Whither innovation?
Moving beyond the buzzword

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Big Thinking Lecture
The HUB, Ottawa
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1. What is innovation and why should it concern policy-makers?
2. How has innovation been conceptualized in policy?
3. What is the problem with this conceptualization?
4. **Is Canada good or bad at innovation?**
5. Do existing innovation policies work?
6. Why is it important for Canada to think about innovation policy in a different way?
7. What needs to be done?

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DISCUSSION PAPER
INNOVATION
March 2012

Looking at Innovation from a Uniquely Canadian Perspective

The Case for a New Alliance of Practice, Policy and Scholarship

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Today's talk

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INNOVATION
DECALOGUE
October 2013

Canada's Future as an Innovative Society

A Decalogue of Policy Criteria

~ Endorsement Edition ~

This document is the highly condensed version of the Crowdsourcing Edition that remains available in full at www.decalogue.ca

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The conventional wisdom…

- Innovation is about technology
- More science yields more technology
- More R&D yields more innovation
- More innovation yields higher growth, productivity and employment

Therefore:

- **The policy problem becomes how to stimulate innovation and entrepreneurship**

The “Canada Syndrome”…

Structural dimensions:

- ☑ High levels of knowledge and skills, but low levels of translation
- ☑ Lots of profitable businesses, but low investment in R&D
- ☑ Lots of money, but little capital for new ventures

The “Canada Syndrome”…

Cultural dimensions:

- not entrepreneurial
- risk averse
- lack of ingenuity

?

The "Canadian" solution…

- Subsidize industry R&D
- Import more knowledge producers
- Invest in research infrastructure
- Commercialize more university research
- Start more hi-tech companies
- Import more capital
- Import risk takers and entrepreneurs

The embarrassing result…

None of the measures we adopt appear to be having any effect

What’s the big idea?

The root of the problem…

Our policies and measures have become completely detached from what is known about innovation and how it creates wealth

The policy issue is not how to stimulate innovation and entrepreneurship

The policy issue is how to create prosperity from innovation and entrepreneurship

What is innovation?

A ***socio-economic outcome***, not an input or artifact

A ***new combination*** of factors that creates a new source of public welfare

A ***qualitative*** change: not in how much is produced, but in what is produced and how

Generates growth by ***displacing*** existing sources of value with new sources of value – "creative destruction"

What is R&D?

"…creative work undertaken on a systematic basis in order to increase the stock of knowledge, ***including knowledge of man*** *(sic)****, culture and society****, and the use of this stock of knowledge to devise new applications."*

[OECD Frascati Manual for R&D Statistics (2006)]

R&D and innovation?

- R&D is ***not innovation***
- R&D is only one of many possible ***INPUTS*** to innovation
- More firms innovate than perform R&D
- R&D can also be a disincentive to investment
- R&D is highly ***concentrated***
  - Fewer than a dozen sectors are R&D intensive (re-investing > 3% of revenues in R&D)
  - About 800 ***large*** firms worldwide perform roughly 80% of global R&D (by investment)
  - In Canada ca 75 companies perform ca 50% of R&D

Successful R&D combines many knowledge streams

Market knowledge:

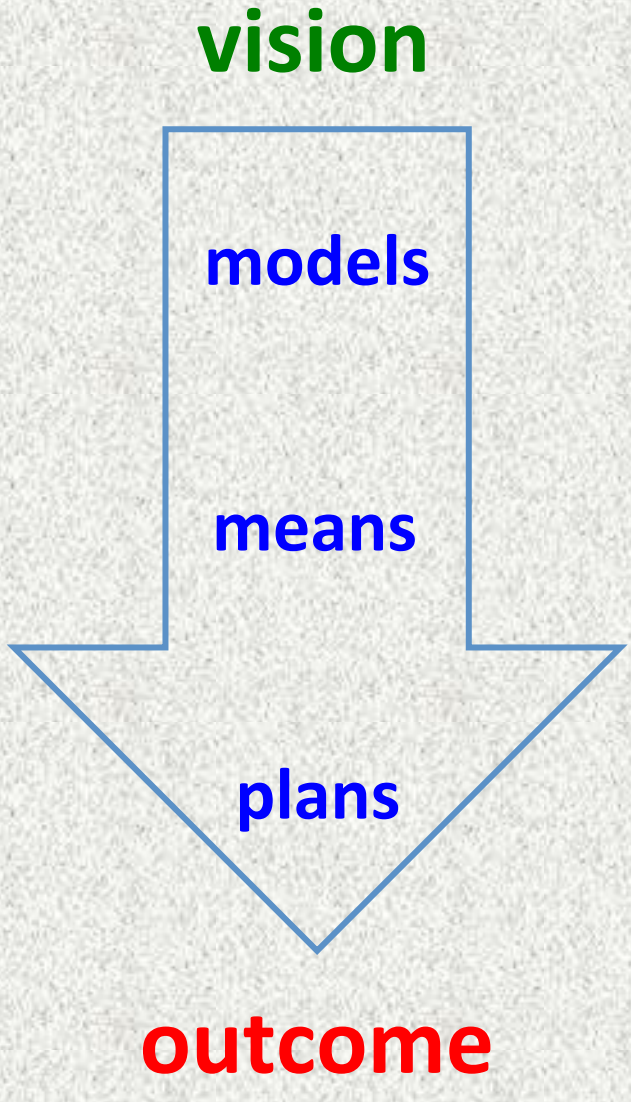
- customers
- competitors
- suppliers
- networks
- social, political and economic trends

Technical knowledge:

- engineering
- science
- production

Organizational knowledge:

- finance
- management
- procurement



Innovation *policy*?

Historically in the OECD region, *Innovation Policy* has been *Technology Policy:*

- Innovation defined narrowly in terms of ***technical change***
- Policies aimed at producing and applying ***more technology***

What's wrong with this approach?

