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Imagining Canada's Future - 2030

DRAFT

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Overview

- Introduction: task, approach & methods, report & assumptions
- 1. What changes will shape the wider context
- 2. What challenges & consequences may emerge
- 3. What priorities might emerge for effective responses

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Aims & process: our task from SSHRC

- To identify new trends & emerging drivers of change & their significance or prospective impacts generally & for the social sciences & humanities research community
- To identify potential challenges to which SSH research community can contribute to inform, shape & prepare society
- Cast a 360° net – across cultural & intellectual; technological; economic; ecological; political & social contexts

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Aims & process: our approach & methods

- Review of ST Horizon Scanning system
  - 3500 trends
  - 70,000 insights
  - Initial set of 200+ trends across the 360° framework
- Clustered these to create
  - Major drivers & emerging trends
  - All of which had significant disruptive potential
- Wider internet searches
  - Blogs
  - National/international foresight sources
- Longer- & shorter-term trends & wide-ranging outcomes between now & 2030

Aims & process: our approach & methods

Internal website:
- ~ 350 indicators of change every week
- From contributors worldwide
- Across PESTLE (political, economic, social, technology, lifestyle, environment) framework
- Identify patterns & critical changes in the external environment.

Trend analysis:
- Use foresight tools & professional judgement
- Review & select potential trends with greatest impact on the potential challenges facing Canada & to which social science & humanities research could contribute.

Wider internet search for published materials
- Other sources & reports to illustrate the areas of change
- Indicate responses to them
- Inputs & suggestions from SSHRC.

Aims & process: the report/1

- To highlight areas of uncertainty or rising tension, where SSH community could make significant contribution

- Looking out to 2030
  - High level of uncertainty about direction changes may take & the nature of challenges that may arise.

- An outside-in perspective using a PESTLE Framework

- Not comprehensive
  - Wide-ranging look at longer-term changes
  - Some truly global
  - Others narrower & less known, but significant.

Aims & process: the report/2

- Ten high level areas of changes
  - Additional 15 subsets of change
  - Each significant in their own right
  - Co-occurrence & interactions with other trends also create challenges.

- Twelve overarching potential future challenges over next 20 years
  - "What if", what could, not what will definitely happen.
  - Additional 14 sub-challenges

- Ten examples of potential responses
  - Designed to encourage new thinking
  - Bring together different disciplines, varied inputs & research.

Assumptions

1. Canada will be affected by & face significant impacts from global economic uncertainty, resource supply & climate change pressures – among other global issues.

2. Population growth will continue but primarily from immigration in Canada; & globally it will slow. Canadian diversity will grow.

3. The economic shift to China & other emerging economies will continue, but that economic & political uncertainty could increase as 'rules change' & especially if growth falters in key countries – such as China.

4. Economic uncertainty will continue for some years. Western economies will face growing challenges.

5. Climate change will continue, the Northwest Passage / Arctic regions of Canada are likely to see significant environmental change.

6. Resource pressures will continue, & will encourage innovation & new solutions, but also increase pressures on Canada 'to provide'.

7. Transparency – voluntary or forced – & open access to data will continue to increase.

8. Connectivity & embedded intelligence / distributed computing will grow, providing real-time information, & remote access to services & support.

9. The cumulative results of scientific & technological developments will continue to push the boundaries of the possible – raising issues around privacy, identity, nature versus nurture – & so forth.

10. Ethical issues & public debates about issues & solutions, options & approaches will become increasingly complex as new technologies, such as neurosciences as well as global issues such as climate change, have greater impact, & growing population/ ethnic diversity within Canada creates greater cultural & values diversity.
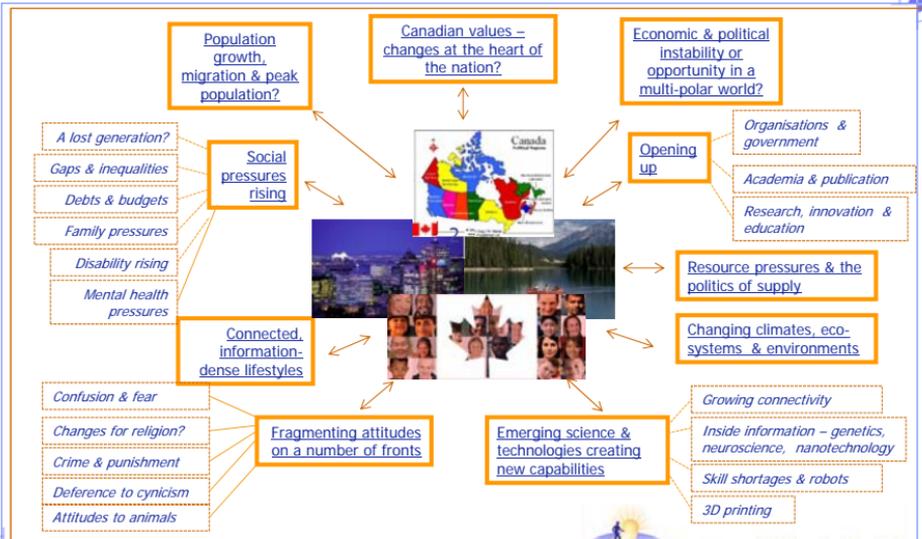
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2030 - From changes to challenges to responses: Canada in a new world order

