Welcome to the 2023 COR-CII Joint Summer Meeting

New Wifi codes are coming! Printing them now. Scan your name badge QR code for the Agenda

Got questions? Join at slido.com #2638174
Thank you to our Sponsors

Host Institution:

Gold level sponsors:

University sponsors:
Welcome to Dalhousie University

Welcome to Territory by

Ann LaBillois

Dalhousie Elder in Residence
Opening Remarks

Frank Harvey, President, Dalhousie University

Mark Becker, President, Association of Public and Land-grant Universities

Taylor Eighmy, Chair, Commission on International Initiatives

Lynne Chronister, Chair, Council on Research
APLU U.S. Federal Relations Update

Debbie Altenburg, Associate Vice President, Research Policy & Governmental Affairs

MacGregor Obergfell, Assistant Director, Governmental Affairs
Governmental Affairs Update

Deborah Altenburg
Associate Vice President, Research Policy & Governmental Affairs

MacGregor Obergfell
Assistant Director, Governmental Affairs
FY 23 – Important Year for Funding Opportunities

• Economic Development Authority
• **Build to Scale (B2S)** - $50M
• **Regional Technology and Innovation Hubs** - $500M
• **Distressed Area Recompete Pilot Program (Recompete Pilot Program)** - $200 million

• National Science Foundation – TIP Directorate
• National Institutes of Standards and Technology - CHIPS for American
NSF Regional Innovation Engines

Type 1 Semifinalists - 44

Type 2 Semifinalists - 34
FY 23 – NIST - CHIPS For America

April 2023

- A Vision and Strategy for the National Semiconductor Technology Center (NSTC)
- Call for nominations for the NSTC Selection Committee

May 2023

Call for nomination to the Industrial Advisory Committee

June 2023

RFI for new Semiconductor focused Manufacturing USA Center and announcement of new CHIPS R&D Office Leadership

Fall 2023

NSTC Establishment and Funding opportunities
Budget & Appropriations

Types of Federal Spending, Fiscal Year 2023

- Mandatory: 63%
- Net interest: 8%
- Discretionary: 30%

Note: Does not add to 100 percent due to rounding.
Source: Congressional Budget Office

CENTER ON BUDGET AND POLICY PRIORITIES | CBPP.ORG
Federal Spending – Where We’ve Been

COVID Relief Bills
Bipartisan Infrastructure Law
Inflation Reduction Act
CHIPS and Science Act
Fiscal Year 2023 Omnibus
Fiscal Responsibility Act (Debt Ceiling Deal)

- Difference between what’s in the bill and what’s in the “side deal”
- “Trigger” incentive to encourage completion of appropriations by the end of the calendar year
- Fiscal Year 2024, Fiscal Year 2025, and Beyond
Defense and Non-defense Discretionary Spending

<table>
<thead>
<tr>
<th></th>
<th>FY22</th>
<th>FY23</th>
<th>FRA Text</th>
<th>FRA Text + Side Deal</th>
<th>Trigger Scenario (est.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense</td>
<td>782</td>
<td>858</td>
<td>886</td>
<td>886</td>
<td>850</td>
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<tr>
<td>NDD</td>
<td>730</td>
<td>744</td>
<td>704</td>
<td>772</td>
<td>737</td>
</tr>
</tbody>
</table>

Dollars in Billions

FY22, FY23, FRA Text, FRA Text + Side Deal, Trigger Scenario (est.)
Federal Spending – Where We’re Going

