighting gaps when programs aren't working
- Using evidence in decision-making
- Employing innovative policy tools for better outcomes
- Monitoring implementation and outcomes
- Always improving program performance

Linkage to Evidence-based Decision-making



Explicit definition of desired outcomes and how they will be measured

Evidence-informed and client / outcome focused. Design incorporates rapid feedback loops for continuous improvement

Review evidence of effectiveness of existing / base programs and policies. Acting on the results.

Active monitoring and evaluation of performance to ensure program effectiveness and continuous improvement

Rigorous and regular evaluation to determine impact

Evidence incorporated into policy and funding / budget decisions

ENABLERS

Data

Tools & Capacity

Culture of Evaluation

Knowledge Mobilization

Active Use & Demand for Evidence

Government Research Activities

Users & Practitioners of Science

- One of the largest research-performing organizations in Canada.
- Historically focused on public safety and regulatory issues.
- R&D contracts, fellowships, research contracts and transfer payments.
- Full-time research/scientific personnel.
- 21 research labs with the cutting-edge testing infrastructure.

Infrastructure &
Land Use

Environment

Transportation
Systems

Forestry,
Fisheries, Wildlife
and Minerals

Industrial
Production and
Technology

Agricultural
Production

Health

Forensics

Social Structures

Building a Culture of Science Together

Dr. Molly Shoichet
Chief Scientist
Ontario
Ministry of Economic Development and
Growth Ministry of Research, Innovation
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Canada

O: 416.327.4545

M: 437.998.6997

 @MollyShoichet

Our Office would love to hear your views on what else we can do to create an inclusive culture of science in Ontario. You can connect with us on Twitter @MollyShoichet or by email at ChiefScientist@Ontario.ca

The Government as a user of Science

Louise Poissant

*Director, Fonds de Recherche
Société et Culture, Canada*

Fonds de recherche du Québec

Nature et technologies • *Santé* • *Société et culture*

AESIS Impact of Science/The Government as a user of Science
The Role of the Chief Scientist in Policy
Decision Making

Louise Poissant
Scientific director of FRQSC
Ottawa
June 15, 2018

Québec 



My Mandates as Québec Chief Scientist

A unique model: the mandates combine an advisory role to the government on science and innovation...

- **To advise the Minister of Economy, Science and Innovation on any matters pertaining to the development of research, science & innovation. But more globally since day 1 (PMO, Health, Education, Environment, Public Security, International Affairs...)**
- **To promote international research partnerships and science diplomacy (missions with the PM & various ministers; INGSA)**
- **To promote scientific literacy & partnerships with the civil society... and elected officials**

... in addition to act as chair of the board of directors and CEO of the three main research funding councils (FRQNT, FRQS, FRQSC):

- **To develop intersectoral research linked to major societal challenges (demographic & climate changes; creativity & entrepreneurship). AUDACE: an innovative program.**
- **To promote careers in research (trainees at all levels)**

Strategies of our government

As Chief Scientist of Quebec, active participation in several strategies of the Quebec government

