

Life Sciences Ontario Annual Policy Forum

November 28th, 2016



Aligning Agendas: Building Federal-Provincial
Life Sciences Policy for an Innovative Canada

Report & Recommendations

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Jason Field
President & CEO,
Life Sciences Ontario
(Moderator)



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Dave Smardon
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Bioenterprise
Corporation



Rebecca Yu
Head of JLABS @
Toronto



Parimal Nathwani
Vice President,
MaRS Innovation

A panel of leaders from across Ontario's life sciences ecosystem explored the priorities public policy makers must focus on to help grow the sector in Ontario and across Canada

Our Annual Policy Forum kicked off with this hard-hitting question: Why don't we have a major, made-in-Canada biotech success story? What do our companies need to grow and scale, in order to achieve this?

- We have the science and the startups needed for success
- There has been a fundamental shift across our innovation ecosystem and within government – the “lights are on” now, people are paying attention
- However, we face challenges:
 - Breadth of verticals in our space
 - Lack of highly knowledgeable investors who can write cheques
 - Knowledge curve for policymakers and fund managers (e.g. programs such as VCAP take significant time to ramp up and add value)
 - Risk-averse investment environment in Canada, meaning that Canadian investors don't typically lead funding rounds
- To accelerate our companies' commercial success, we need to foster:
 - A global mindset and programs that can compete with those of other countries
 - An increase in direct funding, including better programs and mechanisms for addressing funding gaps, especially with regard to seed capital (for example, seed capital in the \$2-5 million range can be particularly problematic)
 - Accounting for behaviours/outcomes that aren't addressed by PMPRB & advocating for better policies to address these

- An increase in indirect funding, via mechanisms to encourage investment and stimulate the marketplace
- Engaging multinationals / large pharma in solutions
- Continued strengthening of our investment in R&D
- Fostering a more engaged angel / VC community, including incentives for risk-averse investors
- Better mechanisms for verification of science/data for investors
- Improved access to senior talent, namely experienced entrepreneurs who have “been there and done that.” We need programs and incentives, or a way for companies to better leverage the ecosystem, to attract them to live and work in Canada. For example, MaRS Innovation has been testing an entrepreneur-in-residence program

Panelists were asked to identify one single policy or initiative that they believe is most needed to advance our sector. These were:

- Injection of seed capital in the \$2-5 million range
- Government needs to get better at picking winners and centralizing more funds toward them, rather than spreading funds thin. To do this, they require strong scientific advisors in leadership roles
- Government must take on a more catalytic role in encouraging private sector investment and capital formation in public markets
- We must stop trying to mimic US biotech hotspots like Silicon Valley and Boston, and focus on enacting policy that meets criteria specific to our sector

Conclusion: Ontario has the science and the startups, however, significant barriers to our companies' growth must be urgently addressed.

Recommendation: Advocate for policy that closes gaps in seed capital and senior leadership capacity, and incentivizes risk-averse investors.

Federal Innovation Policy



Jeff Graham
Partner,
Borden Ladner
Gervais

Andrew Casey
President & CEO,
BIOTECCanada

Natalie Dakers
Founding
President & CEO,
Accel-Rx

Valerie Fox
Chief Innovation
Consultant,
The Pivotal Point

This expert panel explored key topics pertaining to the current Federal Innovation Agenda consultations, including barriers to the commercialization, adoption, and success of Canadian innovation

- While the innovation agenda is promising, the federal government is only just beginning to understand our sector and its importance
- We need to more proactively sell the federal government on the idea that life sciences is a major, viable cluster for Canada, and a key driver of our future economic success, including why life sciences matter in the big picture:
 - Biotech also plays a role in helping bolster other sectors – fuels many crucial technologies and advancements
 - Can help us adapt to and cope with climate change, other major environmental shifts
- Our sector faces significant hurdles that impact the uptake of policy on the federal level, predominantly:
 - Life sciences is seen as the economy of future – not as the economy of now
 - There are fundamental differences between our subsectors within life sciences that significantly affect and complicate broad application of policy (for example, why it's been difficult for some subsectors to capitalize on VCAP)
 - When we are asking for specific policy to address different subsectors, this can sound like disjointed messaging, that we're saying "we don't really need the money," when we do

- Timelines for life sciences companies can be 10-15 years, but government has shorter mandates. How do we get them to see value in the long game?
- We have top tier innovations and science coming out of our universities and research institutions, but don't have a strong, centralized pipeline where we can continue to grow companies with support to anchor, amplify, and promote them, as well as to validate their research
- Funding and financial support tends to be regional and fragmented
- Our regulatory environment presents challenges to selling Canada as a national biotech leader
- For instance, large pharma companies often face challenges convincing global arms of their organizations that investment in Canada makes sense
- Lack of appropriate federal support to help de-risk capital and stimulate investment

We can address these challenges by:

- Figuring out where it makes most sense to focus limited resources, rather than a scattershot approach – including mechanisms to identify and advance high potential companies
- Shifting away from a regional focus on success to thinking and acting like a national industry
- Cease competing against other regions/provinces and instead work together for our collective success
- Form a shared understanding between provinces of what we need for our industry's success, and then advocate for these issues
- Shift our focus toward interactive policy that accounts for the diversity and connection between different subsectors
- Devise a way to tell our story cohesively to government, so they can understand what we need. Right now they are getting a fragmented voice that is causing confusion
- Assess our strengths and weaknesses and present a plan with actionable items that government can reasonably enact
- Know and promote our own success stories more proactively. There are lots of companies making money; they aren't household names because we are too modest about marketing our achievements. Once governments understand what success can look like, they'll be more likely to get on board
- Move away from working in silos and toward collaboration. We need incubators in every town, city, corporation, but they all need to connect with each other to create meaningful results
- Partnerships are key; the most successful companies are fuelled by collaboration
- Investments in systems rather than "siloed" programs

Conclusion: As a sector, we're sending out mixed messages. To create a policy environment that will secure our success, we need to be clear about our value proposition, our needs, and how these can be reasonably achieved.