- There is ***no shortage*** of technology
- Innovation involves ***much more than technology***
- Focuses public resources on ***"technology producer goods"***
- ***Runs high risk of deflecting public resources from crucial innovation opportunities***

Three essential concepts from the science on innovation:

1. Learning
2. System
3. History

1. Learning

FOUR BASIC TRUTHS ABOUT ENTREPRENEURSHIP AND INNOVATION:

They are *norms*, not exceptions

They *do not* create prosperity automatically

Societies become prosperous only if they *learn how to transform* them into public welfare

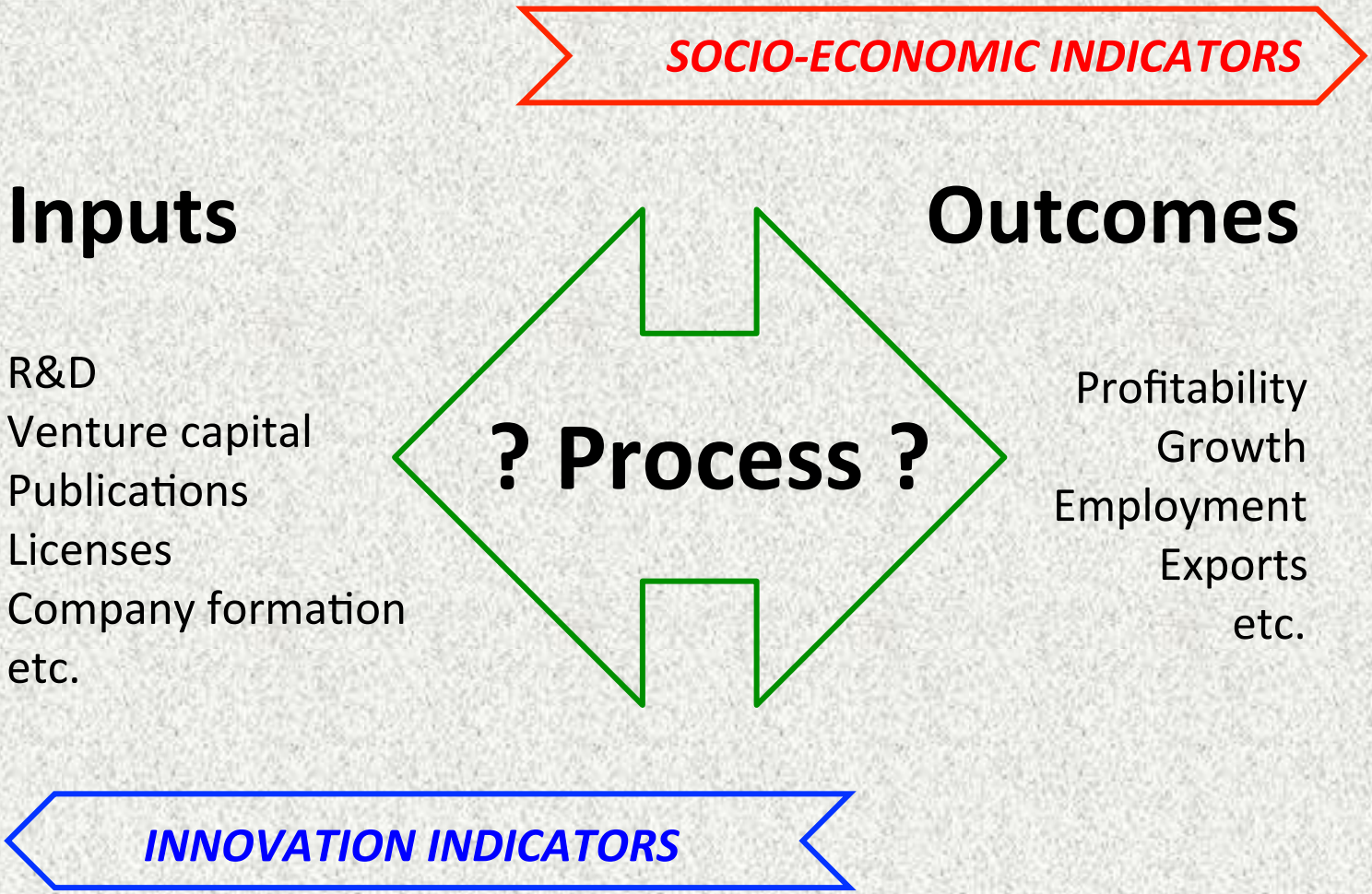
Societies sustain and increase prosperity only if they *continue* to learn as circumstances evolve

Ground zero for learning about innovation in Canada

- Our economy is driven by ***capital-intensive*** industries (resources and financial services)
- We are both a ***resource-based*** economy **and** a ***knowledge-based*** economy
- Our ***resource sectors*** are also among our most ***S&T intensive*** sectors

Very little of this is reflected in conventional approaches to assessing national innovation performance