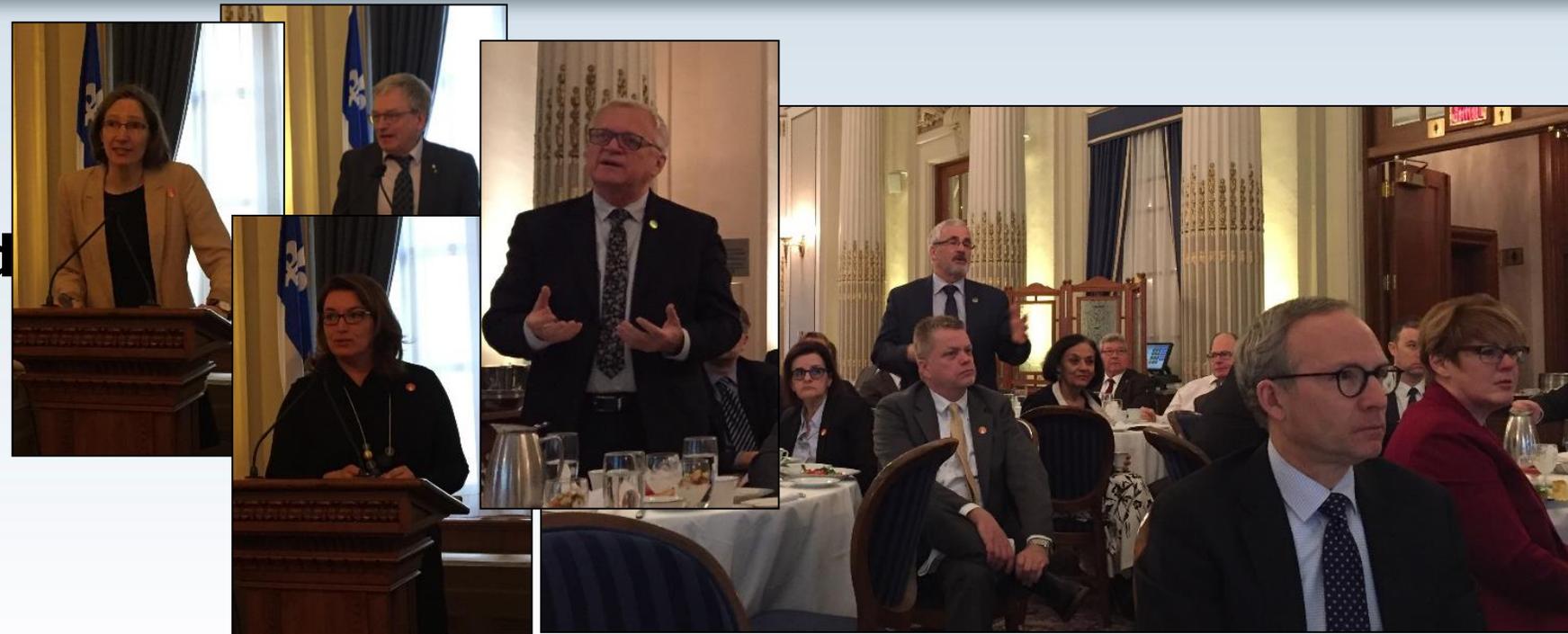
- 1. Research & Innovation Strategy (SQRI; 2017-2022)**
- 2. Life Science Strategy (2017-2022)**
- 3. International Policy (2017-2022)**
- 4. Maritime Strategy (2015-2020)**
- 5. Aluminum Development Strategy (2015-2025)**
- 6. Aerospace Strategy (2016-2026)**
- 7. Digital Strategy (Dec. 2017)**

Frequent meetings with government officials

- **Regular meetings between the three FRQ board of directors and government officials**
- **Frequent one-on-one meetings with elected officials (province & cities... and many with federal ministers and MPs!!)**
- **Consultation with Québec government departments about FRQ strategic planning (CIRI-comité interministériel R-I)**
- **Participation in parliamentary committees (eg access to administrative data, credit studies, economy and work, etc.)**
- **Other initiatives : SAGA project (UNESCO), Future Earth...**
- **Massachusetts-Québec research program led by elected officials**
- **... etc.**

Promoting science to elected officials

Science breakfasts at the National Assembly with elected officials and deputy ministers from all parties. Topics selected by the elected members with the aim to inform and support the legislative process.



Short presentations (7 min max.) by 2-3 researchers on various topics: gene editing, AI, radicalisation, climate change, flooding, urban resilience....

Partnership-based research that informs public policy

Positive impact of a joint FRQSC academia-government project: The new educational policy of the Québec government relies heavily and explicitly on research conducted in the field of education, including the **CONCERTED ACTION programs about school perseverance and success, and reading and writing.**



- **Programme Actions Concertées : Persévérance et réussite scolaire et Lecture et écriture (FRQSC – Ministère de l'Éducation, des Loisirs & des sports)**

Political decision on a hot issue: it is the scientific argument that was decisive

« Quand on fait des lois, il faut quand même que ce soit basé sur des faits objectifs. Alors quand je n'ai pas de corroborateur scientifique pour aller dans le sens de l'interdiction d'une race [...] je pense que c'est notre devoir d'en tenir compte. »

