Genome Canada 2020 Large-Scale Applied Research Project (LSARP) Competition

How to build a competitive pre-application

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Ontario Genomics 20YEARS

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LSARP – Parameters

~ **$25 million** from Genome Canada ($1M - $3M/project)

~$1.5 million from NRCan – for NRCan researchers

Collaborations with NRCan are not required, but are encouraged

NRCan will only invest in projects it determines to be relevant

Project duration: **up to 4 years**

1:1 co-funding ratio

- GC funding must be co-funded (1:1)
- Cash or in-kind

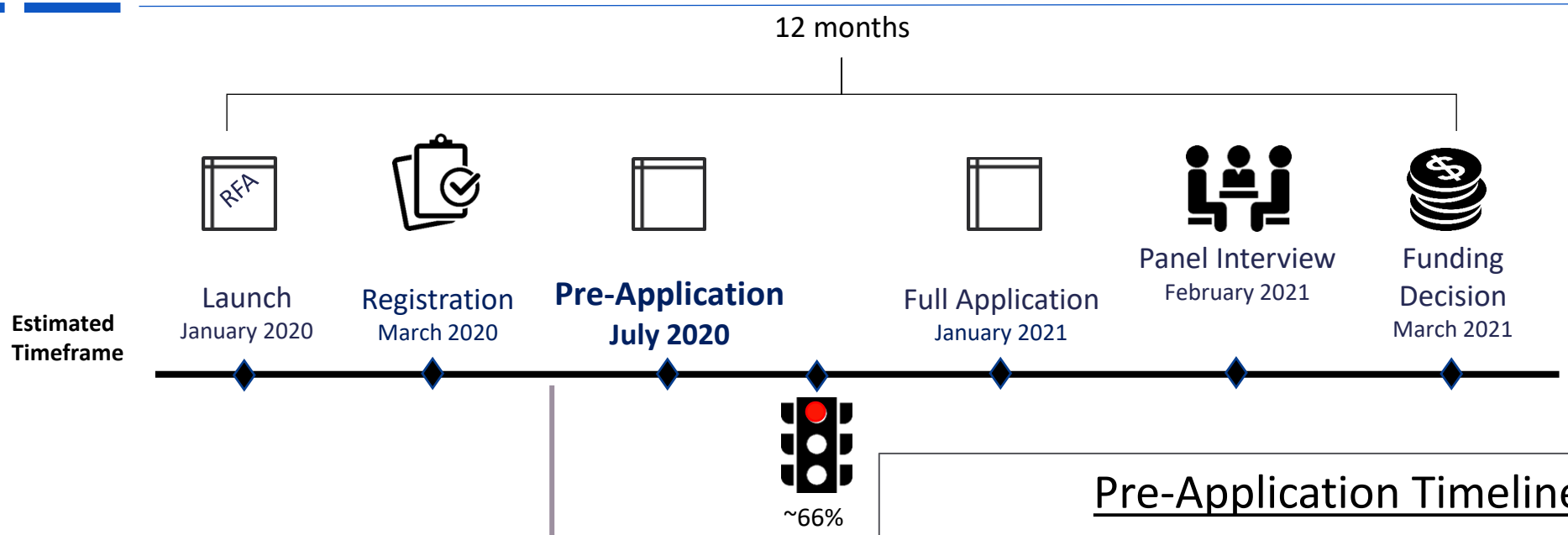
LSARP – Timeline

Date	Stage
March 11, 2020	Final Registrations due to OG
May 25, 2020	Draft Pre-Applications due to OG
June 8-12, 2020	Pre-application strategy sessions
July 6, 2020	Interim Pre-application draft
July 29, 2020	Pre-Applications due to OG (10:00 AM)
Early October 2020	Pre-Application Results
*Oct 14-16, 2020	Full Application strategy session 1
*Nov 2, 2020	Draft Full Application due to OG
*Nov 11-13, 2020	Full Application strategy session 2
*Dec 7, 2020	Full Application Interim Draft due to OG
*Dec 14, 2020	Appendices to OG (& revised drafts)
*Jan 4, 2020	Final Full Applications due to OG (9:00AM)
Jan/Feb 2021 (date TBD)	Mock Face to Face panel
Late Feb 2021 (date TBD)	Review Committee meets (including meetings with applicants)
Mid March 2021	Notification of Decision

* Final date may change

All webinar attendees will be on mute. Please type questions into the chat bar.

