


“Standing on the Shoulders of Digital Giants”
NII International Symposium
December 18-19, 2006 • Tokyo, Japan



Digital Content as Research Infrastructure: a View from Canada

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From light bulb to national electricity grid

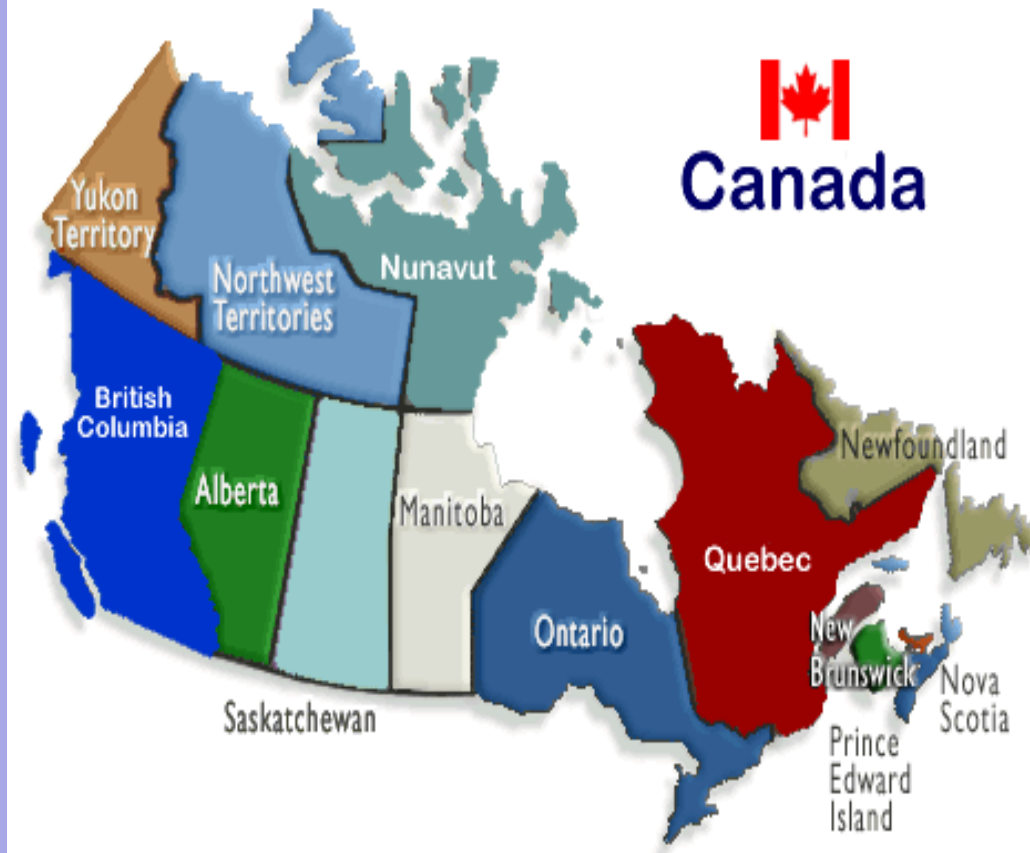


- Thomas Edison invented the incandescent light bulb in 1879
- BUT - it took another 50 years to harness the power of indoor electricity
- Innovation needs infrastructure
 - Creation of national electricity grid
 - Industry to generate electricity, and to manage and repair the grid

Cyber-infrastructure to harness digital innovation

- We are facing the same challenge in the digital age
- Bringing digital innovation to a broad public requires infrastructure
 - Technology
 - Policy
 - Cross-program, multi-year, collaborative funding investment

Canada: a nation of regions



- Population: 32 million
- 3 levels of government
- No national funding authority for education
- Federal research granting councils
- Federal agenda for innovation and commercialization

Higher Education in Canada

- University community nation-wide:
 - Less than 100 universities
 - ~ 800,000 professors & students
- Strong tradition of resource sharing among university libraries
 - overcome the “tyranny of distance”
 - make scarce resources go farther
 - **seize new opportunities through new enterprises**

Library Consortia in Canada

- Development of local, provincial, regional, multi-regional consortia
- Response to scalability challenges
- Focus on electronic resources
 - Discovery, requesting, delivery
 - Content licensing
 - Maintain institutional mission and processes

Canadian Research Knowledge Network (CRKN)

- Not-for-profit corporation, and a partnership of 72 Canadian universities
- A voice within the national agenda
 - research content *IS* infrastructure
 - equitable access to research content is essential public policy
 - libraries are central to a thriving knowledge-based society

CRKN Mission

To enable interdisciplinary and innovative research in Canada

- through systematic, coordinated and national access to the best of global knowledge
- through coordinated leadership of university librarians, researchers, and administrators

CRKN Objectives

- Expand the research content available to researchers nation-wide
- Speed transition to digital materials & value-added forms of content, and maximize its value through networked access
- Leverage the buying power and influence of Canadian universities

Digital Content Infrastructure...