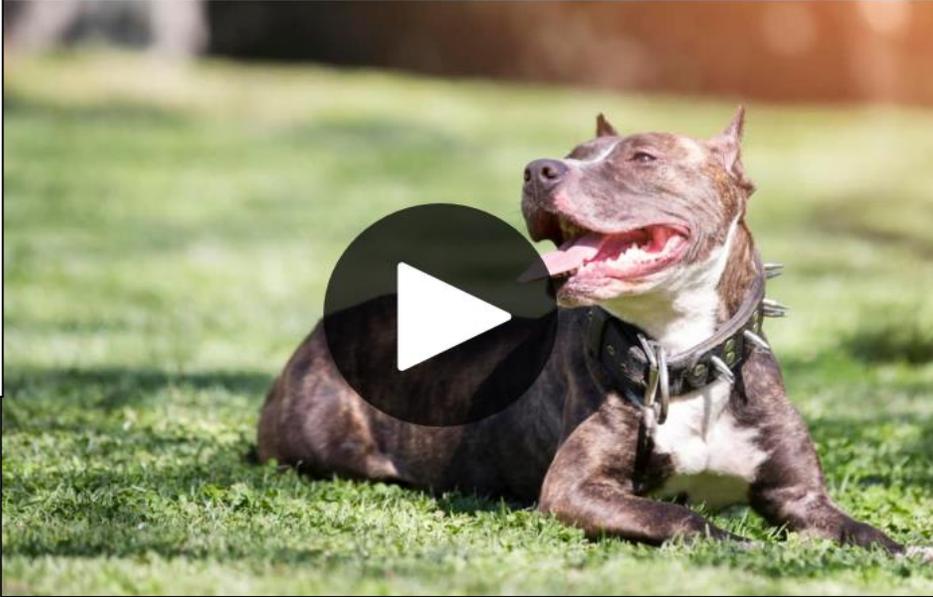
— Martin Coiteux, ministre de la Sécurité publique

ICI  GRAND MONTRÉAL
+ DE RÉGIONS ▾

ACCUEIL | SOCIÉTÉ

La science l'a emporté sur la volonté d'interdire les pitbulls, reconnaît Coiteux

Publié aujourd'hui à 11 h 21
Mis à jour il y a 3 minutes



Science-informed policy & political decision: sometimes it works, sometimes it does not!!!



Prohibit live baitfish to control the proliferation of grass carp. the Ministry of Wildlife took into account the researchers' recommendations. Impact on fishing & tourism.



Migration of woodland caribous in the Val-D'Or region: government bureaucrats & university experts recommended an alternative path for a forest road (2016-17). Rejected by minister : caribous displaced to zoo.