GOP House/Dem Administration

Spending Fatigue + Debt Ceiling

Showdown
FY24 Appropriations Scenarios

Scenario 1: Congress Completes FY24

Scenario 2: Congress Does Not Complete FY24, Triggers are Triggered

Scenario 3: Mystery Box

Scenario 4: Government Shutdown
<table>
<thead>
<tr>
<th>SUBCOMMITTEE</th>
<th>FY2023</th>
<th>House 302</th>
<th>Senate 302</th>
<th>House v. Senate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Rural Development, Food and Drug Administration, and Related Agencies</td>
<td>35,600</td>
<td>47,020</td>
<td>35,003</td>
<td>-2,017</td>
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<tr>
<td>Commerce, Justice, Science, and Related Agencies</td>
<td>82,441</td>
<td>58,676</td>
<td>69,637</td>
<td>10,961</td>
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<tr>
<td>Defense</td>
<td>727,736</td>
<td>826,448</td>
<td>823,267</td>
<td>-3,181</td>
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<tr>
<td>Energy and Water Development, and Related Agencies</td>
<td>54,000</td>
<td>52,378</td>
<td>56,730</td>
<td>4,352</td>
</tr>
<tr>
<td>Financial Services and General Government</td>
<td>27,556</td>
<td>11,311</td>
<td>16,807</td>
<td>5,496</td>
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<tr>
<td>Homeland Security</td>
<td>60,703</td>
<td>62,793</td>
<td>56,923</td>
<td>-5,870</td>
</tr>
<tr>
<td>Interior, Environment, and Related Agencies</td>
<td>38,850</td>
<td>25,417</td>
<td>37,850</td>
<td>12,433</td>
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<tr>
<td>Labor, Health and Human Services, Education, and Related Agencies</td>
<td>207,367</td>
<td>147,096</td>
<td>195,231</td>
<td>48,135</td>
</tr>
<tr>
<td>Legislative Branch</td>
<td>6,900</td>
<td>6,746</td>
<td>6,761</td>
<td>15</td>
</tr>
<tr>
<td>Military Construction, Veterans Affairs, and Related Agencies</td>
<td>154,168</td>
<td>155,701</td>
<td>154,352</td>
<td>-1,349</td>
</tr>
<tr>
<td>State, Foreign Operations, and Related Programs</td>
<td>59,693</td>
<td>41,367</td>
<td>58,358</td>
<td>16,991</td>
</tr>
<tr>
<td>Transportation, and Housing and Urban Development, and Related Agencies</td>
<td>87,332</td>
<td>65,208</td>
<td>88,091</td>
<td>22,883</td>
</tr>
</tbody>
</table>
Federal Research Agency Appropriations vs. CHIPS Authorizations

Dollars in millions

Based on agency and legislative data and the FY 2024 budget. | Federation of American Scientists
On the Horizon

- Farm Bill
- Artificial Intelligence
- China Competition 2.0
- National Defense Authorization Act
Research Security/Foreign Influence

- House Select Committee on China
- NSPM-33 implementation
- CHIPS and Science Implementation
- Section 117
- NIH foreign subrecipient reporting
- DOD new risk analysis
- DOE “Transparency of Foreign Connections”
Immigration and International Updates

Third-Party Servicers Guidance

F-1 Visa Denials Up
Quick Hits

HSAAC -> HSAPC

Expansion of Premium Processing
Thank You!

daltenburg@aplu.org
mobergfell@aplu.org
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Getting to Know Each Other

Moderator: Victoria Jones
Chief Global Affairs Officer, University of California Irvine

University of Massachusetts Amherst
Laura Vandenberg, Associate Vice Chancellor for Research
Kalpen Trivedi, Vice Provost for Global Affairs
Stuart Borrett, Associate Provost for Research and Innovation
Michael Wilhelm, Associate Provost of Global Partnerships and International Education

Oklahoma State University
Randy Kluver, Associate Provost and Dean of the OSU Global
Kenneth Sewell, Vice President for Research

University of Illinois Chicago
Joanna Groden, Vice Chancellor for Research
Neal R McCrillis, Vice Provost for Global Engagement
Lunch

See you back here at 1:25 pm
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Strengthening University-Industry Partnerships
Strategic International Partnerships

Julie Jordan (moderator)
Vice President for Research & Economic Development, Mississippi State University

Taylor Eighmy
President, University of Texas at San Antonio

Janaka Ruwanpura
Vice Provost & Associate Vice President of Research, University of Calgary

Barbara Stephenson
Vice Provost for Global Affairs & Chief Global Officer, University of North Carolina Chapel Hill
Building International Research Eco-System

Janaka Ruwanpura, Ph.D., P.Eng., FCAE, NAC
Vice-Provost and Associate Vice-President Research (International)
Ideal Modality for Enhancing International Partnerships

VPR \leftrightarrow SIO
Two Key Best Practices for Research-International Eco-system

- SIO to report to the Provost and the Vice-President Research
- Build a dedicated unit for International Research Partnerships
Global Engagement Plan 2020-25
Organizational Structure

Director
Strategic Global Initiatives
Buffy St-Amand

Global Training Programs Specialist
Chris Enns

Sr Analyst Int’l Data & Reports
Shikha Nayyar

Global Dev & SDG Specialist
Benazir Rahman*

Director
Institutional Programs (RSO)
Dr Kirsten Exall

Mgr Int’l Res Partnerships & Innov
Dr Nishan Sharma

Int’l Res & Innov Facilitator
Daniel Soto Lopez
One Stop for International Research & Innovation

Create awareness of our new(ish) unit

Liaise with international institutions and offices

Tool development (IFARM, researcher database)

Create funding mechanisms and measure Key Performance Indicators

Communicate funding opportunities, including internal

Coordinate and Advise with RSO

Identify and prioritize new opportunities

Demystifying int’l research funding application
The National Security Guidelines for Research Partnerships, developed in collaboration with the Government of Canada—Universities Working Group in July 2021, help to protect federally funded research.