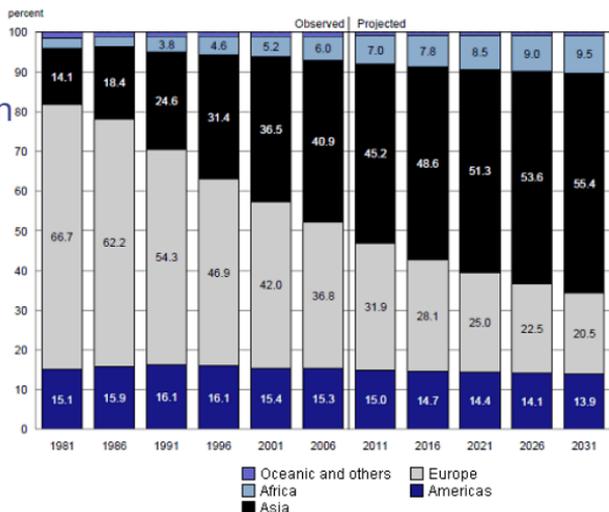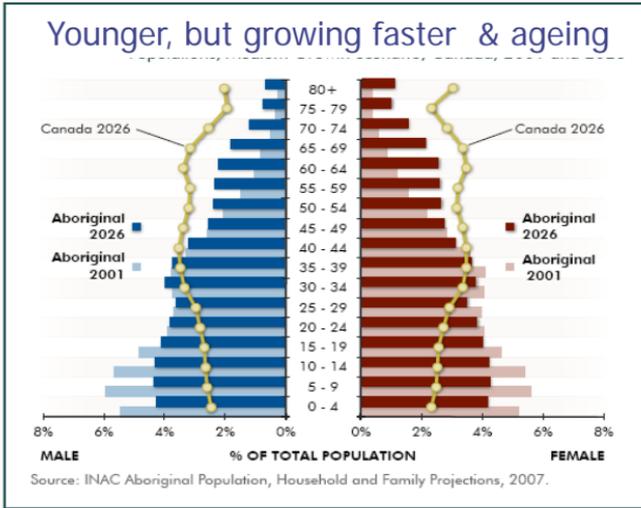| 1. What changes will shape the wider context?	2. What challenges & consequences may emerge?		3. What priorities might emerge for effective responses?
1.1 Population growth, migration & peak population?	2.1 Impacts of peak population?	2030	3.1 Personalisation on every level
1.2 Canadian values – changes at the heart of the nation?	2.2 Balancing personal choice & wider consequences		3.2 New approaches to behaviour change
1.3 Economic & political instability or opportunity in a multi-polar world?	2.3 The benefits & ethics of new developments		3.3 New forms of public engagement
1.4 Opening up	2.4 Radical transparency		3.4 Integrating a foresight focus
1.5 Resource pressures & the politics of supply	2.5 Redefining education & research		3.5 Enabling resilience of systems, communities, individuals
1.6 Changing climates, eco-systems & environments	2.6 Managing complexity		3.6 Culture change for open systems
1.7 Connected, information-dense lifestyles	2.7 Be prepared: extreme events coming soon		3.7 Living with multi-layered realities
1.8 Fragmenting attitudes on a number of fronts	2.8 Identity & multi-layered reality		3.8 Boundaries of rights, responsibilities & controls
1.9 Emerging science & technologies creating new capabilities	2.9 Whose morality, ethics, & culture?		3.9 New metrics & organisational theory
1.10 Social pressures rising	2.10 Sustainability: how to get there?		3.10 From education to learning system
	2.11 Low growth economy & jobs		
	2.12 Flashpoints rising: Acknowledging the dark side	2015	

1.0 What changes will shape the wider context

A complex web of changes

Population growth, migration & peak population?