Recommendation: We must better sell our story to government by adopting a national mindset and creating consensus between regions and subsectors on overarching issues, while respecting the diversity of our sector. We must collaborate across our sector to build crucial partnerships, strongly tell our success stories, and develop specific, cohesive asks that government can deliver on.

Lunchtime Keynote



Harvey Schipper, Professor of Medicine,
and Adjunct Professor of Law,
University of Toronto

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- Somehow we've lost sight of the grand picture and our greater goal: our healthcare system should be about positive patient outcomes and fostering a health / wellness economy
- If we delivered right now on what we know, we could cut global morbidity in half
- Currently, we suffer from a model of fragmentation; universities/research separate from corporate world and government
- This model is clearly not working; it needs to be integrative to leverage technology and innovate
- This is why the US is the economic powerhouse it is today – they have learned how to activate their innovations
- The Canada Health Act has created many of these problems: Dr. Schipper's mentor, Dr. John Evans, called it a "wet blanket around innovation"
- To illustrate his point, Dr. Schipper tells a story about an serendipitous accident with a melanoma patient leading to the discovery of t-cells; our regulatory environment meant we couldn't bring this discovery to market and benefit from it
- Healthcare in past meant the ability to see a doctor when sick and the ability to be admitted to the hospital
- Now we're talking about the preservation of health rather than the treatment of illness
- And, we're currently undergoing a bioscience revolution:
 - A shift from an anatomic to a molecular regulatory understanding of biology
 - The likelihood that 50% of those born today will live to 100
 - The effect of disease recognition and treatment shifting population survival curves for the first time, when earlier improvements were based on public health measures, and:
 - The globalization and democratization of information
- What we need now, to go along with this shift, is the creation of a "wellness economy"
- As Canadians, we're uniquely positioned to enact this as we have the most diverse cultural/ genetic population in the world, plus new capacities to manage and share data

Why aren't we doing it?

- Canada suffers “the curse of the big safe nation”
- We are aiming too low. Our goal should be full life to age 100, for all Canadians
- We think we need more money, but we don't; we need to innovate, use funds differently
- Focus on innovative technologies of future:
 - Big data as determinants of health and wellness that will surpass clinical trials
 - Wall-less hospitals that deliver care when and where patients need it
 - Remote robotics
- The key to knowing whether we are successful is the effectiveness of our interventions
- The private sector, through the insurance industry, is leading this charge; this is a powerful economic asset
- Challenge is to think about health not from standpoint of delivering healthcare but bringing whole sector together – private & public – to build solutions
- Dr. Schipper uses the example of his challenges delivering cancer care in rural Manitoba:
 - He innovated system to allow GPs to administer chemo in community centres
 - Started a biotech company to give them the IT to do this
 - Their cancer management software was eventually bought out
- Unfortunately, good ideas and intentions often fail due to lack of political will/mandate, for example, Health Innovation Canada:
 - Was intended to create a talent pipeline leveraging excess researchers & practitioners that industry could use to grow
 - Could approach industry and ask, “what is the biggest problem you need to solve with new technology” – and then put it out for people to solve
 - The initiative fell apart due to change in government



What we must remember, overall, is this: our healthcare system is about patients and successful outcomes for patients. It must be outcome-driven for those who are receiving the treatments, to ensure their needs are met.

Conclusion: Canada has the funds, talent, and technology to innovate its healthcare system and help all Canadians live healthier, longer lives.

Recommendation: The public and private sector must work together to build a wellness economy that centers around solutions driven by patient outcomes, with the goal of full life for all Canadians, to age 100.



Our panel on Federal Innovation Policy, moderated by Jeff Graham, Partner, Borden Ladner Gervais

Audience Participation Session

Facilitated by: Ryan Wiley, President, Shift Health

The audience participation session consisted of polling and feedback to test positions and build consensus for LSO's policy positions going forward into 2017

For a full report of polling results, please see Appendix, Table 1



Ryan Wiley, President of Shift Health, leads our Audience Participation Session

Provincial Innovation Policy – Address by the Parties

Facilitated by: Ryan Wiley, President, Shift Health

Catherine Fife, MPP, Critic: Finance; Treasury Board, Ontario New Democratic Party

- Innovation is the new economy; government needs to be part of the solution
- Cluster ecosystem is popular in Waterloo and part of region's success
- Clustering in the life sciences and tech sectors is key, but "what's missing is connectivity"
- Governments can be a key player in bridging that gap
- NDP will focus on investments into infrastructure – particularly regional transit connections to fast-growing commercial hubs like Waterloo – that will boost all sectors. We cannot innovate, attract/retain talent and investment unless we solve these infrastructure issues
- Intellectual property is a growing issue going forward. We need to adopt a protectionist view on this as we scale up. The province has a role to play in advocating for strong federal IP policy
- With regard to talent development, we need to address gaps in career pathways – e.g. transition from post-secondary to STEM careers
- Funding for startups needs to be provided at all stages. We need companies to be able to tell investors that one of their partners is the government



