

# Proposed evaluation plan for the Mitacs Accelerate Program

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# OUTLINE

1. Program overview
2. Key stakeholders
3. Evaluation plan
4. Theory of change
5. Data collection methods and analysis
6. Evaluation matrix
7. Anticipated challenges & proposed solutions
8. CES competencies for evaluation practice
9. Conclusion

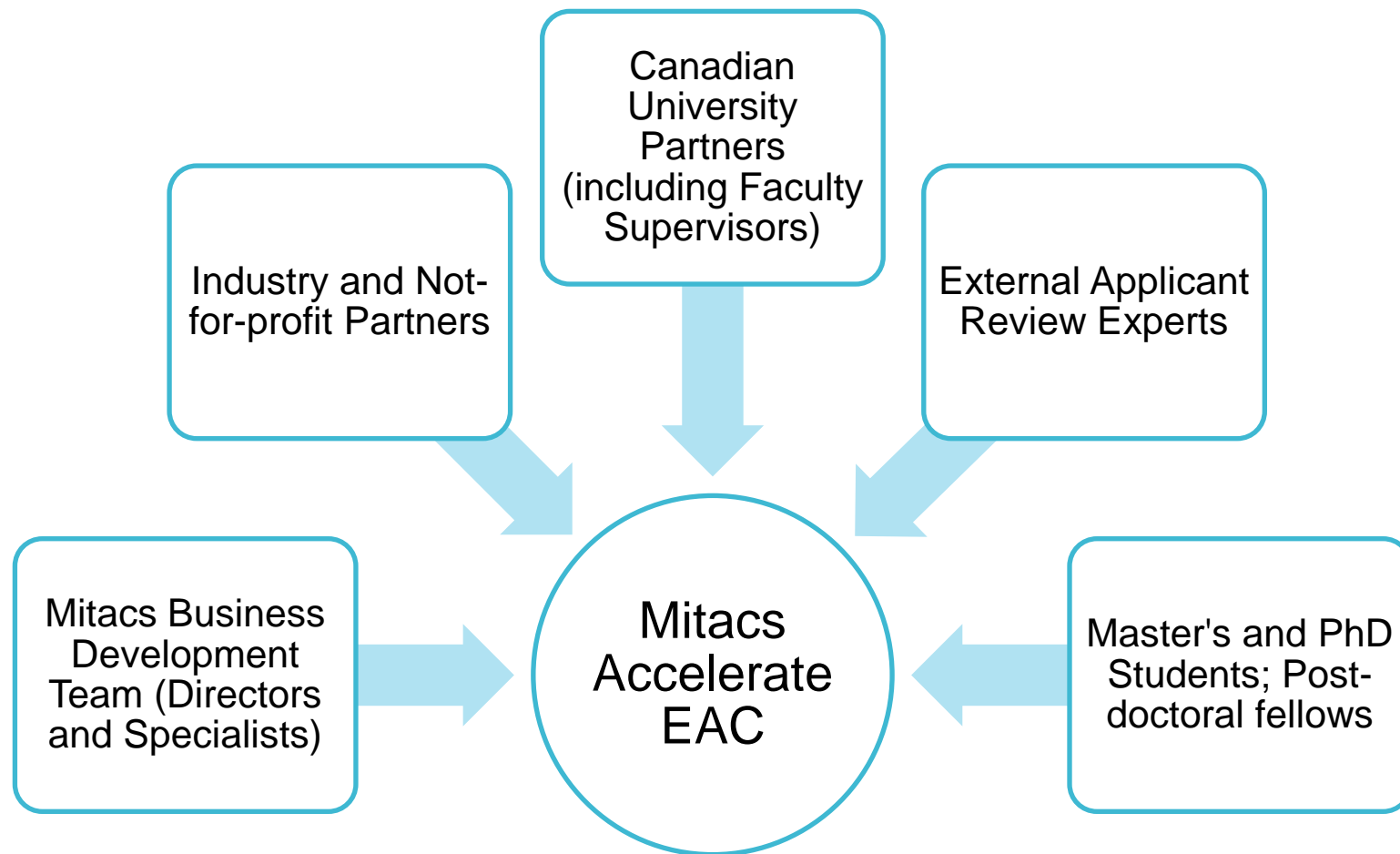
# MITACS ACCELERATE

- Premiere research internship program in Canada to support the need for commercial application of university research and development
- Brings together research-based universities, their faculty, and graduate students, and companies across Canada to produce innovative and high-quality research
- Since 2003 pilot, Accelerate has delivered over 6,000 internships, including research in all disciplines
- RFP outlines need to measure program outcomes and accompanying challenges

# KEY STAKEHOLDERS



# EVALUATION ADVISORY COMMITTEE (EAC)



# EVALUATION APPROACH

## *Utilization-focused evaluation*

“Intended users are more likely to use evaluations if they understand and feel ownership of the evaluation process and findings.”