The knowledge gap



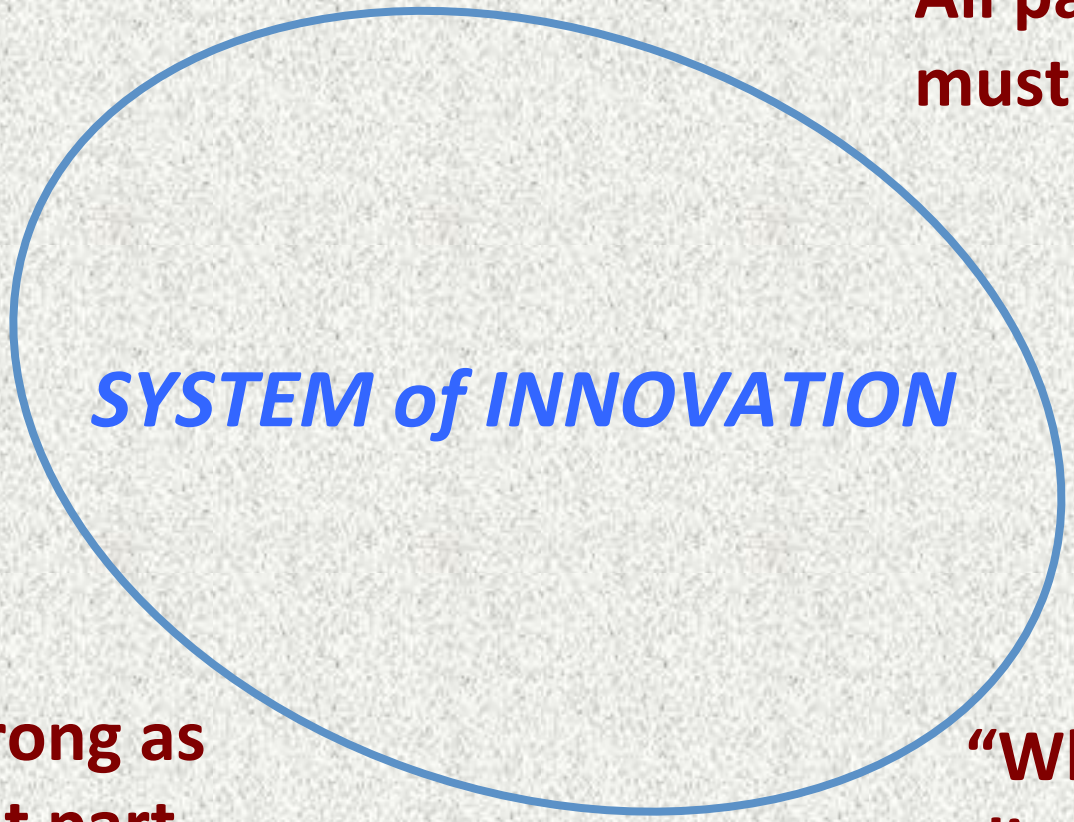
So how do we get numbers that reflect Canada's innovation realities?

