The Competitive Funding System and Program Officer System in Canada

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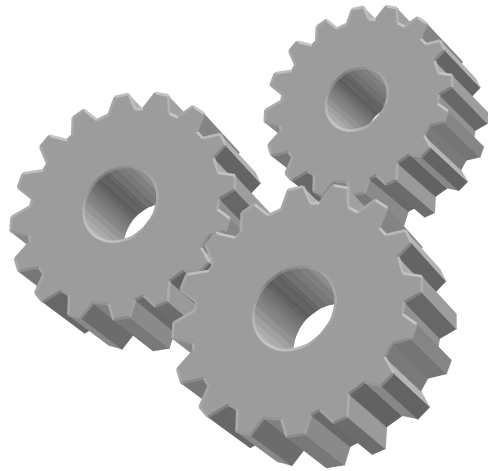
Science and Engineering Research Canada (NSERC)

Funding System Overview

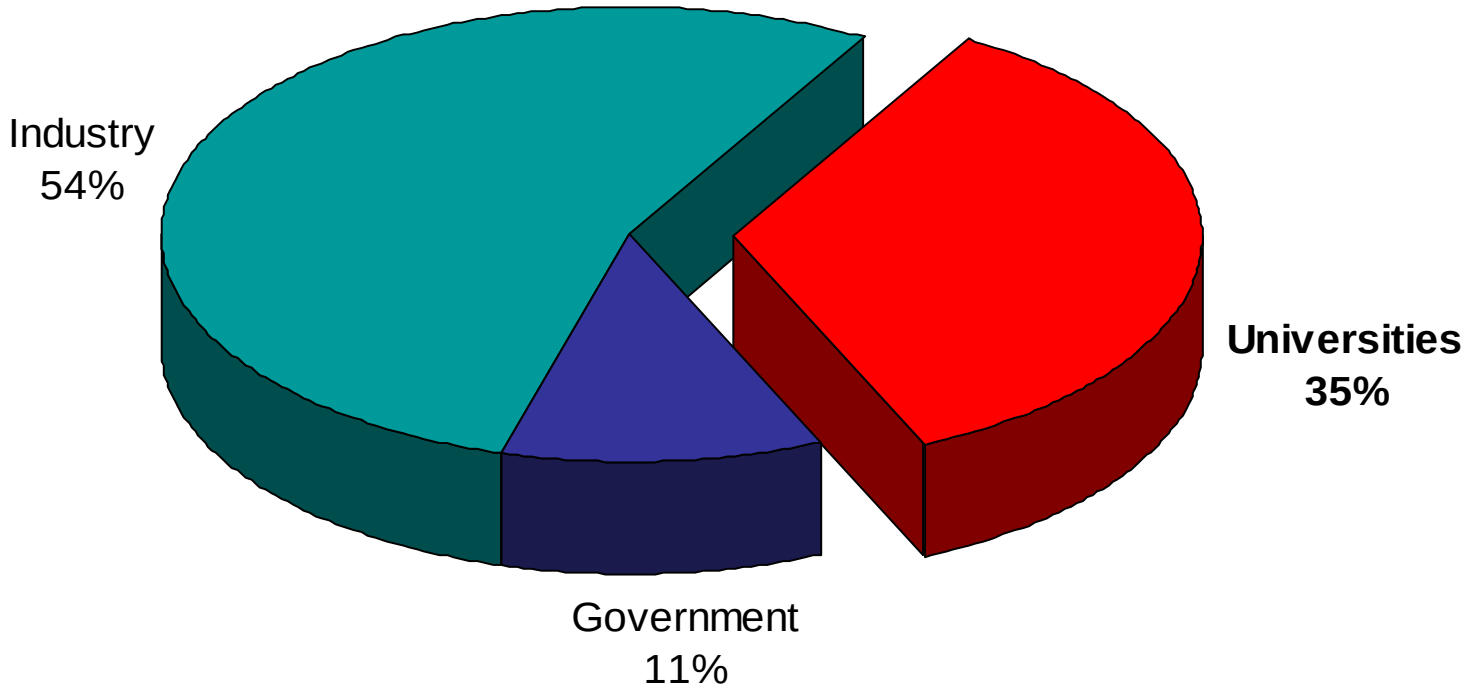
- Drivers for the Canadian university funding system
- Sources of university funding
- NSERC mandate and resulting funding framework