Scientific data vs. other types of information

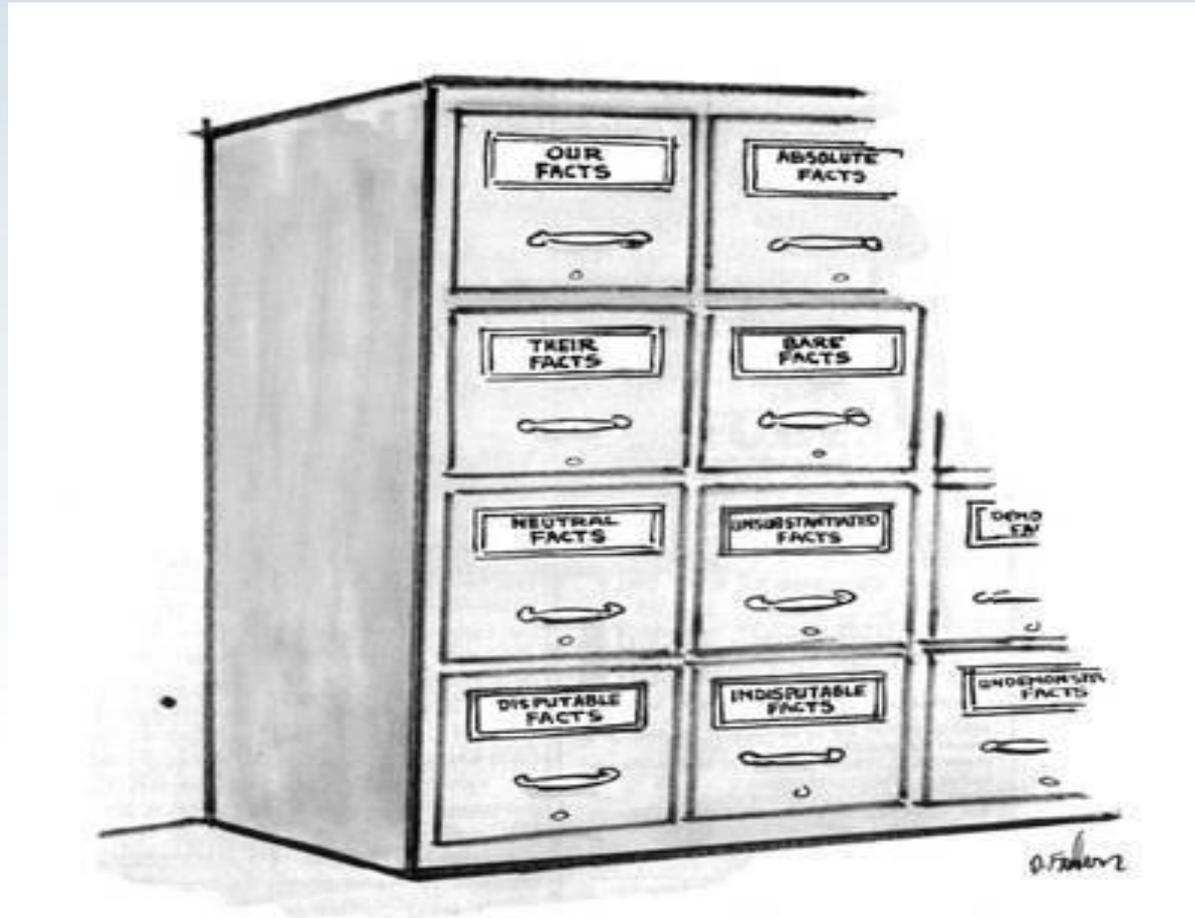
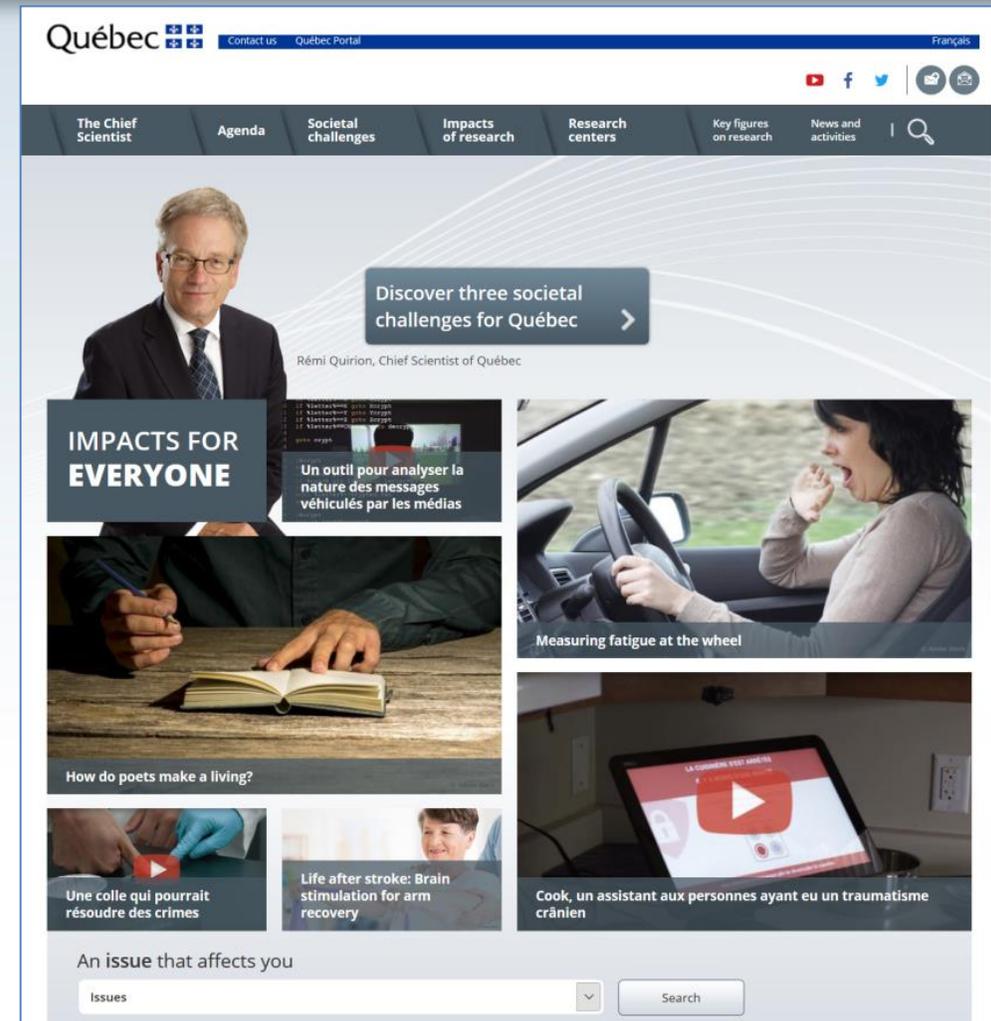