Canadian values – changes at the heart of the nation?

Economic & political instability or opportunity in a multi-polar world?

A lost generation?
Gaps & inequalities
Debts & budgets
Family pressures
Disability rising
Mental health pressures

Social pressures rising

Opening up

Organisations & government
Academia & publication
Research, innovation & education

Resource pressures & the politics of supply

Connected, information-dense lifestyles

Changing climates, eco-systems & environments

Confusion & fear
Changes for religion?
Crime & punishment
Deference to cynicism
Attitudes to animals

Fragmenting attitudes on a number of fronts

Emerging science & technologies creating new capabilities

Growing connectivity
Inside information – genetics, neuroscience, nanotechnology
Skill shortages & robots
3D printing

Canada's population growing, ageing & changing

- Global population will reach 8 billion by 2025
- Canada's population will reach 40m by 2026; the over 80s 2.1 m
- Growth is primarily from immigration; countries of origin are increasingly Asian & African, not European
- Aboriginal population is younger, but ageing fast but still facing challenges.

The Canadian population – 2031

Changing patterns of immigration

Distribution of the foreign-born population by continent of birth, Canada 1981 – 2031

Aboriginal population

Younger, but growing faster & ageing

Populations, Medium Growth scenario, Canada, 2001 and 2026

Canada 2026 · Canada 2026
Aboriginal 2026 · Aboriginal 2026
Aboriginal 2001 · Aboriginal 2001

Age groups: 80+, 75 - 79, 70 - 74, 65 - 69, 60 - 64, 55 - 59, 50 - 54, 45 - 49, 40 - 44, 35 - 39, 30 - 34, 25 - 29, 20 - 24, 15 - 19, 10 - 14, 5 - 9, 0 - 4

8% 6% 4% 2% 0% | 0% 2% 4% 6% 8%
MALE · % OF TOTAL POPULATION · FEMALE

Source: INAC Aboriginal Population, Household and Family Projections, 2007.

Canadian values & culture

- Surveys show consistency & cohesion over time
- New fault lines may be emerging
- A 'more socially conservative' & less tolerant tendency?
- Growing divergence on climate change & what to do about it
- Younger generations are bringing different approaches to life & work.

Beware: Canadian Values Practiced Here!

We treat everyone equally - regardless of sexual orientation, gender identity, race, ethnic origin, colour, religion, age, sex, marital status, disability, ...

Changing structures in a multi-polar world

- Increasing economic fragility in the west plus growing economic strength & political confidence in emerging market countries is changing the balance of power
- Social / political tensions remain high & are growing
- The need for new approaches to global negotiations & organisations could provide Canada with a new role.

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Climate change & resource pressures rising
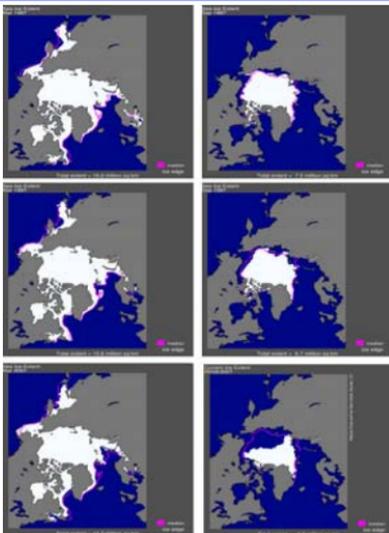
- Arctic ice is reducing; the Northwest Passage is opening
- Supplies of water, oil & other resources are under increasing pressure
- China is restricting supply of many critical clean tech/ ICT minerals
- Canada may face increasing demand to develop its rich resources.

