

Workshop on Suborbital Platforms And Nanosatellites

April 14-16, 2010

Welcome to the Canadian Space Agency!





Future Canadian Space Capacity

David Kendall

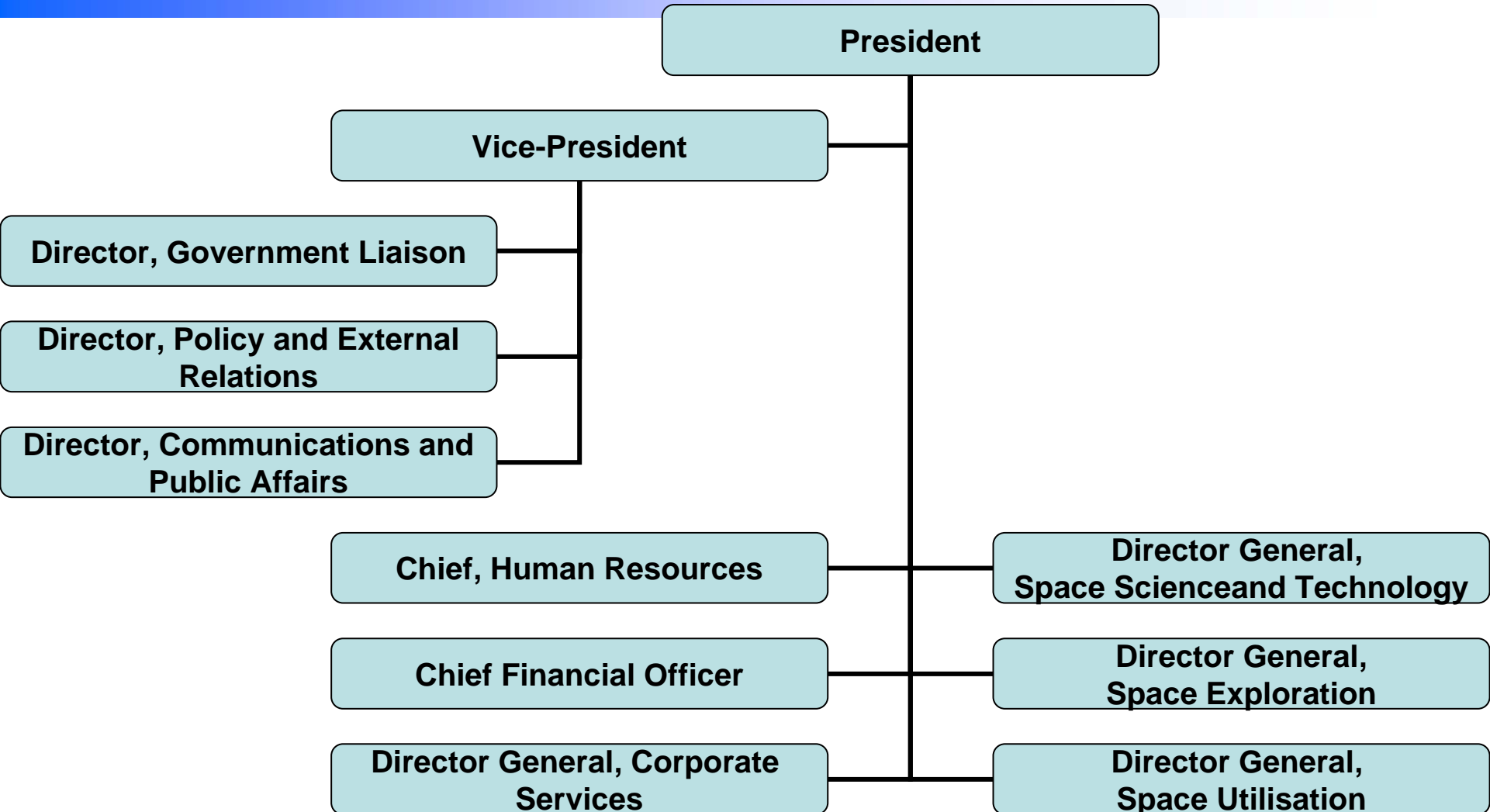
Director General

Space Science and Technology





CSA Organisation



- Mandate: Develop, sustain, and enhance Canada's scientific, technological and engineering capacity required to deliver current and future Canadian Space Programs managed by the Canadian Space Agency.
- Priorities:
 - Develop, sustain and enhance academic, industrial and government capacity, including the CSA's partnership with the European Space Agency.
 - Lead the coordination, planning and development of CSA's integrated S&T plans and associated technology roadmaps.

