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Supporting Transformation in Mining: A Vision for CanmetMINING

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Green Mining Innovation Workshop

31 May, 2018



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Achieving the Green Mine of the Future: The Transformation Imperative

Vision:

- **Green Mines of the Future:** Mines are highly productive, automated, use alternative energies, produce minimal waste and emissions.
- Canadian miners actively integrate and adapt new skills and proven technologies from other sectors to fully realize high-tech, environmentally sustainable and safe mining operations, including:
 - artificial intelligence
 - autonomous equipment
 - digitization
 - data analytics
 - electrification
 - genomics
 - nanotechnology

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Budget 2018 and Support to Science

"Building on its Innovation and Skills Plan"

- The world is shifting to a knowledge-based global economy, driven by the creation of ideas and their translation into commercial value
- To support this transformation, the Government is making historic investments through Budget 2018 to support the next generation of researchers and providing researchers with the cutting-edge equipment to make scientific breakthroughs and drive innovation.

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Budget 2018

“A record-setting \$6.6 B to Support Science”

- \$1.8 B for the granting councils and the next generations of researchers and scholars.
 - ❑ *The largest investment in fundamental research in the history of our country*
- *More than \$760 M will go to the Canada foundation for innovation for labs, tools and equipment to help researchers excel in their jobs*
- *\$2.8 B to renewing federal laboratories to ensure Federal scientists have the infrastructure they need to inform science-based decisions*
- *\$573 M towards implementing a digital research infrastructure strategy.*
 - ❑ *Provides high-speed networking and computing power that will allow researchers to analyze, store and share big data across the country*
 - ❑ *It also provides the infrastructure pipeline across the country so big data can be used by researchers outside government to produce tangible benefits for Canadians – whether that's in genomics, climate change or artificial intelligence*

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Drivers for Change

- Competitiveness
- New emerging technologies
- Science and policy integration
- Integrated research across multiple disciplines
- Collaboration
- Rate of change in innovation/demonstration

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Transformation of CanmetMINING

“Responding to the Present and Building the Future”

“Where policy is driving science, science supports policy and is integrated across all activities in the Branch, and where our technologies and knowledge are transferred and adopted by industry”

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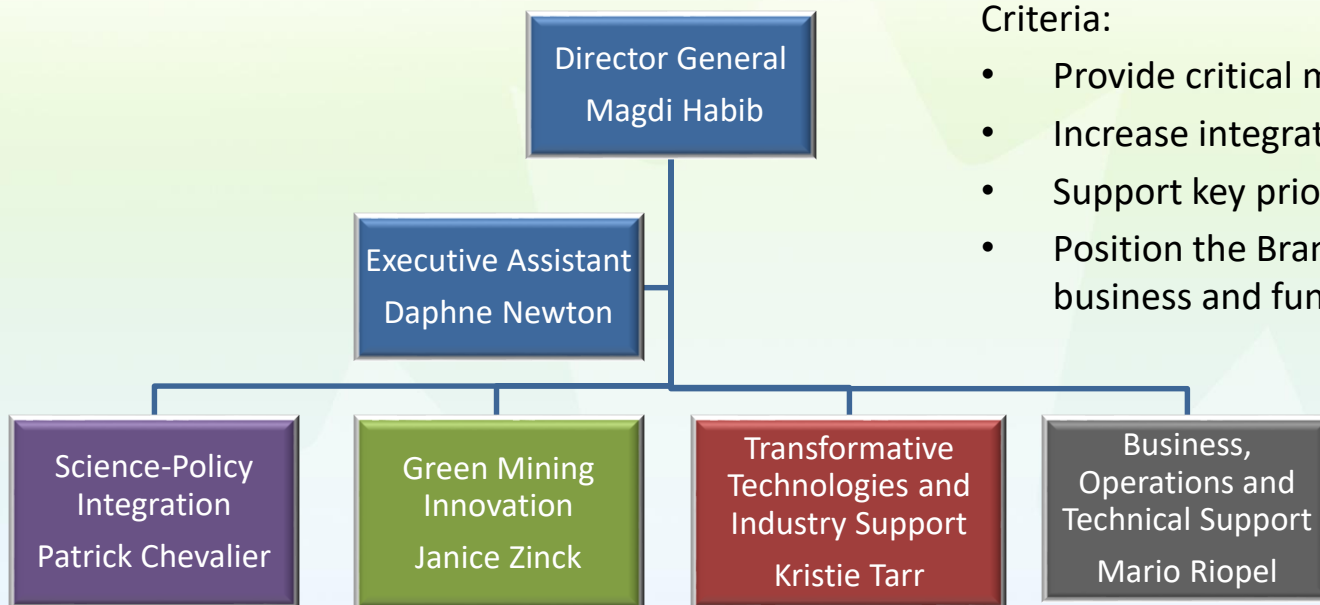