Michael Harris, MPP, Critic, Transportation; Research & Innovation, Progressive Conservative Party of Ontario

- We have the people, minds, and facilities to realize our potential
- World-class innovation will continue in Ontario but issue is commercial translation and support
- Some of the problems in Ontario life sciences seem to be the polar opposite to what happens in other jurisdictions
- Ontario, for example, has twice as many regulations as BC. This makes us less competitive and less attractive to investors
- We must eliminate red tape and streamline regulatory processes to accelerate Ontario companies and encourage investment
- Conservatives, if elected, will re-engage the private sector
- Other sectors have key policies in place, such as Flow Through Shares, to encourage investment. Why doesn't Ontario's life sciences sector have some of these?
- It's also important to provide training and education for the specific needs of our life science sector



Hon. Reza Moridi, Minister of Research, Innovation and Science, Ontario Liberal Party

- Life sciences is critical for our economy; our success depends on a strong life sciences sector. We are home to great hospitals, universities, and research institutes
- Recent wins coming out of the province, including Toronto-based Synaptive Medical (LSO's Life Science Company of the Year) are encouraging: we have great momentum to build on
- The region is primed to become a world leader in life sciences. We haven't reached our full potential, yet
- Government's job is to make the process seamless; as such, the Liberals introduced the Business Growth Initiative to help businesses at all stages of life cycle

- The Province will convene a life sciences working group (first announced by Deputy Minister Giles Gherson at the 2015 LSO Policy Forum, and formalized in the Minister's Mandate Letter from the Premier)
- The goal of this initiative is to create a coordinated life sciences strategy for Ontario
- We also need leadership to help guide our sector; a new Chief Scientist position will cement Ontario as a province that invests in science for growth. This will be an independent advisory role that will guide decisions around science, climate change, commercialization, etc.
- And, we need to encourage Ontario students in science. We have 40,000 graduates in STEM from universities each year



Positioning for Success



Susan Marlin
President & CEO,
Clinical Trials
Ontario
(Moderator)

John Marshall
Assistant Deputy
Minister, Ministry
of Economic
Development &
Growth

John Ruffolo
CEO, OMERS
Ventures

Brad Butt
Director,
Government
Relations,
Mississauga Board
of Trade

Panel participants discussed and responded to polling that was conducted in the interactive session

On Federal-Provincial alignment:

- There is currently a high level of alignment between federal and provincial governments. We need to take action, now, and strike while the iron is hot
- There's also commonality around voice. Both levels of government are talking about the same things – for instance, disruptive tech
- The world is changing, the pace of innovation is changing, and governments – including ours – have recognized this
- We can learn from the UK's growth strategy mistakes. They invested broadly rather than focusing specifically on innovation; we are right to be zeroing in on innovation policy

Where the opportunities lie:

- Pension plans and other groups are trying to figure out how to finance innovation for the 10-15 year long-game. This is to our benefit, especially with life science companies' longer gestation timeline
- Our ICT sector is stronger in this regard than our life sciences sector. Life sciences is 10 years behind ICT here in Canada; we can learn from their success
- ICT sector benefitted from easing of visa restrictions, increase in talent pool – we should follow suit

- We need to leverage procurement capacities: with billions of dollars of healthcare spending, this is a massive opportunity

How can we best communicate our needs to government? What approach will get results?

- When approaching government on policy, it's better to have one concrete ask, rather than a handful of items. Many groups are asking for their attention and they are overwhelmed – they need something they can get behind and act on quickly and decisively, especially if it can be a “win-win”
- This is how we will create one voice within our industry – with messaging that is simple, clear, consistent, and accompanied by proper follow-up
- Policy action can also feel at times like one step ahead, two steps back. Pick some near-term wins; system will reward you for being successful
- Don't forget to lobby the independent senators; they have a say in what gets passed
- Overall, the private sector must more proactively educate government about what needs to be done to help our sector

How can we further help our companies succeed?

- We must be proactive about preventing the loss of our best companies and innovations. We lost many promising companies in the 1990s/2000s due to:
 - Being sold off to US companies as a de-risking mechanism; cheaper for them to buy R&D Canadian companies built
 - Pressure to go public. Companies went public when they were still too small to survive
- We can support our companies by building an ecosystem – this will provide spin-off benefits, and further fuel innovation, rather than big companies coming in, getting rich, and exiting
- It's more beneficial to focus on domestic companies and provide seed funding, rather than trying to attract foreign direct investment
- We need to encourage long-term success of companies that have great science; this will also result in spin-off benefits from companies staying and growing in Canada, and help fuel our life sciences ecosystem

Conclusion: We are at a rare and crucial inflection point where governments are primed toward innovation and interested in collaboration.

Recommendation: This presents a key opportunity to approach government with a unified voice surrounding specific policy asks that will benefit our sector and build our ecosystem.

