IAEA
Atoms for Peace and Development

Knowledge Management Programmes

Regional Workshop
12-15 July 2022
Virtual Event

Content

What are the elements of a knowledge management programme?

- Environmental scan and risk analysis
- Vision statement
- Clear objectives
- Buy-in from leaders
- Activities
- Key Performance Indicators (KPIs)
- Communication and engagement

KM Strategy

KM Plan

Organizational Context

Risk

Budget

Time

Culture

SWOT Analysis

- A SWOT analysis helps you scan the internal and external environments for:
  - strengths and weaknesses
  - opportunities and threats

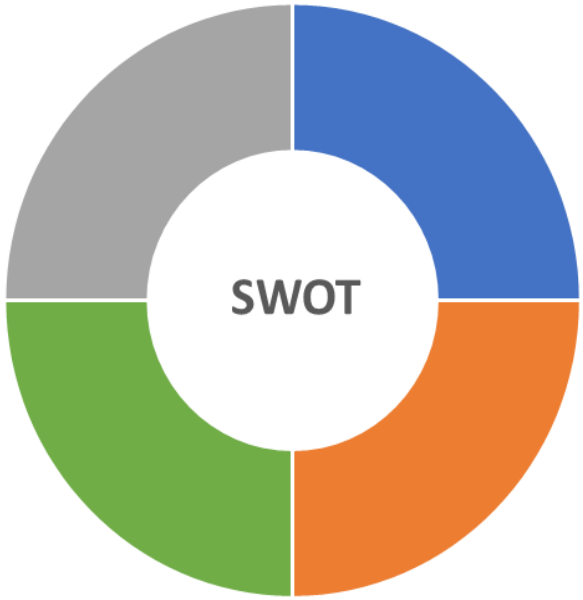
- Looks at the current environment and what could be on the horizon

Example Environmental Scan

STRENGTHS

- Engaged workforce
- Significant investment in learning and development
- Focus on workplace wellness
- Diverse workforce
- Strong recruitment efforts to renew the workforce
- Increased rigour around workforce planning
- Common use of Key Behavioural Competencies

Internal



External

WEAKNESSES

- Lack of knowledge management and succession planning in areas with no depth
- Employee perception that there is a lack of career progression
- Future of work is unclear and unable to clearly articulate the KSAs that will be required in the future
- Financial context – state of reduction
- Fear of change
- Legacy technology
- Digital literacy

OPPORTUNITIES

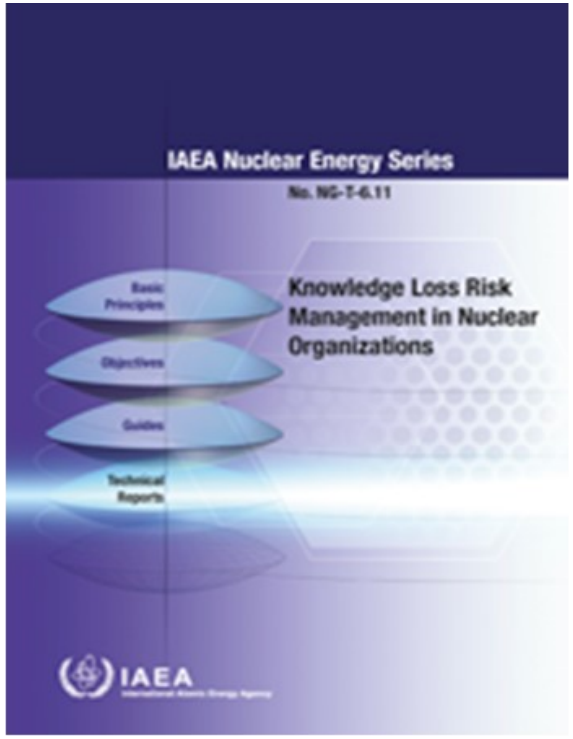
- Automation
- Telework/alternate work
- Evolving nuclear landscape
- Leveraging various educational institutions and nuclear networks

THREATS

- Changing Government and priorities
- Labour market shortages
- Decommissioning within the industry and revenue impacts

Knowledge Loss Risk Management

- Step 1: identify core competencies
- Step 2: conduct a gap analysis
- Step 3: take action



