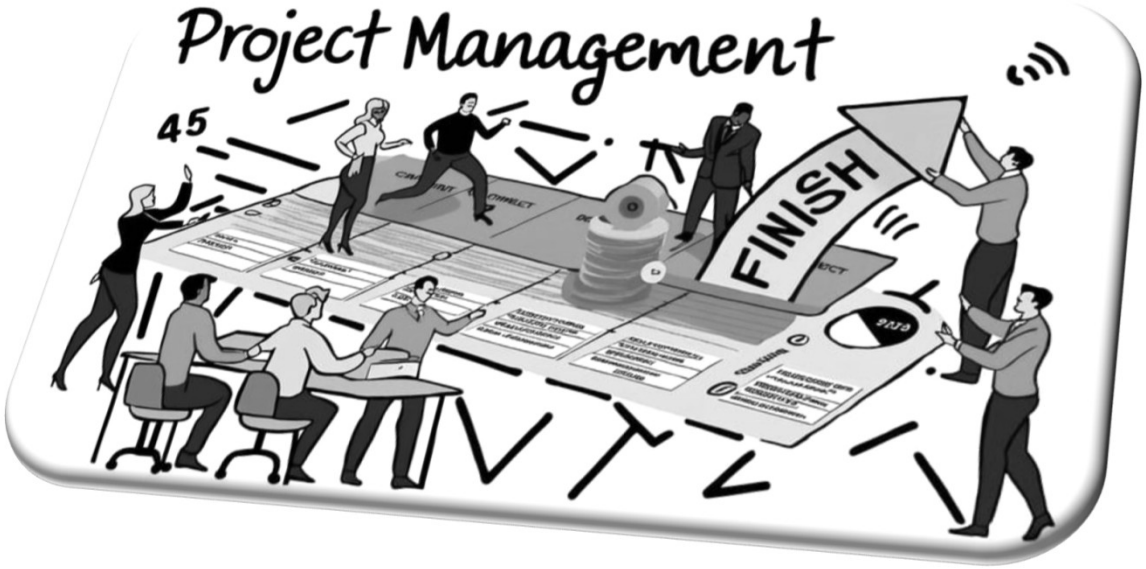
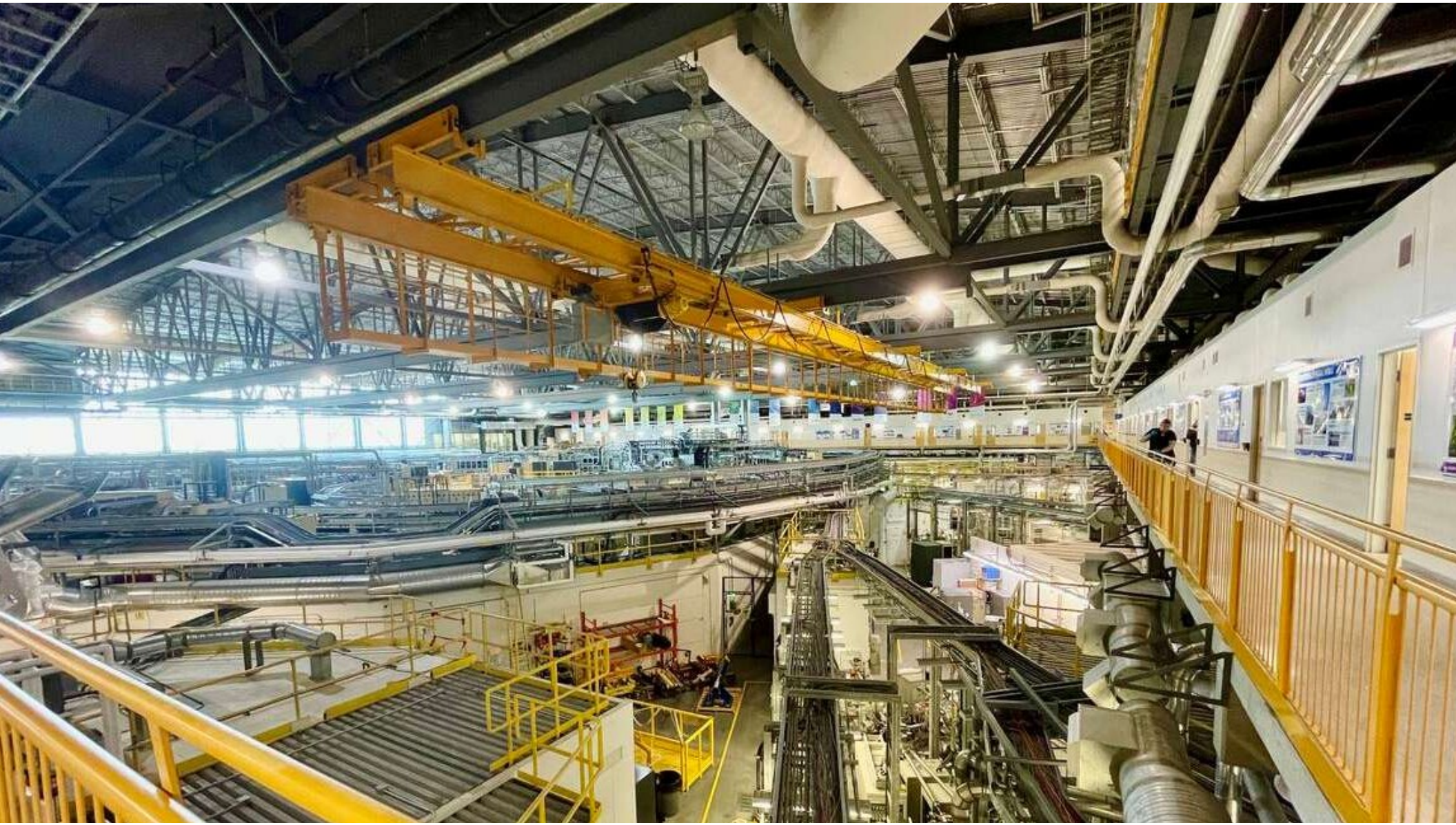
Importance & Status of Project Management at the Canadian Light Source



