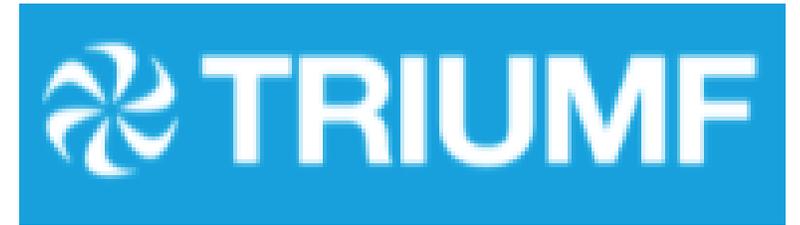
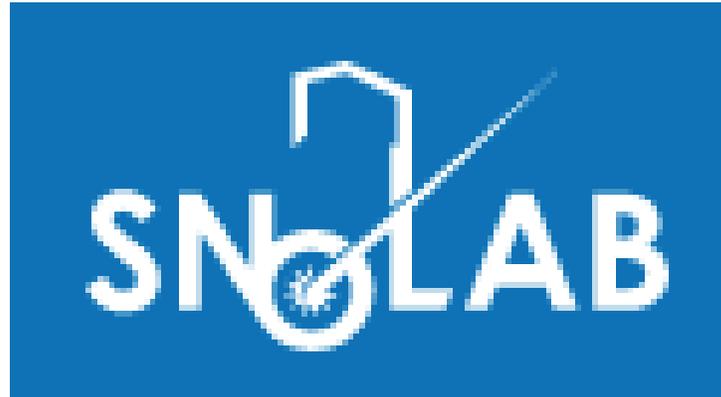


Welcome to the 2021 Conference on project Management for CLS, SNOLAB and TRIUMF



8 November 2021

Agenda & presentation material: <https://meetings.triumf.ca/event/265/timetable/#20211108>

Goals of this conference

- Share lessons learned and best practices
- Build a community of project management professionals
- Strengthen collaboration between Canadian physics Labs
- Showcase excellence in project management

Jointly organized by Tim West (CLS), Mitch Seguin (SNOLAB) and Eric Guetre (TRIUMF)

Time (PST/CST/EST)	Agenda Item	Presenter
8:15/10:15/11:15	Opening Remarks (15 min)	Nigel Smith
8:30/10:30/11:30	TRIUMF Project Management Overview (20/10)	Eric Guetre
9:00/11:00/12:00	SNOLAB Project Management Overview (20/10)	Mitch Seguin
9:30/11:30/12:30	CLS Project Management Overview (20/10)	Mark Silzer
10:00/12:00/13:00	Break (60)	
11:00/13:00/14:00	TRIUMF: ARIEL-II and its project management approach (20/10)	Peter Bayliss
11:30/13:30/14:30	SNOLAB: SuperCDMS SNOLAB Project (20/10)	Michael Stoddart
12:00/14:00/15:00	Break (30)	
12:30/14:30/15:30	CLS: Project Estimation (20/10)	Johnny Campbell
13:00/15:00/16:00	Closing Remarks & Participant's Feedback (15)	Tim West

Each presentation will have time for questions at the end. Introduce yourself before asking your question so we get to know you.

Dr. Nigel Smith opening remarks

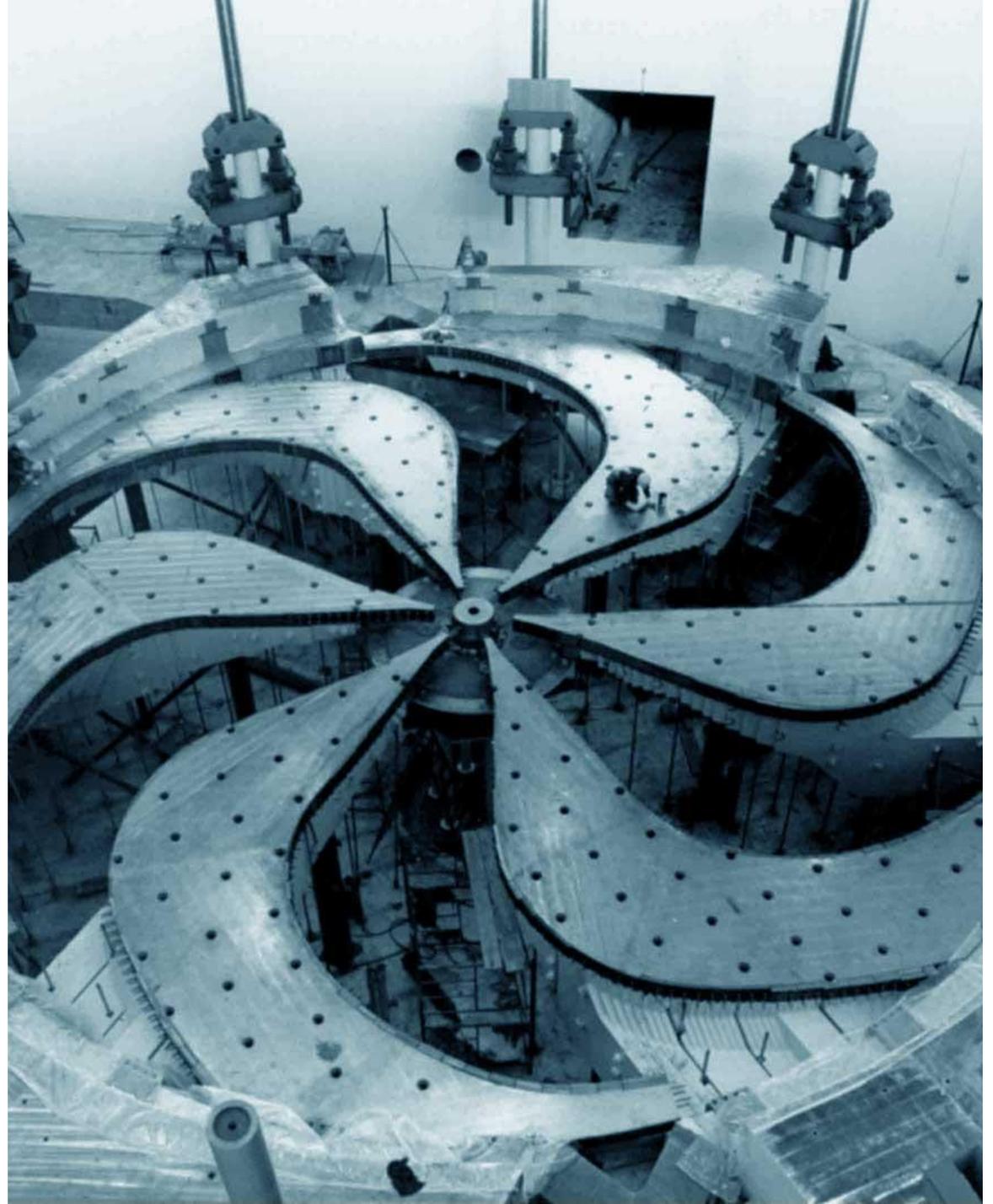
- Current Director/CEO TRIUMF
- Past Director/CEO SNOLAB