To implement these guidelines fully, Budget 2022 proposes to provide $159.6 million, starting in 2022-23, and $33.4 million ongoing, as follows:

- $125 million over five years, starting in 2022-23, and $25 million ongoing, for the Research Support Fund to build capacity within post-secondary institutions to identify, assess, and mitigate potential risks to research security; and
- $34.6 million over five years, starting in 2022-23, and $8.4 million ongoing, to enhance Canada’s ability to protect our research, and to establish a Research Security Centre that will provide advice and guidance directly to research institutions.
Working with the Director of Research Security

• Purpose:
  – Due Diligence
  – Compliance, Risk Mitigation and Special Investigations
  – Education and Outreach

• Objective: to support researchers and ensure they can continue to do leading-edge research, while protecting IP, individual safety, and national security

• Principles: Country agnostic, Maintain academic freedom, Maintain access to global talent, Ensure the reputation of UCalgary is upheld

"It's ok if your research is of a sensitive nature - we want to provide helpful and timely information about protecting your research"
Welcome to the Country Profile for

Iceland

Goal 1: Increase diversity of the campus community

- Student Enrolment: International undergraduate and graduate students
- International Postdocs: International Postdocs from selected country
- Internationally Trained Faculty: Faculty members that have international education or training

Goal 2: Improve global and intercultural capacity within our campus communities

- Global Learning Experiences (GLE): UCalgary students with a GLE from selected country

Goal 3: Enhance global partnerships

- Agreements: Types of Agreements include Academic, Mobility, MOUs, Training & Professional Development...
- International Research: International Research include agreements, revenue, and scholarly outputs

Additional KPIs

- Alumni: Aggregated number of alumni from selected country
Research Collaboration Dashboard (Faculty focus)

Collab. by Fac.

Collab. by Inst.

Collab. by Auth.

Collab. by Sub.

Scholar Stats.

Top100_CoPub_Auth
IFARM
International Funding and Researcher Matching

- Searches +7K websites
- Secure (behind CAS login)
- Screened for Canadian researcher eligibility
Researcher Database tool

- Comprehensive, searchable database of researchers at UCalgary
- Allows us to find you collaborators at

| Research Area 1 | policy |
| Research Area 2 | climate change |
| Research Area 3 | cities |

Blue highlight means first time the individual appears in the list in order to eliminate multiple mentions of one or more of the searched terms.

<table>
<thead>
<tr>
<th>Faculty or Group</th>
<th>Role(s)</th>
<th>Department(s)</th>
<th>Name</th>
<th>Research Areas</th>
<th>Research Activities</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Social Work</td>
<td>Professor</td>
<td>-dimensional Campus</td>
<td>Julie Deleeuw</td>
<td>Dr. Julie Deleeuw is currently engaged in research in the fields of field educators, cities, climate change, comparative housing SelectedWorks,Books, „Teorija 1&quot;, (2012): Housing/Health policy, international development, planning Research/Projects/Institutions, Comparative Interests/Opportunities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Architecture, Planning and Landscape</td>
<td>Professor</td>
<td>School of Architecture, Planning, Sasha Trushnova and Landscape</td>
<td>Cities, Climate change, Comparative Housing, Policy, International development,</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Important: Have an up-to-date profile – that’s how we will find you!
- If you are not sure where complete on profiles.ucalgary.ca
International Legal Research Agreements

- Analyses various agreements from different perspectives
Incentives: Research and International - Grants

**VPR Catalyst Grant**

**Focus**
- Catalyze research initiatives that will lead to substantial external funding
- Intended to support well-defined early-stage research activities

**Value**
- $1,000 - $15,000
- up to $20,000 awarded in rare cases

**Duration**
- 6 months

**Transdisciplinary Connector Grant**

**Focus**
- Exploration of questions, challenges, and opportunities that demand transdisciplinary approach
- Foster new connections among scholars, trainees, and external partners

**Value**
- up to $10,000 - Initiating stream
- up to $20,000 - Consolidating stream

**Duration**
- 6 and 12 months

**Int'l Research Partnership Workshop Grant**

**Focus**
- Develop and deliver a research workshop with an international research partner university
- Intended to initiate or advance new projects and to identify and develop funding opportunities

**Value**
- $10,000

**Deadline**
- Annual: October opening, November deadline

**Deadlines:** May 15, August 15, November 15, February 15
International Research Collaborations: Plan and Funding Strategy

- **Goal**: Increase Int'l Research Funding
- **Key**: Increase Int'l Research Funding Applications, publications, awards, faculty and student mobility
- **Champions in each Faculty**: increase engagement with international funding opportunities
- **Researchers**: attend and participate in awareness activities and apply to their thinking and work plans