Image : Dana Fradon – Filing cabinets labelled – New Yorker 7 mars 17

Chief Scientist Web Site - General Public

- **Short impact stories and video for elected officials and government on various research topics sorted by impact, regions, challenges...**
- **Key research data**
- **Fact-checking project (*Détecteur de rumeurs*), a partnership with Agence Science Presse and universities: a tool to develop critical thinking (short web capsules)**



International Leadership & Science Diplomacy

- **Active participation in missions and meetings abroad organized by the Premier or other ministers (France, China, Mexico, Cuba, Israel, Japan...). A Major side benefit: multiple opportunities for informal talks with the Premier and ministers during these missions**
- **Attraction of international organizations : Future Earth**
- **Promotion of scientific diplomacy: organization in 2017 of two conferences on the issue (ACFAS Congress and Entretiens Jacques-Cartier-CNRS) to better structure my actions in this sector. Op-Ed on the issue. Palestine Partnership. Anti-Doping Agency Partnership**

At the international level



INGSA provides a forum for policy makers, practitioners, academics, and academics to share experience, build capacity and develop theoretical and practical approaches to the use of scientific evidence in informing policy at all levels of government.

Important network that allows us to discuss our role within the government, initiated by Sir Peter Gluckman, James Wilsdon & others. Rémi Quirion as founding member (still the only francophone!!).

Recent initiatives:

- **INGSA meeting in Montréal on scientific advice in the North American context (May 25, 2018)**
- **Training workshops in South Africa & Senegal : To built capacity and expertise on science-policy interphases, worldwide (First in French-speaking world: Dakar March 5-7, 2017). 40 participants. Will lead to the creation of a network of potential experts. Upcoming activities in Kenya, Rwanda, Burkina Faso, Morocco & Congo.**
- **International joint INGSA-EC meeting on Principles & Guidelines for Government Scientific Advice (Brussels, sept 2016; Tokyo, nov 2018)**

At the international level

G7 Research Summit on Arctic sustainability (May 23-24, 2018, in Montréal). Partnerships with the Royal Society of Canada. Followed by a meeting of International Network for Government Science Advice (INGSA) focusing on the possible development of a North American chapter.

These events brought together national and international leaders on the Arctic and on science diplomacy



In closing—Lessons learned after 7 years as chief scientist & advisor to government

- **Must establish trust (always just a phone call away!!)**
- **An advisor does not make decisions (a hard one for him!!)**
- **Understand the decision-making environment (science, data, politics)**
- **Understand the political decision-making process (hours!!)**
- **Do not act alone (critical to have supporters!!)**
- **Do not let facts speak for themselves (do not assume anything!!)**
- **Clearly convey the message (the famous elevator pitch!)**
- **Maintain scientific credibility (with politicians & scientists)**
- **Adopt a cross-cutting vision (broad based approach)**
- **And above all... be resilient! (3 Prime Ministers, 6 Ministers, 6 Deputy Ministers!)....TWO KEY WORDS-TRUST & RESILIENCE**

Merci!

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The Government as a user of Science

Jeremy Ayers

Vice President of Policy, Results for America



RESULTS
FOR AMERICA

Jeremy Ayers
Vice President of Policy
Results for America

June 2018



Results for America is helping decision-makers at all levels of government harness the power of data and evidence to address our world's greatest challenges.

Results for America is helping decision-makers at all levels of government accelerate their use of evidence and data through:



**Standards of
Excellence**



**Implementatio
n**



**Mobilizatio
n**

Government Standards of Excellence



Standards of Excellence

- Federal Invest in What Works Index
- State Standard of Excellence (July 2018)
- What Works Cities Certification