Project Management at TRIUMF

Eric Guétre, PEng, PMP
Director, Project Management

2021-11-05



- **TRIUMF**
- **Project management process**
- **Portfolio of projects**
- **The TRIUMF PMO**



Who is TRIUMF?

TRIUMF is Canada's particle accelerator Centre

An international research hub whose vision is to improve lives and build a better world



Home to ~600
staff and students





 **TRIUMF**



Our **Mission** is to serve as Canada's particle accelerator centre

9

We advance isotope science and technology, both fundamental and applied

We collaborate across communities and disciplines, from nuclear and particle physics to the life and materials sciences

We discover and innovate, inspire and educate, creating knowledge and opportunity for all

Our multidisciplinary community uses its world-class accelerator infrastructure to drive leading-edge research that delivers impact in **science, medicine, and industry**

Member Universities

University of Alberta
University of British Columbia
Carleton University
University of Calgary
University of Guelph
University of Manitoba
McMaster University

Université de Montréal
Queen's University
University of Regina
Simon Fraser University
University of Toronto
University of Victoria
York University



Scale of Operations

HIGHLY QUALIFIED PERSONNEL

>500 staff¹

>200 students & post-doctoral researchers²



1000+ scientist & researcher visits per year



KNOWLEDGE

~80% of Canada's subatomic physics research involves TRIUMF



INTERNATIONAL ENGAGEMENT

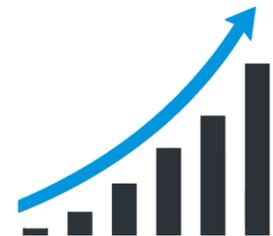
75+ international agreements & partnerships

China Italy Switzerland
Israel USA Korea France
Russia India Japan
United Kingdom Austria Germany



BUSINESS

\$1.1B in gross economic output since 2012, and >\$600M in GDP attributable to TRIUMF over this period



1 – Total across funding sources

2 – Includes external students and post-docs



The World's Largest Conventional Cyclotron

TRIUMF's Research

Both fundamental and applied:

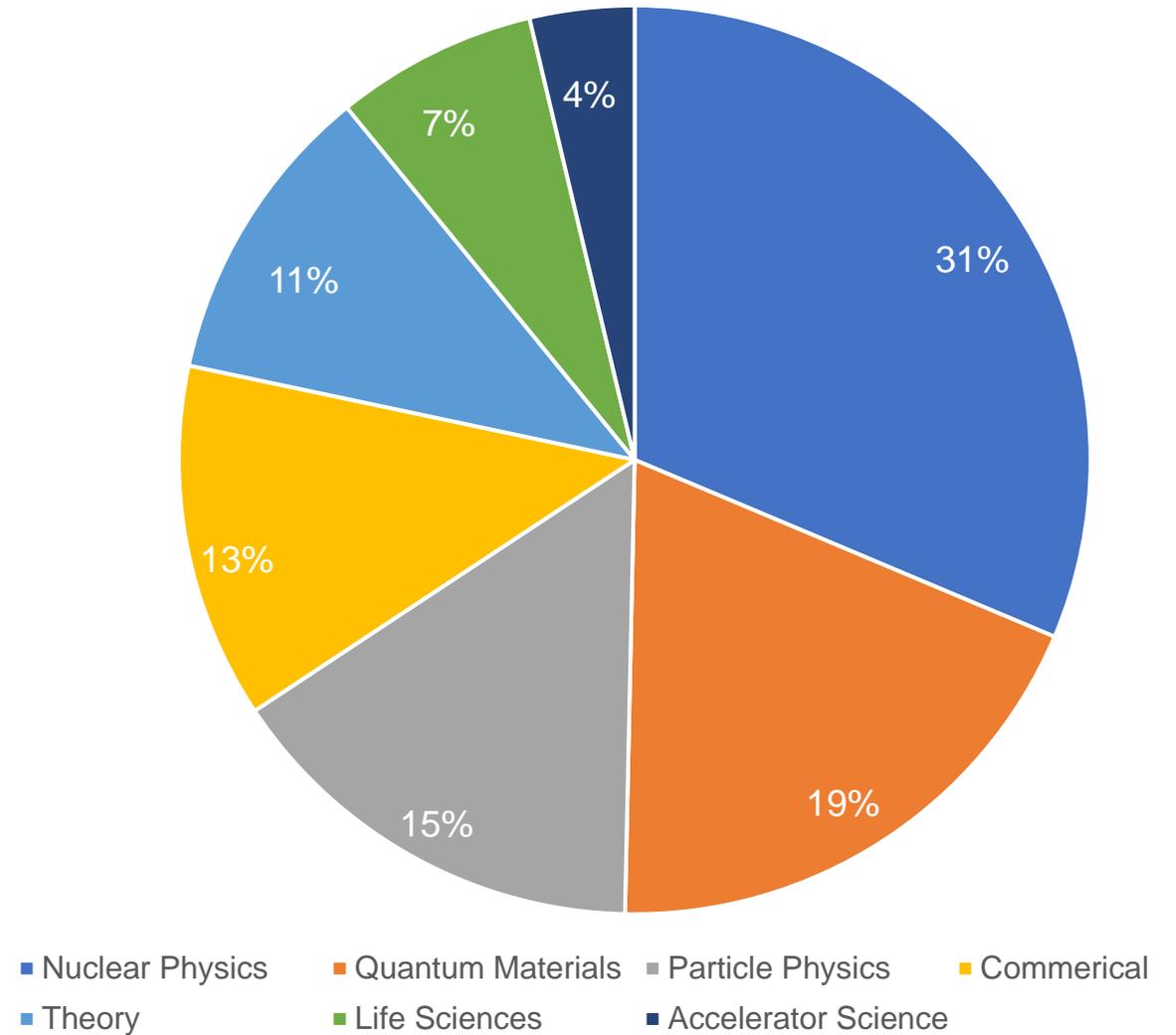


Multidisciplinary

CY 2019:

**1186 Scientific Users
and Visitors**

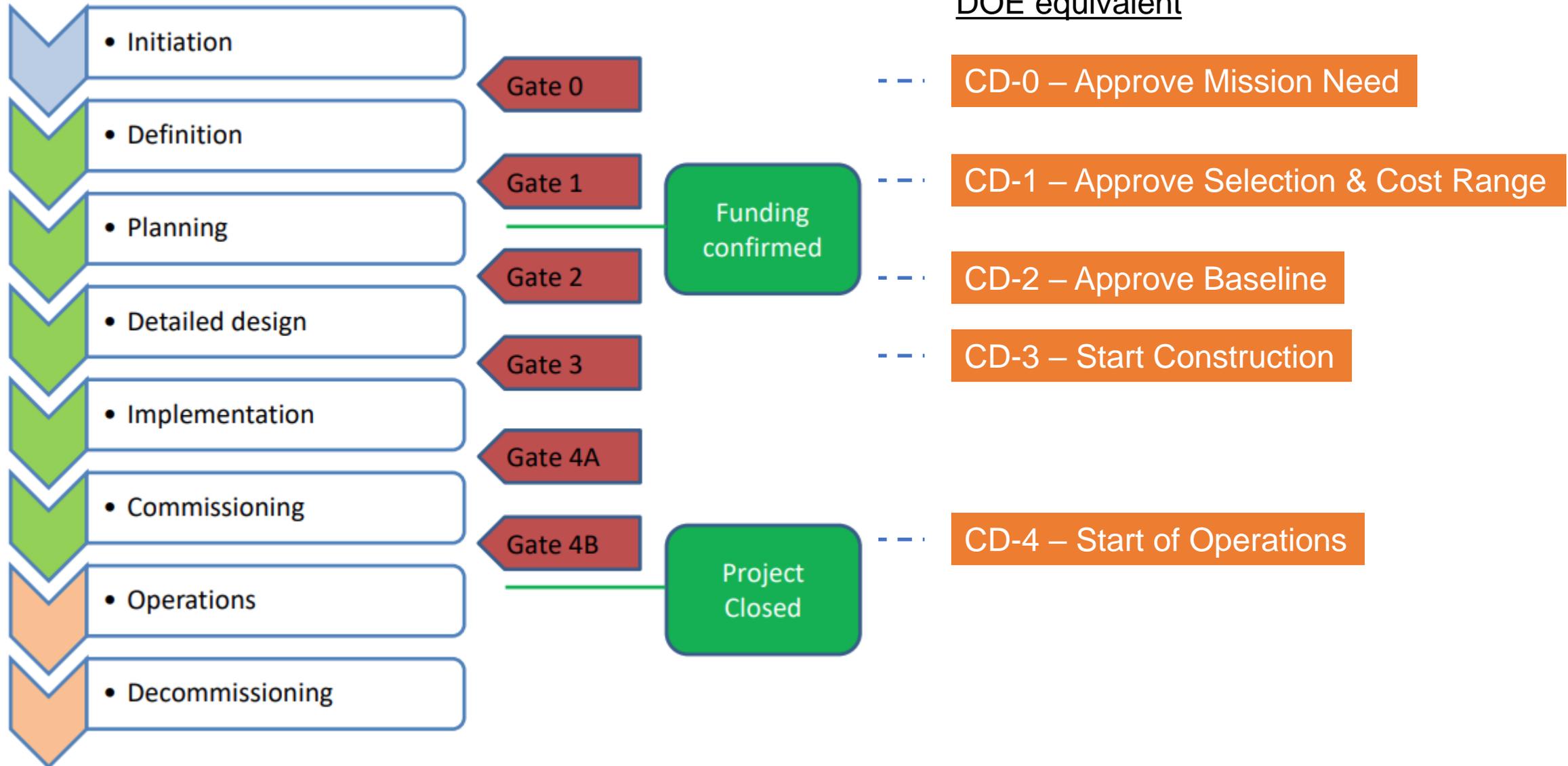
Scientific Users and Visitors by Field (2019)