- Lead space S&T development programs and activities, including innovative, emerging and critical technologies, required to deliver Canada's current and future space program.
- Lead and manage the provision of infrastructure, and services and support activities related to the R&D, qualification and test of space systems and assets funded by the CSA in order to fulfill Government of Canada priorities.
- Lead the development, sustainment and enhancement of the Agency's expertise and proficiency in space science, engineering and technology.

- Lead the interfaces between the CSA and industry, academia, Canadian granting councils and foundations and provincial organisations in the development of academic and industrial capacity related to Canada's Space Program.
- Provide expertise in science, engineering and technology to other branches of the CSA as required in order to ensure success in current and future agency-led programs.
- Provide leadership, direction and expertise on government and Agency policies, standards and procedures related to grants and contributions.

Space Science and Technology



- Advise the President and the Canadian Government on issues and priorities in all aspects of the Canadian capacity in Space Science, Technologies and Engineering.
- Support the President to develop the Agency's long term strategies and space plans in relation to space science and technology.





Space Science and Technology Directorates

- Science and Academic Development - Alain Berinstain**
- Technology Development Management - Tuan Huynh**
- Engineering Development - Walter Peruzzini**
- David Florida Laboratory - Dan Showalter
- Head, G&C Centre of Expertise – Thu-Oanh Nguyen**
- Planning - Manager (TBD)
- Special Advisor, S&T - George Vukovich**

**Internal Assignment



Why are we here?

- Follow-up on 2007 Suborbital Workshop
- Follow-up on recommendations made at the 2009 Academic Round Tables: more frequent access to flights, low cost
- Follow-up on Science Advisory Committee Roadmap Development
- Workshop focus on Suborbital Platforms & Nanosats reflects the CSA Capacity-Building priority for low cost, frequent access to flights



Suborbital & Nanosat Platforms

- Prime vehicles to support
 - training the next generation of scientists and engineers
 - can be used to provide frequent access to space at low cost and quick turn-around
 - providing support for research and testing of payloads for missions





Importance of this workshop

- This workshop builds on research community recommendations and informs the CSA on how Suborbital Platforms & Nanosat activities can be used
- Turning point in Canadian space program
- We have all the tools and conditions to act – let's do it right