IAEA Nuclear Energy Series No. NG-T-6.11

IAEA SARCoN

Systematic Assessment of Regulatory Competence Needs for Regulatory Bodies of Nuclear Facilities (SARCoN)

Quadrant 4 - Personal and behavioural competences 4.1 Analytical thinking and problem solving 4.2 Personal effectiveness and self-managemer 4.3 Communication 4.4 Team work 4.5 Managerial and leadership competences 4.6 Safety culture competence	**Quadrant 1 - Competences related to the legal, regulatory and organizational basis** 1.1 Legal basis 1.2 Regulatory policies and approaches 1.3 Regulations and regulatory guides 1.4 Management system
Quadrant 3 - Competences related to regulatory body's practices 3.1 Review and assessment 3.2 Authorization 3.3 Inspection 3.4 Enforcement 3.5 Development of regulations and guides	**Quadrant 2 - Technical disciplines competences** 2.1 Basic science and technology 2.2 Applied science and technology 2.3 Specialized science and technology

SRS No. 79

Knowledge Loss Risk Assessment (KLRA)

KLRA is designed to identify positions and individuals that have the **greatest** and the most **imminent potential for knowledge loss**:

- Attrition risk factor (1-5)
- Position risk factor (1-5)
- Attrition risk x position risk = total risk factor
- Total risk factor between 20 to 25 is a high priority

KLRA in Action

- What does this information tell us?

Employee	Attrition Factor	Position Factor	Total Factor	Action Required
Charles Darwin	3	1	3	No action required at this time
Thomas Edison	2	4	8	Succession plan needs to be in place
Henri Becquerel	5	4	20	Knowledge retention plan required
Marie Curie	5	5	25	Knowledge retention plan required

KM Strategy and Plan

KM Strategy, includes:

- a vision statement
- programme objectives

KM Plan, includes:

- Activities aligned with the strategy
- Scope, timeline and budget
- Resources, including roles and responsibilities
- Stakeholders and identification of interdependencies
- Communication and change management activities
- Key Performance Indicators (KPIs)

Vision Statement

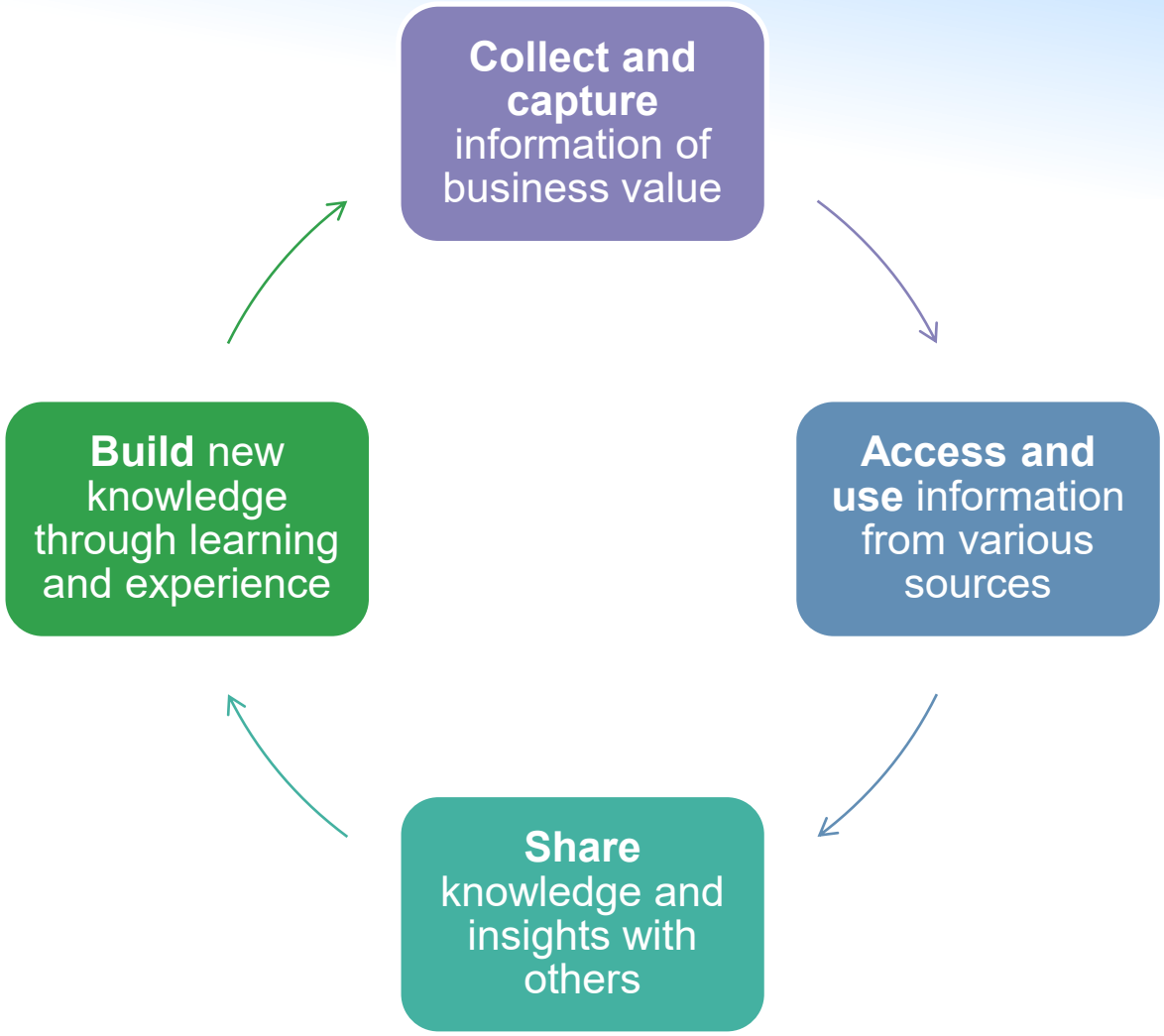
- Clearly defines the programme's purpose
- Provides high-level direction
- Aligns to business strategies and mandate
- Should be championed by leaders