- TRIUMF
- **Project management process**
- Portfolio of projects
- The TRIUMF PMO



TRIUMF Stage Gate Process

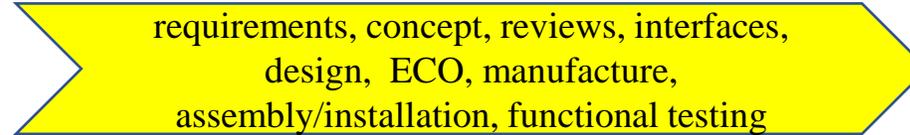


TRIUMF Standard Operating Procedures (TDOP)

TSOP-05
Procurement



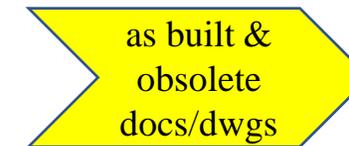
TSOP-06
Engineering



TSOP-11
Operations



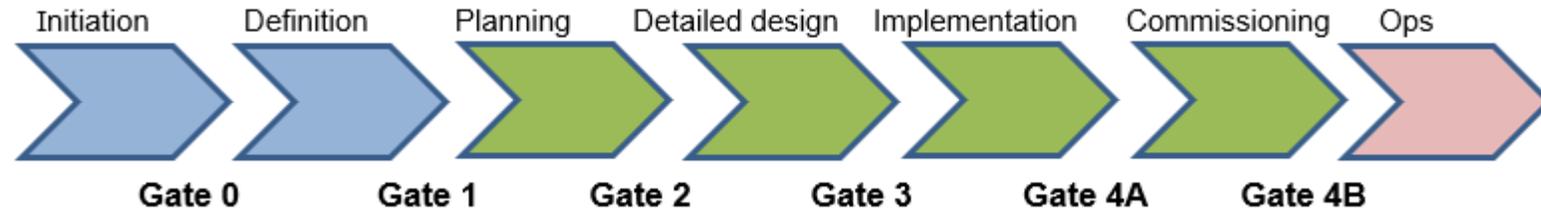
TSOP-12
Configuration



TSOP-13
Commissioning



TSOP-15
Project Governance



The TRIUMF Project Management process needs to work for all types and sizes of projects

Project management is an organizational tool and its application requires sound judgement, given the diversity of projects and the requirements of TRIUMF's quality management system.

18



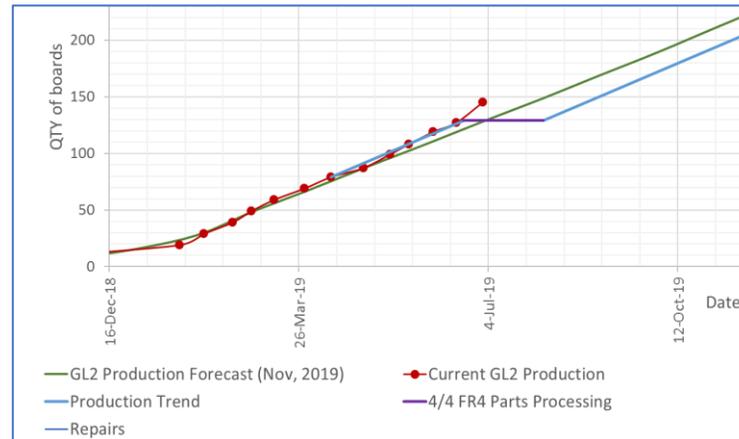
ARIEL

~50 in-kind FTEs per year

Multi-year duration

New facility

Technical and integration challenges



ATLAS sTGC

Production of hundreds of detector panels

Small dedicated team at TRIUMF

Part of a large collaboration

Supply chain challenges



New LMS

Software acquisition

Change management challenges

Graded approach to Gate Reviews

1) Optional criteria for complex projects

2) May combine gate reviews (if the sponsor agrees)