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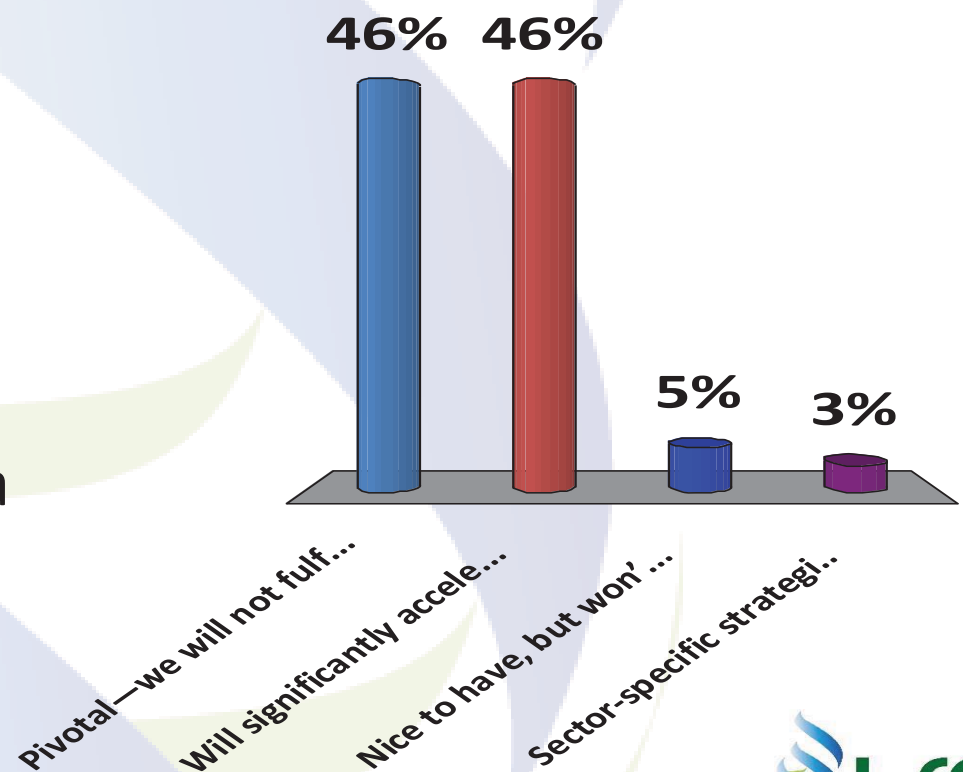


Appendix #1

Audience Participation Session

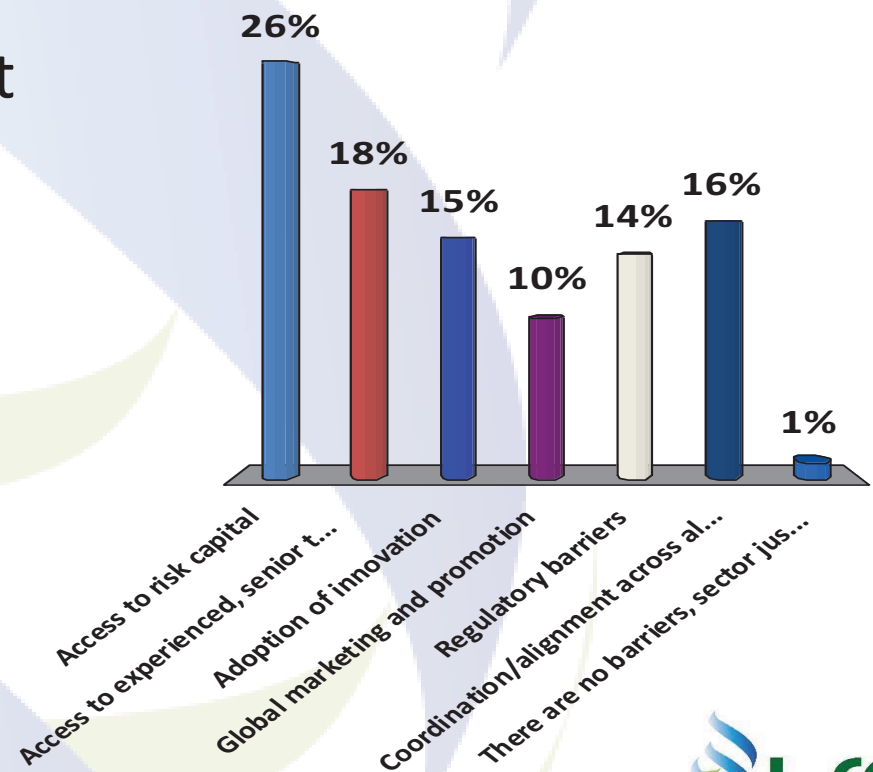
1. How important is a dedicated life sciences strategy – one that aligns federal, provincial, and municipal policies – to achieving success for our sector? (Choose 1)

- A. Pivotal—we will not fulfill our potential without it
- B. Will significantly accelerate progress
- C. Nice to have, but won't make a significant difference
- D. Sector-specific strategies generally aren't worthwhile