Federal Invest in What Works Index

 FEDERAL INVEST IN WHAT WORKS INDEX (2016)							
CRITERIA	 Administration for Children and Families (HHS)	 National & Community Service Corporation for	 Millennium Challenge Corporation	 U.S. Agency for International Development	 U.S. Department of Education	 U.S. Dept. of Housing & Urban Development	 U.S. Department of Labor
TOTAL SCORE (Out of a possible 100)*	80	72	85	83	80	76	80
1. Leadership: Did the agency have a senior staff member(s) with the authority, staff, and budget to evaluate its major programs and inform policy decisions affecting them in FY16?	8	8	8	8	8	8	9
2. Evaluation and Research: Did the agency have an evaluation policy, evaluation plan, and research/learning agenda(s) and did it publicly release the findings of all completed evaluations in FY16?	9	8	9	8	8	8	9
3. Resources: Did the agency invest at least 1% of program funds in evaluations in FY16? (Note: Meeting this criteria requires both Agency and Congressional action.)	7	7	10	10	7	6	8
4. Performance Management/Continuous Improvement: Did the agency implement a performance management system with clear and prioritized outcome-focused goals and aligned program objectives and measures, and did it frequently collect, analyze, and use data and evidence to improve outcomes, return on investment, and other dimensions of performance in FY16?	8	7	8	8	8	9	9
5. Data: Did the agency collect, analyze, share, and use high-quality administrative and survey data - consistent with strong privacy protections - to improve (or help other entities improve) federal, state, and local programs in FY16?	9	8	9	9	9	9	9
6. Common Evidence Standards/What Works Designations: Did the agency use a common evidence framework, guidelines, or standards to inform its research and funding decisions and did it disseminate and promote the use of evidence-based interventions through a user-friendly tool in FY16?	9	8	8	8	9	7	9
7. Innovation: Did the agency have staff, policies, and processes in place that encouraged innovation to improve the impact of its programs in FY16?	8	7	9	9	8	8	7
8. Use of Evidence in 5 Largest Competitive Grant Programs: Did the agency use evidence of effectiveness when allocating funds from its 5 largest competitive grant programs in FY16?	7	9	8 ¹	8 ²	8	7	7
9. Use of Evidence in 5 Largest Non-Competitive Grant Programs: Did the agency use evidence of effectiveness when allocating funds from its 5 largest non-competitive grant programs in FY16? (Note: Meeting this criteria requires both Agency and Congressional action.)	7	7	N/A	N/A	8	7	7
10. Repurpose for Results: In FY16, did the agency shift funds away from any practice, policy, or program which consistently failed to achieve desired outcomes? (Note: Meeting this criteria requires both Agency and Congressional action.)	8	3	8	7	7	7	6

* These scores are based on information provided by the 7 federal departments and agencies included in this index. You can find this background information - as well as a description of how RFA developed these scores - at <http://results4america.org/policy/invest-in-what-works-indexes/>
¹ Since MCC only administers competitive grant programs, its total possible score was 20 for Question #8 and 0 for question #9.
² Since USAID only administers competitive grant programs, its total possible score was 20 for Question #8 and 0 for question #9.

What Works Cities Certification

The What Works Cities Standard

The What Works Cities Standard defines how local governments can create a strong foundation for the effective use of data and evidence. The Standard's four components—Commit, Measure, Take Stock, and Act—build on each other to help cities understand and invest in what works:

Commit

What Works Cities leaders make powerful, public commitments to achieving better results for their residents by using data and evidence when making budget and policy decisions.

Measure

What Works Cities leaders collect and use data and tools to measure progress and engage residents along the way.

Take Stock

What Works Cities leaders consistently review and reflect on the data and evidence they have to learn and make improvements, and

Act

What Works Cities leaders use data and evidence to inform major decisions and take action to improve outcomes.

The What Works Cities Standard

MEASURE

15.	Does your local government have an open data portal (i.e. a website for making electronic data records accessible in whole or in part to the public in machine-readable formats)?
16.	Does your local government have a written and routine process to determine the release of open data?
17.	Does your local government use (where they exist) civic data standards when publishing open data?
18.	Does your local government maintain a comprehensive data inventory?
19.	Has your local government established or adopted data standards (e.g., address and date formats, preferred geospatial projections)?
20.	Does your local government publish progress on city goals on at least a quarterly basis (e.g., via a dashboard, update to city's strategic plan, etc.)?
21.	Does your local government define strategic objectives and desired outcomes for each key procurement?
22.	Does your local government measure outcomes, impacts, and/or cost-effectiveness of at least five key procurements, contracts, and/or grants (i.e. monitor performance data in real-time and troubleshoot with contractors to achieve the goals of the contract and/or grant)?
23.	Does your local government have an evaluation system or scorecard for key procurements, contracts, and/or grants that facilitate comparison of outcomes across contractors to determine which contractors are most effective?
24.	Does your local government have publicly available baseline evaluation standards or evaluation protocols to protect rigor of city-funded evaluations?