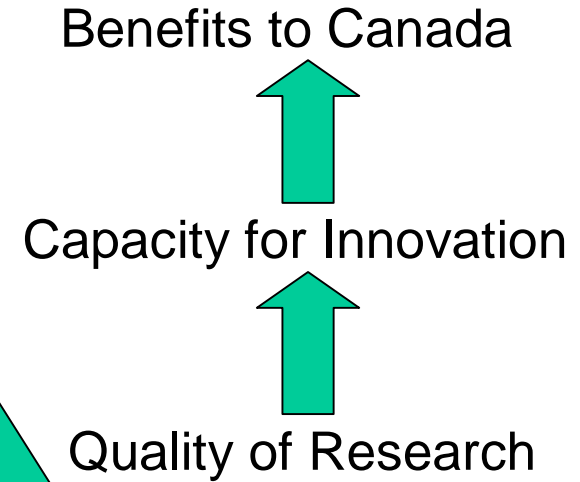
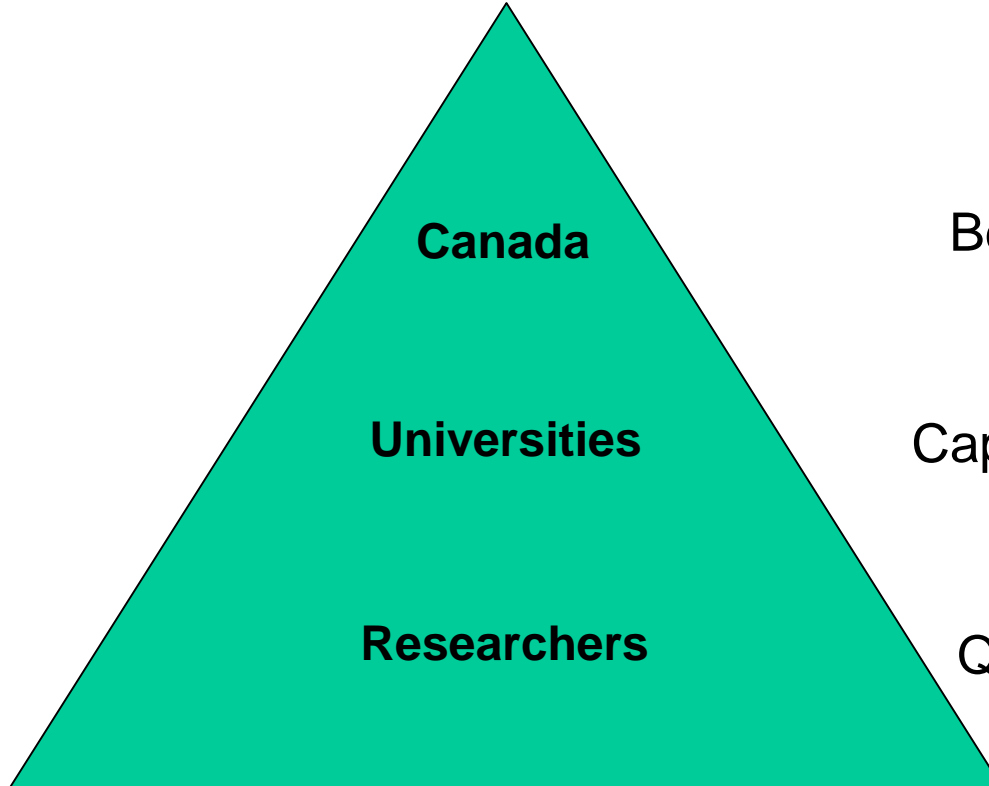
- provides pan-Canadian and equitable access to a critical mass of digital content from international sources
- reduces research barriers caused by existing institutional, regional and disciplinary disparities
- stimulates development of
 - new methods of inquiry
 - new interactive structures for conducting research and creating knowledge
 - collaborative research communities