LSARP – Pre-application



Pre-Application Timeline

May 25 – Draft pre-application to OG
June 8-12 – Pre-application strategy sessions
July 6 – Interim pre-application draft
July 29 – Final pre-application to OG

Early October – Pre-application results

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Biggest cut is at pre-application stage

54 registrations

50-54 pre-applications

16-20 invited to full proposal

8-10 successful proposals

Registration breakdown

Sector	Genome BC	Genome Alberta	Genome Prairie	Ontario Genomics	Genome Quebec	Genome Atlantic	Total
Bioproducts	4	1		2	1		**8**
Environment	2		2	4	4		**12**
Energy		2					**2**
Forestry	1	1			1		**3**
Mining	1			2			**3**
Water		4	1	5	1		**11**
Wildlife & Conservation	3	2	2	5	1	2	**16**
Genome Centre Total	**11**	**10**	**5**	**18**	**8**	**2**	**54**

Pre-app is a mini-proposal

- Summary
- Research Proposal
- Gantt Chart
- Social and Economic Benefits
- Preliminary Budget

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Summary of the project

(one page)

NEED/SOLUTION

- The need/problem this project will solve that is of importance to Canadians and Canada's natural resources and environment sector(s) (quantification always beneficial)

GENOMIC APPROACH

- How omics approaches will be used to solve the problem

DELIVERABLES

- Concrete deliverables of the project that will be implemented by end-user and lead to benefits

GE^{3}LS

- How the GE^{3}LS research will contribute to achieving the deliverables and resultant socio-economic benefits

BENEFITS

- The social and/or economic benefits of the project and timeframe for realization of benefits

Research Proposal

(eight pages)

list of references not included in the page limit

RESEARCH

- Research and methodologies
- How the eligibility and review criteria from the RFA are addressed

GE^{3}LS

- The implications of genomics in society
- how this will assist in the effective translation of research results into practice, policy and the uptake of genomic-based applications

OUTCOMES & DELIVERABLES

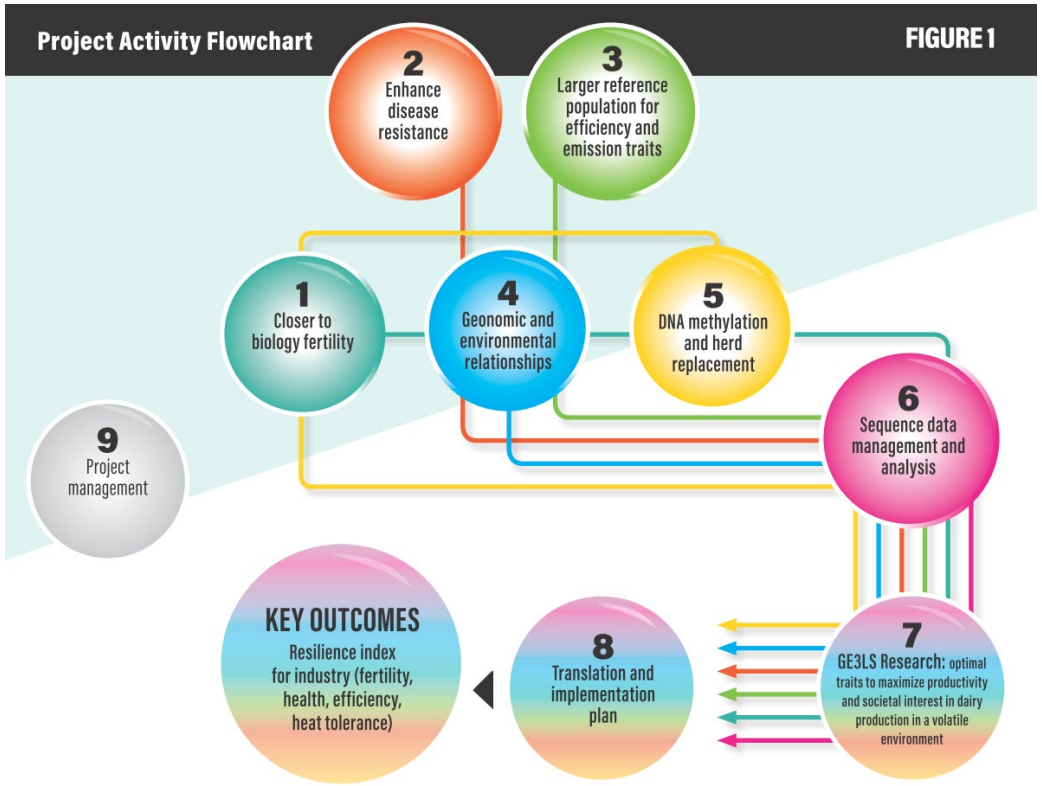
- How the scientific outcomes and deliverables will be achieved