Chithra Karunakaran, Ph.D, P.Eng, C.Mgr., MBA
Director of Science and Innovation

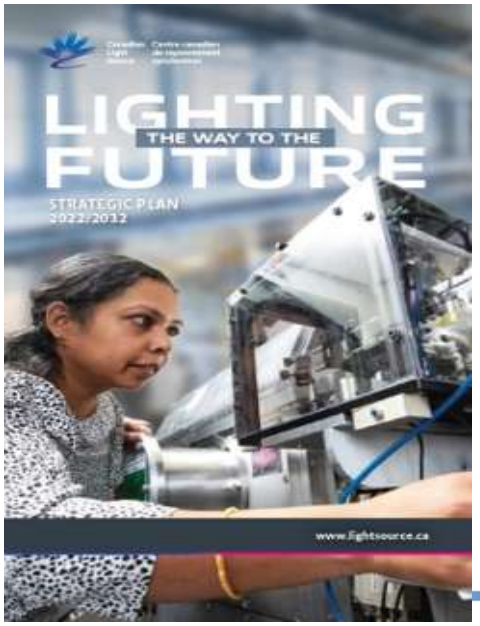


Discovery at the Speed of Light

A national research facility of the University of Saskatchewan and one of the largest science projects in Canada's history. More than 1,000 academic, government and industry scientists from around the world use the CLS every year in innovative health, agriculture, environment, and advanced materials research.

VISION As a valued Canadian voice for innovation, our leadership and world class talent achieve excellence in light source services and solutions

2022-2032 Strategic Plan



Annual Report 2024

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Summary

1. The Role of Project Management in Science

Effective project management ensures that scientific initiatives are completed on time, within budget, and with the desired outcomes. At CLS, it's crucial that the Project Management Office (PMO) prioritizes projects that directly support the organization's mission and research objectives.

Current Status

Successes: Project management strategies are proving valuable for larger projects, such as those like CFI-IF.

Challenges: There is room for improvement in the management of facility-related projects to enhance efficiency and resource allocation.