TAKE STOCK

25.	Does your local government have a designated person or team responsible for managing data?
26.	Does your local government have a designated person or team responsible for performance management?
27.	Does your local government convene a performance management program (i.e. Stat meetings)?
28.	Does your local government have a set schedule for performance management or Stat meetings?
29.	Does your mayor or chief executive as well as department commissioners regularly attend performance management or Stat meetings?
30.	Does a senior official with budget and decision-making authority chair these meetings?
31.	Has your local government selected specific performance measures as key indicators to highlight and visit on a quarterly basis?
32.	Does your local government's performance management program collect and store outcomes and performance data on city contracts?
33.	Does your local government have a dedicated person or team responsible for strategically managing the city's portfolio of most important procurements that are due in the upcoming year?
34.	Is the procurement and contracts function organizationally directly below the local government manager or mayor?
35.	Does your local government structure the procurement and contract process (including selecting the appropriate contract type) to incorporate incentives and align to strategic goals?
36.	Does your local government actively manage ongoing key contracts / grants? That is, does your local government use performance data in real time and troubleshoot with contractors to achieve the goals of the contract or grant, as needed?

The What Works Cities Standard

TAKE STOCK

37.	Does your local government have a designated person or team responsible for managing evaluations?
38.	Does your local government have a publicly available or fixed protocol or process for conducting external research and evaluation projects (i.e. data sharing agreements, IRB-style internal review process, etc.)?
39.	Does your local government have senior-level managers empowered to repurpose funds from practices, programs and/or policies that, through rigorous data analysis and evaluation, have consistently failed to achieve desired outcomes?
40.	Does your local government have a written process for determining what action should be taken when a practice, program or policy has consistently failed to achieve its established outcome-based performance targets?

ACT

41.	Does your local government have a written process that calls for the public release of data that is relevant to stated city/department goals and objectives, fundamental services, or core mission?
42.	Does your local government have a process to receive public data requests and to release data that is responsive to residents' requests?
43.	Does your local government make future contracting decisions based on a contractor's past performance?
44.	Does your local government apply results-driven contracting strategies for your five most important (either tying to high priority goals or representing large dollar amounts) contracts or procurements?
45.	In the last 12 months, has your local government initiated low cost or randomized evaluation of priority city programs or services in five of the city's largest departments and/or programs?
46.	In the last 12 months, has your local government allocated budget specifically designated for evaluation as a condition or sign-off for new projects?
47.	In the last 12 months, has your local government used the results from low cost or randomized evaluations to make operational or policy changes?
48.	In the last 12 months, has your local government used rigorous data analysis and evaluation to publicly identify practices, programs and/or policies that have consistently failed to achieve their desired outcomes?
49.	In the last 12 months, has your local government shifted funds away from a practice, program or policy that, through rigorous data analysis and evaluation, has consistently failed to achieve desired outcomes toward a more effective and efficient practice, program or policy?
50.	Has your local government communicated the decision to shift funding based on practices, policies, and/or programs that, through rigorous data analysis and evaluations, are consistently failing to achieve desired outcomes to the public (e.g., residents, customers, elected officials)?

COMMIT

	Technical Assistance Framework	Open Data	Data Governance	Performance Analytics
		Results-Driven Contracting	Low Cost Evaluations	Repurpose for Results
1.				
2.				
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14.				

WHAT WORKS CITIES
SILVER 2017

WHAT WORKS CITIES
GOLD 2017

WHAT WORKS CITIES
PLATINUM 2017

Implementation



Implementation

- State Education Fellows (Evidence in Education Lab)
- Local Government Fellows
- Nonprofit Fellows

