

***DEVELOPING UNICORNS AND GIGACORNS:  
CHALLENGES AND CHOICES FOR CREATING A PURPOSE-DRIVEN  
INNOVATION ECOSYSTEM IN BRITISH COLUMBIA***



**Project Summary Report**

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## EXECUTIVE SUMMARY

Based on interviewees with incubators and accelerators as well as entrepreneurs from BC, this report summarises findings from a research project to develop understanding and insight into whether and how the BC innovation ecosystem is effectively designed towards steering new business activities that address complex interconnected sustainability issues.

Findings suggest a strong overlap and agreement between both incubators and accelerators on the one hand and entrepreneurs on the other. In fact, themes emerging were surprisingly consistent between both sets of interviews and yet also pointed at persistent tensions and challenges. Interviewees not only identified numerous barriers and concerns but also provided a comprehensive list of ideas and recommendations for different stakeholders across the innovation ecosystem.

The report concludes with five calls to action as useful starting points for further debate and consideration among all readers:

1. Recognise and leverage the uniqueness of British Columbia's context as a key driver of and benefit for the wider innovation ecosystem
2. Create a purpose-driven innovation ecosystem around entrepreneurship for sustainability
3. Encourage and drive partnerships across sectors, organisations, and institutions
4. Develop and promote new models of sustainable financing that better reflect the needs of impact and purpose-driven entrepreneurs
5. Significantly address and integrate equality, diversity and inclusion questions and concerns across organisational cultures and working practices

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## 1. INTRODUCTION

Addressing sustainability is one of the major challenges for decision makers in the 21<sup>st</sup> century. While much depends on the role of governments in creating the rules and framework needed to steer actions and behaviours, there is clear recognition that the private sector also plays a crucial role through its access to resources and innovation.

Research generally focuses on established industries and incumbents and their abilities to adjust and re-orientate by responding to the complex challenges arising from social and environmental sustainability issues. At the same time, less is known about how the private sector might develop new technologies, product, services and business models designed to address these concerns. In this context, the role of incubators and accelerators as important intermediaries between emerging entrepreneurs and markets remains particularly understudied.

For this research project the Metro Vancouver Regional District was chosen as it is one of the world's top ten cleantech clusters and home to several growing clean-tech and sustainability networks and accelerators. Moreover, there is a growing community of cleantech startups and ventures emerging in British Columbia that can provide specific insights into the roles of and relationships between entrepreneurial activity and the wider innovation ecosystem.

As such, a key question driving this project was whether many of the local incubators and accelerators essentially exist to support the creation of purpose-driven businesses – organisations that view the primary goal of their existence as addressing social and environmental sustainability issues beyond returning a profit.

More broadly, is the wider BC innovation ecosystem effectively designed around a specific purpose (such as developing clean tech solutions or startups and innovation for social and environmental impact), or do its members, organisations and initiatives pursue different ends and outcomes? How much alignment is there between different incubators and accelerators? And to what extent do local entrepreneurs believe this ecosystem supports their own needs as well as the aims and ambitions of their ventures?

Additionally, sustainability research highlights the importance of nexus-thinking to acknowledge the varying spatial and temporal scales as well as interconnected factors and actors behind many social and environmental concerns. There is therefore a need to study whether innovation ecosystems such as those in BC recognise the interlinkages, synergies, tensions, and tradeoffs between different sustainability issues. Or is there instead reliance on "silo-based" thinking by focusing only on developing solutions for individual sustainability issues and concerns? This matters particularly given the challenge of developing sustainable business models that can address networks of sustainability targets such as the UN.

This research therefore aimed to *develop understanding and insight into whether and how the BC innovation ecosystem is effectively designed towards steering new business activities that address complex interconnected sustainability issues.*

## 2.0 METHOD

To achieve this aim, the research was largely based on the collection and analysis of primary data from interviews, but also complemented by site visits and attendance at relevant industry conferences and events in clean-tech and sustainability networks and accelerators located in the Metro Vancouver regional district.

This approach was based on a desire to examine the different driving forces and barriers, assumptions, and limitations perceived by members of the BC innovation ecosystem as well as the goal of improving understanding about their roles in effectively driving a wider sustainability transformation.

The research was therefore focused on studying incubators and accelerators as well as startups and early-stage ventures (formerly) affiliated with these networks, though in practice this was not always possible as some startups either had affiliations with multiple networks or no connection at all. Other incubators had only just been established or no startups were available for interviews. Networks and

respondents were initially identified based on personal web searches and recommendations by academics at Sauder School of Business, UBC.

Beyond inviting board or executive level members of these incubators and accelerators for an interview, the researcher also contacted various start-ups and ventures directly via email or LinkedIn where they were listed on accelerators' websites. Another source used for sampling was the [Corporate Knights Future 50](#) rankings 2022 of Canada's fastest-growing sustainable companies.