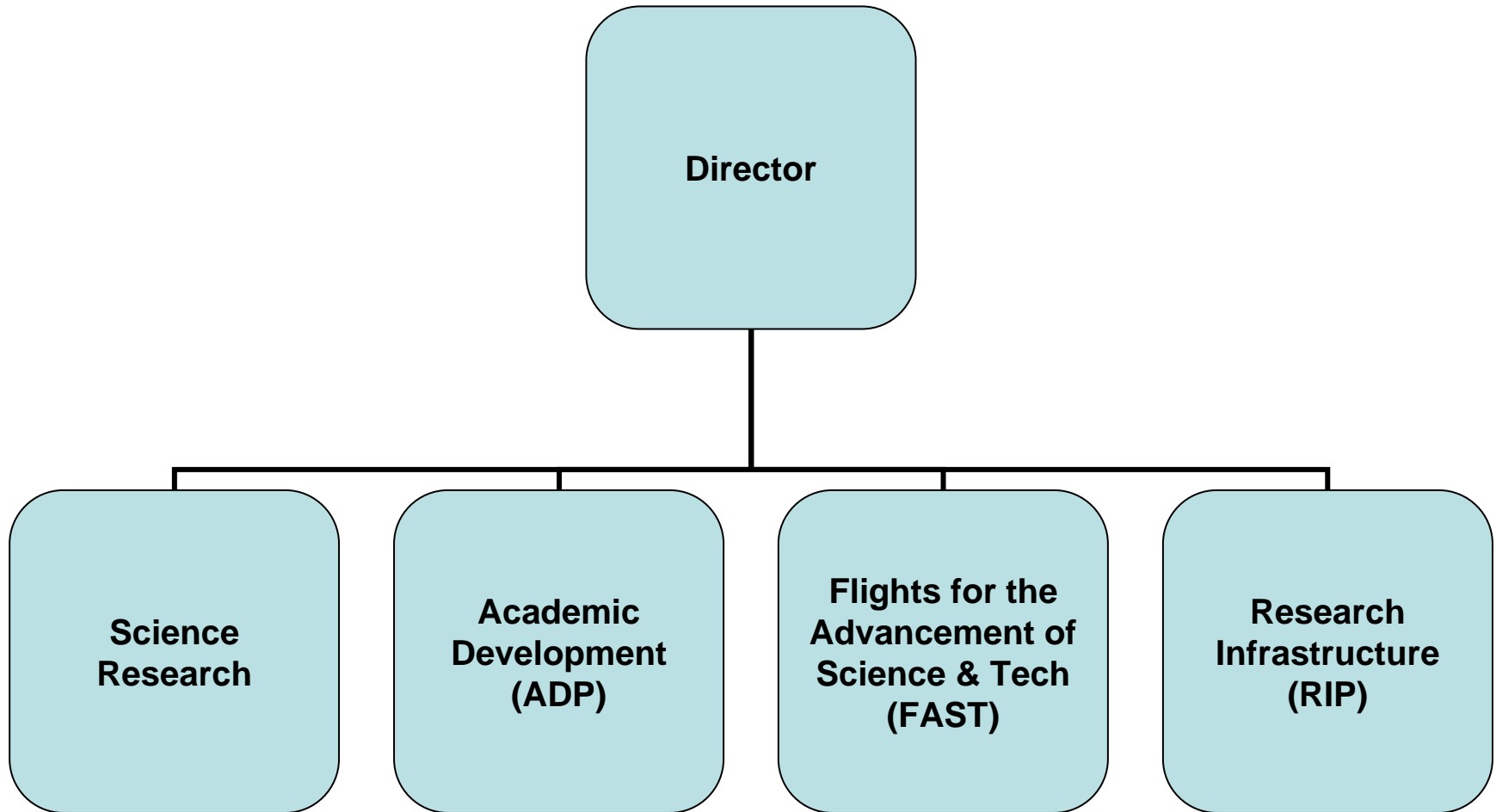
Future Programs

Alain Berinstain

Director (Internal Assignment)

Science and Academic
Development

Science and Academic Development



New CSA Authority for Grants and Contributions



- Since October 2009
- New set of tools to meet CSA objectives for projects where the GoC is not the primary beneficiary
- Currently setting up framework for using the mechanism





ADP Outcomes

- Alignment of academic investments with Canadian Space Sector needs
- Increased capacity in the academic sector for supporting future Canadian Space Sector needs
- Increased capacity at CSA for supporting future Canadian Space Sector needs





ADP Outputs

- University Chairs in strategic areas
- University/Industry/Govt Clusters in strategic areas
- “Initial studies” for science concepts and new measurement techniques
- Accelerators for recruitment of new students into graduate studies
- Collaborative S&T activities





FAST Outcomes

- Increased number of university-driven research projects using small platforms and in the field
- Increased knowledge and capacity in spaceflight-like payload and operations processes and practices
- New knowledge generated through university-led research programs in all areas of space science and engineering





FAST Outputs

- Increased number of students in Canada taking part in flight programs on small platforms and in the field
- New government-industry-academic, national and international partnerships that support the desired outcomes
- Technology demonstration flights using small platforms





RIP Outcomes

- Increased terrestrial research infrastructure for long-term capacity building in Canada
- Leveraging of CSA investments through partnerships
- Alignment of academic activities and investments with Canadian space sector needs





RIP Outputs

- Partnership with CFI, granting councils, universities and government to set up and/or improve research infrastructure in Canada in response to common needs
- Facilitating access to international research infrastructure in response to Canadian needs



Short-term activities (6-12 months)



- Space Science Enhancement Program 2008 grants - underway
- BRITE & SPIDER funding under FAST from former Small Missions AO
- Field S&T grants (under FAST)
- Suborbital & nanosat workshop and consultations
- Kickoff Collaborative S&T activities
- Maintain and renew existing infrastructure provisions for field studies and aircraft access (review all)
- Set up revised external governance and advisory mechanisms



Medium-term activities (12-18 months)



- Partnership with CFI for national platforms competition
- Kick-off CSA Clusters program through ADP
- Kick-off of CSA Chairs program through ADP
- Kick-off of initial studies program through ADP