Example:

"ANRB is committed to managing nuclear knowledge to enhance safe, secure and efficient operations"

Programme Objectives

- Address risks
- Clear and measurable
- Include people, process and technology goals



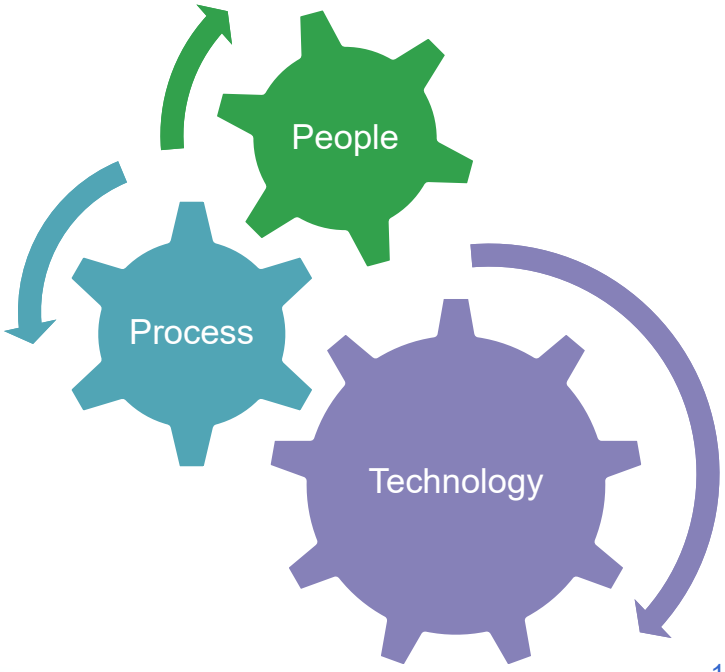
Example of KM Objectives and Activities

Conduct Human Resources Planning
- Source and recruit talent at the entry-level
- Plan for succession of at risk positions
- Conduct knowledge capture interviews with departing employees

Provide Training and Development Opportunities
- Develop on the job training (OJT) guides
- Initiate a coaching and mentoring programme
- Design e-learning content for document management standards
- Formalize refresher training for inspectors
- Offer a knowledge transfer course

Invest in Technology Solutions
- Update search engine capabilities on knowledge database
- Develop KM portal with expert yellow pages
- Invest in a document management system

Implement Systematic Processes
- Learn from Operator experience
- Adopt a 'no fault' lessons learned and error prevention process
- Communicate document control procedures
- Benchmark KM best practices



Why do KM Programmes Fail?