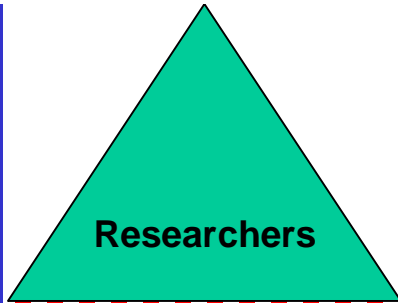
Content Licensing

- Content as Infrastructure
 - Public good, public value
 - Equitable, addresses disparities
 - Primary goal is capacity-building, enabler
 - Requires multi-year commitments
 - Requires ongoing investments
 - Return on investment is in the community served
- Initially funded in part by the Canada Foundation for Innovation
- Now university-funded: annual expenditures are CDN \$50 million

CRKN Impact

CRKN / RCDR





Quality of Research

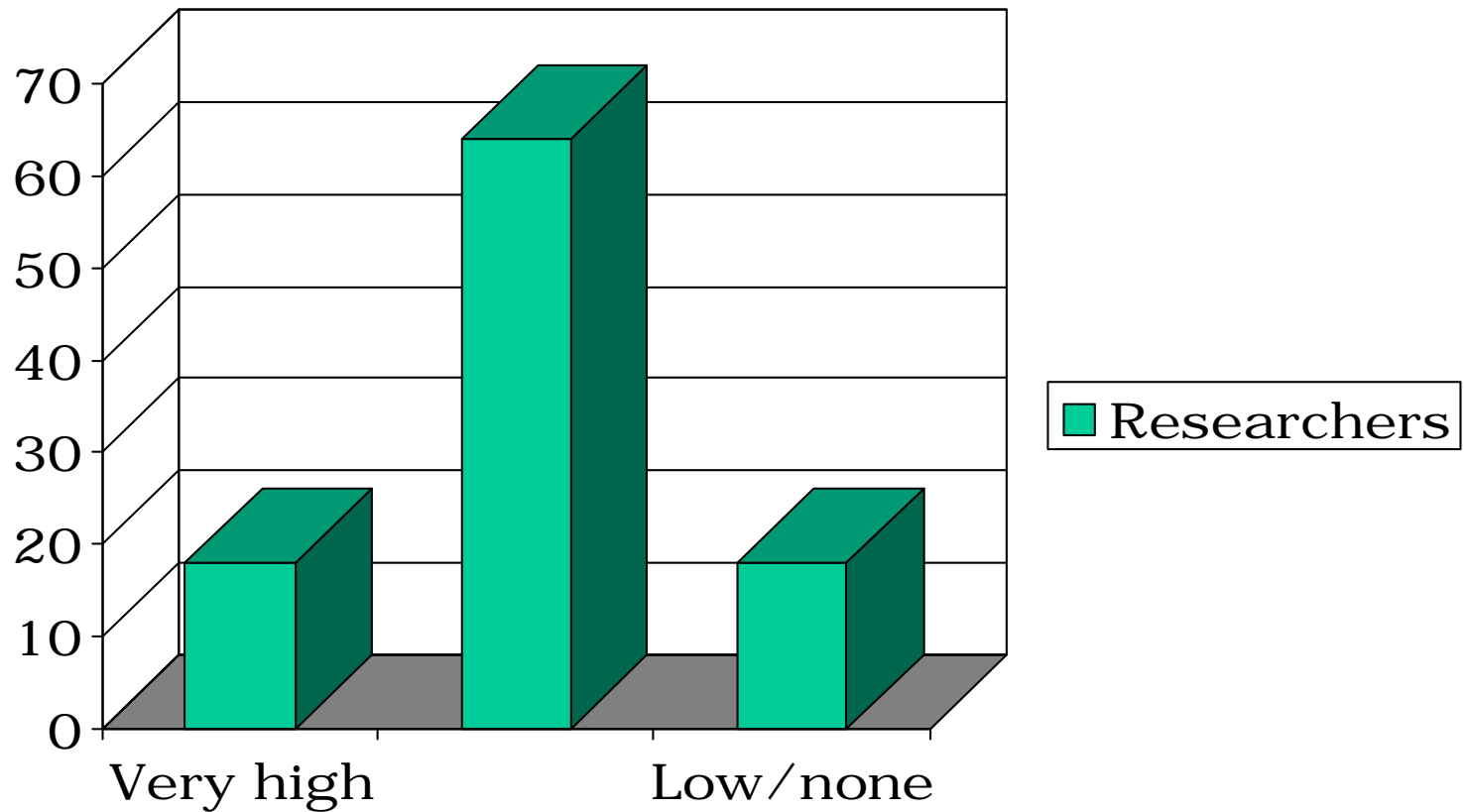
- Enhanced research productivity
- Supported new collaborative initiatives
- Stimulated inter-, trans-, and multi-disciplinary approaches