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2.0 What challenges & consequences may emerge

2.1 Impacts of peak population

- Global fertility rates could fall below replacement levels by 2030
- Population growth will be slow, & be from longevity, not fertility
- Global population could 'peak' at 9 billion, as early as 2045
- Migration & immigration could fall
- Canada may be an attractive destination; or face significant shortfalls
- The challenge of growing diversity & realigning 'Canadian' values could grow.
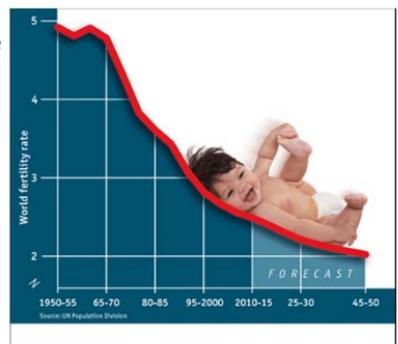
2.2 Balancing personal choice & wider consequences

- Could we see the end of consumer-led growth as we know it?
- Are we seeing the emergence of a new capitalism?

- From 'cure me' to personal responsibility in health care?
- If pollution or the economy are seen as the cause of health problems, may governments be held responsible?
- New approaches needed to balance personal choices & ecological sustainability
- Personalisation could challenge the boundaries of privacy, require new organisational structures & new metrics

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2.3 The benefits & ethics of new developments

- New sciences & technologies can work inside, extend, design, enhance, & alter humans & animals to solve problems: where do the boundaries of those benefits lie?

- Enhancing humans – when does curing an impairment become improvement?
- As robots & machines become more intelligent, where do the boundaries of responsibility lie?
- As more is known about animal intelligence & animal & human genetic similarities, our perceptions of animals are changing. What should our relationship with them be?
- What new forms of public engagement & metrics can we develop to conduct informed debates around complex issues?

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2.4 Radical transparency

- Increasingly personal data will be accessible
- Levels of connectivity will increase cyber-vulnerability of 'soft' or 'easy' targets
- How to balance security, personalisation & access?
- By 2020, 50 billion devices will be capable of communicating
- New forms of open collaboration, open innovation & big data, plus connectivity will create radical transparency
- Could intelligent implants bring identity theft inside humans?
- Could data activists 'liberate' sensitive research data?
- Who owns MY personal data?

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2.5 Redefining education & research

- Neurosciences are helping us understand the brain, thinking & learning styles
- The new generations are used to more interactive worlds & experiences
- Multi-layered realities change how we do almost everything
- Economic & skill pressures to maximise effectiveness of education resources
- Leading global players' resources available free online
- Citizen/open science is changing the rules

- How can education systems change from 'one size fits all', to genuine personalised learning based on differentiated needs?
- How will academic research adapt & respond?

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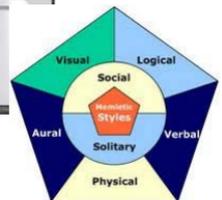
# 2.6 Managing the complexity of a self-organising world
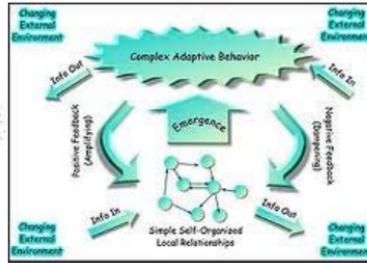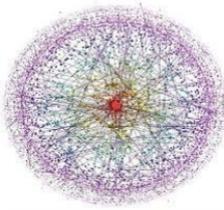
- Levels of social, political, & organisational complexity are growing
- Complexity theory is being applied to organisations, cities & policy
- Moving from a top-down control to bottom-up self-organising world
- Biomimetics is moving from innovation to organisational theory

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2.7 Be prepared: extreme events coming soon
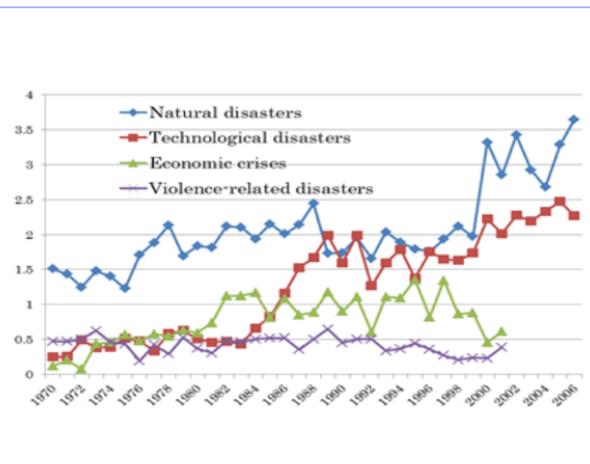
- Extreme events are unknowable, but must be considered
- Many are systemic or cumulative in nature
- What new behaviours will help recognise the likelihood of & enable resilience to survive such events?
- How can new approaches to resilience at local & individual levels improve preparedness for the 'unimaginable'?