Summary

2. Advocacy for Project Management

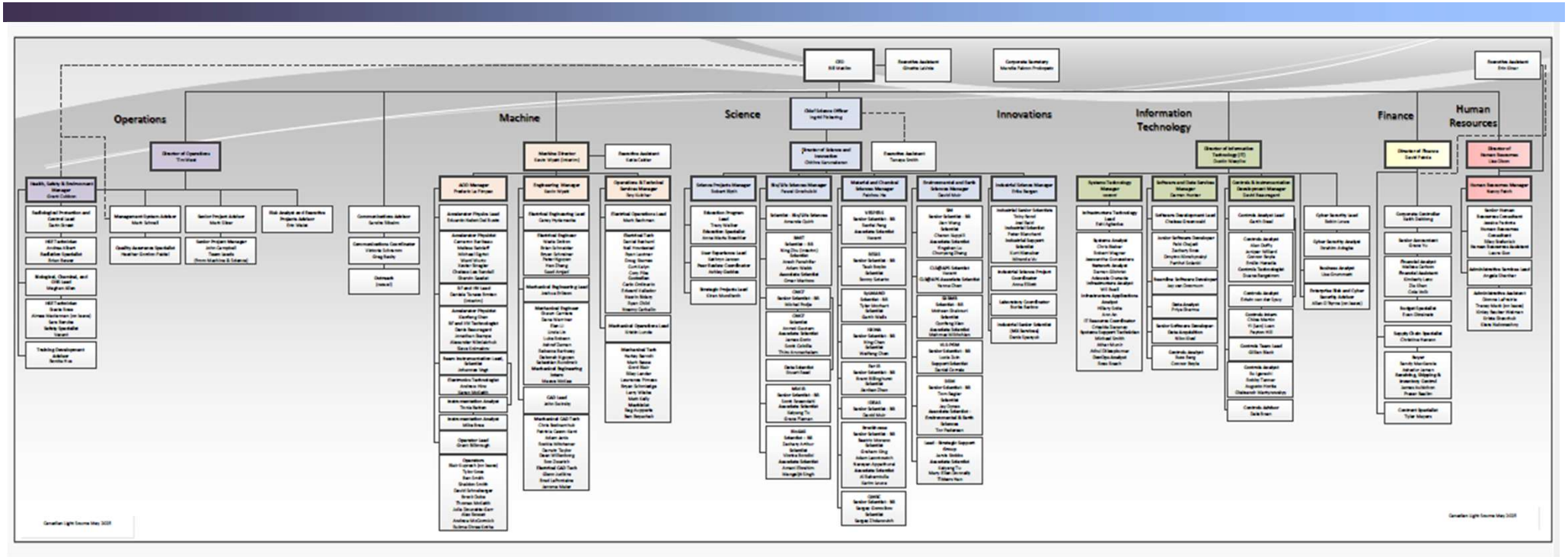
- Promote awareness of project management's *impact on scientific success*.
- Foster leadership *buy-in* to integrate project management into all scientific initiatives.
- Develop a communication strategy that highlights *past successes* and lessons learned.

3. Training & Skill Development

- Implement *Project Management 101 training for staff* to ensure consistent project methodologies.
- Encourage certification or *professional development* to build project management expertise across teams.