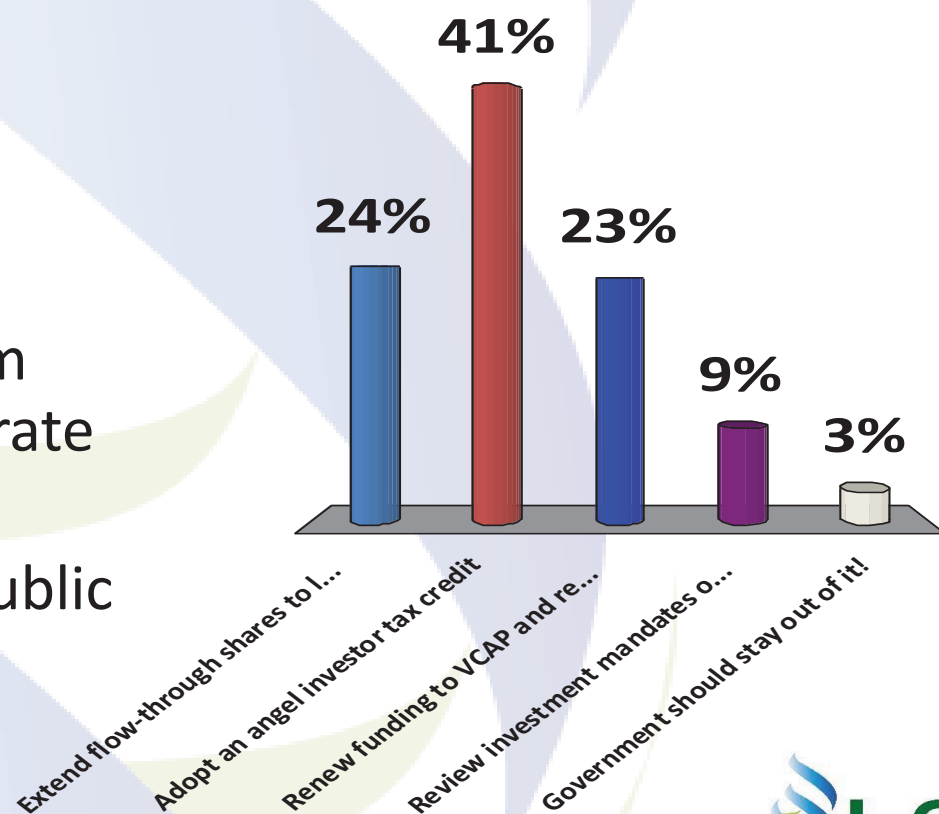
2. What are the top barriers to growth in life sciences that we must address for our sector to succeed? (Choose 3)

- A. Access to risk capital
- B. Access to experienced, senior talent
- C. Adoption of innovation
- D. Global marketing and promotion
- E. Regulatory barriers
- F. Coordination/alignment across all levels of government
- G. There are no barriers, sector just needs to evolve naturally



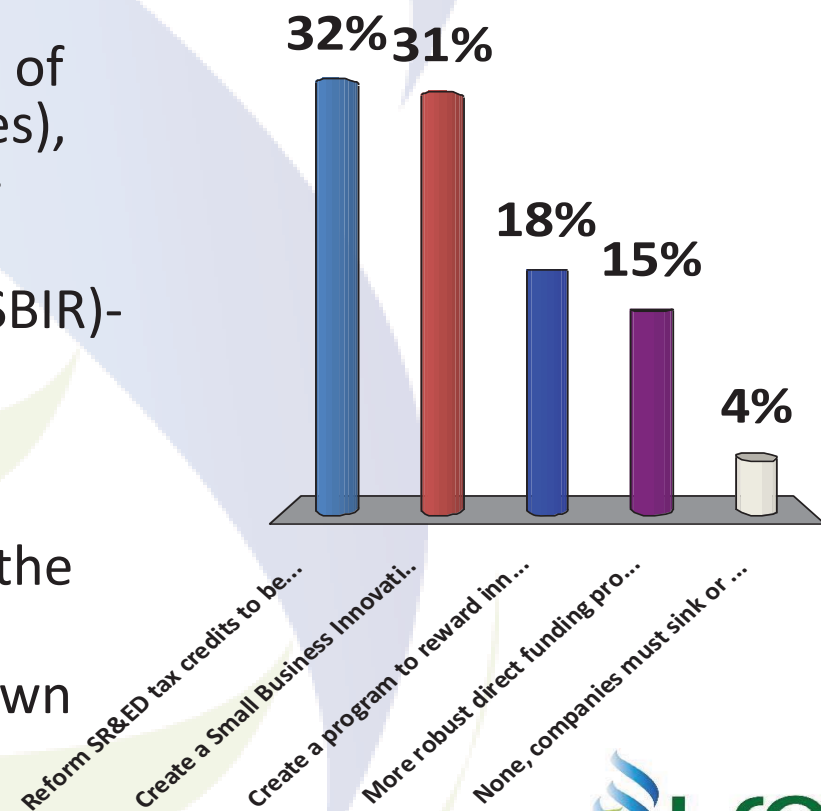
3. What do you think is the best way government can incentivize risk capital investment into the life sciences sector? (Choose 2)

- A. Extend flow-through shares to life sciences companies
- B. Adopt an angel investor tax credit
- C. Renew funding to VCAP and reform structure to better leverage corporate VC partners
- D. Review investment mandates of public pension funds
- E. Government should stay out of it!