END-USERS

- How end-users are engaged in the development and execution of the research plan in order to help ensure receptor uptake

Research Proposal
Structure

- **Introduction and Rationale**
  - Provide a high level overview of the project, including background and context
  - Current state of the art, unmet need, and omics solution
  - What would the barrier(s) be to adoption of your omics solution? How would these be overcome and who will use this?
  - Preliminary data
- **Overall Goal**
- **Specific Objectives**
- **Coherence and Feasibility**
- **Partnership and Available Resources**
- **Overall Methodology and Activity Plan**
  - Include a clear project activity flowchart where all activities are listed and connected
- **Activity 1, 2, 3 …**



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Research Proposal
Structure - Activities

- Activity title; Lead researchers and justification; Duration (e.g. Y1-Y2)
- Short description and rationale - what will be done, why you are doing this, links to other activities (especially important for GE^{3}LS)
- Any preliminary data
- Describe general methods/approaches
  - Expertise and plan for generating, analyzing, managing and sharing the data
  - Power analysis/experimental design
- Barriers/opportunities; alternate plans if things do not work
- Who will be involved, including engagement of end users
- Deliverables: key tangible outcomes of this research activity
  - these deliverables should have the potential to be used, transferred, translated, further developed towards achieving benefits
- Not every activity will have a key deliverable, and multiple activities could feed into a single deliverable

Example Activity

Activity 1. *Specific title*
Lead researchers: *J. Doe, transcriptomics; J. Smith, ecology; M. Bloggs, data science*
Duration: *Y1, Q3-Q4*
Milestones: *250 samples collected and analyzed*
Deliverable: *Publicly accessible database with annotated genomes and transcriptomes from 250 specimens*

Description and rationale for Activity with reference to overall project goal

- Identify specific outcomes and deliverables and how this Activity will allow these to be realized
- End-user input

Example Activity – cont'd

Activity 1.1. *Specific title (Jane Doe)*

- Brief aim(s), how this relates to the activity as a whole
- Specific methods for the sub-activity and alternatives if necessary
- Outcomes

Activity 1.2, 1.3… etc

To end section:

- Summarize outcomes, deliverables
- Briefly discuss end-users and implementation
- Relationship to other activities (critical for GE^{3}LS activity)

Social and Economic Benefits

(two pages)

- **Rationale, Goals and Deliverables (~1/2 page)**
  - Briefly restate the business case or problem to be solved
  - Describe the deliverables and how they will be achieved
- **Economic and Social Benefits (~1/2 page)**
  - Quantify the impacts of the issue and the proposed solution
  - Estimate the economic impact
    - What is the estimated cost to end-users of the current technology?
    - What will be the cost savings from adoption of your proposed solution?
  - Estimate the social impact, e.g. communities that will benefit

Social and Economic Benefits

(two pages)

- **Strategy for Realizing Benefits (~1/2 page)**
  - Outline the knowledge translation and implementation plan
  - How the deliverables will be transferred, disseminated, used or applied to realize the benefits, and how users will be engaged to facilitate this strategy
  - Outline the role that GE^{3}LS plays in realizing the benefits
  - Estimate the timeline to realize the benefits
- **Expertise for Realizing Benefits (~1/2 page)**
  - Briefly outline the team's expertise and track record
  - How users are involved in the strategy to realize benefits
  - Outline technology transfer expertise

Example of SEB (from Agriculture comp.)

- **Rationale, Goals and Deliverables**
  - **Rationale**: Industry faces new challenges to maintain its competitiveness globally, (animal health issues, animal welfare and environmental impact)
  - **Overall goal:** to develop and implement new breeding tools for the dairy industry based on a novel selection index for animal resilience
  - **Five deliverables**: D1. bioinformatics tools/pipelines to collect/process/analyze data; D2. genomic evaluations for novel traits & resilience index; D3. (epi)genomic data into SNP panels; D4. Socio-economic impacts of new technologies; D5. farmer and consumer non-market values of resiliency traits.
- **Economic and Social Benefits**
  - **Project outcomes:** ~$200M in annual net savings for the Canadian industry (assume x, y, z, etc. – show calculations and assumptions)
  - **Benefits to society**: decreased usage of antibiotics/hormones, reduced animal wastage, decreased methane emissions, and improved animal welfare