Role of Project Management in Science

CLS – Science Division



6 Divisions

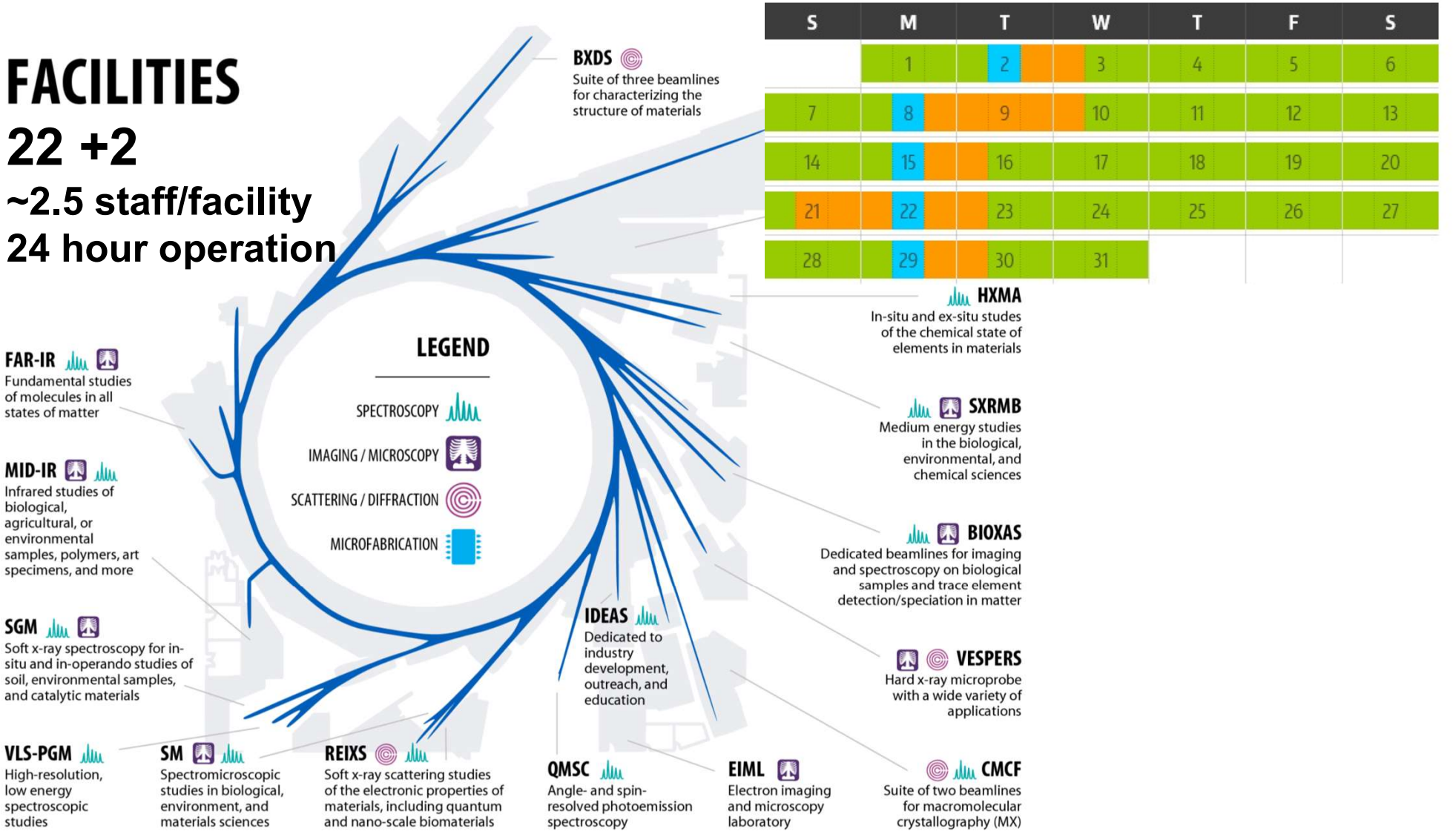
- ✓ Science division – 5 science managers
- ✓ ~24 facilities with leads (close to 80 staff)
- ✓ Engineering and technical support – machine division; CID&ST – IT division

FACILITIES

22 +2

~2.5 staff/facility

24 hour operation



Scientists Roles & Responsibilities

1. Service and solutions
    1. Users's Pproposals
    2. Users's projects
    3. Project support
    4. Project follow-up
    5. Publications?