Mobilization

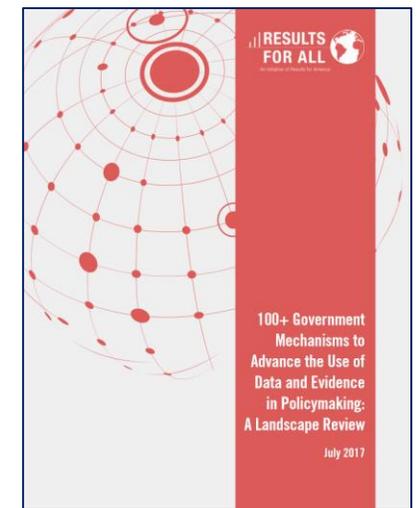
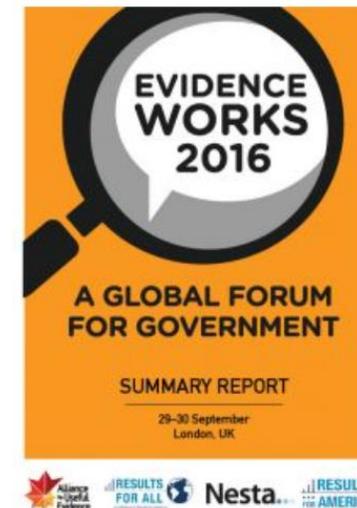
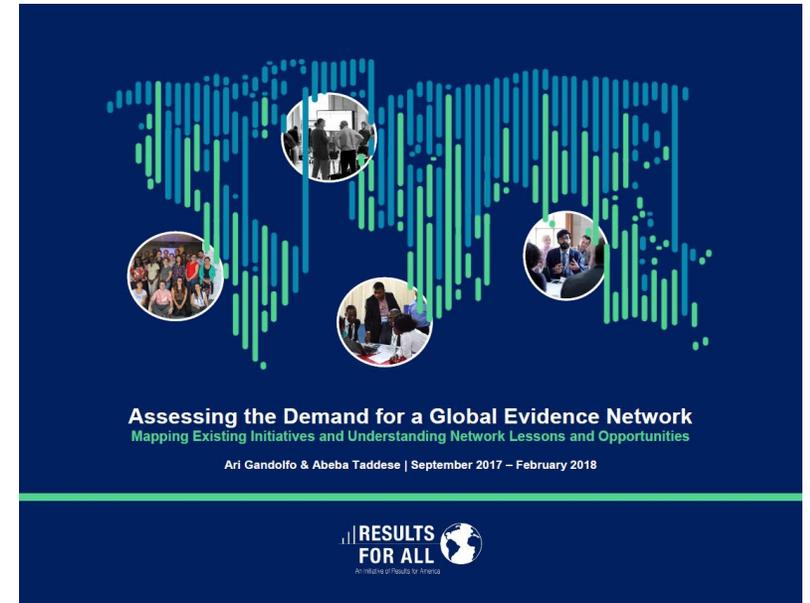


Mobilization

- Moneyball for Government
- What Works Media Project
- Results for All

Results for All

- Evidence Works 2016: global forum on evidence-informed policymaking for government leaders from 40+ countries.
- Global landscape review: identified 100+ government mechanisms to accelerate evidence use in policy and practice
- Using Evidence workshop: government teams from Chile, Ghana, Kenya, Malawi, Mexico, Nigeria, Rwanda, South Africa, and Uganda will discuss and share using evidence to improve policy implementation
- **Evidence Network**: cultivating a network of evidence leaders and champions around the world (with focus on global South) to advance evidence-informed policymaking



Embedding Impact Metrics in Policy



9 Ways to Make Federal Legislation Evidence-Based

- 9 recommendations based on existing federal policy

Recommendation #2: Define what “evidence-based” means.

Actions:

1. Include a rigorous, tiered definition of what “evidence-based” means to ensure federal funds are invested in the most effective approaches where the evidence base is strong, while allowing for flexibility where the evidence base is still being developed.
2. Require federal grant applications to include an assurance that grantees will review the whole body of evidence when identifying evidence-based approaches, rather than merely focusing on one or a few evaluation studies.

Recommendation #3: Apply the definition of “evidence-based” to how federal grant funds are allocated.

Actions:

1. When the evidence base is strong, require federal grantees to invest all or a portion of their funds in evidence-based practices.
2. When the evidence base is still developing, require that an absolute priority or preference be given to grant applicants that can demonstrate they will use competitive grant funds on evidence-based activities.

Recommendation #4: Authorize a tiered-evidence innovation fund.

Action:

1. Authorize a tiered-evidence grant program that: (A) allocates federal funding based on the level of evidence provided, with smaller awards made to test new and innovative strategies and larger awards made to scale strategies with stronger evidence; and (B) requires a rigorous, independent evaluation of each grant activity to further build the evidence base.

Recommendation #5: Provide Pay for Success authority.

Actions:

1. Authorize a new Pay for Success fund and/or include Pay for Success as an allowable activity within existing federal grant programs, including innovation funds.

Recommendation #6: Increase flexibility for federal grantees in exchange for using data and evidence to improve results.

Action:

1. Authorize federal agencies to waive grant program requirements if grantees propose to invest federal funds in evidence-based strategies and agree to rigorously evaluate them.

Recommendation #8: Repurpose federal funds away from practices, policies, grantees, and programs that consistently fail to achieve desired outcomes

Actions:

1. Use evaluation and outcomes data to identify low-performing grantees (e.g., the bottom 10%) and then require them to re-compete for future funding in order to continue receiving federal resources.
2. Structure federal competitive grant programs such that grant recipients secure funding for a certain period of time (e.g., 3 years) but must show results in order to receive continuation funding (e.g., 2 additional years).



RESULTS
FOR AMERICA