Example of SEB – cont'd

- **Strategy for Realizing Benefits**
  - **Translation and Implementation Plan**: 1) storage and evaluation of raw data; 2) statistical models to derive EBV; 3) EBV to estimate SNP effects using the genotyped database; 4) genomic evaluation for health, fertility, efficiency traits; *5) publication of GEBV via the industry website; 6) use of GEBV by producers and breeding organizations to perform selection.*
  - **Dissemination strategy:** effectively deliver research outcomes to professional peers, relevant stakeholders and wider society.
- **Expertise for Realizing Benefits**
  - **Key success factors** for effective translation of deliverables into actions in Canada include industry structure and a robust strategic partnership between industry and academia, exemplified through project XYZ and other initiatives.
  - **Receptor structure and team**: describe organizational structure, key players and companies. Role of team leaders, committees that make decisions and responsible for approving results outcomes and transfer to service

GANTT chart

(1-2 pages)

CHART

- High-level project activities and milestones and the timelines for reaching them

NUMBERING

- Activities should match those in the Research Proposal and the Budget and Co-funding Summary

DETAILS

- Gantt chart not included in page limits

Example Gantt chart

Activity	Planned Start (dd/mm/yy)	Planned Duration (#Quarters)	Quarter - 3 months Start Date (07/21)															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Activity 1: Specific Title																		
1.1 Specific title from proposal	01/07/2021	3																
1.2 Specific title from proposal	01/01/2022	4																
1.3 Specific title from proposal	01/03/2022	4																
Deliverable: Concrete deliverable	31/03/2023																	
Activity 2: Data validation																		
2.1 Specific title from proposal	01/07/2022	2																
2.2 Specific title from proposal	01/10/2022	4																
2.3 Specific title from proposal	01/07/2023	4																
Deliverable: Concrete deliverable	30/06/2024																	
Activity 3: Technology translation																		
3.1 Specific title from proposal	01/10/2024	2																
3.2 Specific title from proposal	01/07/2024	1																
3.3 Specific title from proposal	01/10/2024	3																
Deliverable: Concrete deliverable	30/06/2025																	
Activity 4: Project Management																		
Sub 4.1 Project administration	01/07/2021	12																
Sub 4.2 Present research at conferences	01/04/2022	3																
Sub 4.3 Publication for open-access peer-reviewed journal	01/01/2025	2																

Research Proposal

Address the review criteria from the RFA

- **Research Context and Originality**
  - To what extent does the proposed research lead, extend and/or complement national and international work in the area?
  - To what extent does the proposed research reflect creative and original thinking?
  - To what extent is the research relevant to the end-users identified?
- **Research Plans**
  - How appropriate are the methods/approaches in terms of the research objectives?
  - How feasible is the research, given the projected resources and timelines? (include preliminary data if appropriate/relevant to demonstrate feasibility)
- **Research Expertise**
  - How appropriate is the expertise of the research team to realize the research goals?
  - Does the proposal include plans for the inclusion of early stage investigators?
  - Does the project incorporate the principles of equity, diversity and inclusion (EDI)?

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Research Proposal

Address the review criteria from the RFA – cont'd

- **Research Support**
  - How suitable are the available facilities, equipment and services (including services to be provided by Genome Canada supported Genomics Technology Platforms and/or other technology service providers)?
- **Integration of GE3LS**
  - Does the GE^{3}LS investigation address factors that will impact the advancement and application of the genomics research?
  - Are the GE^{3}LS questions supportive of the objectives and expected outcomes?
- **Alignment of GE3LS**
  - Is GE^{3}LS aligned with, and complementary to, the overall project goals?
  - If GE^{3}LS was taken out of the project would it make a difference to the project's viability?(if not, it is not truly integrated)

LSARP proposal – Budget

- Draft budget at time of 1-page registration
- Almost final budget at time of Pre-Application (Appendix I document)
- $100K must be allocated to ROC
- Detailed budget at time of Full Proposal – work with OG
- **In-kind eligibility**
  - Check guidelines
  - Always check with OG
- In-kind eligible from other projects only if aligned with LSARP project
- Consider international sources of co-funding

LSARP – Co-funding

Cash

- Unrestricted
- Restricted – Personnel or Other

In-kind (examples)

- Salaries of technical staff
- Services (quantifiable, would otherwise have to pay)
- Reagents, equipment time etc.
- Administrative/Financial services

Co-funding must be for eligible costs that represent new or incremental activities that are integral to the project

Tri-Council Agency funds are **not** eligible as co-funding (CIHR, NSERC, SSHRC), but funding from other awards may be considered eligible under certain circumstances.