2. Continuously maintaining beamlines

3. Continuously improving beamlines and services

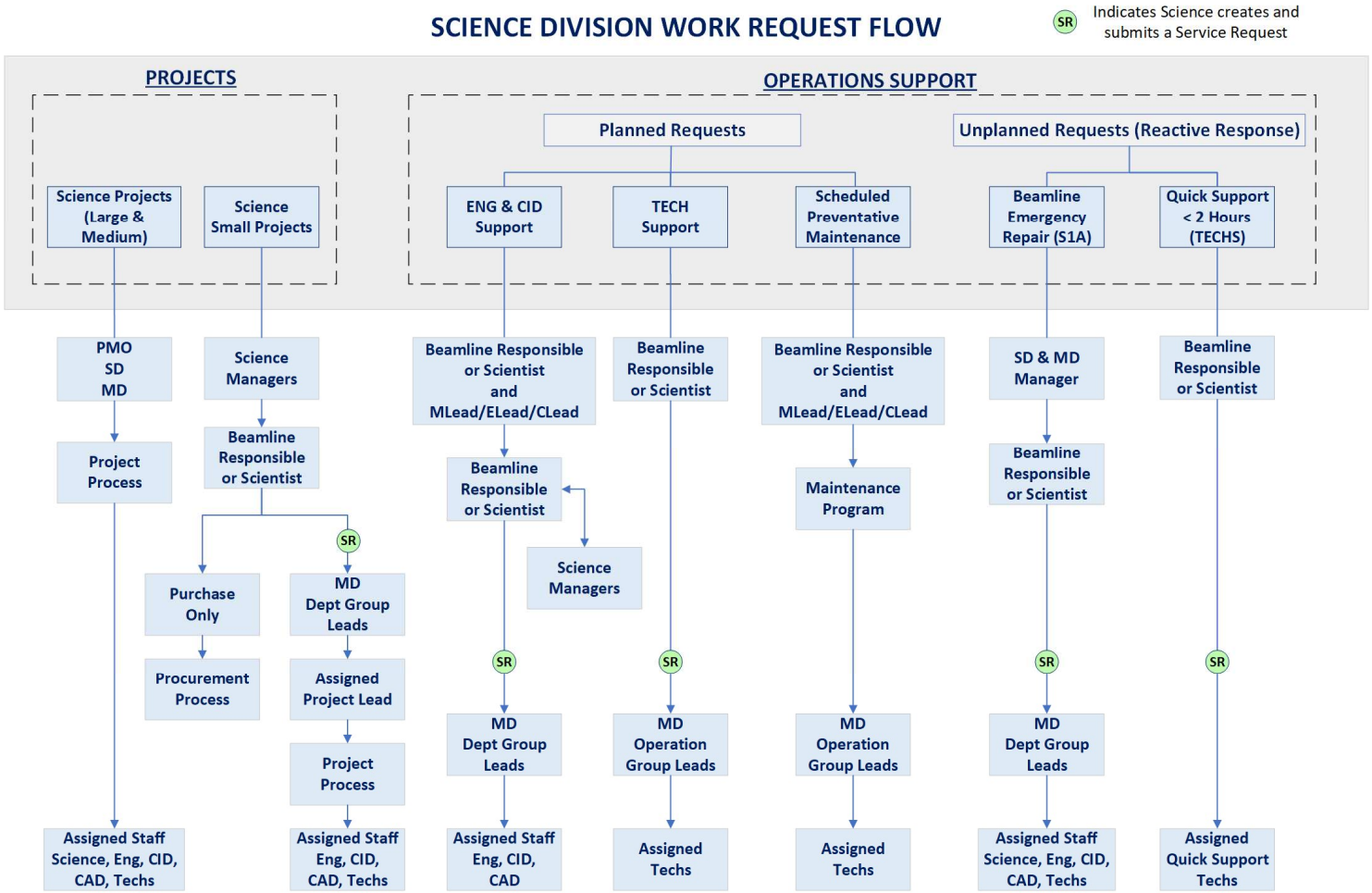
Science projects and/or CFI-IF

Science Division Work Management

CFI-IF

22 +2 facilities

- $1-1.5 M/yr
- Capacity?
- ~ 40 requests



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Science Division Work Management

Too many ways!

Details	1. Large & Medium Projects	2. SD Small Projects/work	3. Planned Requests			4. Unplanned Requests		Software	3D printing
Types of projects or work	**CFI type projects**	**Annual/Biannual** 	**ENG & CID Support (~20 hour projects)** 	**TECH Support** 	**Scheduled Preventive Maintenance**	**Beamline Emergency Repairs** 	**Quick Support (TECHS)** 	**Scientific Software Planning Group** 	**3D printing Requests** 
List	CLS priority table	SD priority	SD priority	Not available for now	iMaint	Update here			
Submission process	CLS CFI project call	Follow beamline resource request guidelines	Submit the requests	CLS service request*	Beamline ENG/CID Leads	Notify Engineering and Science Manager	Quick support guidelines	SSPG	3D Printing
Approval/ prioritization process	CLS project management office	Science Managers & director	Science Managers	Tech leads*	Tech leads	Engineering and Science Manager	Tech leads?	Science Managers	David Muir