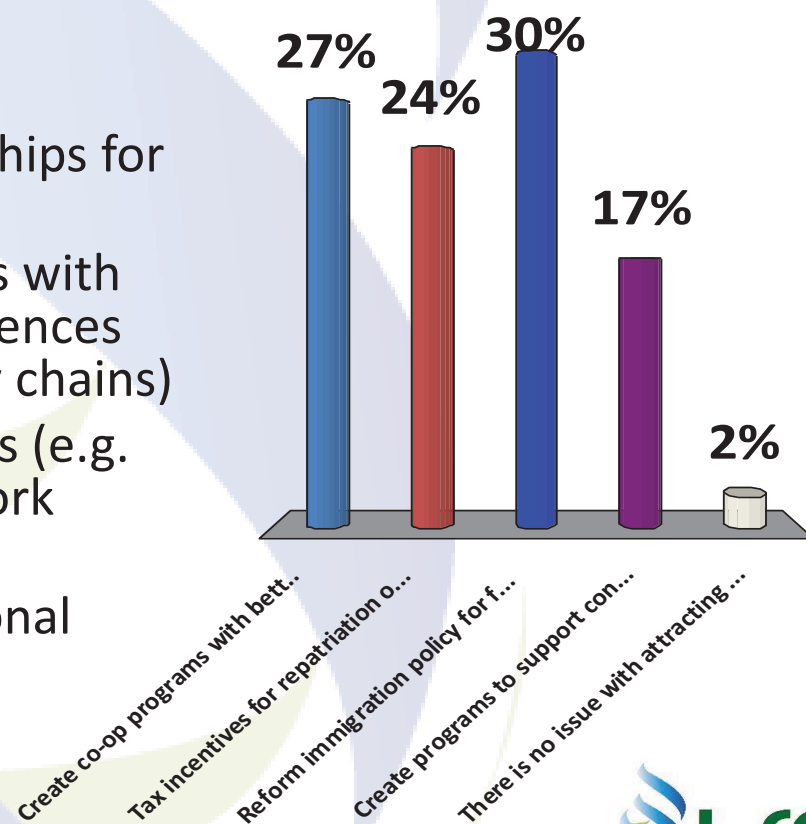
4. How can government help life sciences companies augment investment in R&D and accelerate their growth? (Choose 2)

- A. Reform SR&ED tax credits to be more inclusive of growing companies (including public companies), and target credits (or their equivalent) to high-priority innovation efforts
- B. Create a Small Business Innovation Research (SBIR)-type program
- C. Create a program to reward innovators with reduced tax rates
- D. More robust direct funding programs, such as the Jobs & Prosperity Fund
- E. None, companies must sink or swim on their own merits



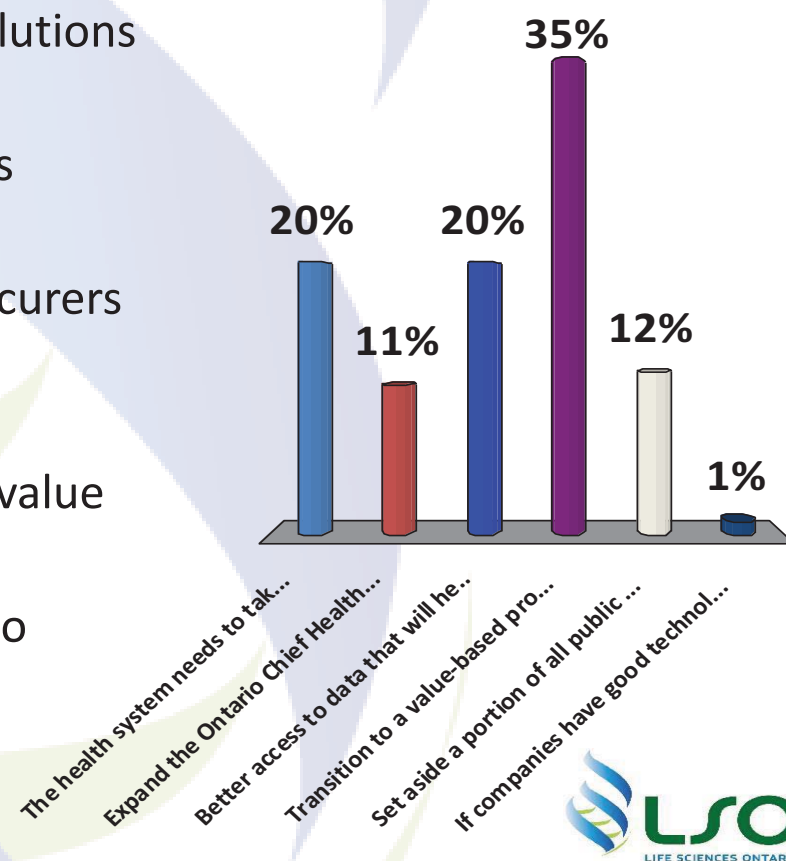
5. How do we best address the issue of access to talent, particularly senior leadership with entrepreneurial and commercialization expertise? (Choose 2)

- A. Create co-op programs with better integration of education and work experience (e.g. apprenticeships for STEM disciplines)
- B. Tax incentives for repatriation of Canadian expats with senior leadership experience in successful life sciences companies (e.g. commercialization, global supply chains)
- C. Reform immigration policy for foreign STEM grads (e.g. accelerating permanent residence, facilitating work permit renewals, recognizing foreign credentials)
- D. Create programs to support continuous professional development for STEM workers
- E. There is no issue with attracting talent to Canada