NRCan funding from the GC-NRCan partnership is NOT counted as co-funding. Other NRCan funding MAY be eligible co-funding.

LSARP – NRCan funding

- Details for NRCan researchers can be found in Appendix 2 of the RFA

- For information, NRCan researchers should contact:

  Alexandre Lefebvre

  Director General

  Science Policy Integration Branch

  Canadian Forest Service

LSARP – Pre-application

Pre-Application - two-stage process by Genome Canada

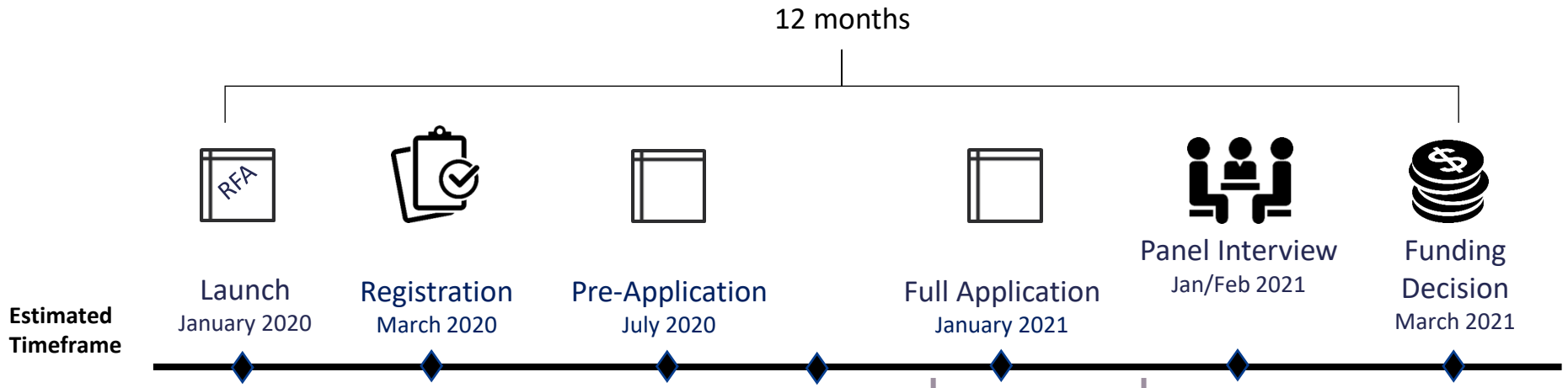
- **First stage**: initial review done “at-home” by a College of Reviewers (quality of the research plan and potential for benefits for Canada)
- College reviews then provide a rating for the quality of the research proposal and potential for benefits
- Pre-Applications with lowest scores will not be considered further

- **Second stage:** review by a Pre-Application Review Committee (**PARC**)
- Broad expertise in research including GE3LS, technology development, research management and translation of research results in areas relevant to the competition
- PARC considers the College reviews and make a final recommendation to Genome Canada on which Pre-Applications should be invited to submit a Full Application

Importance of a high-quality pre-application

- Sets the stage for all future phases in the competition
  - Must be fully clear and understandable by all reviewers
    - Every reviewer will read the Summary, some reviewers will read the Research Proposal, and some reviewers will read the Benefits
  - Favorable review both from College and PARC
    - Science, GE^{3}LS, Benefits and Impact fully understood
    - Reviewers' comments will focus on important points that will enhance the full proposal
  - Some reviewers may be the same at the face-to-face stage
  - Easier to proceed from high-quality pre-app to high-quality full proposal, than from mediocre pre-app to high-quality full proposal

LSARP – Full application



Full Application Timeline

Oct 14-16 – Strategy sessions #1
Nov 2 – Draft full application to OG
Nov 11-13 – Strategy sessions #2
Dec 7 – Interim full application draft to OG
Jan 4 – Final full application to OG

Jan/Feb– Mock face-to-face panel session
Feb – Final face-to-face panel session

Strategy sessions
Full app development
Internal & external reviews
Engage writers

Slidedeck review
Mock panel
Support at GC interview

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VISION

Healthy Lives, Healthy Planet, Healthy Economy through Genomics Innovations

If you have any questions, please contact

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