Setting the Stage: Canadian R&D Context

- Economy largely based on small, medium sized companies
- Few private sector research centres
- Low industrial internal R&D performance compared to other countries
- Canada lags other countries in transforming research ideas into marketable products



R&D Performance in Canada, 2003



Total: $22.5 Billion

Setting the Stage: Canadian R&D Context

- No national science policy
- Canada spends slightly more on university research per capita than any other G7 country
- Share of university research funding from industry high compared to other countries
- Over the past 7 years federal support for university research has increased by $9B to a total of $8.6B per year

Setting the Stage: Canadian R&D Context

- Creation of 2000 Canada Research Chairs (CRC)
- Renewal of infrastructure through Canada Foundation for Innovation (CFI)
- Innovation Strategy 2002 – commercialization emphasis
- 2003 National Science Advisor appointed to address priorities and gaps in the innovation system

Funding of University R&D

67 Universities (All public)

Sources of Funding:

Universities (Indirect Costs)

Granting Councils
(Federal Government)

Other Federal Govt. Initiatives
(CFI, CRC)

Provincial Governments

Industry

UBC campus

Canadian Granting Councils

NSERC – **Natural sciences and engineering ($850M)**

CIHR – **Health sciences ($662M)**

SSHRC – **Social sciences and humanities ($230M)**

- **Support the direct costs of research**
- **Joint funding possible**

What Do We Do at NSERC ?

We invest more than $800 million every year in people, discovery and innovation

- **17,000 science and engineering**
- **students Master's and Ph. D.**

- **10,000 university &**
- **college professors**

- **1/4 of NSERC's budget goes to**
- **funding innovation & technology transfer**

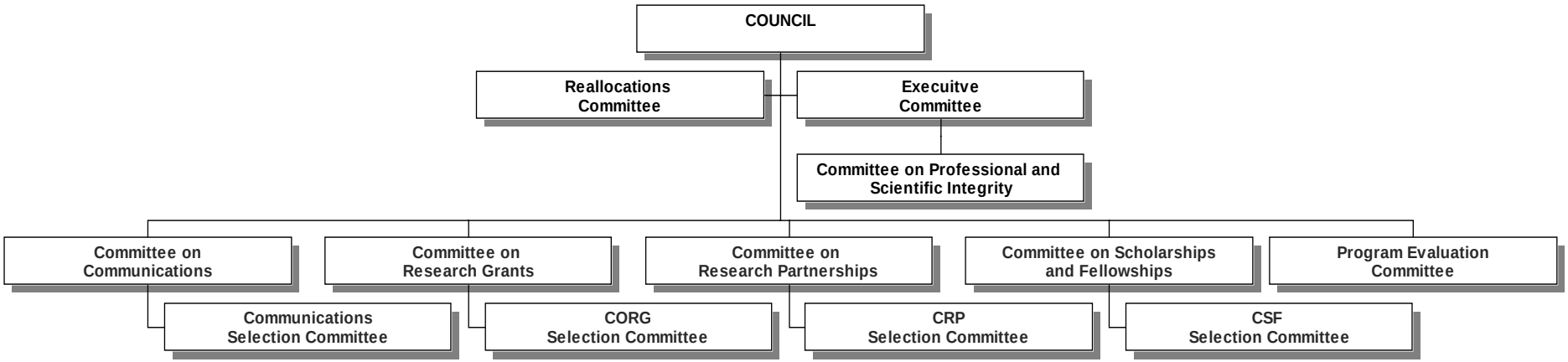
Ongoing Challenges for NSERC

- Universities replacing retiring faculty with active researchers – significant increase in new applicants to NSERC
- Provide operational funds to support new investments in infrastructure
- Provide sufficient funding to be competitive internationally
- Regional disparity
- Effective transfer of university research results to the private sector for commercialization

Framework for our Programs

- **All funding based on excellence as judged by peer review – external reviewers, selection committees, advisory committees**
- **Final decisions made by NSERC staff**
- **Core and specialty programs designed to meet NSERC mandate to support people, discovery and innovation**
- **Policies for use of funds, eligibility of applicants and sponsors, intellectual property, ethics, etc. common for most programs**