**2021-2022**
- Build SGI Team
- International Funding And Researcher Matching (IFARM)
- Country Profile Dashboard
- Research Collaboration Dashboard
- UC Researcher Database

**2022-2023**
- Increase Involvement
- Build awareness
- SGI Roadshow
- Info Sessions
- Events & Delegations

**2023-2024**
- Change Culture
- Increase Int'l Research Funding
- Topic/country-focused comms
- Website

**End of Plan**
- Increase: Int'l Research Funding Applications, publications, awards, faculty and student mobility
- Champions in each Faculty increase engagement with international funding opportunities
- Researchers attend and participate in awareness activities and apply to their thinking and work plans
- Build SGI Team
Where are we now? - International Research Update and Funding Strategy

- **Goal**: Increase Int'l Research Funding
- **Why?**
  - Increase: Int'l Research Funding Applications, publications, awards, faculty and student mobility
  - Champions in each Faculty increase engagement with international funding opportunities
  - Researchers attend and participate in awareness activities and apply to their thinking and work plans
  - Many individual researcher consultations developed relationships with Consulates/Embassies: France, Germany, Switzerland, Singapore, UAE, UK, ...

- **Funding Opportunities**
  - Request received for funding opportunities: 58
  - Funding opportunities shared: 291
  - Faculty members helped: 31

- **Contact Request**
  - Request for internal and external research collaborators: 29
  - Potential research collaborators shared - Internal and External: 1056

- **Build SGI Team**
  - International Funding And Researcher Matching (IFARM)
  - Research Collaboration Dashboard
  - UC Researcher Database

- **Topic/country-focused comms**
  - e.g., Qatar, Germany, France, Curtin-Aberdeen-UCalgary Alliance, faculty groups

- **Events & Delegations**
  - Started 1 Jan 2023 – 2 stops, 38 researchers in attendance
  - 30+ individual researcher consultations
  - 12 stops, 223 researchers in attendance

- **UCGI Roadshow**
International Research Funding Opportunities

Global Centers (GC)
Use-Inspired Research Addressing Global Challenges in Climate Change and Clean Energy

PROGRAM SOLICITATION
NSF 23-557

National Science Foundation
Office of International Science and Engineering
Directorate for Biological Sciences
Directorate for Computer and Information Science and Engineering
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical and Physical Sciences
Directorate for Social, Behavioral and Economic Sciences
Directorate for STEM Education
Directorate for Technology, Innovation and Partnerships
Office of Integrative Activities

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Natural Sciences and Engineering Research Council (NSERC) and Social Science and Humanities Research Council (SSHRC)

UK Research and Innovation (UKRI)

A collaboration among research funders from Brazil, Canada, Germany, Norway, South Africa, Switzerland, the United Kingdom and the United States
<table>
<thead>
<tr>
<th>Research Collaboration Scorecard - Country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Investment and Funding - Country</strong></td>
</tr>
<tr>
<td>Gross domestic spending on R&amp;D (OECD only), List of sovereign states by research and development spending/ per capita (see Links 1 and 2 below)</td>
</tr>
<tr>
<td>Availability of Research Funding to Collaborate overseas</td>
</tr>
<tr>
<td>Top Innovations (see Links 3 and 4 below)</td>
</tr>
<tr>
<td><strong>Risk and Alignment - Country</strong></td>
</tr>
<tr>
<td>Country and location is within an acceptable risk rating considering social, economic and political factors (see Link 5 below)</td>
</tr>
<tr>
<td>Compliance to Canada’s National Security Guidelines</td>
</tr>
<tr>
<td>Alignment with provincial and federal governments’ priorities and interests</td>
</tr>
</tbody>
</table>

1) https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm#indicator-chart
2) https://en.wikipedia.org/wiki/List_of_sovereign_states_by_research_and_development_spending
4) https://en.wikipedia.org/wiki/International_Innovation_Index
5) https://travel.gc.ca/travelling/advisories
<table>
<thead>
<tr>
<th>Risk Alignment - Country</th>
<th>Iceland</th>
<th>Australia</th>
<th>Denmark</th>
<th>Finland</th>
<th>Norway</th>
<th>Singapore</th>
<th>Japan</th>
<th>South Korea</th>
<th>Sweden</th>
<th>Switzerland</th>
<th>USA</th>
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<tbody>
<tr>
<td>Very Good (3)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Acceptable (2)</td>
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<td>Challenging (1)</td>
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<tr>
<th>Modest (1)</th>
<th>Intermediate (2)</th>
<th>Significant (3)</th>
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</thead>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
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<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

Research Investment and Funding - Country
Outcomes and Impact
International Research

International Co-authored Publications

5% increase in International co-authored publications since 2020

Overall % with International Collaborators:
- 2017 to 2019 (Avg.): 44.6%
- 2020: 49.3%
- 2021: 52.7%
- 2022: 54.0%