There can be many reasons such as:

- Loss of programme funding or resources
- Expectations were not clearly communicated
- Programme was not aligned to business objectives
- Knowledge-sharing behaviours were not recognized or rewarded
- No or limited infrastructure to support KM efforts

Leadership Support

Leadership support is important to:

- Set high-level direction
- Back KM objectives
- Convey expectations and recognize good performance
- Provide opportunities for KM
- Allocate resources and funding
- Enable integration of multiple disciplines

Measuring and Reporting

- Focus on a few Key Performance Indicators (KPIs) to meet your reporting objectives
- Quantitative data should be supplemented with qualitative data
- Performance targets should be realistic
- Do you have the capability to collect the data?

Examples of KM KPIs

- No. of expert interviews conducted
- % of at risk positions with succession plans
- No. of legacy reports developed
- No. of legacy reports accessed per month
- No. of experts in the expert directory
- % of staff accessing the expert directory per month
- No. of sharing activities (i.e. CoPs, KM workshops)
- % of experts enrolling in the KT course
- Increase in positive responses on KM survey
- Improve KM programme maturity levels

KM Self-Assessment

- Why use the self-assessment?
  - To assess current state, articulate a desired future, visualize the results, define gaps and select areas for improvement, repeat to see progress

- IAEA KM self-assessment model:
  - 7 NPP categories, R&D 1 extra category

1. Policy/strategy
2. HR planning and processes
3. Competence development
4. Documentation process
5. Technical solutions
6. Capture/use of tacit knowledge
7. KM culture
8. External collaboration

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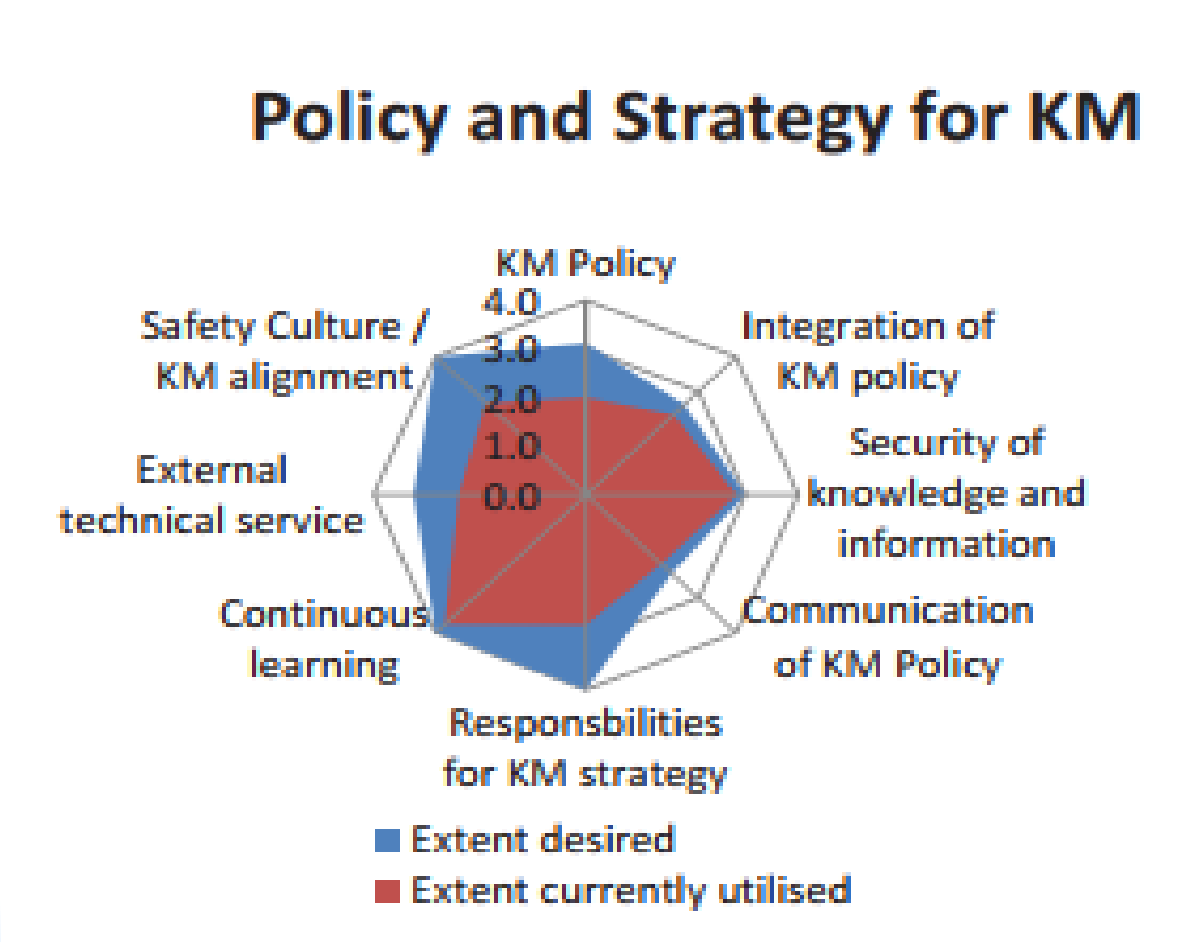
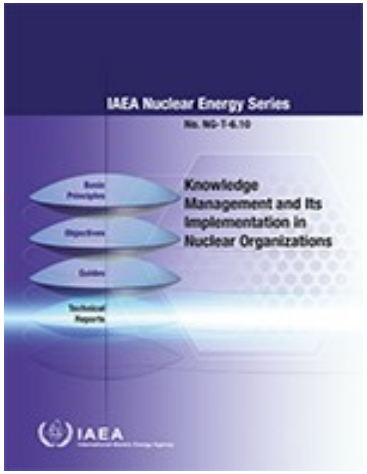
Sample Output of Maturity Model