Gate 3 review checklist	Yes	No
Actions from previous review addressed?	<input type="checkbox"/>	<input type="checkbox"/>
All released documents up-to-date?	<input type="checkbox"/>	<input type="checkbox"/>
Commissioning plan drafted?	<input type="checkbox"/>	<input type="checkbox"/>
Drawings, diagrams or schematics released?	<input type="checkbox"/>	<input type="checkbox"/>
All requirements documents released?	<input type="checkbox"/>	<input type="checkbox"/>
Resource-loaded schedule ready to be baselined?	<input type="checkbox"/>	<input type="checkbox"/>
Date of next gate review	mm/dd/yyyy	
<i>Optional, for more complex projects</i>	Yes	No
De-commissioning plan drafted? Proponent should ensure that all hazardous materials have a plan for disposal, and check with EH&S to determine if decommissioning for the facility or equipment is already covered in the site Preliminary Decommissioning Plan (Document-8810) or whether the PDP will need to be updated	<input type="checkbox"/>	<input type="checkbox"/>
Integration and test plans reviewed?	<input type="checkbox"/>	<input type="checkbox"/>
Controls (EPICS, data acquisition, MPS, etc...) specified?	<input type="checkbox"/>	<input type="checkbox"/>
Training gap analysis done?	<input type="checkbox"/>	<input type="checkbox"/>
Installation safety plan released?	<input type="checkbox"/>	<input type="checkbox"/>
Risk register updated?	<input type="checkbox"/>	<input type="checkbox"/>
Summary of lessons to learn thus far, presented at Gate review?	<input type="checkbox"/>	<input type="checkbox"/>

1 Project Management Toolkit TSOP-15, Document Templates, and other Project Management Tools (Collection-21886)

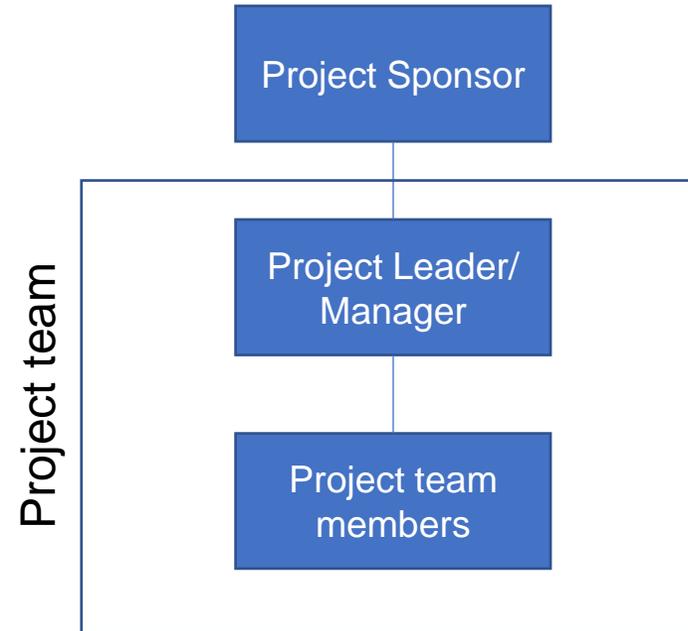
Edit Selected... Add...

<input type="checkbox"/>	Type	Title
<input type="checkbox"/>	Folder	Lessons to learn Submitted by projects
<input type="checkbox"/>	DOC	CFI Funding Application Review Report - Projects (Template) Release 2, 2019-05-07, Document-153866
<input type="checkbox"/>	PDF	Example System Block Diagram
<input type="checkbox"/>	MPP	Exporting Macro
<input type="checkbox"/>	XLSX	FMEA Template - Template for Failure Modes & Effects Analysis Document-157763
<input type="checkbox"/>	DOC	Gate Review Report for Projects (Template) Release: 3 - Dated: 2019-03-19 - Document-153865
<input type="checkbox"/>	DOC	Gate Review Report for SAS (Template) Release: 3 Dated: 2018-09-27 Document-67985
<input type="checkbox"/>	DOC	Hazard Analysis Template Release: 03 Dated: 2018-08-03 Document-24611
<input type="checkbox"/>	PPT	Lessons_to_Learn_template.pptx
<input type="checkbox"/>	PDF	PMO Group Manual Release:1 Dated: 2019-01-28 Document-162588
<input type="checkbox"/>	DOC	Project Initiation Sheet Release: 04 Dated: 2019-06-26 Document: 119917