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Science projects make up to the CLS priority list

Science managers prioritize and other managers approve projects

A successful model for the last couple of years

Successful CFI-IF projects

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CLS Priority List

Priority	Operational Work
0 - A	Safety Issues (including SRS resolution)
0 - B	Cyber Security Emergency Response
0 - C	Accelerator Emergency Repairs ---------->
0 - D	Beamline Emergency Repairs
0 - E	Critical Machine Preventative Maintenance
0 - F	Machine, Beamline, and Hardware/Software Preventative and Corrective Maintenance
0 - G	MIP Support *Emergency repairs to be escalated to Management
0 - H	General operations, support, services, incremental improvements and Problem Resolution (PRS)

Operational work:

Planned and unplanned daily work to keep the machine running and provide service to staff & users
~60-80% of CLS staff time

Strategic Tactic:

Specific tactics to progress the strategic plan and improve aspects of CLS
~20-40% of CLS staff time

Balance and Flexbility:

Although operations take priority, strategic work has to progress as well: balance is required.

There will be times where items lower on the list need work to keep them on track: flexility is required.

Both will be achieved through ongoing communication with your supervisor and manager.

2025: April - October

Priority	Strategic Tactic		
Linac Upgrade (PRO-55) (CFI)	Linked project: 1 - LTB and ECS Upgrade (PRO-108)		
**In Execution Phase, removal of the old linac and installation of the new Linac constitutes an Accelerator Emergency Repair - Priority is 0-C			
1	MRF Budget Preparation (PRO-212)		
2	480V Upgrade (PRO-151)		
3	Science Projects:	1 - SM Upgrade (PRO-117) (CFI) 2 - BXDS - DMM replacement with DCM (PRO-154)	3 - Envir. Spectroscopy & Scattering Suite - Tensile Tester (PRO-125) (CFI) 4 - BIOXAS SSRL Mono Seal Replacement
4	SR Dipole PS (PRO-155)		
5	3rd SRF Cavity: (PRO-216)	1- SRF Cavity Procurement	
6	Solid-state Amplifier for the Storage Ring (PRO-101)		
7	Network Segmentation and Multi-factor Authentification (PRO-215)		
8	CLS Bluesky on Hard X-Ray Spectroscopy Beamlines (PRO-201)		
9	Science Projects:	1 - BXDS Detector Stage (PRO-118) 2 - SXRMB Auto Vent (PRO-124) 3 - BXDS White Beam BPM (PRO-119)	4 - Envir. Spectroscopy & Scattering Suite - Super Critial Cell (PRO-129) (CFI) 5 - BXDS Automation of XRD/PDS (PRO-207)
10	CO2 Fire Suppression (PRO-53)		
11	Water System Improvement Strategy (PRO-152)		
12	2nd SRF Cavity Operating in SR: (PRO-121)	1 - SR:move diag. sot2 to sot3 2 - Installation (oryo, RF/88A)	
13	Master Schedule Implementation (PRO-130)		
14	Science Projects:	1 - SM Ambient-STXM Tomo Upgrade (PRO-159) 2 - Vespers Long Scan Stage (PRO-133)	
15	Research Security Implementation (PRO-136)		
16	Data Management (PRO-139)	1 - Policy - Corporate, Science, ST 2 - Handling - Catalogue, Portal	
17	Science Projects:	1 - BMIT sCMOS Detector (PRO-142) 2 - Far IR Gas Cart (PRO-140)	
18	Require - Alternate EPICS build environment (PRO-150)		
19	Insertion Device Demagnetisation Study (PRO-153)		