Governance Structure



Discovery Based Research

- 55% of all NSERC funding
- Core program provides ongoing relatively stable funding to university researchers for their fundamental research programs
- Funding is very flexible – funds may be reallocated at the discretion of the researcher
- Annual competition cycle
- Applicants apply every five years
- Judged on excellence of applicant, merit of proposal, training and need for funds
- Selection committees discipline based

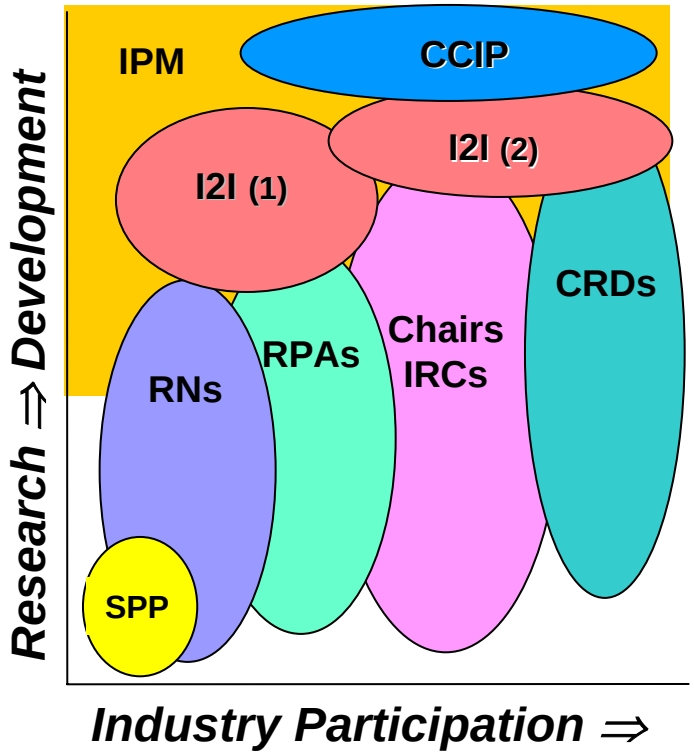
Research Partnerships

- 20% of all NSERC funding
- Number of programs designed to meet specific partnership goals and needs
- Program delivery is primarily open deadline with some annual competitions depending on program objectives and demand
- Core programs are common to each user sector with some flexibility
- Judged on researcher competency, scientific merit, training, appropriateness of partner, economic/social benefit to Canada

NSERC Partnership Programs

— a flexible continuum

- **Innovation Projects**
  - Strategic Projects (push)
  - Research Networks (push & pull)
  - Collaborative R&D Grants (pull)
  - Research Partnership Agreements (pull)



- **Building Critical Mass**
  - Chairs (pull)

- **Technology Transfer**
  - Idea to Innovation (push & pull)
  - Intellectual Property Mobilization & Networked Training (push &pull)
  - College & Community Innovation Pilot (pull)

NSERC Scholarships and Fellowships

- 17% of all NSERC funding
- Graduate student scholarships, post doctoral fellowships and undergraduate student research awards – annual competition
- Similar awards for students, PDFs situated in industry – application at any time






Program Officer System at NSERC

- Overview
- General Responsibilities
- Hierarchy and General Division structure – Discovery vs. Partnerships
- Discovery Grants system
- Partnership Grants system
- Typical Background/Experience
- Hiring Requirements

Fundamentals of NSERC System

- Staff responsible for administration of programs and implementation of new initiatives
- Significant involvement/consultation of community at all levels (individual grants, program or policy revision, allocation of budget, definition of research target areas, special initiatives)
- 5% of budget spent on administration

Program Officer Responsibilities

- Manages peer review process for open and cyclical competitions
- Provides advice and guidance to community on NSERC programs, processes and policies
- Monitors scientific and financial progress of ongoing awards
- Maintains close contact with community to gather intelligence
- Develops new or revises existing programs to address needs of community

Reporting Structure

Director

Portfolio Manager, Account Manager, Team Leader (Senior Program Officer)