2.8 Identity & multi-layered realities

- Layers of reality & digital technology can create experiences in 2D, 3D, 4D ….

- To what extent do online identity & actions segue into & change behaviours in the real world?

- What is real & what is not may be increasingly difficult to distinguish

2.9 Whose morality, ethics and culture?

- In a more diverse society, whose ethics & morals & culture apply?

- Many point to the unethical behaviour of the finance sector

- Organised religion - not necessarily seen as the arbiter of morality

- There may be signs of increasingly relative values in terms of right & wrong in society

2.10 Sustainability: how to get there from here?

- Cities integrate almost all the challenges – & possible solutions

- Vertical farming (green roofs)

- Redefining 'public transport' & shared ownership

- Remote access substitutes for work, care, socialising

- Smart surroundings to monitor, inform, prompt advise

- Underground cities to survive in remote areas?

2.11 Coping with a low growth economy & changing work

- Lost generations, haves & have nots, social gaps around skills & jobs
- Skills shortages, off-shoring, on-shoring & immigration as talent wars continue
- Robots as colleagues & automation – middle level jobs disappearing?
- Lifestyle, prevention, care & support – rising need & demand
- Design & personalisation – to enable effective innovation
- Multi-disciplinary skills & roles – as boundaries & definitions blur
- Redefinition of work & employment – new forms of contribution

- Extreme events happen
- The flashpoints which could trigger serious economic decline are numerous & wide-ranging:
  - Arctic & ocean exploitation
  - North Africa & the Middle East
  - Emerging nations
  - Terrorism
  - Natural events
  - Economic & political shifts, etc.

- How well prepared & how durable are social structures? How thin is the veneer of civilisation?

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3.0 What priorities might emerge for effective responses

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Possible responses needed

- Genuinely **person-centred** goods & services using emerging technologies.

- Innovative approaches to encourage the **behaviour change** on many levels – individual, organisational, civil servant, professions.

- New forms of **public engagement** to manage effective public debates to explore increasingly complex issues & the necessary trade-offs.

- **Foresight in government** to develop organisational awareness of & the agility to act on emerging trends & changes.

- New forms of **resilience &** recognising the **social & technological complexities** that can result in catastrophic systems failure/extreme events.

- New **organisational theories** to enable open government, organisational cultures of co-creation & collaboration, cross-government working & holistic policy making.

- Fully understanding the impacts & potential of the **new blended/multi-layered** realities & the blurred boundaries between humans & machines.

- As systems & supply chains become ever more complex, so regulators need new approaches to **simplify & verify regulation**.

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Forecasts: 2025 how those responses might develop

- **3.1 Personalisation**
  - Biological sciences making personalised medicine the norm; new layers of intervention & understanding in health; always on internet of things & other technologies enable person-centred innovation.

- **3.2 Encouraging individual behaviour changes**
  - Ability to see vulnerabilities, 'experience future realities' of self & community etc., plus other approaches encourages recognition & behaviour change.

- **3.3 Public engagement & debate**
  - New experiential approaches to understanding consequences & outcomes; new metrics for understanding trade-offs.

- **3.4 Foresight & organisational agility**
  - Scanning & foresight supported by automated content analysis tools, implemented at all staff levels/ external stakeholders.

- **3.5 New resilience models**
  - A shift to personal responsibility & prevention in health enables a wider move to new approaches to personal & social resilience; enhanced by more robust identification & warning systems.

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3.6 Open government

- The nature of many issues facing governments requires both global collaboration & local engagement; trust & openness become essential components.

3.7 Potential of multi-layered realities

- Growing quality of remote interaction enables radically different approaches to work, service provision & leisure; younger generations driving implementation.

3.8 Redefining regulation

- Greater transparency & visibility, corporate quality controls & social responsibility redefining who leads/who follows; tough enforcement engages stakeholders.

3.9 Cross-government policy making

- Proactive strategic foresight underpins cross-government, inter-departmental thinking & regulation – moving towards genuine systems thinking.

3.10 From an education system to a learning system

- Greater understanding of learning styles & integration with other technologies, enhanced by automatic language translation - personalised learning emerging.

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Thank you

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