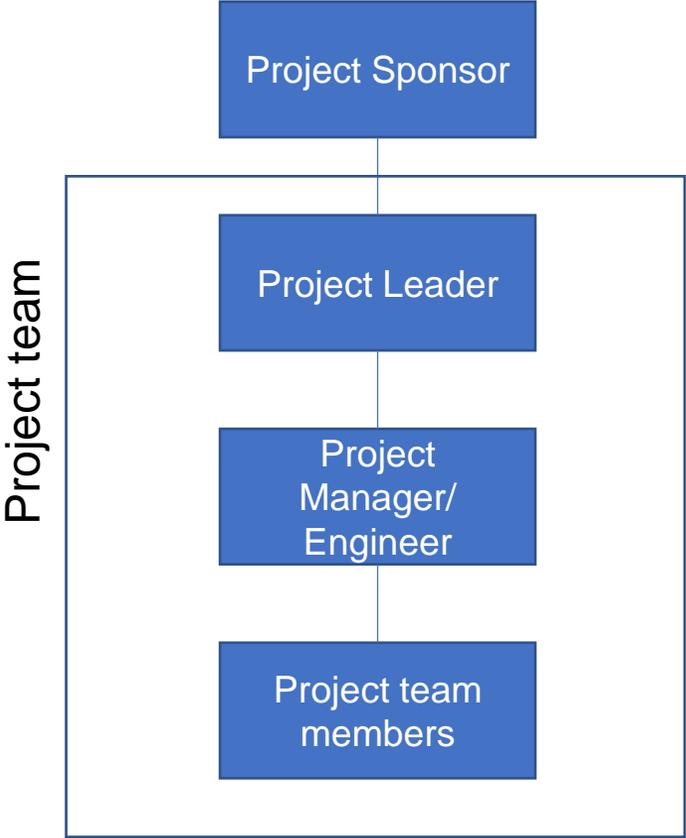
Project Management Toolkit

<input type="checkbox"/>	DOC	Project Plan Template Release: 01 - Dated: 2018/04/27 - Document-135233
<input type="checkbox"/>	PDF	Resource Loaded Schedule How-To Guide_V01.pdf
<input type="checkbox"/>	XLSX	Review recommendation tracker To be used to track long lists of recommendations or actions arising from reviews
<input type="checkbox"/>	XLSX	Risk Registry Template - Project Release 1 Dated: 17-09-07 Document-135160
<input type="checkbox"/>	DOC	Status Review Report Template (Project) Release: 2 Release Date: 2019-04-18 Document: 135128
<input type="checkbox"/>	XLSX	Template for WBS (Work Breakdown Structure) WBS is broken down by equipment (Document-154816)
<input type="checkbox"/>	PDF	TRIUMF MS Project Schedule Template Settings.pdf
<input type="checkbox"/>	MPP	TRIUMF Resource Pool
<input type="checkbox"/>	MPP	TRIUMF Schedule Template Release: 1 Dated: Document-154222
<input type="checkbox"/>	PDF	TSOP-15 Project Governance
<input type="checkbox"/>	PDF	TSOP-15 Ref Material: Project Approval Criteria Reference Material for TSOP-15 Release: 3 Release Date: 2016-09-14 Document: 24701
<input type="checkbox"/>	Link	Microsoft Project on-line training

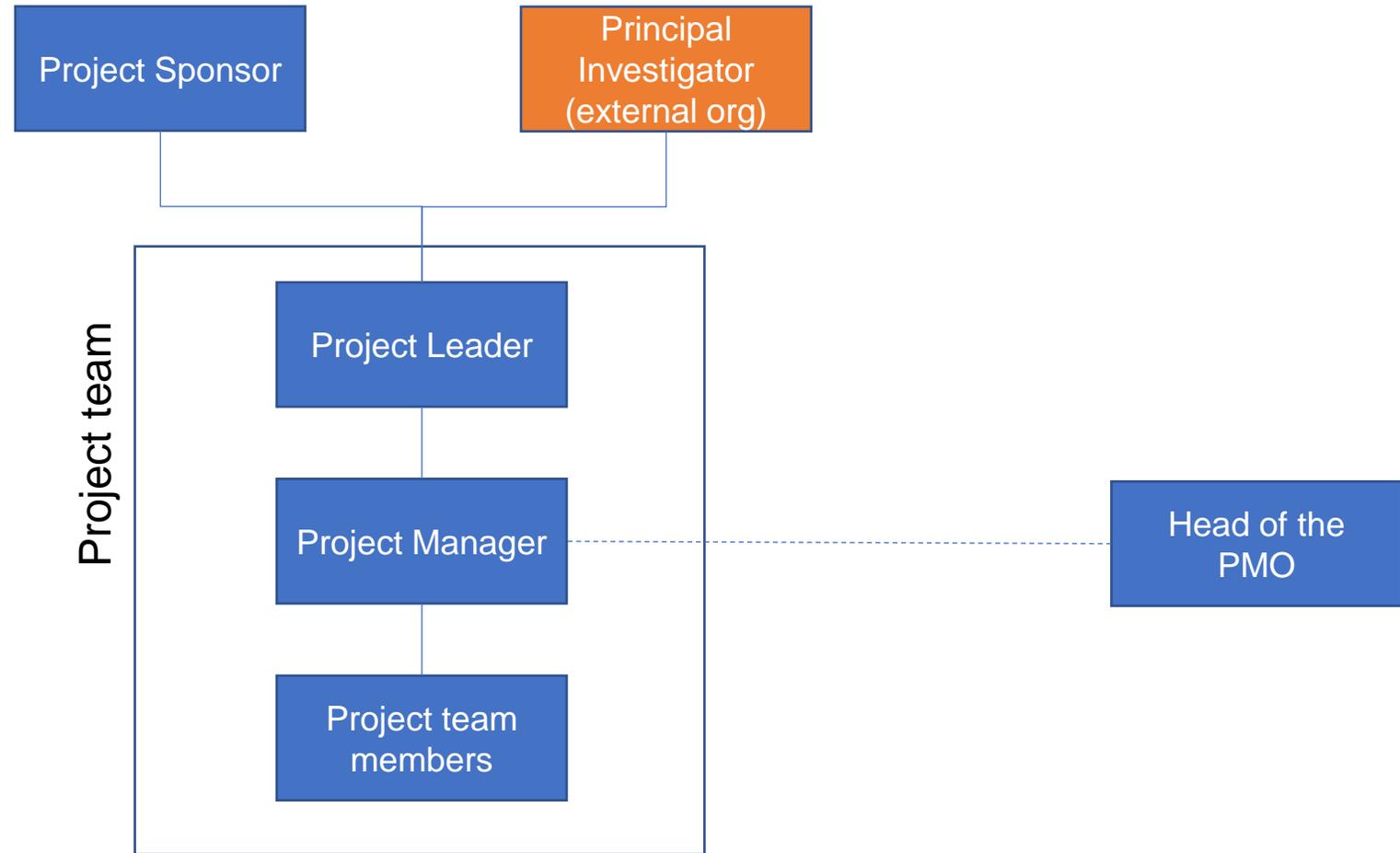
Typical organizational chart for a Small project (Budget < \$1M)