International Research Agreements in 2022-23: 760+

International Research Revenue (Millions)

29% increase in Int’l Research Revenue since FY 2020-21

Revenue:
- FY 2017-18 to 2019-20 (Avg.): $24.02
- 2020-2021: $24.62
- 2021-2022: $31.79
- 2022-2023: $31.62
Questions?
Comments?
Priority Activities for Internationalization


- Recruiting international students
- Partnerships with institutions/organizations abroad
- Internationalizing the curriculum and/or co-curriculum
- Increasing study abroad for U.S. students
- Faculty development
- International research collaborations
- None of the above

Do university structures support the goal?
Carolina seeks to be the leading global, public research university.

- Association of Public and Land Grant Universities’ (APLU) 2021 Platinum Award for Global Learning, Research, and Engagement
- #41 in U.S. News & World Report’s “Best Global Universities” Rankings (out of 2,000 worldwide)
- #11 in study abroad participation in 2022
- 6 Department of Education Title VI-funded area studies centers
- Fulbright “Top Producer” of U.S. student awards
Carolina seeks to be the leading global, public research university.

- 10th in the US for federal research among universities.
- $1.2 billion in research activity annually.
- #13 largest US research university in research volume and annual expenditure.

UNC is home to five major health affairs schools (Medicine, Public Health, Pharmacy, Dentistry and Nursing) on our main campus, as well as our College of Arts & Sciences, a statewide health care system with five on-campus hospitals, and 46 research centers and institutes.
Enhance support for Carolina’s international research mission.

Identify opportunities at the country, region, and institution level for fruitful global collaboration and partnership.

As per the Carolina Next Strategic Plan (7.3)
UNC-University of Tübingen

Thematic research theme: Data Science and Society

3 + 3 = 27
UNC-University of Tübingen

Thematic research theme: Data Science and Society

An evolving and growing toolbox:

• Matchmaking
• Funding support
• Academic conferences
• Senior delegation visits
• Tracking and record keeping

UNC Provost Chris Clemens welcomes Tübingen delegation
Example of impact

World ranking: All three universities consistently in top 10
Example of impact

<table>
<thead>
<tr>
<th>Successful Grant Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Research</td>
</tr>
<tr>
<td>8 Education</td>
</tr>
<tr>
<td>2 Practice</td>
</tr>
<tr>
<td>1 Student</td>
</tr>
</tbody>
</table>

Overall return on investment: 3 : 1
CONNECT WITH US

Barbara Stephenson, Vice Provost for Global Affairs and Chief Global Officer
Penny Gordon-Larsen, Interim Vice Chancellor for Research

FIND US ONLINE

@uncglobal
@unc_global
global.unc.edu
Developing Strategic International Partnerships to Advance the Research Enterprise

CII-COR Summer Meeting 2023

Barbara Stephenson, Vice Provost for Global Affairs and Chief Global Officer
The University of North Carolina at Chapel Hill
Case study

A consortium of three universities working together to advance healthcare

• Achieve more together
• Exchange of best practice
• Four domains: Research, Education, Practice & Policy, Students

PharmAlliance

https://www.pharmalliance.org/
Impacts of AI and ML in Research

- Pramod Khargonekar (Moderator), Vice Chancellor for Research, University of California – Irvine
- Colleen Fitzgerald, Vice President for Research and Creative Activity, North Dakota State University
- Kate Miller, Vice President for Research and Innovation, University of Texas at Arlington
- Jim Reecy, Associate Vice President for Research, Iowa State University
Impacts of AI and ML in Research

- Does your institution have policies on AI?
  - Yes, in the academic/educational enterprise
  - Yes, in the research enterprise
  - We have policies on AI in both.
  - We do not have policies in either.
What are the major opportunities and challenges for academic research (or in international areas) in view of current and expected future AI/ML technologies? Short text answers.

Start presenting to display the poll results on this slide.
Responses

- Will the US regulate AI like Tik ToK, claiming it’s a risk of disclosing sensitive information?
- Patent law (from research inventions) will likely get challenged?
- Doesn’t AI challenge the notion of originality rather than moving towards attribution of original research.
- Opportunities: language learning and translation, tech transfer for myriad uses of AI
- Who evaluates ‘the truth’ and the efficacy of effective research methodologies.
- Challenges: integrity, accessibility, data governance
- Ethics & integrity with publications & proposal writing. Research Integrity in all its complexities is a huge risk
- New tools - stimulate new ideas
- Defining ownership. Defining originality
- Automation of some research admin work is an opportunity
- Data science and new models in SO MANY areas
- Vendors begin to introduce AI into products licensed by universities whether or not universities are on board with using AI.
- Data analysis going to a local minimum. Perpetuating and amplifying biases
- Need to embrace, because it is not going away.
- RCR
- Opportunity: Student learning
- Teaching acceptable uses of AI in research
- Hiring, policy
- Public good research away from corporate focus
- Internal large language models for research operations
- Efficiency of transactional processing
- Integrity
- Policy development
- Bias/bias reduction
- Academic dishonesty/research integrity
- Challenges in publication ethics and data sharing along with fake data. Opportunities with rapid expansion. Of New knowledge
- Concern that researchers will use generative AI to complete administrative sections of their funding applications, as a means to ignore any new requirements meant to drive critical thinking and culture change (e.g. requirements to provide an EDI plan, a HQP training plan, a research security risk mitigation plan).
- Concerns about research misconduct reaching into previously unthought-of domains.
Responses