Knowledge Management and Its Implementation in Nuclear Organizations, IAEA 2016

This publication shares best practices and experiences based on Knowledge Management Assist Visits conducted between 2005 and 2013



IAEA NES No. NG-T-6.10

What is Culture?

Culture – shared values, attitudes and behaviours

How to shape culture?

- Link behaviours to business objectives
- Make leaders accountable
- Change behaviours and mind-sets will follow
- Communicate often
- Select influencers
- Demonstrate impact

"We're not sure you'll fit into our corporate culture…"

Quick Win

A pilot project allows you to:

- Select a target group
- Obtain feedback before a broad launch
- Produce quick wins that can be used to demonstrate benefits

Alignment and Coordination

An effective knowledge management programme requires alignment between:

- National and organizational strategies
- Coordination with relevant networks
- KM and other disciplines
- Technology and information management
- Organizational culture and the integrated management system

Knowledge Management at the Canadian Nuclear Safety Commission (CNSC)

A phased approach to a KM Programme

CNSC Knowledge Management Initiative

1 Raise awareness and take stock

- Engage staff
- Conduct a lit.review and benchmark
- Identify critical roles

2 Develop and implement plan

- Elaborate and share a policy
- Identify mitigation strategies

3 Assess progress

- Conduct a 3rd party review of progress and effectiveness

Environmental Scan (eScan)

Workforce Analysis

Population

971 employees, with an average age of 44.5 years

Engagement

83% positive response on “Overall, I like my job”

Leadership

28% of our leaders are new in role, of these 16% are new to mgt

Learning

15.8 average learning days annually per employee

Departures

Low voluntary turnover in ops between 1% and 2% annually

Retirements

46% of our senior experts eligible to retire within 5 years

CNSC Core Capabilities

Licensing and Certification

- Establish annual plan
- Assess licensing and certification documentation
- Make licensing and certification recommendations
- Contribute to and maintain regulatory documentation
- Manage licensee relationship

Review and Assessment

- Conduct technical assessment to support licensing and compliance
- Contribute to and maintain regulatory documents
- Determine technical requirements
- Develop and maintain expertise
- Communicate technical information

Compliance

- Assess past performance and establish compliance plan
- Verify compliance
- Enforce compliance
- Report on compliance
- Contribute to and maintain regulatory documentation
- Manage licensee relationship

Regulatory Framework Mgt

- Analyze regulatory requirements
- Develop regulatory Instruments
- Strategic advice, direction and planning
- Stakeholder consultation for regulatory document development
- Write regulatory documents
- Manage regulatory documents