2. System

Innovation is a process not an artifact

All parts are important

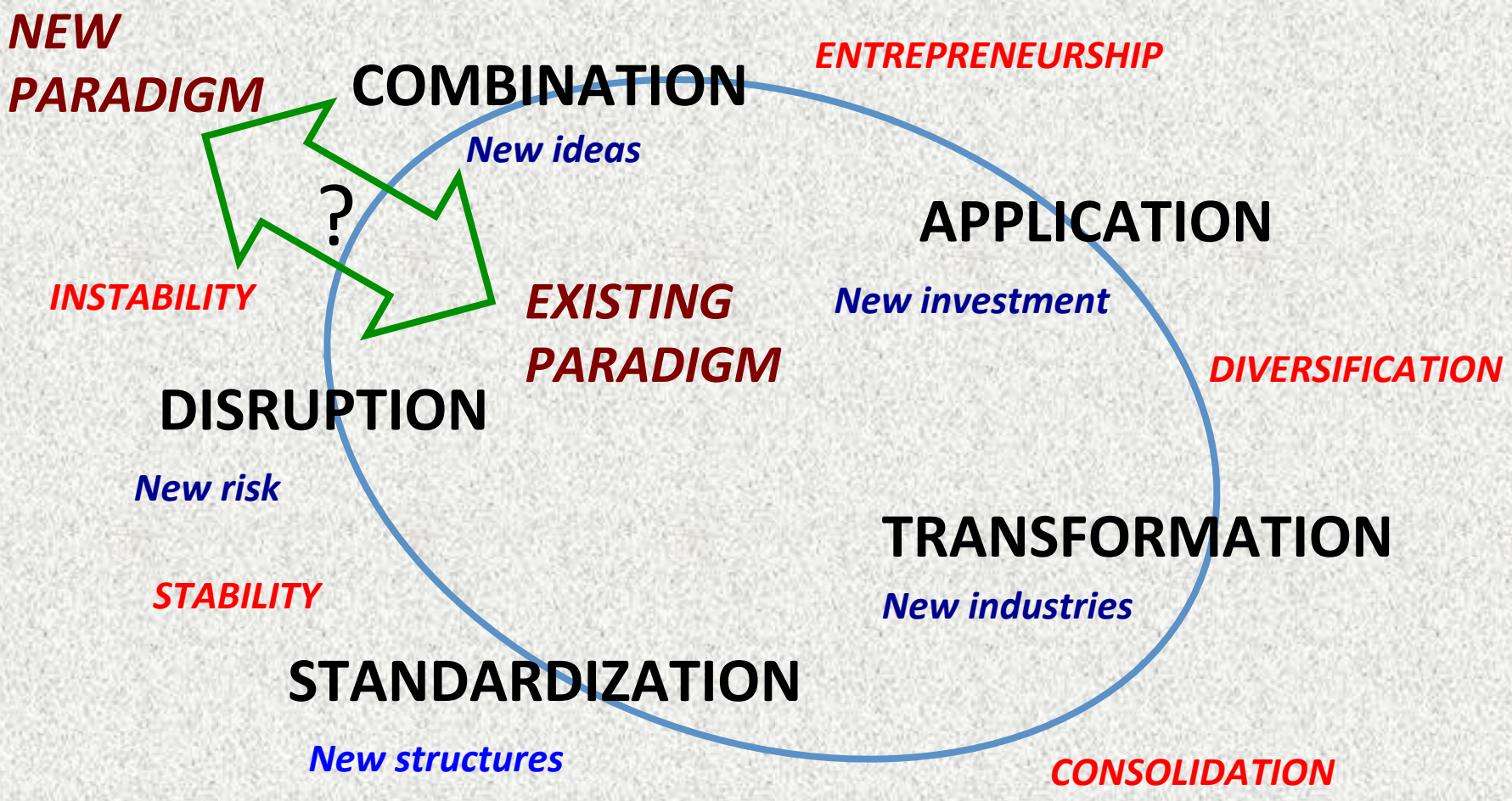
All parts must function



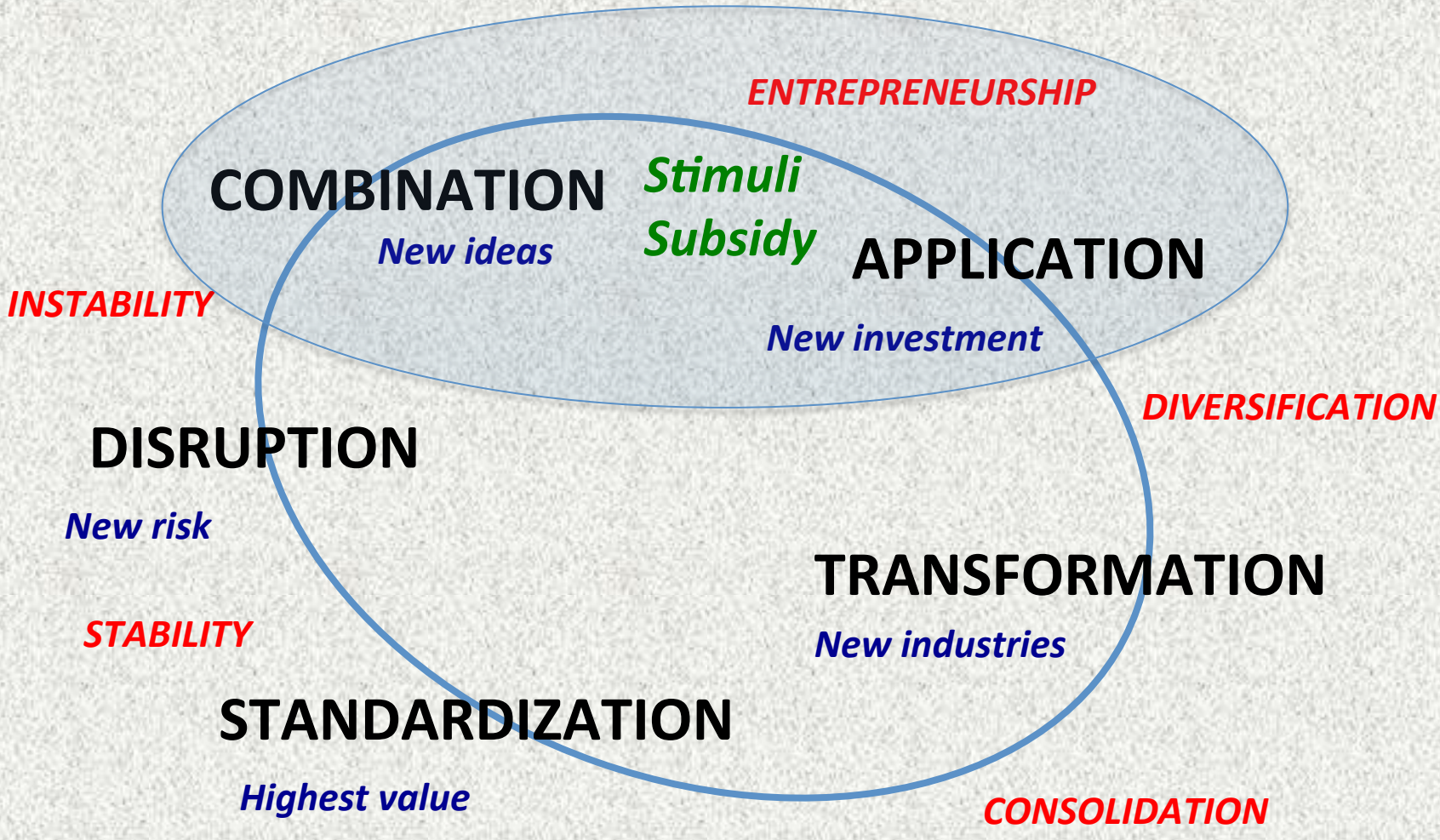
Only as strong as its weakest part

"Whole system" diagnostics

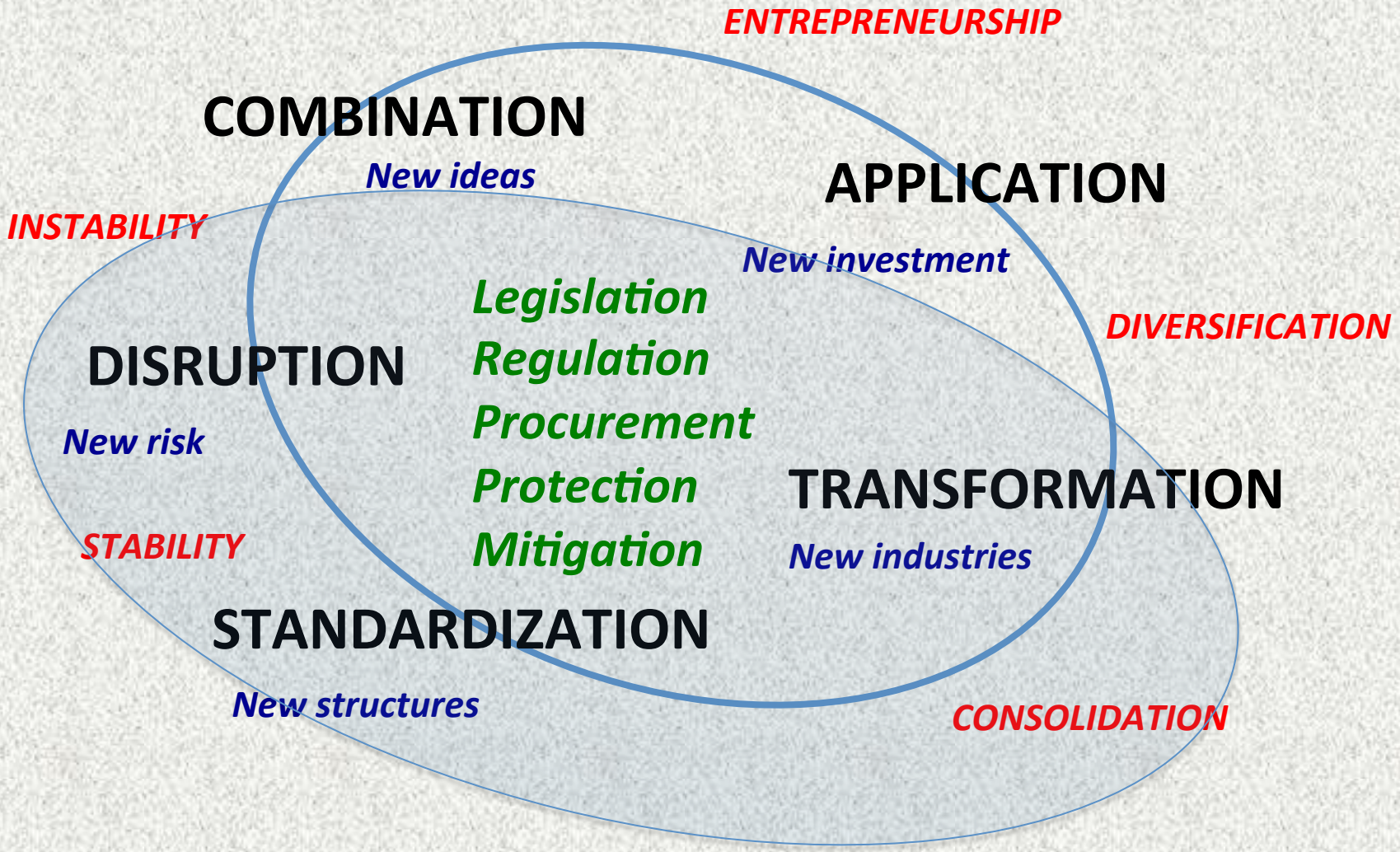
Innovation is a complex system



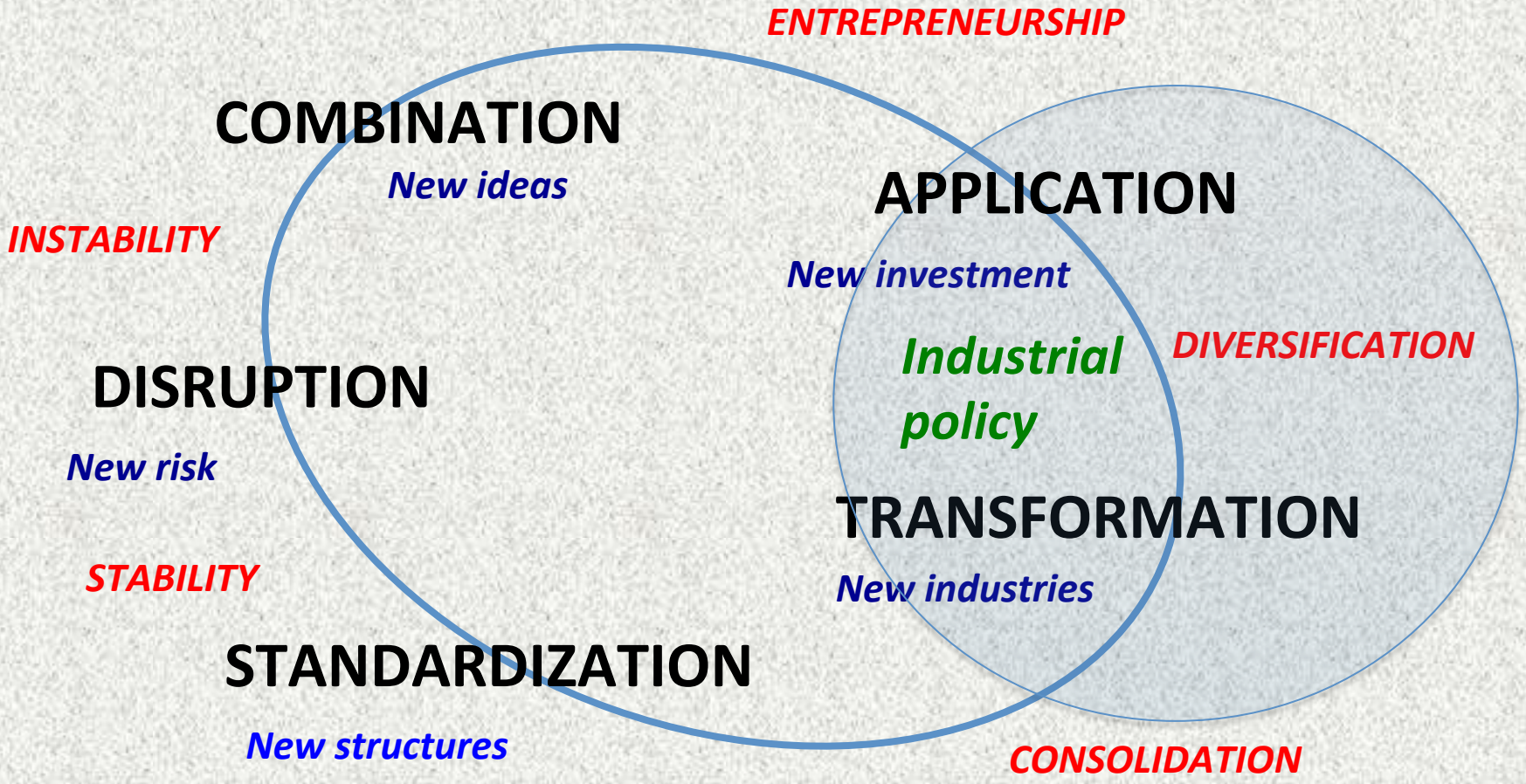
Current focus of “innovation” policy



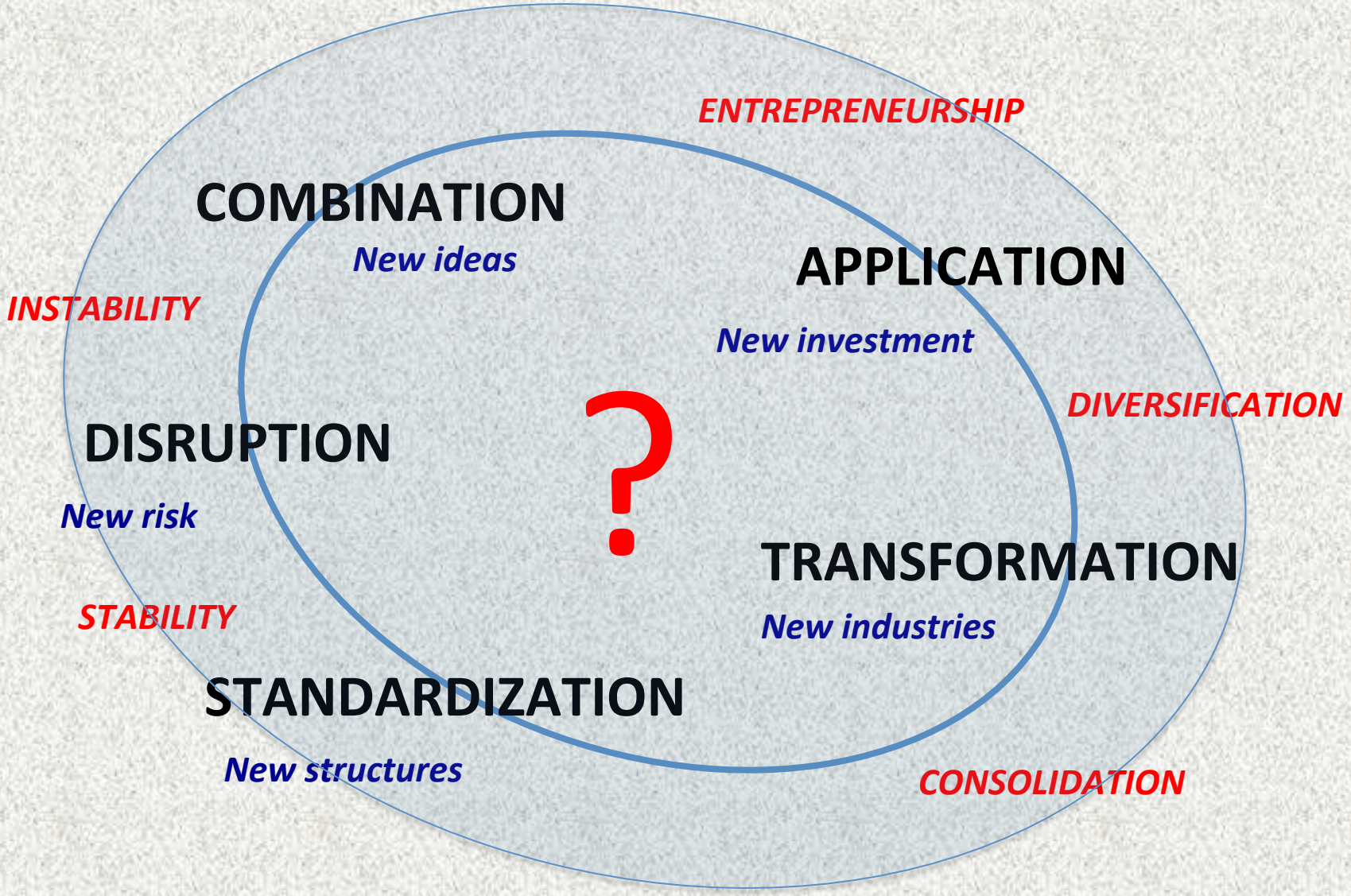
Natural habitat for public policy



The critical ("missing?") link