Typical organizational chart for a Medium project (Budget between \$1M and \$10M)



Typical organizational chart for a Large project (>\$10M)



Project Management Oversight group (PMOG)

- Meets bi-weekly
- Director, ALDs, DDs, CFO, CAO, etc...
- Chaired by the Director, Project Management
- Mandate:
 1. Committee for all Gate 0 reviews
 - Assign project importance (Crucial, High, Med, Low)
 - Confirm project sponsorship & leadership
 2. Resolve prioritization & other major project issues

- TRIUMF
- Project management process
- **Portfolio of projects**
- The TRIUMF PMO



TRIUMF's portfolio of projects

Importance → Size ↓	Crucial	High	Medium	Low	Paused
Large >\$10M	7	2	4	0	2
Medium \$1M – \$10M	9	15	30	0	6
Small \$100k – \$1M	1	15	18	0	6

- 101 active projects
- Most of the Medium-sized Crucial projects are part of the ARIEL program

Large Programs or Projects at TRIUMF

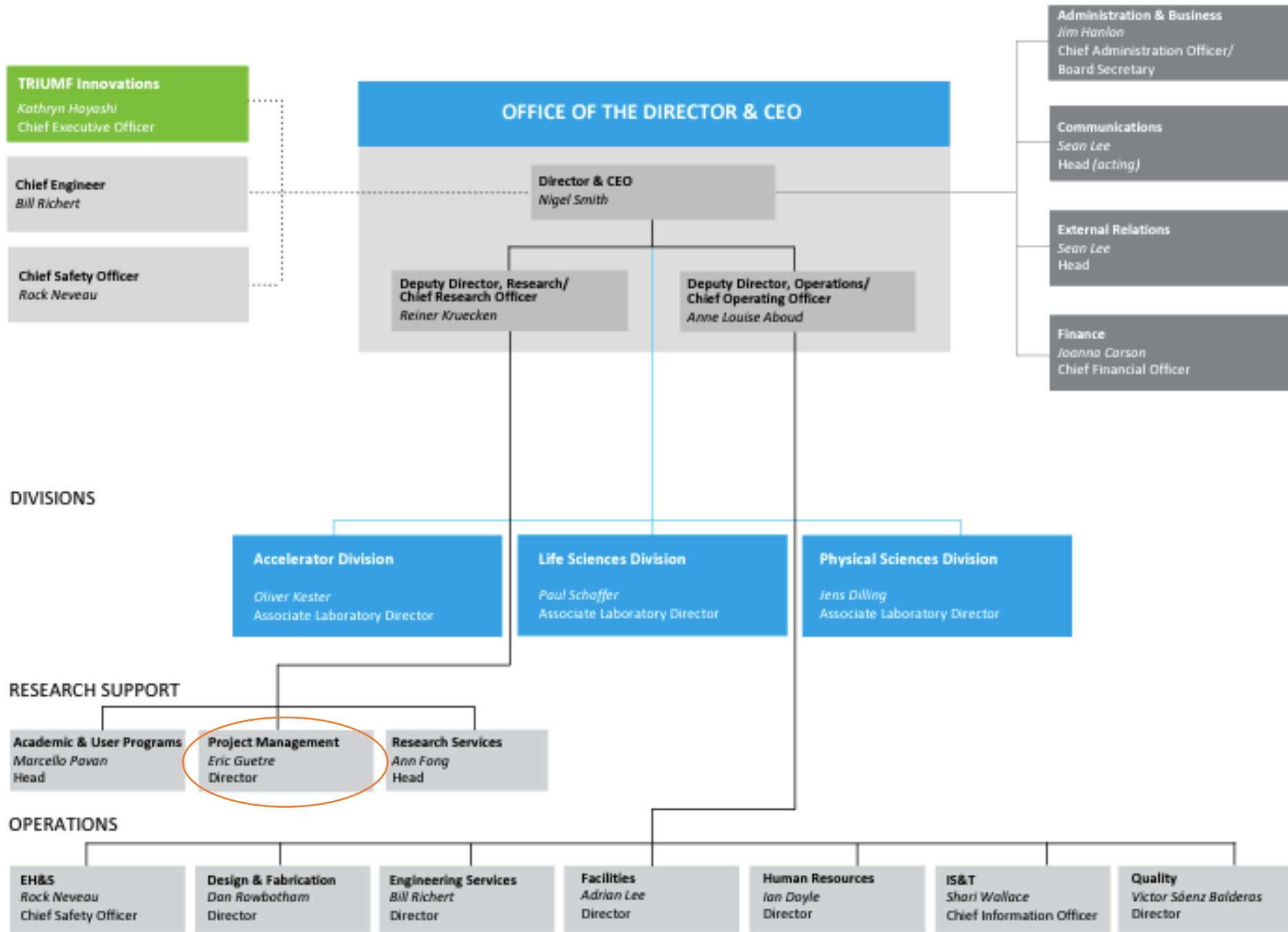
Program or Project	Scope	Budget	Gate status	Timeframe
ARIEL Advanced Rare IsotopE Laboratory	<ul style="list-style-type: none"> Target stations Driver beams Hot cells & laboratories Network of beamlines 	ARIEL-I ~\$32M ARIEL-II ~ \$42M CANREB ~\$3.5M Medical Isotopes ~\$9M 50 to 60 FTEs/year in-kind	ARIEL-I: Complete CANREB: Gate 4A ARIEL-II: Gate 1 to 3 Medical: Gate 2	ARIEL-I: 2011 – 15 CANREB: 2017 – 22 ARIEL-II: 2017 – 26 Medical: 2017 – 26
IAMI Institute of Advanced Medical Isotope	<ul style="list-style-type: none"> New building Target stations Hot cells & laboratories 24MeV cyclotron 	Building & infrastructure ~40.5M\$ Cyclotron ~\$6.5M	Bldg: Gate 3 Targets: Gate 2	2018 – 22
BL1A Refurb	Refurbishment of cyclotron beamlines	~\$18M materials/equipment ~\$7M personnel	Gate 0	2021 – 28
225 Ac Production	Infrastructure for producing Ac-225	~\$15M	Gate 0	2021 – 25
UCN Ultra Cold Neutron	Source and experiment station for UCNs	~\$12.5M	Gate 2 to 3	2018 – 24
CERN Hi-Lumi CM	5 cryomodules for the LHC upgrade	~\$10M	Gate 3	2019 – 24