Emergency Prep & Response

- Emergency preparedness
- Emergency response
- National and international stakeholder alignment

International Obligations

- Negotiate, establish and implement bilateral Administrative Arrangements
- Strategic advice and guidance
- Represent Canada and lead Canadian delegations
- Ensure Compliance with Canada's Safeguards Obligations

Dissemination & Outreach

- Aboriginal consultation
- Disseminate regulatory and technical information
- Participant funding
- Strategic advice and guidance

Regulatory Program Mgt

- Planning, monitoring and reporting
- Support standardization of regulatory processes
- Manage regulatory documentation
- Draft regulatory documents

Tribunal Admin

- Provide Tribunal and technical scientific support
- Provide registrar services

Business Management

Strategic advice and planning

Program delivery and reporting

Optimization of service delivery

Legal support to tribunal

Litigation

Generate Sci & Tech Know

Develop and maintain expertise

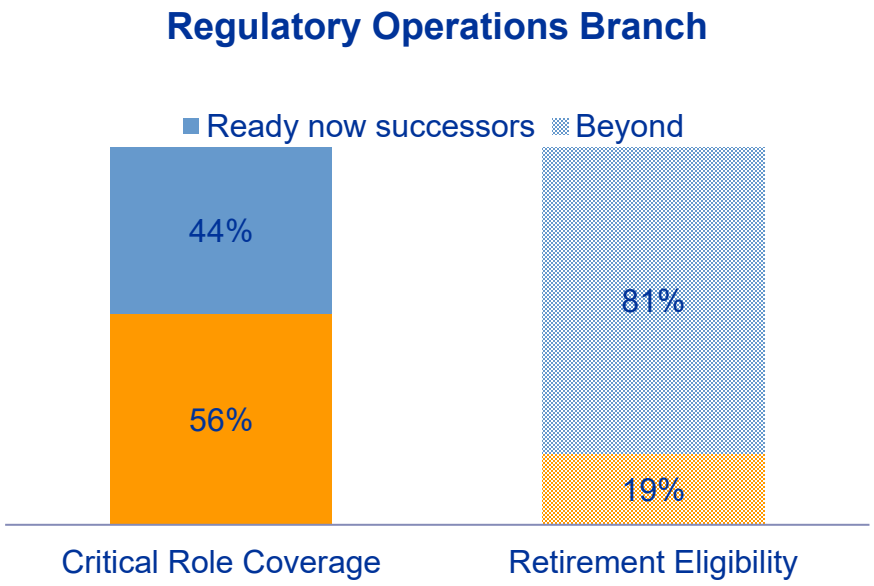
Identify research criteria and evaluate results

Communicate technical information

Phase I: Raise Awareness and Take Stock

- Engaged employees through focus groups and surveys
  - 74% positive responses on ‘I know how to share my knowledge and with whom’(People)
  - 33% positive responses on ‘documented processes meet my needs’ (Process)
  - 62% positive responses on ‘I can find relevant information at the time it is needed’ (Technology)

