

Seizing on the potential of new technologies can move Canada toward a sustainable future

June 17 2014

A new expert panel report, *Enabling Sustainability in an Interconnected World* outlines the opportunities to achieve sustainability through information and communication technologies (ICTs) but cautions that Canada is a long way from realizing their full potential. The report, released today by the Council of Canadian Academies, finds Canada at a crossroads.

Canada has a well-connected society and its industry and higher education institutions are leaders in ICT research and development and knowledge generation. On the other hand, Canadian businesses lag behind in ICT investment and the ability of firms to adopt technologies has been weak. In addition, the country is not highly ranked in terms of ICT penetration and diffusion among individuals.

While ICTs have the potential to expand access to information, generate economic benefits, and improve Canada's environmental performance, the Panel determined that no single technological opportunity will achieve sustainability for Canada on its own.

"The integration of ICT is fundamental to its success," said David Miller, Chair of the Expert Panel. "For example, [wireless sensor networks](#) in remote areas could provide valuable baseline information to both decision-makers and the public about water and air quality. However this requires reliable broadband connectivity, analytics to make sense of the

data, and a proper level of standardization and openness so that the results can be used to inform decisions."

The report explores other opportunities, ranging from small-scale changes, such as the use of applications that inform consumers of household water use, to large-scale changes like replacing aging utility networks with smart grid technologies. Practical examples include:

- Smart grids that could transform how utilities are produced and delivered across Canada minimizing environmental impacts such as electricity and water losses in distribution, reducing costs for operators and consumers, and ensuring reliability of service.
- Smart motors that could make manufacturing equipment and processes more efficient, reducing GHG emissions, and decreasing operating costs.
- ICT-based irrigation systems that could improve water efficiency and change how food is moved from farm to table.

The Panel concluded that the power of these ICTs can be unleashed through open data policies and by improving connectivity. Open data can foster collaboration that can lead to the development of transformative solutions. Fast and reliable access to broadband networks is fundamental to all opportunities and will help to maintain Canada's competitiveness with other advanced economies.

"This forward-looking report highlights a range of technological opportunities, applications, and practices from Canada and around the world," said Elizabeth Dowdeswell, President of the Council of Canadian Academies. "In addition, it offers insights about building an interconnected and sustainable future."

This report comes at the request of Environment Canada, which asked the Council to assemble a multidisciplinary [expert panel](#) to assess the

existing or potential opportunities for ICTs to contribute to a "greener" Canada. The Panel focused on a three-pillared concept of sustainability, which encompasses economic, social, and environmental benefits.

Provided by Council of Canadian Academies

Citation: Seizing on the potential of new technologies can move Canada toward a sustainable future (2014, June 17) retrieved 27 April 2024 from <https://phys.org/news/2014-06-seizing-potential-technologies-canada-sustainable.html>

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