Improvements Needed

Melanie Brydges Down, University of Manitoba

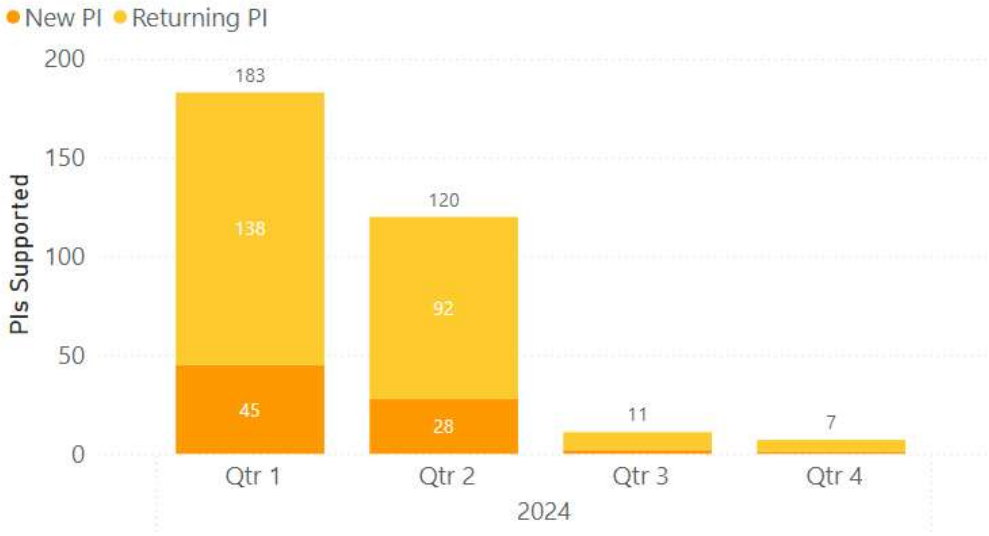
1. Sometimes, it's not about doing more —it's about doing less, better."

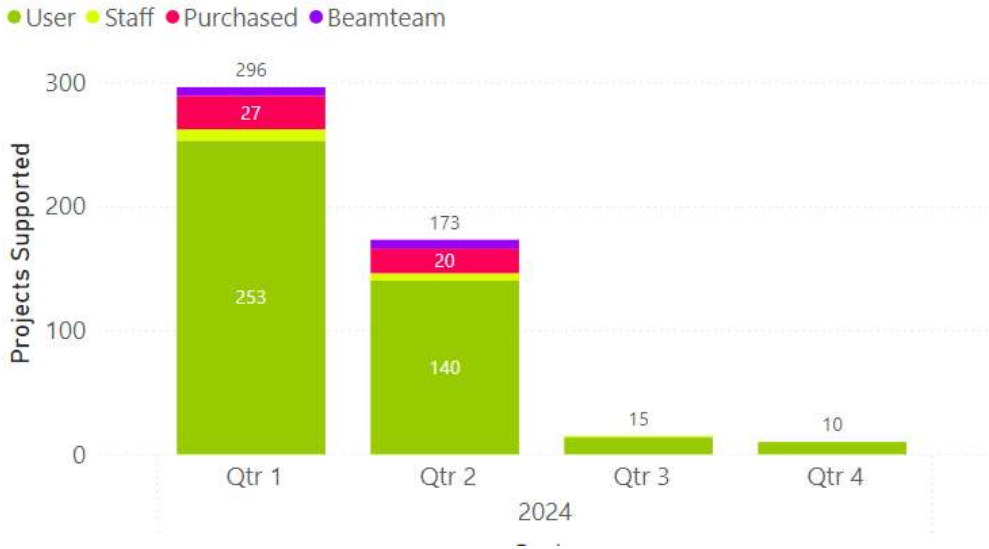
2. Are we educating our employees the importance of the process?

3. Do not load until we understand the capacity!

Example: Science Operations

Far-IR, Mid-IR, SyLMAND, EIML





Comparison of the number of principal investigators and projects supported during the four quarters of 2024. *Note: beam available to users from January to May 27, 2024*

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2. Advocacy for Project Management

Science Division & Project Management

1. Promote awareness of project management's impact on scientific success.
    - Promote success stories, e.g. SM CFI-IF software project
    - Scope and the importance of the project

2. Foster leadership buy-in to integrate project management into all scientific initiatives.
    - Now encouraging small projects, e.g. planning as much as possible in advance, e.g. CFI-IF proposal development, NSERC RTI

3. Develop a communication strategy that highlights past successes and lessons learned.
- Roles and responsibilities; scope of the project; operations vs projects

3. Training & Skill Development

Science Division & Project Management

1. Implement *Project Management 101* *training for staff* to ensure consistent project methodologies.
    - High level project management training for all staff

2. Encourage certification or *professional development* to build project management expertise across teams.
    - Train talented and interested scientists in project management for them to be effective project managers!