- Concerns about inherent bias of AI tools - the training data drive the decision process.
- Opportunities to achieve major knowledge and discovery leaps in areas from medicine, environmental, defense, and other research themes.
- Major challenge is the need (requirement!) to decolonize extant and future data sets and move toward general intelligence (GI).
- Challenge: ensuring that development of AI on the global scale is consistently aligned with principles of responsible AI (e.g. from the 2017 Montreal Declaration). Those who ignore these principles may develop AI/ML technologies more rapidly, providing short-term gain at the cost of integrity, equity, and public safety.
- Challenges: bias in the underlying datasets, misinterpretation of results. Opportunities: discovery from deep analysis of large datasets in narrow disciplines.
- Research Opportunities: ability to use AI to answer research questions that were difficult to answer in the past (e.g. big data).
- Research Challenge: research misconduct.
- Potential for accelerating and refining research outcomes
- Ensuring ethical standards and practices
- Great potential for find patterns in large data set and image processing
- Need guidelines and limitations on uses
- Research productivity accelerator.
- Trusted applications of AI/ML.
- Human-machine teaming
- New opportunities for collaborative research with the humanities and social sciences and AI/ML such as human interfaces, ethics, gender & ethnic studies, and business.
- Dynamic computing advances;
- Unethical research and researchers
- Major opportunity is the chance to automate/accelerate discovery and innovation. Major challenge is the legitimacy/validity of results produced via AI/ML. ELSI issues in this space are not well understood.
- Clear Federal guidance or lack there of
- Educating the public
- Getting crowded
- Truly utilize the capabilities
- Getting past the fear...
- Security
- Acceleration
- Ethics challenge
Concurrent Sessions

COR members:
Remain Seated

CII members:
Move next door to room 1020
Making Research More Impactful

• **Kevin Gardner** (Moderator), Executive Vice President for Research and Innovation, University of Louisville

• **Jeff Larsen**, Assistant Vice President, Innovation & Entrepreneurship, Dalhousie University

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• **Gillian Wilson**, Vice Chancellor for Research, Innovation, and Economic Development, University of California-Merced

• **Walt Copan**, Vice President for Research and Technology Transfer, Colorado School of Mines
Dal Innovates provides opportunities for students and faculty at Dalhousie University, and any other universities in Atlantic Canada, to explore and experience innovation and entrepreneurship, develop the knowledge, skills, and attitudes necessary to translate new ideas into innovations, and make an impact on local and global challenges. We catalyze more and better ventures being developed through the universities in the region, and support the growth of startups that need access to the talent, equipment, labs and expertise in these universities.
Dal Innovates Highlights

"Dal Innovates wins Deshanpe Symposium Award for Technology Commercialization"

"First Women-Led Lab2Market Cohort Features 11 Teams from Across Canada"

Our offerings supported participants at every academic level:

- 20% Undergraduate
- 25% PhD
- 8% Masters
- 8% Postdocs
- 8% Other

Path2 Innovation
Lab2 Market
Ready2 Launch

Emera ideaHUB

$34M TOTAL FINANCING SECURED BY STARTUPS

78 STARTUPS SUPPORTED
162 JOBS CREATED

INTELLECTUAL PROPERTY

116 Trade Secrets
37 Patents
15 Trademarks
10 Copyrights

$1.1B EQUITY VALUE CREATION
Total: $1,108B
Prime: $811M
Oceans: $297M

Over 100 Active Mentors
35% of mentors are female
76 graduating ventures

We will be adding a comprehensive Dal Innovates Annual Report starting in 2023.
The unique relationship between Dalhousie and MIT has helped rapidly advance the commercialization of science and deep tech through Dal Innovates and other programs. The successes achieved through this partnership clearly demonstrate that ample economic opportunities exist wherever there are intelligent and talented individuals backed by cutting-edge research expertise and academic institutions.”