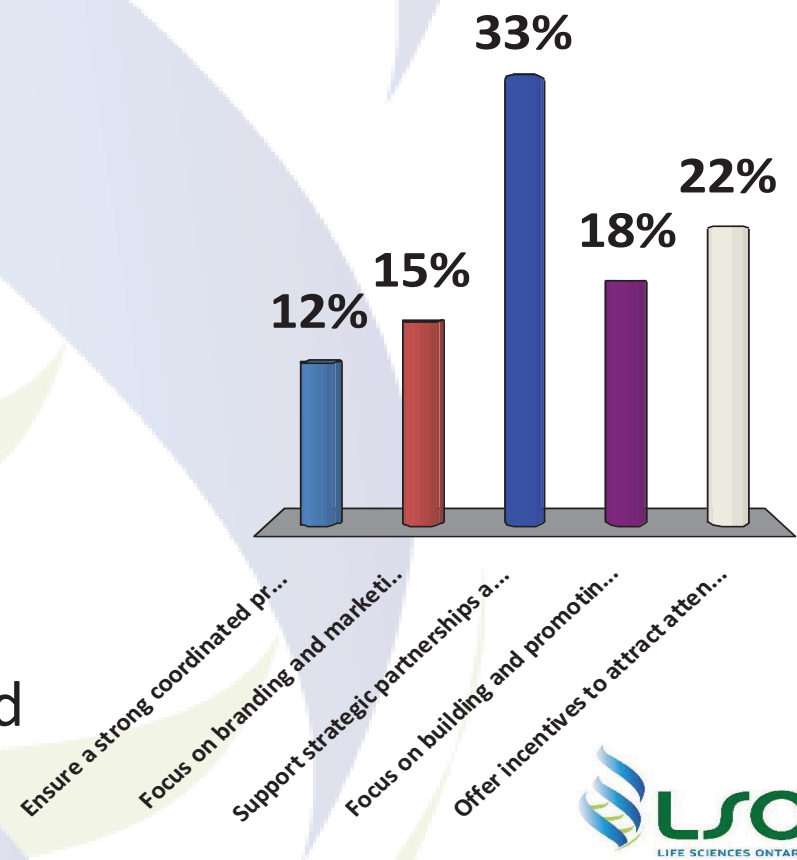
6. How do we enhance the adoption of innovation to help grow life sciences companies? (Choose 2)

- A. The health system needs to take the lead in identifying priorities, engaging innovative firms, and rewarding solutions that meet performance expectations
- B. Expand the Ontario Chief Health Innovation Strategist's mandate to cover all areas of health innovation
- C. Better access to data that will help companies and procurers make evidence-based decisions
- D. Transition to a value-based procurement system that considers broader measures of cost-effectiveness and value (i.e. long-term socioeconomic impact)
- E. Set aside a portion of all public procurement budgets to support adoption of domestic innovations
- F. If companies have good technology, it will sell itself!



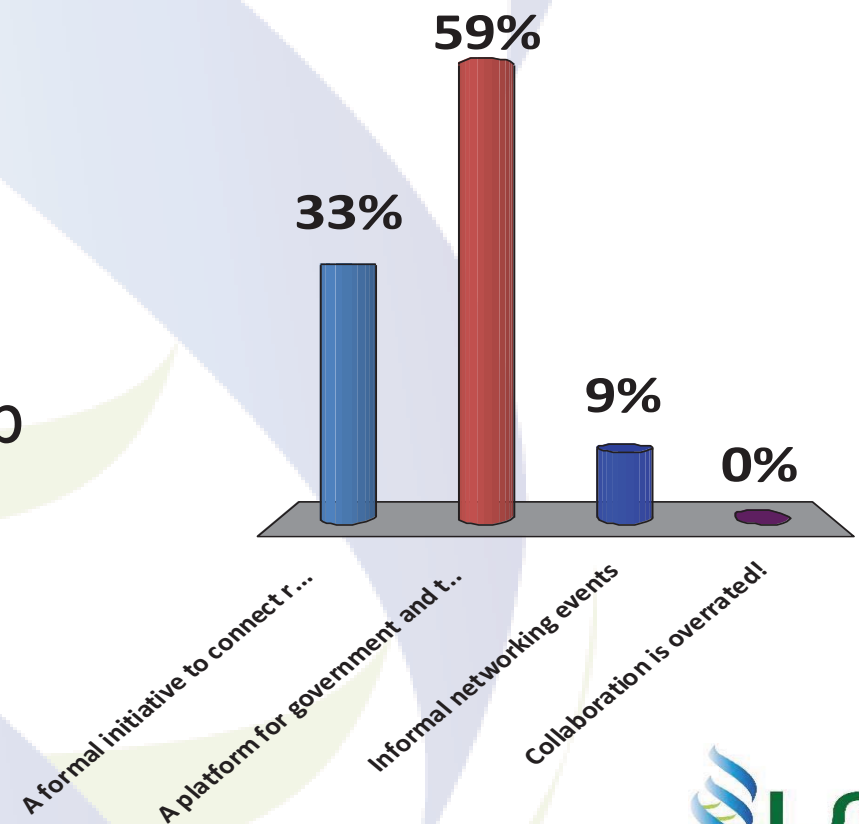
7. Canadian innovators have been criticized for being too modest. How can we best market and promote our story to the world? (Choose 2)

- A. Ensure a strong coordinated presence at international conferences (e.g. BIO)
- B. Focus on branding and marketing our regional cluster strengths
- C. Support strategic partnerships across Canada and internationally
- D. Focus on building and promoting super-clusters (ex. ON-QC corridor, Waterloo-Toronto)
- E. Offer incentives to attract attention of (and investment from) global companies