Program Officer

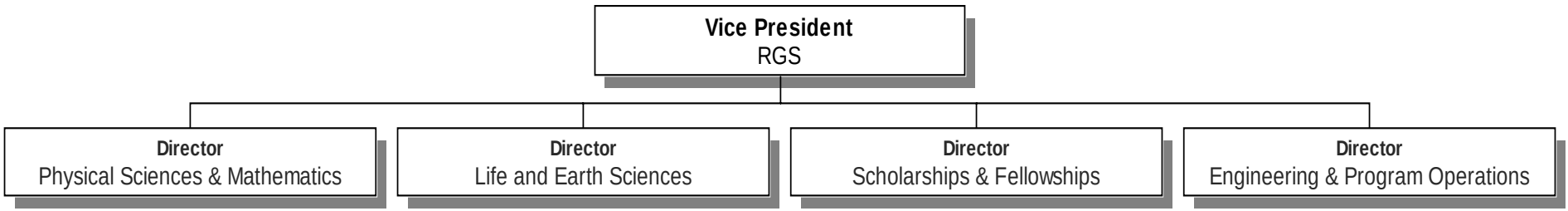
Program Assistant

Discovery Grants Structure

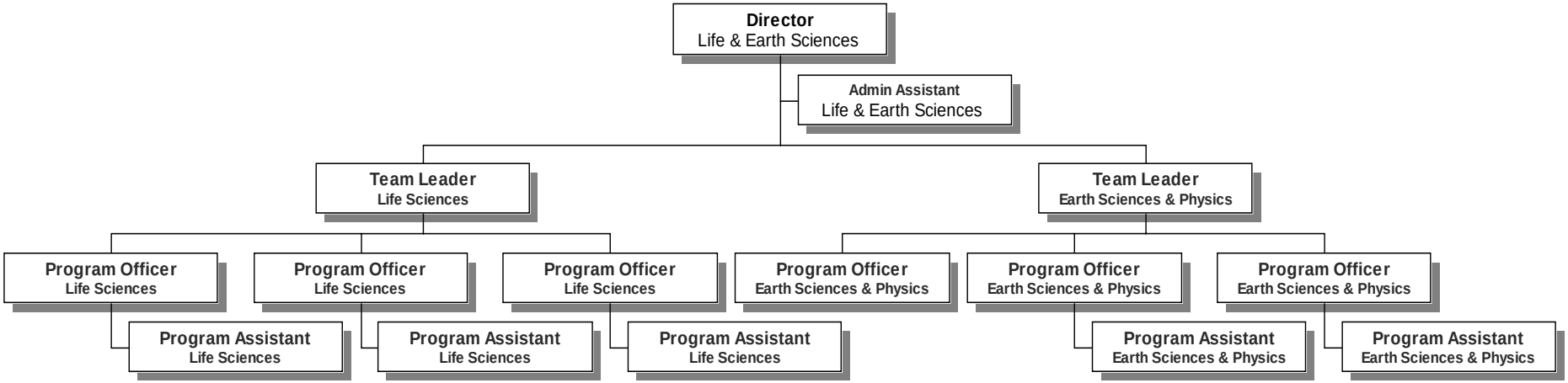
Driven by:

- Core program is discipline based: 27 Grant Selection Committees
- Annual cycle
- Large volume: 3000 applications/year
- Minimal monitoring of ongoing awards

Discovery Grants Structure



Discovery Grants Structure



Research Partnerships Structure

Driven by:

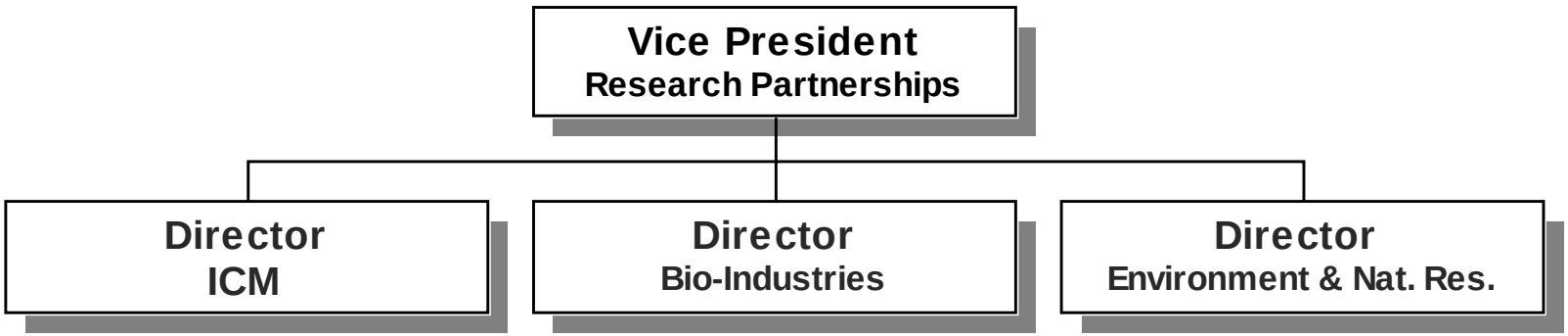
- Goal of transferring knowledge/ technology from the university to a user organization
- User sectors function in different ways – organized by sector
- Need to respond to technology push/pull – variety of programs