BILL AULET, MANAGING DIRECTOR, MARTIN TRUST CENTER FOR MIT ENTREPRENEURSHIP
• Sandboxes are collaborative collision spaces bringing together multidisciplinary teams to develop ideas and innovative solutions
• Dalhousie has five sandboxes connected to eight Faculties
  • **ShiftKey Labs**, hosted by the Faculty of Computer Science: Shiftkey aims to bring together students in *all* disciplines to come together to solve challenges that are being faced across *all* sectors using technology entrepreneurship & innovation.
  • **IDEA Sandbox**, hosted by the Faculty of Engineering: IDEA is a multidisciplinary initiative built around project-based learning and provides workshops, mentorship, and experiential learning opportunities for students to explore engineering, design, making, and manufacturing.
  • **Cultiv8**, hosted by the Faculty of Agriculture: Cultiv8, provides students with opportunities, skills, and experiences to have impact in their future of work through programming, internships, and mentorship.
  • **Surge**, hosted by the Faculty of Science: SURGE trains STEM students in processes and competencies of design thinking and innovation in order to devise creative, science and technology-based solutions to urgent problems in the world today.
  • **Pulse**, hosted by the Faculties of Medicine, Health & Dentistry: Pulse aims to promote innovation and entrepreneurship in health, technology, and the life sciences.
Lab2Market is a national innovation network to guide scientific research toward the development of solutions to benefit society. This national lab-to-market platform to help graduate students and researchers take their work to market, enabling the transformation of invention to impact.

**Building Skills, Commercializing Research, and Starting New Ventures**

1. Provide Graduate Students, Postdocs and Professors with the skills, experiences, mindset and resilience to thrive in the innovation economy
2. Generate impact local, nationally and globally by taking new ideas, science and technology and turning them into new products, services, and growing businesses.
3. Catalyze more and better startups and industry partnerships from university research.

**L2M / Discover**

Early-stage exploration of innovation and entrepreneurship and advancing research, innovations and ideas into impacts.

**L2M / Validate**

Based on U.S. I-Corps, uses scientific inquiry and discovery processes to generate data and evidence that a solution is solving a real problem for someone (problem-solution fit).

**L2M / Launch**

Based on MIT delta V acceleration, focused on initial business model development and venture creation, providing entrepreneurs with tools need to build a startup.
Based on Ready2Launch, focused on initial business model development and venture creation, providing entrepreneurs with tools needed to build a startup.

**Building Skills and Starting New Ventures**

1. Provide Students, Postdocs and Professors with the skills, experiences, mindset and resilience to thrive in the innovation economy
2. Generate impact local, nationally and globally by taking new ideas turning them into new products, services, and growing businesses.
3. Catalyze more and better startups from universities

**COLLIDE**

*Discover / Validate / Launch*

A suite of programs, primarily for students and recent graduates to explore opportunities for new and better solutions, validate the opportunity, and launch new startups or social enterprises which are not based on research.

**COLLIDE / Discover**

Early-stage exploration of innovation and entrepreneurship

**COLLIDE / Validate**

Using customer discovery processes to generate data and evidence that a solution is solving a real problem for someone (problem-solution fit).

**COLLIDE / Launch**

Based on Ready2Launch, focused on initial business model development and venture creation, providing entrepreneurs with tools needed to build a startup.
Inspiring future deep tech founders to explore the potential of an idea.

3-day immersive product design sprint for aspiring deep tech founders (no Dal affiliation required).

Enabling early-stage deep tech startups to go from idea to prototype and prepare for scale.

10-month, immersive program for deep tech ventures who have completed customer discovery and have POC (no Dal affiliation required).
- Rigorous program includes hands-on CTO and CPO tracks with faculty and industry facilitation, MIT DE methodology; Demo Day
- Ventures receive $10,000 to cover costs for materials to build operational prototype
- New sessions added for relevance such as design for supply chain, deep tech funding strategies
- Expand to include digital, advanced materials and med tech products. See here.

Enabling deep tech ventures to bridge from prototype to commercial market.

1 – 2-year Residency for deep tech ventures in need of space, specialized services and support (no Dal affiliation required).
- Beyond the stage of founders developing a skillset, Residency is for ventures who are advancing their prototype, preparing for customer pilots or manufacturing trials
- Dedicated Venture Coaches support and challenge founders on their market readiness, identify gaps, advise and connect with the right resources
- Dedicated workspace for 4 – 6 employees and large prototype materials; dedicated advisory support from industry and experienced deep tech entrepreneurs

Connecting industry demand for innovation with the Supply of Start-ups and Talent to generate solutions.