Upcoming: Quarterly Review of Projects and Prioritization (QRPP)

- Adapted from SNOLAB's Resource Matrix Conflict Priority
- The TRIUMF Project Management Oversight Group (PMOG) to review all projects quarterly and re-prioritize as needed
- Goal: prevent resource over-loads, especially for support groups, and ensure Lab's focus on critical priorities
- Small scale trial: November 2021
- Launch: January 2022

- TRIUMF
- Project management process
- Portfolio of projects
- **The TRIUMF PMO**

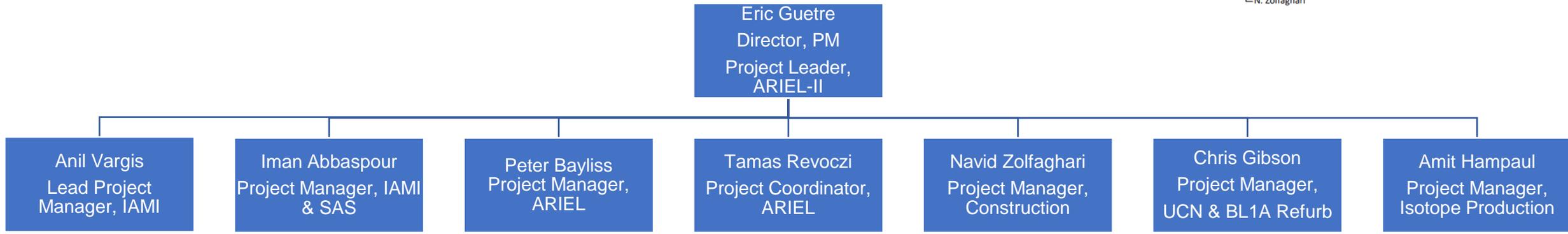
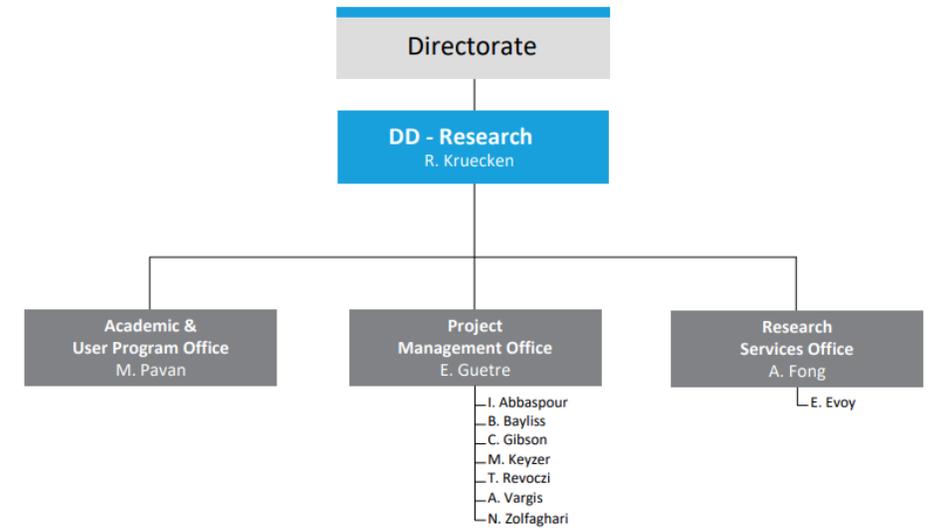




Allocation of human resources to projects

- TRIUMF is organized by Function (no explicit Project matrixing)
- Some projects have the funding to hire dedicated technical, scientific or management staff
- Many projects rely on NRC-funded staff, which are allocated to projects “ad hoc”

Project Management Office (PMO): the home of full-time project managers and coordinators



- Most Small and Medium-sized projects are managed by staff with other operational or administrative duties
- Nearly all Large projects are managed or coordinated by dedicated project management professionals from the TRIUMF PMO

Questions?