– Patton, Essentials of Utilization-Focused Evaluation (2012, pg. 6)

# EVALUATION QUESTIONS

1. How does Mitacs increase collaboration and knowledge transfer between academic and industry (including non-profits)?
2. How and where is Mitacs creating job opportunities for graduate students and post-doctoral fellows in various disciplines by providing real workplace experience?
3. Does Mitacs improve employability of graduate students and post-doctoral fellows?

# EVALUATION QUESTIONS

4. Does Mitacs increase retention of graduate students and post-doctoral fellows after completion of studies?
5. Does Mitacs increase participating organizations' investments in research, development, and innovation?
6. How does Mitacs contribute to improved productivity and competitiveness in Canadian industry and the global economy?





**Missions**

- 1) to recruit, train & retain future generations of innovators
- 2) to boost innovation by establishing and supporting research linkages between Canada's universities and non-academic organizations

**Assumptions:** Internship experience will increase employability in the industry. Internships are beneficial to both Intern & Industry Partner.

**Risks:** Interns are ineffective or incompetent. Industry Partners do not provide adequate support or hire interns following internship.

**External Influences:**

- Federal and provincial funding
- Industry Partners' history with R&D
- Industry Partners' objectives and policies
- Industry Partners' resources available to interns

**OBJECTIVES**

- Contribute to improved productivity and competitiveness of Canadian industry in the global economy
- Increase collaboration and knowledge transfer between academia and industry, in various sectors
- Increase participating organizations' investments in research, development and innovation

**Assumptions:** Industry Partners effectively utilize research. Business Development Personnel make appropriate matches.

**Risks:** Industry Partner expectations are high or ineffectively use research. Incorrect matches are made between interns and industry

- Create job opportunities for graduate students and post-doctoral fellows in various disciplines by providing workplace experience
- Improve employability of graduate students and post-doctoral fellows in their field
- Increase retention of domestic and international graduate students and post-doctoral fellows

**Assumptions:** Sufficient funding and resources for interns. Partnerships are beneficial for both graduate students/ post-doctoral fellows and Industry Partners

**Mitacs Benefits**

- Host organizations have access to cutting edge research and skills
- Graduate students & post-docs gain valuable applied research experience in an industry setting
- Academic researchers have opportunities to collaborate with industry





# METHODS RATIONALE

## Mitacs Accelerate Management Information System (MAMIS)

- Informed Direct and Indirect Indicators & Outcomes measured and monitored in MAMIS

MAMIS will:

- Facilitate ongoing program evaluation
- Contribute to informed decision making
- EAC involved throughout process
- Interns may aid in development of system



# METHODS



Document  
Review



Case  
Studies



Social  
Network  
Analysis



**Mitacs Accelerate Management  
Information System**



# METHODS - DOCUMENT REVIEW

- Mitacs Accelerate Longitudinal Impacts Survey
- The 2013 Canadian Postdoc Survey
- Past reports available through Mitacs *Policy & Research*
- Program Data collected by Mitacs
  - On interns, organizations & Business Development Team, over the program period

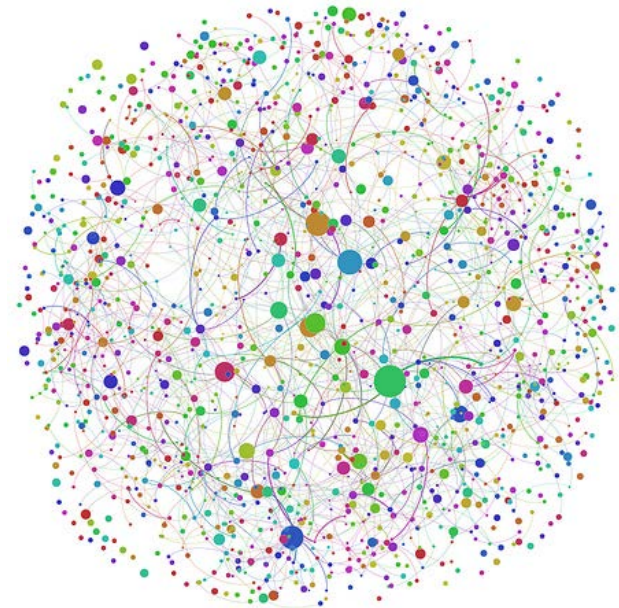
**Secondary Data Analysis, using SPSS 22** (IBM Canada, Markham, On.)