Accelerated Use of Digital Formats by Researchers

	Paper	Digital
2001	70%	31%
2003	35%	65%

Impact on Conducting Research

CRKN / RCDR



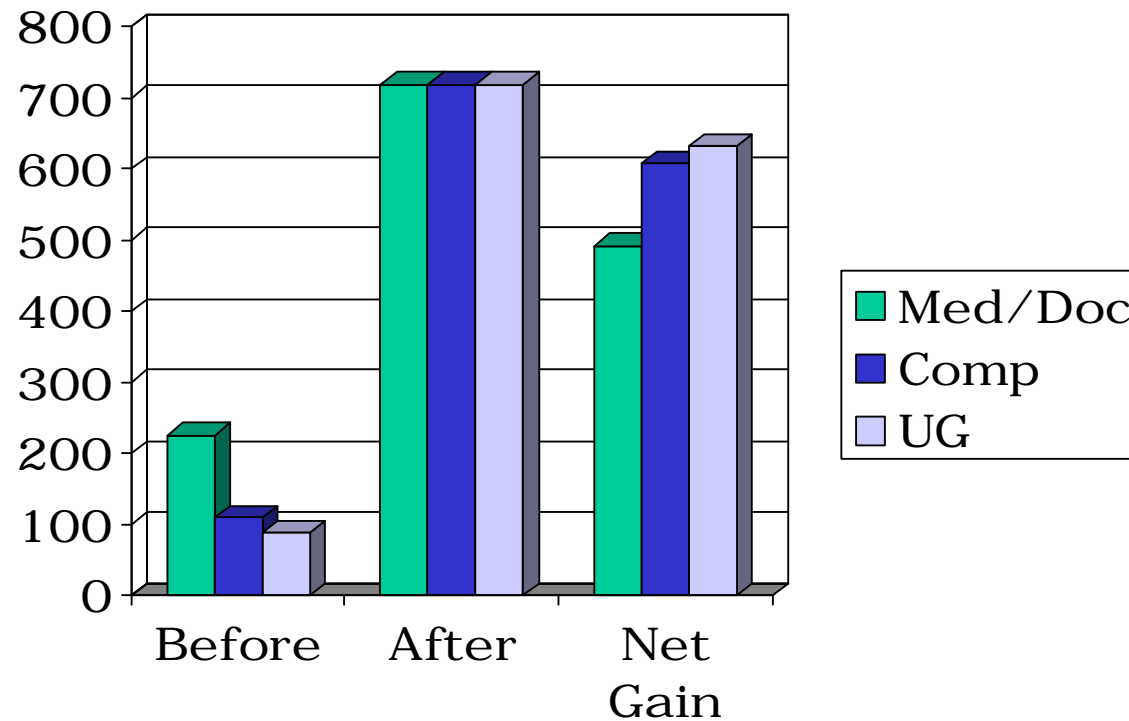


Universities

National Capacity for Innovation

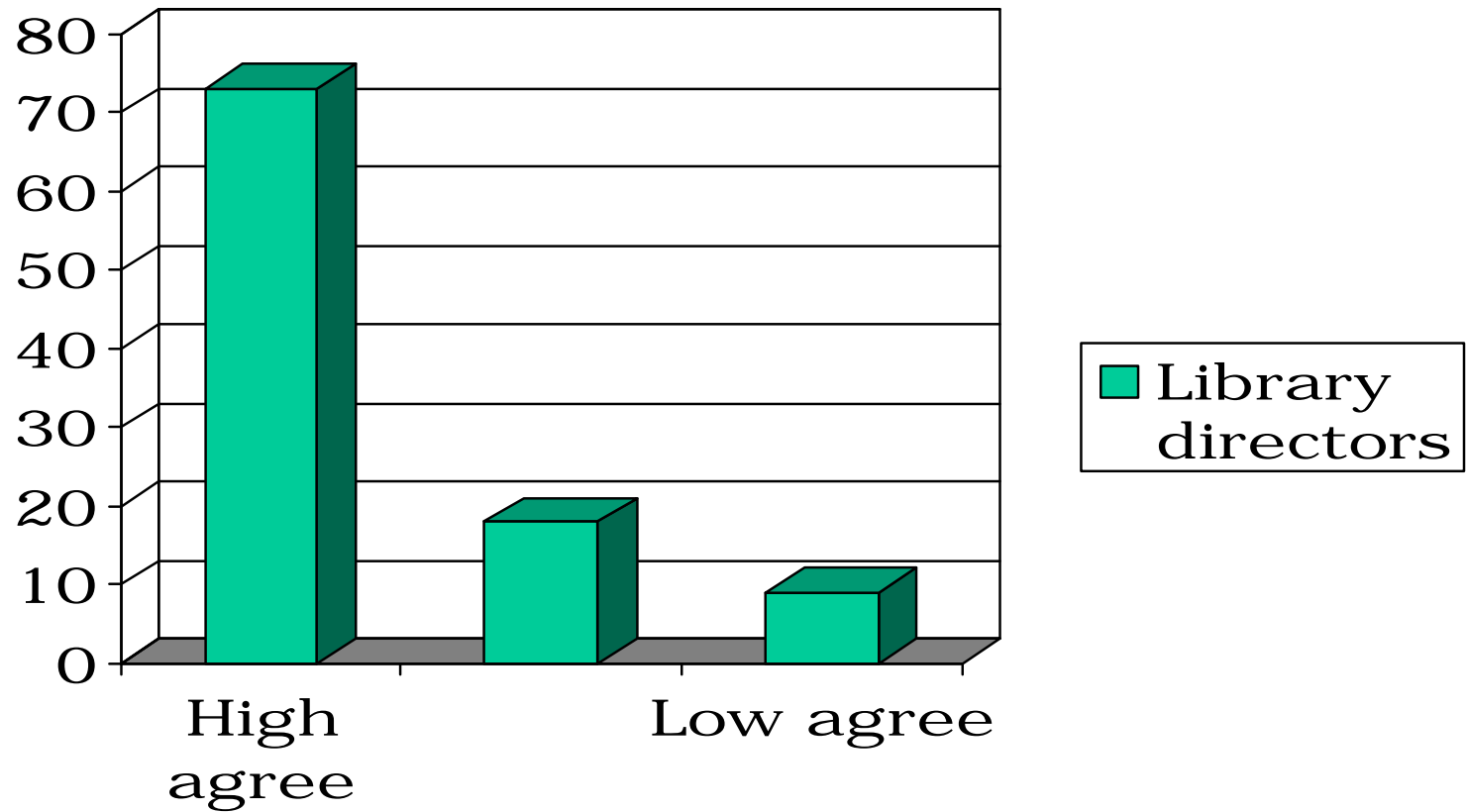
- Fostered aggressive recruitment of top researchers and graduate student
- Fostered accelerated research –support of “Canada Research Chairs” at small and large universities
- Served as a cornerstone for other research initiatives
- Reversed trend of content loss and leveraged university investments toward expanded resources
- Demonstrated scalability and sustainability

Increased equity of access for researchers



Accelerated E-journal Adoption

CRKN / RCDR



Canada

Benefits to Canada

- Builds on the existing strengths of the Canadian university system
- Contributes to Canada's innovation and knowledge mobilization strategies
- Expands Canada's ability to address world problems

Strategies for success

- Move from “problem-driven” to “vision-driven”
 - problems = catalyst ; vision = commitment
 - seek broad agendas
 - build agreement on big issues
- Focus on collaboration, not merely cooperation
 - look beyond institutional self-interest
 - extend reach & impact, not cut costs
 - define relationships & build trust through pilot projects
 - build interdependence

Strategies for success (cont.)

- Build consensus
 - agree on process for decision making
 - value disagreements
 - use small groups to mobilize large group
 - articulate agreement / decisions often
- Pay attention to accountability
 - “goodness” is not self-evident; good ideas fail every day
 - demonstrate return on investment

Strategies for success (cont.)

- Risk reduction is good for all parties
 - encourages movement / innovation
 - allows shift in business practices
- Be aware of unintended consequences
 - e.g. empowerment vs. disenfranchisement
 - be careful what you ask for...
 - no single answer: adopt complementary strategies, experiment, build alliances

Where to from here?

- Large-scale integration of library and information technology initiatives
 - Federated identity management and authentication systems
 - Integration with course management systems
 - Development of tools and services layers
- Open Access
 - We know how to make investment decisions as consumers
 - We need tools and policies for better due diligence as investors
- Large-scale curation of science data

Thank you

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