2-year ideaMARKET Pilot to fund and enable to bring this vision to life.
- To increase our pipeline and increase likelihood of ventures achieving product-market-fit, we are designing a new model that can create more marketplaces for founders and attract funding from the same industry leaders who have unsolved problems ripe for innovation.
- Industry will offer priorities, data, access to customers, and funding. In exchange, start-ups and talent will generate ideas, prototype solutions, and collaborate to form ventures. See here.
CDL Atlantic

Impact

The first five years

- CDL Atlantic is part of the larger Creative Destruction Lab Network.
- There are two streams: (1) an Atlantic Canada focused Prime Stream; and (2) a Global Ocean stream.
- There are no changes proposed as part of the three-year strategy.

VENTURES

Total admitted: 158 (98 AC)
Graduates: 76 (46 AC)
Female Founders: 48 (22 AC)

EQUITY VALUE CREATION

Total: $1,108B
Prime: $811M
Oceans: $297M

No changes.

CDL operates five sites in Canada; three in the United States; and four in Europe
Dal Innovates is working to partner with Toronto Metropolitan University’s Diversity Institute, which focuses on diversity and inclusion as a key to Canada’s competitiveness. In addition to working with TMU on various Diversity Institute initiatives, we will infuse all programs with equity, diversity and inclusion (EDI) and introduce new pathways and internships focused on EDI and access as part of a new inclusive innovation strategy (see here).

Pathways
14-18 year old junior high and high school students

Dal Innovates has partnered on a two-week summer bootcamp with Ulnoweeg, and is working on other groups to introduce similar pathway for underrepresented students.

Programs
Extend EDI focus within existing and upcoming Dal Innovates programs
- Targeted streams - Specialized cohorts are by nature smaller.
- Marketing – inclusive language used in program marketing
- Program Content – Tailor program content for diverse audiences.

Co-ops & Internships
Internships for underrepresented student groups with local startups

New part- and full-time internships who are interested in working in the innovation or entrepreneurship space, including subsidies, mentorship, etc.
Mentorship & Coaching. Developing the coaching skills of mentors and mentees in a variety of contexts relevant for innovators, entrepreneurs, intrapreneurs, and more, including inclusive mentorship and mutual learning practices.

Resilience and High Performance. Harnessing the power of resilience and mental performance to support individuals, teams, and organizations in managing through stressors, uncertainties and risks to thrive and achieve positive outcomes.

Leadership, Teamwork & Culture. Increasing the abilities of innovators and entrepreneurs to work in teams, become leaders and create a strong culture to improve results.

Equity, Diversity, Inclusion, & Accessibility (EDIA). Unlocking the full potential of innovation and entrepreneurship by increasing EDIA.

Entrepreneurial & Growth Mindset. Fostering the mindset that there is an opportunity to grow and improve and to identify and make the most of opportunities, overcome and learn from setbacks, and succeed in a variety of settings.

Core Skills & Competencies. Increasing skills and competencies in key areas for innovators and entrepreneurs, including: Creativity & Openness, Critical Thinking & Problem-Solving, Dependability & Accountability, Communication & Persuasion, Opportunity Identification & Taking/Managing Risk, Motivation & Drive.

Mindframe Connect focuses on the psychology of entrepreneurship and the essential “soft skills”, mindset, resilience and inclusion needed for innovation-driven entrepreneurship, including how mentoring and coaching can help innovators, entrepreneurs and their teams to achieve better results. MindFrame Connect is research-driven and vetted by real-world innovators and entrepreneurs.

Mindframe is considering the expansion of its core areas to include:

1) Mentorship & Coaching. Developing the coaching skills of mentors and mentees in a variety of contexts relevant for innovators, entrepreneurs, intrapreneurs, and more, including inclusive mentorship and mutual learning practices.

2) Resilience and High Performance. Harnessing the power of resilience and mental performance to support individuals, teams, and organizations in managing through stressors, uncertainties and risks to thrive and achieve positive outcomes.

3) Leadership, Teamwork & Culture. Increasing the abilities of innovators and entrepreneurs to work in teams, become leaders and create a strong culture to improve results.

4) Equity, Diversity, Inclusion, & Accessibility (EDIA). Unlocking the full potential of innovation and entrepreneurship by increasing EDIA.

5) Entrepreneurial & Growth Mindset. Fostering the mindset that there is an opportunity to grow and improve and to identify and make the most of opportunities, overcome and learn from setbacks, and succeed in a variety of settings.

6) Core Skills & Competencies. Increasing skills and competencies in key areas for innovators and entrepreneurs, including: Creativity & Openness, Critical Thinking & Problem-Solving, Dependability & Accountability, Communication & Persuasion, Opportunity Identification & Taking/Managing Risk, Motivation & Drive.

Our Results

Of 1,000 participants surveyed:

- 94% would recommend training to their network
- 97.5% will implement skills learned in their professional life
- 89% would participate in more MindFrame Connect training
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See you at 6:30 pm at the President’s Reception

The Cable Wharf
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