# METHODS – SOCIAL NETWORK ANALYSIS

- Map & measure Mitacs Accelerate's relationships
- Social Network Map & Connections with:
  - Partner Organizations (Profit & Not-for-profit)
  - Accelerate Interns
  - Academic Institutions

**Analysis with NodeXL** (Microsoft)





# METHODS - CASE STUDIES

- Provide in-depth description of program process & outcomes
- Semi-structured interviews
- Document review
- 6 case studies:
  - 2 Engineering
  - 1 from each of Comp Sci., Life Sci., Physical Sci., Social Sci.

# METHODS - CASE STUDIES

- Semi-structured interviews
  - Up to 5 per Case Study
  - Conducted via Phone or Skype
  - With industry partners, past interns & current interns
- Review of any documents related to the Mitacs internship

**Thematic analysis using inductive and deductive approach to coding with NVivo10** (QSR International)

# EVALUATION MATRIX

Evaluation Question	Indicator	Data Source	Methods
<b>1. How does Mitacs increase <i>collaboration</i> and <i>knowledge transfer</i> between academia and industry (including non-profits)?</b>	Relationships that exist within the program's network: patterns of interaction; flow of information, support and resources; key players within network	Organizations that are part of the program's social network	Social Network Analysis
	Degree to which the program adheres to collaboration and knowledge transfer activities	Industry partners	Case Studies: Semi-structured interviews



# EVALUATION MATRIX

Evaluation Question	Indicator	Data Source	Methods
<b>4. Does Mitacs improve employability of graduate students and post-doctoral fellows?</b>	Participants' perception related to employability; as well as skills and knowledge obtained from the program	Participants' opinion	Case Studies: Semi-structured Interviews
	Rates of acquisition of professional experience, expanded professional networks, and recommendation of program to potential participants	Mitacs Accelerate Longitudinal Impacts Survey: Impact on academic experience and skill development data	Document Review

# EVALUATION MATRIX

Evaluation Question	Indicator	Data Source	Methods
<b>6. Does Mitacs increase participating organizations' investments in research, development, and innovation?</b>	Increase in connections between networks, flow of resources throughout the network	Organizations in program's network	Social Network Analysis
	Number of investors Amounts by investors	Organizations' funding data	Document Review



# ANTICIPATED CHALLENGES & PROPOSED SOLUTIONS

Effective  
measure of post-  
internship  
scenario  
outcomes

- Ongoing follow-up with current/previous interns and organizations to assess their current career or education status
  - Current education
  - Current employment
  - Performance Appraisal Tools (e.g., POAS, JRAS)
- Mitacs Accelerate Management Information System

Unavailable  
National  
Postgraduate  
Employment  
Data

- Collaborate with CAGS AND CASP to develop ongoing national surveys of GS and PD regarding employment information
- Compare to data on Mitacs interns

# ANTICIPATED CHALLENGES & PROPOSED SOLUTIONS

Difficulty attributing outcomes to Mitacs programming

- Ongoing national surveys
- Compare findings of non-interns to Mitacs interns

Designing effective short-term proxy indicators

- Use findings from existing surveys and case studies to determine short-term indicators
- Consult literature for existing measures
- Examples of short-term proxy indicators:
  - Knowledge generation (number of reports, publications of findings)
  - Subsequent grants awarded to continue research
  - Patents proposed and achieved



# CES COMPETENCIES FOR EVALUATION PRACTICE

Competency	Demonstrated Use of Competency
<b>1.3 Respects all stakeholders</b> <b>3.6 Attends to issues of evaluation use</b>	<ul style="list-style-type: none"><li>• Establish EAC and consult throughout evaluation process</li><li>• Utilization focused evaluation</li><li>• Management Information System</li></ul>
<b>3.8 Applies evaluation competencies to organization and program measurement challenges</b>	<ul style="list-style-type: none"><li>• Provide advice regarding development of Management Information System</li><li>• Provide advice on ongoing monitoring of program</li></ul>

# CONCLUSION

- Utilization-focused Evaluation
  - Process & Outcome Evaluation
- Methods
  1. Document Review
  2. Case Studies (n=6)
    - Document Review, Semi-structured Interviews
  3. Social Network Analysis
- Development of Management Information System

# ACKNOWLEDGEMENTS

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  - School of Public Health and Health Systems
  - Evaluation classmates and competitors



IDEAL  
ÉVALUER POUR ÉVOLUER

IDEAL  
EVALUATE TO EVOLVE

Merci! Thank you!