The challenge for Canadian innovation policy



3. History

History matters in innovation

Where you start plays a huge role in where you can go
and how you can get there

Critical importance of

- ***transferrable assets***
- ***positional assets***
- ***"transitional" assets***

The "Richter Scale" of innovation impacts - FREQUENCY

10 Once in a century

5 Once in a generation

3 Every few months or years

1 All the time

The "Richter Scale" of innovation impacts - INTENSITY

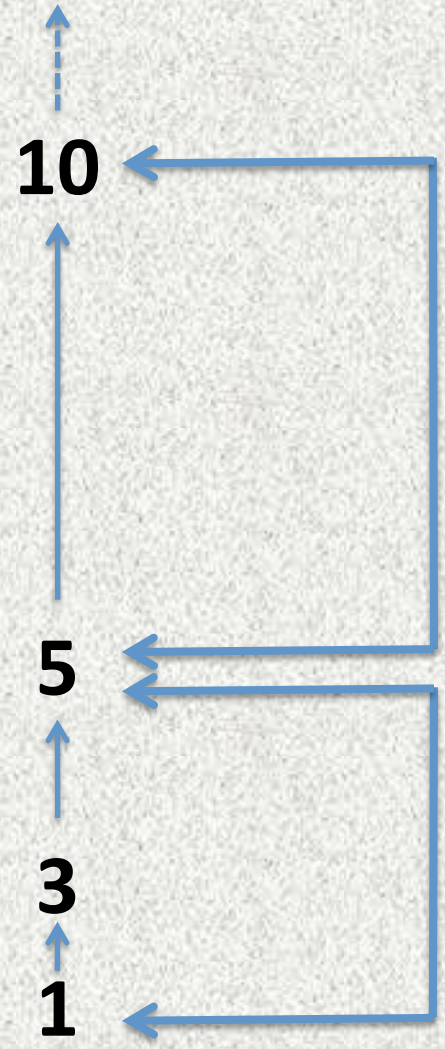
10 Structural realignment of national political, social, and economic factors

5 New social, economic or industrial paradigms

3 New products or processes

1 Incremental changes in products or processes

The “Richter Scale” of innovation impacts - OPPORTUNITY



HIGHEST OPPORTUNITY FOR ECONOMIC AND INDUSTRIAL REORIENTATION

STEADY GROWTH BUT GREATEST RISK OF STAGNATION AND DEPENDENCY

Canada on the innovation "Richter Scale"

NORTEL/MITEL telecom cluster

(RIM)

Oshawa automotive R&D center

Canada on the innovation "Richter Scale"