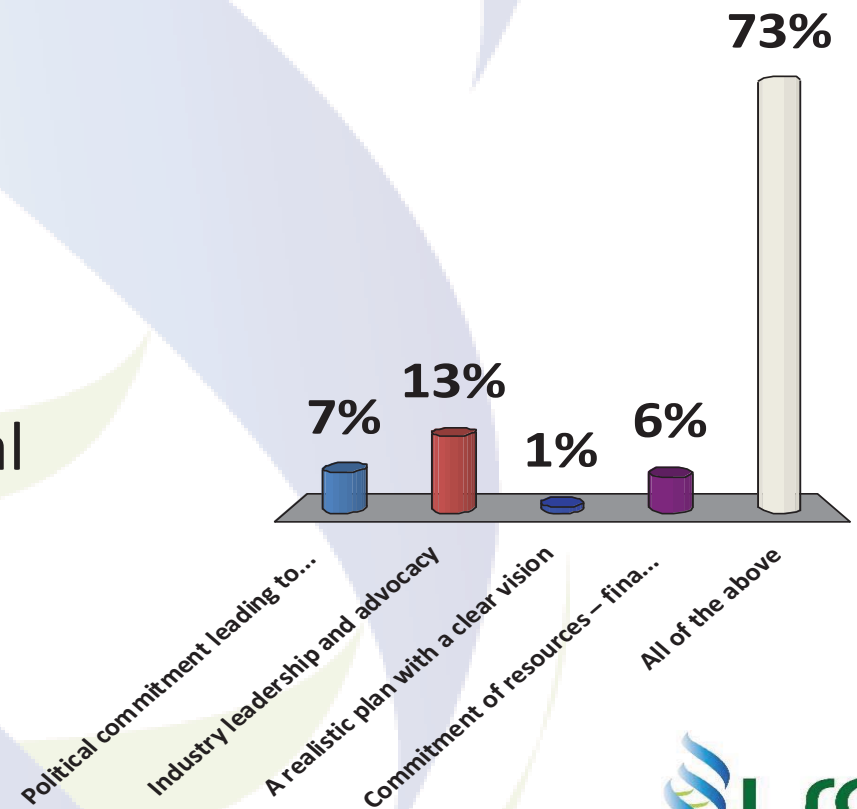
8. Collaboration – across our sector, province, and with all levels of government – is critical to success. What is the best way to facilitate collaboration? (Choose one)

- A. A formal initiative to connect regional life sciences clusters
- B. A platform for government and the private sector to co-develop policies
- C. Informal networking events
- D. Collaboration is overrated!



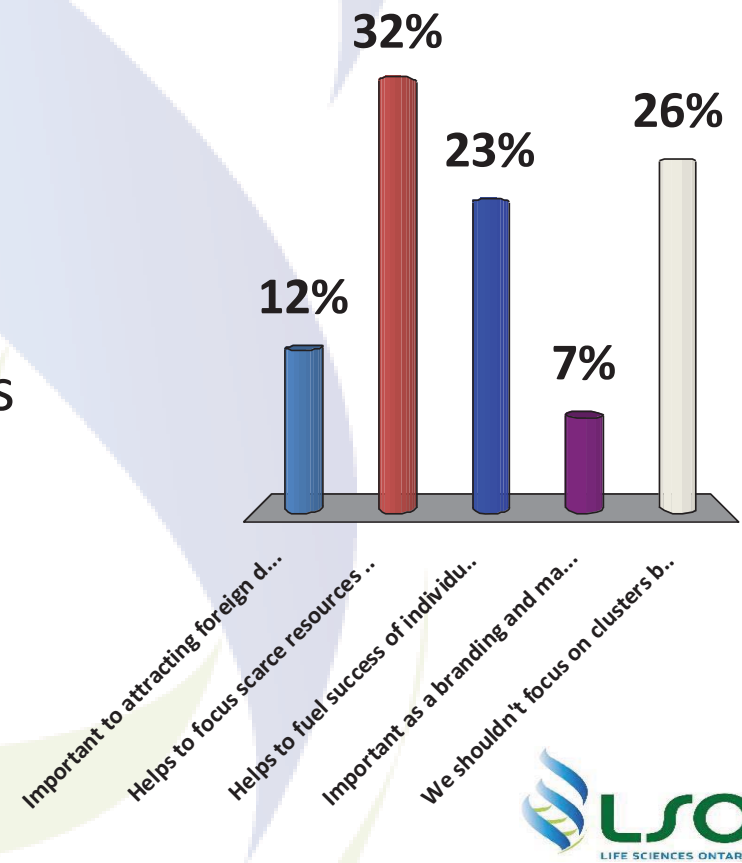
9. How do we go from talking about innovation to concrete action that will create needed change? (Choose one)

- A. Political commitment leading to legislation
- B. Industry leadership and advocacy
- C. A realistic plan with a clear vision
- D. Commitment of resources – financial and otherwise
- E. All of the above



10. What is the role of cluster development in growing life sciences in Canada? (Choose one)

- A. Important to attracting foreign direct investment
- B. Helps to focus scarce resources on regions that already have strong life sciences activities to accelerate their success
- C. Helps to fuel success of individual companies by creating new regional ecosystems
- D. Important as a branding and marketing tool
- E. We shouldn't focus on clusters but rather on identifying and nurturing innovation, regardless of region or segment



11. What does success look like five years from now? (Choose one)

- A. A global biotech success story (e.g. a Canadian Amgen)
- B. Recognition as one of the world's top five life sciences ecosystems (in terms of sector size/impact)
- C. Substantial growth in sector employment and relative contribution to GDP
- D. Leading destination for foreign investment in life sciences technology, capacity, and companies