Research Partnership Structure

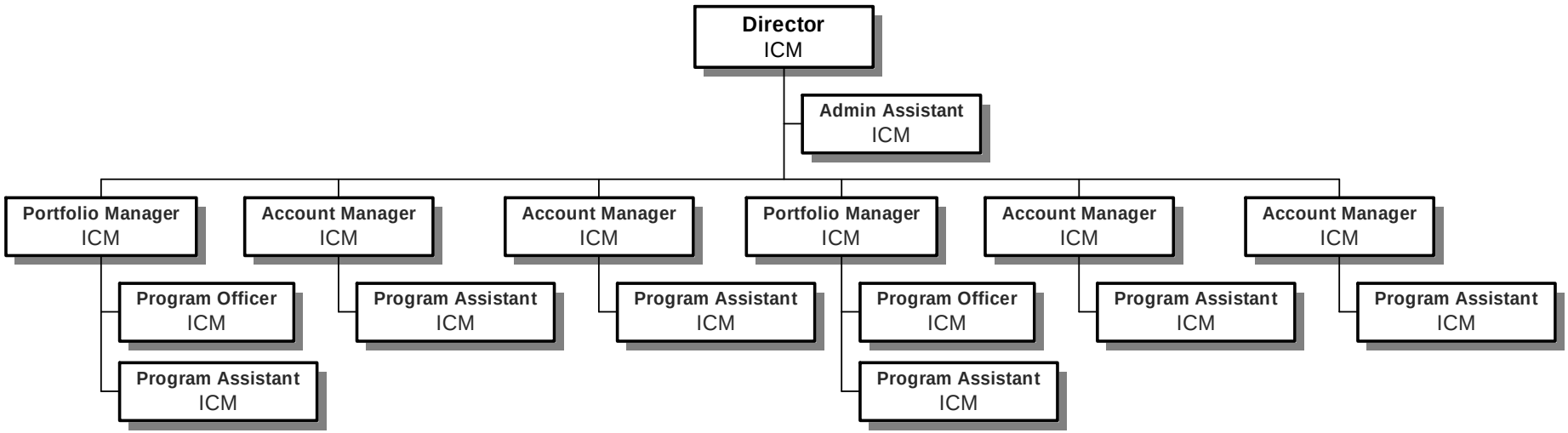
Driven by (continued):

- To retain competitive advantage industry must react quickly – open deadline for most programs
- Industry expectation for milestones/ deliverables – significant monitoring of ongoing awards
- Partners outside academic community

Research Partnership Structure



Research Partnership Structure



Typical Background of our Program Officers/Managers

- **Basic Requirement: Bachelor degree in science or engineering, several years of work experience in a related environment**
- **Partnerships Area:**
  - **Significant R&D experience in academia/industry/ government**
  - **Experience in project management**
  - **Experience with industrial R&D and/or working with partnering organizations considered an asset**

What we look for when we hire – Partnerships Area

- **Has the necessary education/experience requirements**
- **Can demonstrate knowledge of the following:**
  - **R&D funding issues in Canada**
  - **Issues associated with technology transfer**
- **Demonstrated abilities to:**
  - **Plan, organize, manage large volume of diverse activities**
  - **Analyze, interpret policy, present rational arguments and propose solutions**

What we look for when we hire (continued) – Partnerships Area

- **Communicate effectively orally and in writing**
- **Supervise others**
- **Can demonstrate the following personal qualities:**
  - **Effective interpersonal skills**
  - **Sound judgement**
  - **Tact and diplomacy**
  - **Thoroughness and attention to detail**
  - **Reliability**
  - **Initiative**

Questions ?

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