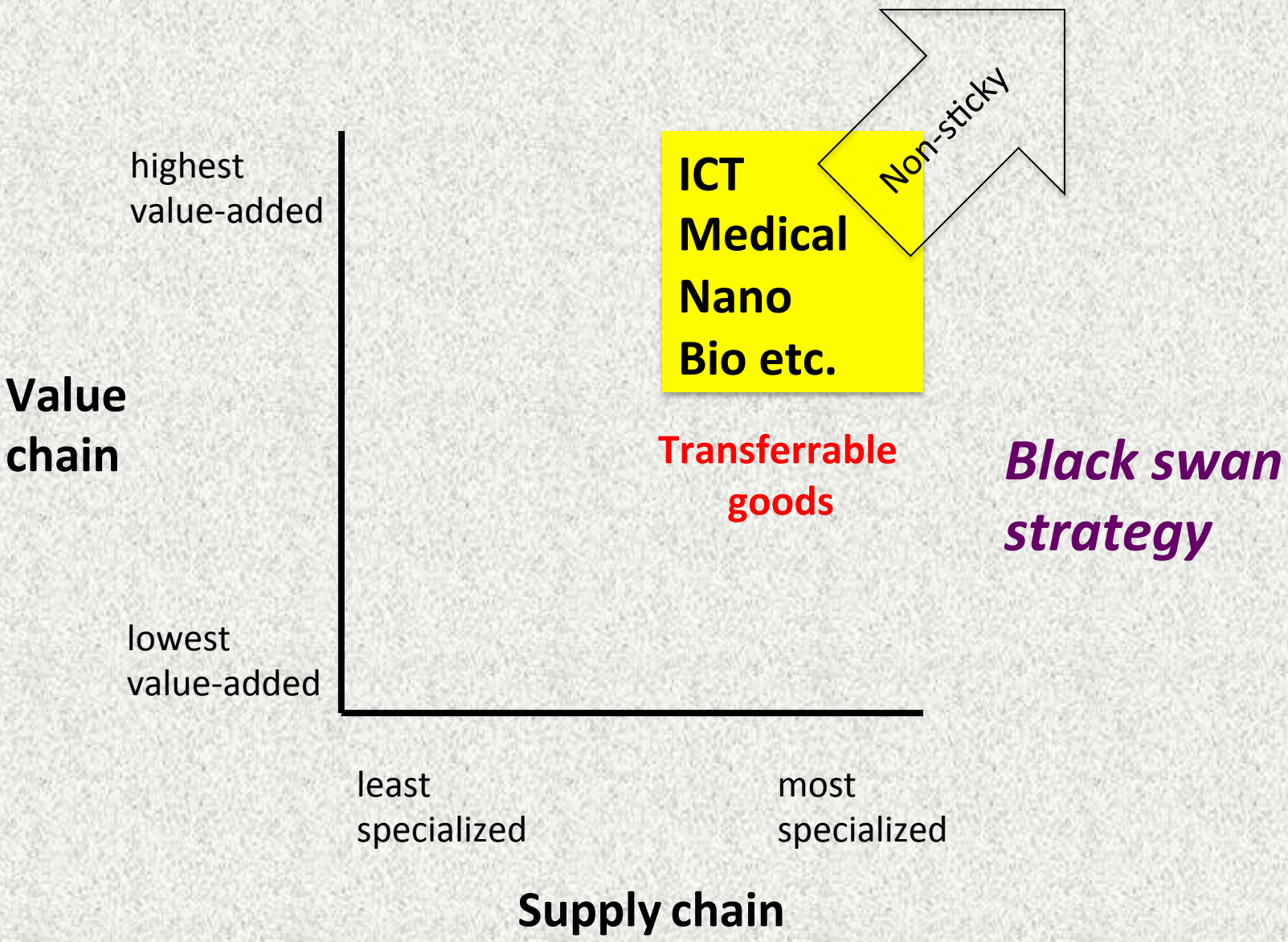
10 **Manufacturing oil from sand**

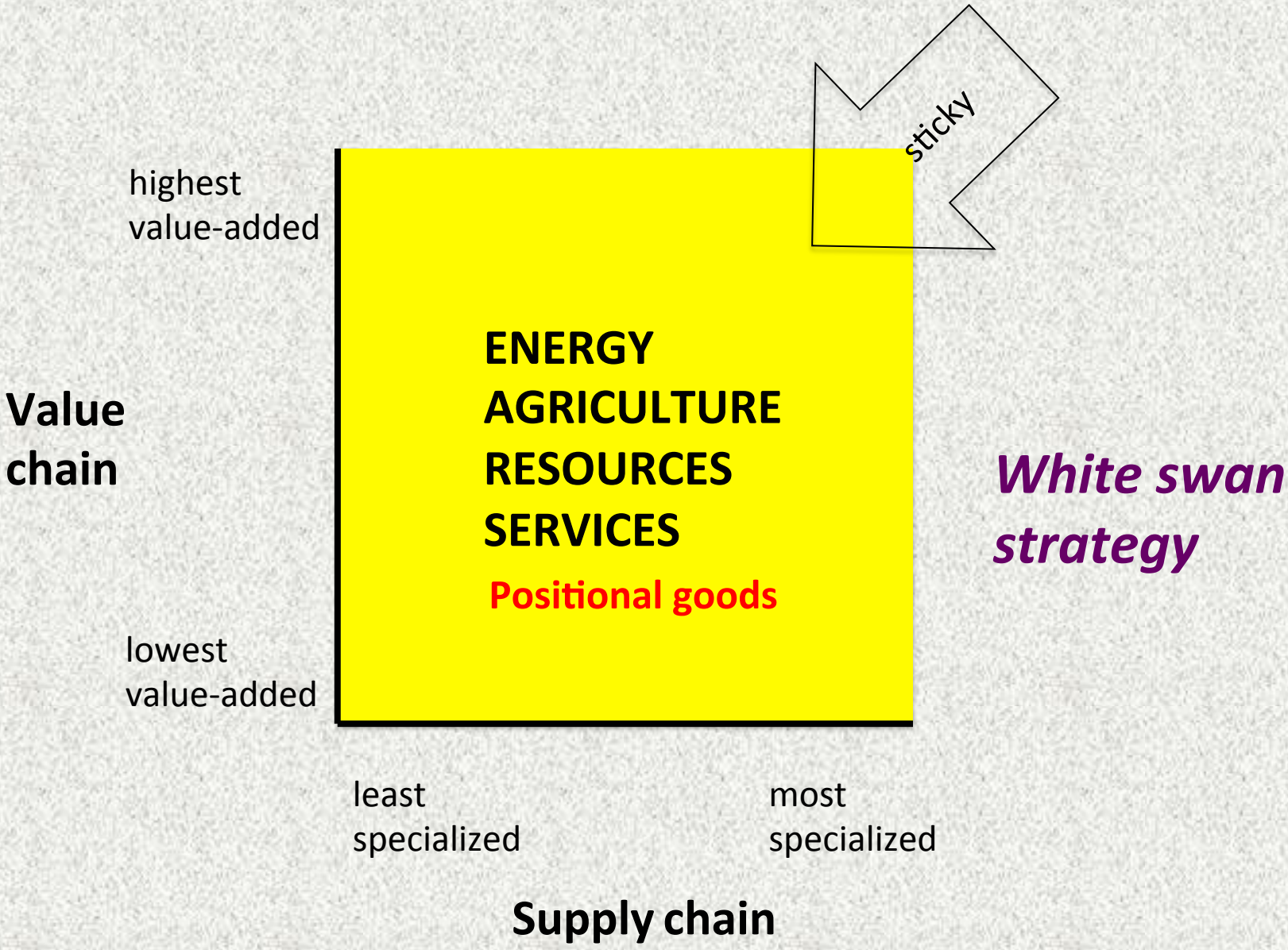
- Political orientation – internal and external
- Trade orientation
- Human capital orientation
- Demographics
- Investment orientation
- Currency
- etc.