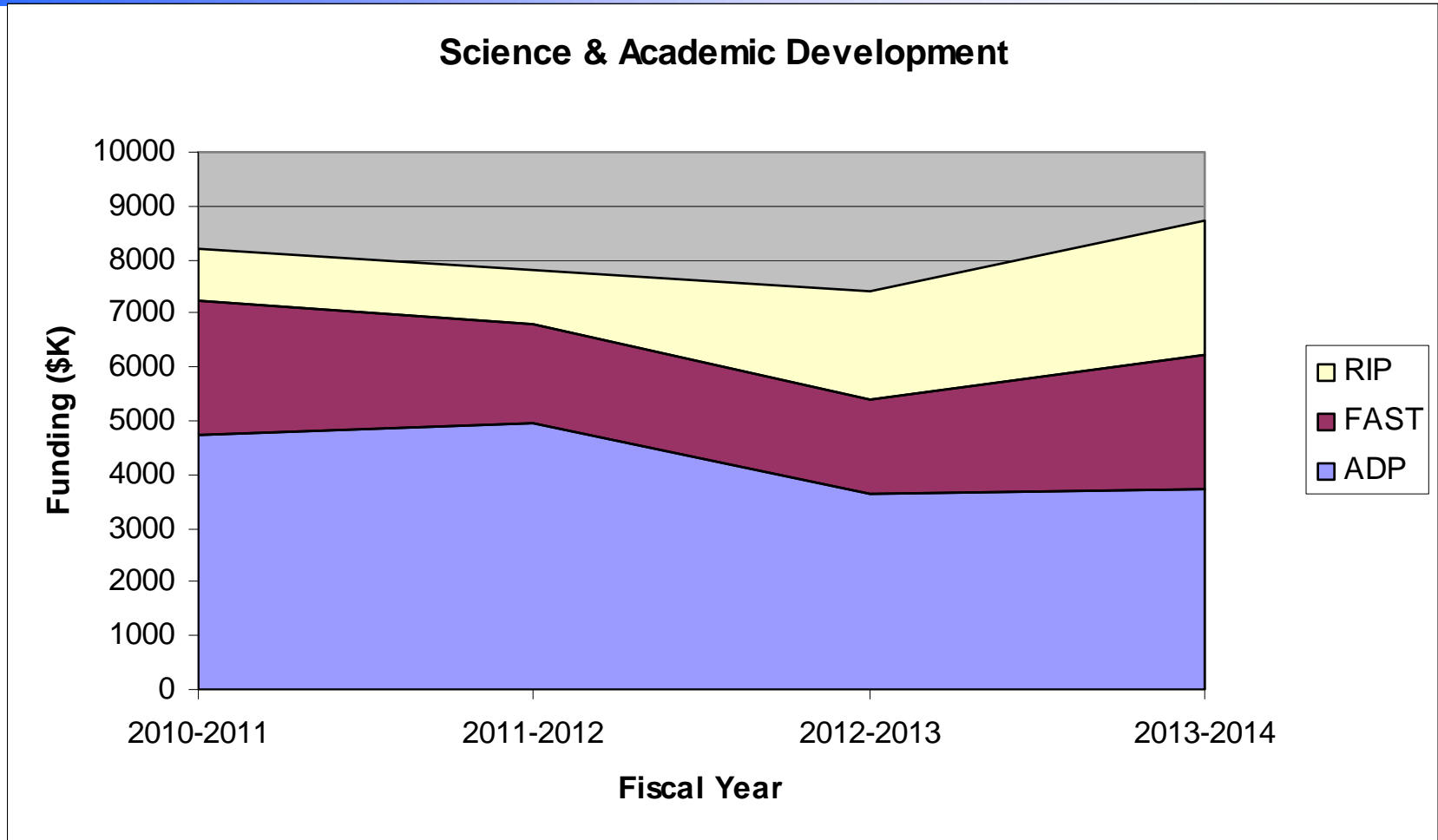
Longer-term activities (18-36 months)



- Kick-off CSA Accelerators program through ADP
- Sustained and regular program of Announcement of Opportunity for initial studies, chairs, clusters, accelerators, and FAST activities



Rolling out activities



Workshop Objectives

Louise Beauchamp
Program Chair

Program committee membership



- Chairs & Co-chairs:
 - Aircraft: Drs. D. Hudak & A. Higgins
 - Balloons: Drs. K. Walker & B. Netterfield
 - Nanosatellites: Dr. A.F.J. Moffat, Professor Emeritus
 - Sounding Rockets: Dr. J. Burchill
 - Policy & Relations with CFI: J. Halliwell
- Program Committee Chairperson:
 - Louise Beauchamp



Objectives of workshop

- To assess and document community usage (nature of science, likely payload requirements and frequency) of suborbital platforms (aircraft, balloons and sounding rockets) and nanosatellites as research and training tools over the next 5-10 years.
- To assess the desirability of Canadian and/or international launch sites for each platform.
- To consolidate the interest of, and initiate discussions with, potential leaders of a Canadian-based balloon launch facility.

Workshop Questions

1. What research areas are enabled by these platforms (over and above issues addressed in the 2007 Sub-orbital and 2006 nanosatellite Workshops and that are reproduced below)?
2. How can the proposed activities utilizing these platforms best contribute to training the next generation of the space workforce in Canada?
3. What infrastructure exists in Canada and/or internationally that enables access to these platforms?
4. What infrastructure upgrading, building or replacing is needed in Canada to enable optimal access to these platforms?
5. What investments by the Government of Canada would you recommend to meet CSA's goals? (Infrastructure and/or research investments)
6. Who are the main points of contact /champions in the community who could or would lead the effort to further develop a program in this area?

Discussion