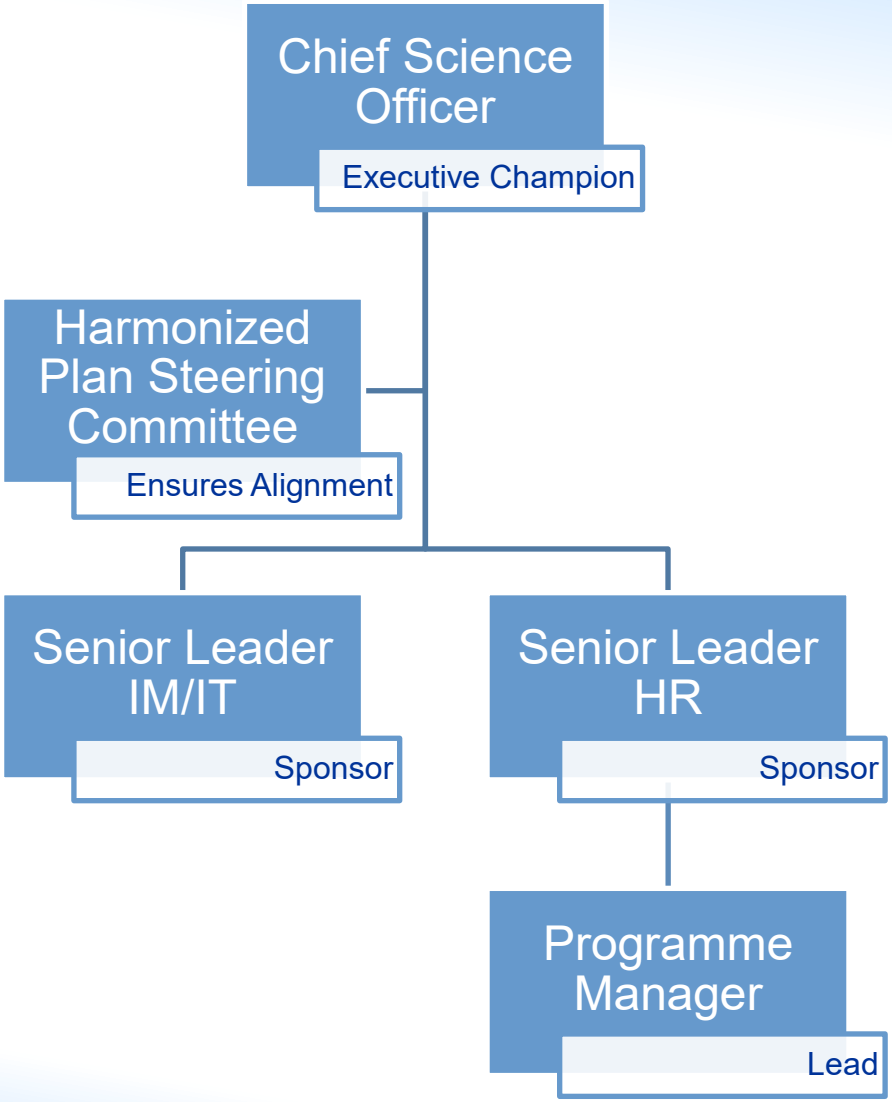
Identified critical roles and succession risks



Phase II: Develop and Implement Plan

Policy Statement
"The CNSC has and will enhance measures to capture, share, and build knowledge through people, processes, and technology to maintain the organization's capacity and capability to deliver its mandate now and in the future."

KM Reporting Structure



Know-vember Communication Blitz

Knowledge management 101 at the CNSC

Be in the "know" when it comes to knowledge management

Written by: Mandaly Clements

knowledge management

BUILD CAPTURE SHARE

You've probably heard the term "knowledge management" (KM) quite often in recent years. You might be wondering: what exactly does it mean and how does it apply to me?

In a nutshell, KM is about capturing, sharing and building knowledge through people, processes and technology, and ensuring that needed knowledge is consistently stored, transferred and available when needed. At the CNSC, this is critical for maintaining regulatory excellence and it's part of a healthy safety culture.

What's my role?

Everyone has a responsibility to capture, share and build knowledge at the CNSC, and KM best practices should be incorporated into your day-to-day operations.

What are KM best practices?

KM best practices mean:

- capturing explicit knowledge in appropriate repositories such as e-Access, the Regulatory Information Bank and Case Management
- sharing tacit knowledge (knowledge that may be implied, or not expressly stated) with colleagues: either formally as you train new staff and participate in briefings on lessons learned, or informally as you collaborate with peers in team meetings, open learning sessions and similar activities
- building knowledge by innovating, developing new solutions and building on existing information

If you would like to participate in some of the current knowledge-sharing activities offered at the CNSC, please visit our Know-vember blitz BORIS page to learn more!

From Theory to Culture

- How did we move beyond knowledge management theory to shifting culture?

- Established infrastructure
- Changed expectations
- Selected influencers

Phase III: Assess Progress

- Closed-out all plan activities and reported on performance
- Development of new KM plan based on findings and recommendations in progress
- Plan to request an independent assessment of CNSC KM programme

Lessons Learned

- **Shape culture** to achieve the greatest impact
- **Use data** to tell the story and monitor progress
- Plan well and **plan often**
- Recognize the time and resource **commitment**
- Create **shared ownership** to engage multiple stakeholders and influencers

Thank you

Questions?