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New CanmetMINING Structure



Criteria:

- Provide critical mass to achieve results
- Increase integration/teamwork/synergies
- Support key priorities
- Position the Branch for new programs, business and funding opportunities

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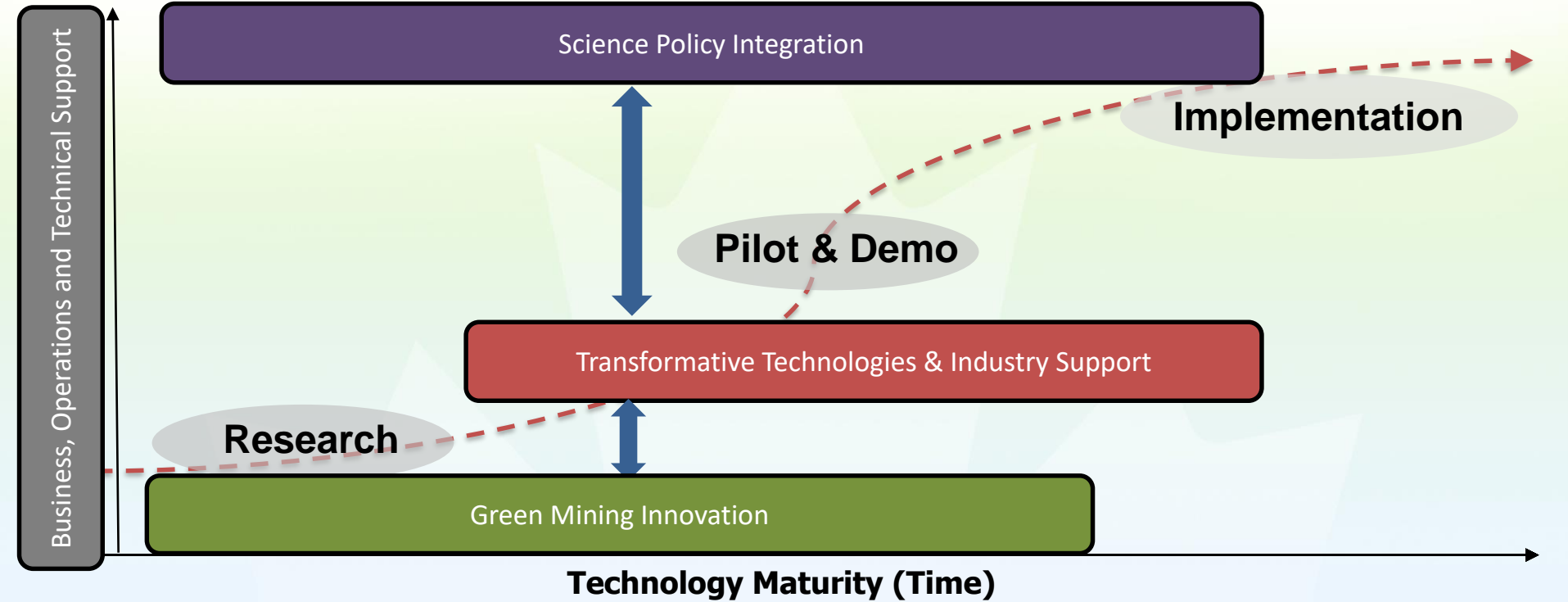


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CanmetMINING Transformation



| Pre-concept Refinement | | | Concept Refinement | Technology Development | | System Development & Demonstration | | Production & Deployment | |
|------------------------|-------|-------|--------------------|------------------------|-------|------------------------------------|--|-------------------------|-------|
| TRL 1 | TRL 2 | TRL 3 | TRL 4 | TRL 5 | TRL 6 | TRL 7 | | TRL 8 | TRL 9 |

Launching the Canadian Mining Science & Engineering Laboratory Network

- Responding to the National Collaboration Strategy
- Forum to share knowledge, leverage resources & create a culture of sharing
- Members identify strategic priorities and the resources to advance them
- Co-chaired by CanmetMINING and one other member
- Secretariat provided by CanmetMINING
- Regular updates to Green Mining Innovation Advisory Committee and the GMI Intergovernmental Working Group

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