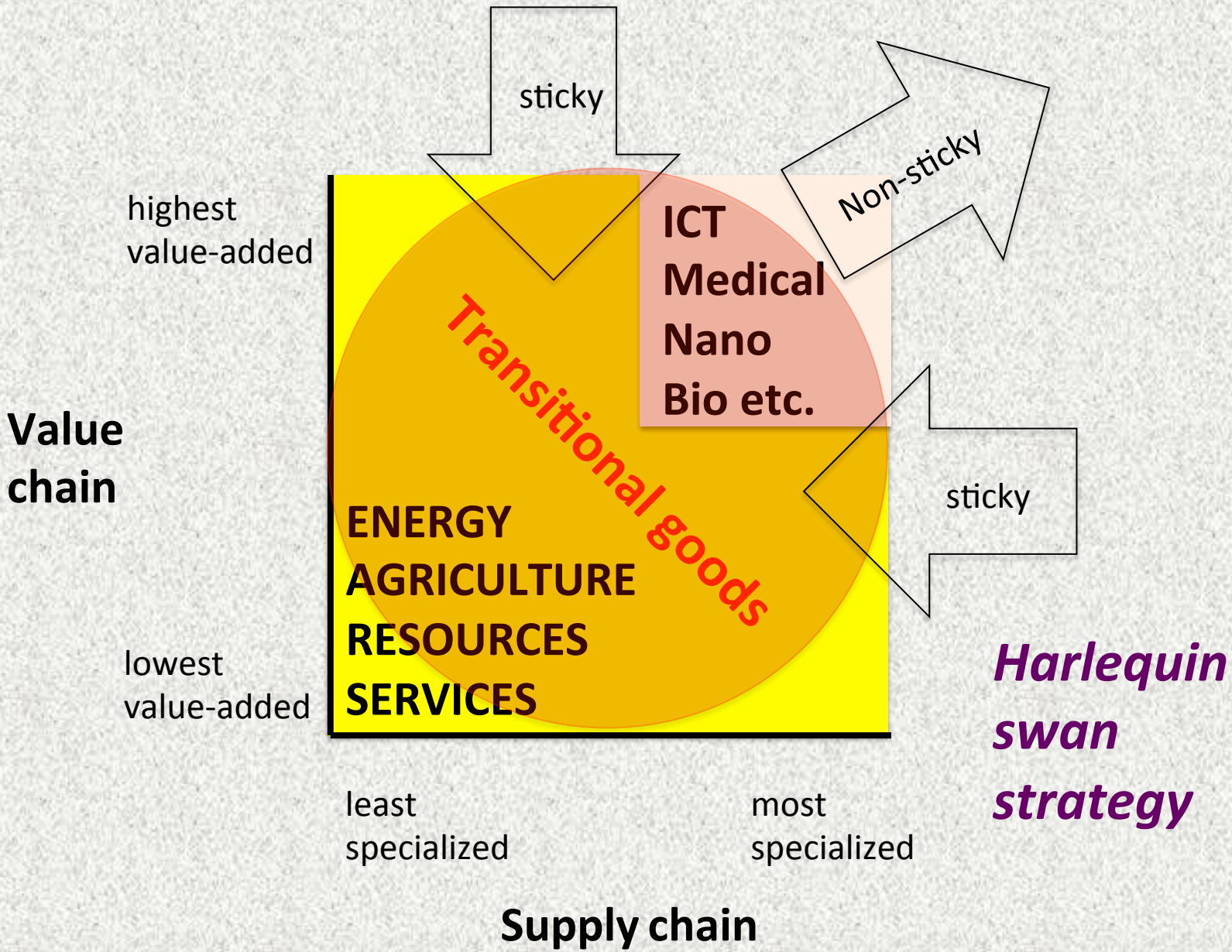
5 **NORTEL/MITEL telecom cluster**

3 **(RIM)**

1 **Oshawa automotive R&D center**







10 evidence - based principles

Non –prescriptive

Guides for policy making

Benchmarks for policy evaluation

Open-ended, but sufficient to move forward

Thank you for joining us today

Now,

join the conversation

tell us what you think

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