Whenever startups were contacted, the key inclusion criteria were: i) affiliation with an incubator, accelerator, or other sustainability intermediary in British Columbia; ii) founded, headquartered or a major office based in BC; iii) expression of an explicit sustainability commitment/benefit. Increasingly, snowball sampling was also used to ask respondents for further recommendations of potential interviewees that met these criteria. The BC Ministry for Jobs, Economic Recovery and Innovation was also invited but unfortunately unavailable for this research project.

Between May and December 2022, 36 semi-structured interviews were completed, of which 12 were with representative members of clean tech incubators and accelerators, and 24 with CEOs, entrepreneurs, and members of various sustainability startups and ventures. Given the identification and self-selection process, this sample is not statistically representative of the wider innovation ecosystem in BC; however, it is hoped that its size and representation provide sufficiently valid insights into existing and emerging perspectives on the challenges and opportunities facing this community.

Interviews were predominantly conducted virtually via MS Teams or Zoom, recorded, and lasted on average 55 minutes. Audio recordings were all transcribed by a third-party service provider for detailed analysis. A table provides an overview of respondents' job titles and length of employment with their current organisation (*see Appendix*).

The project received ethical approval from the University of Warwick's Humanities and Social Sciences Research Ethics Committee (HSSREC) in April 2022 (reference HSSREC 117.21-22). Respondents provided consent for the interviews either in writing or verbally at the beginning of the recording. Following transcription, all personal and organisational names were deleted or replaced by pseudonyms. Respondents were invited to approve and edit their transcripts for clarity (14 provided edits and further comments and details).

Transcript data and hand-written notes were analysed by examining and comparing responses from incubators and accelerators separately from startups and other ventures. The aim was to develop a clear overview of the similarities and differences observed by these two different types of entities.

All interviews were coded under the main headings of role of purpose; organisational and sustainability goals and ambitions; nexus thinking and sustainability transformations; perceived benefit provided by incubators and accelerators; relationships with other organisations and networks; barriers, challenges, tensions, trade-offs; and respondents' recommendations.

These codes were then summarised in the findings presented on the following pages. No attempt was made to quantify frequency of responses. Instead, the aim was to provide an overview of the range and diversity of views and opinions identified in this particular sample. However, whenever themes were stronger and more frequently recurring, this is indicated in the findings.

It should be stressed that the findings are purely based on summaries of interviewees' perceptions, opinions, and personal experiences. In the interest of space, findings are selected to be indicative and illustrative rather than contain the full range of responses. No attempt was made to examine the veracity of interviewees' claims and statements, and the extent to which they are supported by wider evidence. Readers are encouraged to reflect on these views and perceptions and the extent to which they might mirror their own understanding and observations, or critically consider why and where such differences in opinion might exist. These summaries are interspersed with and based on the researcher's observations, interpretation, and reflections which entails a personal bias that should also be taken into account.

Similarly, recommendations provided by interviewees are an attempt to provide readers with a comprehensive overview of ideas and suggestions mentioned during these interviews. The hope is they provide a useful starting point for wider reflection and discussion to help improve the processes and outcomes of all actors and activities involved in this specific innovation ecosystem and beyond.

## **3.0 FINDINGS**

### ***3.1 General importance of the Vancouver and BC context for sustainability-driven innovation and entrepreneurship***

Generally, interviewees had high levels of appreciation for the wider context of Vancouver and BC in terms of motivating their efforts and ambitions to develop sustainability-driven innovation and ventures. Comments identified the wider geography and topology as surprisingly important for affecting people's beliefs about the natural environment and which served as a daily visual reminder of the bigger picture and purpose. Both Vancouver and the wider region were viewed as very desirable places to live in terms of climate, access to nature, infrastructure, and connectivity to the wider world. There was praise for the close-knit community of people willing to help each other through networks and knowledge as well as appreciation of the diversity of people, cultures, and beliefs.

Many acknowledged federal and provincial government support through policy, permitting, and funding for businesses and new industries as being vital for the wider innovation ecosystem by providing incentives such as tax breaks, for instance, for the movie industry, stem cell research, fashion and textiles, hydrogen and electronics. The relative vicinity to California's innovation ecosystem combined with a significant number of small, and especially micro, businesses were cited as critical for the strong entrepreneurial culture present. Some believed the relatively smaller, less competitive market was more conducive for startup companies, and later facilitated their access to the US market.

More specifically, interviewees highlighted BC's policy framework and commitment to supporting a green transition through funding and carbon credits as substantial drivers for innovation in this area. Supported by passionate climate activists and customer appetite for green technologies there was recognition of a strong ethos and culture on cleantech and the environment as a thread permeating through Vancouver and BC lifestyles.

This had led to the emergence of the West coast as a hub and ecosystem for clean tech innovation in Canada, with frontrunners Ballard, Westport, Loop, and AVL frequently cited as beacons for other startups in this space, but new hubs and communities are also emerging around power electronics, biotech and oceantech. Especially the natural resource endowments including kelp and existing centres of expertise on pulp, paper and biomaterials were seen as key assets in developing regenerative materials and feedstock. Interviewees also mentioned the presence of several strong higher education institutions as vital for providing access to key technical and digital skills and talent.

Finally, there were comments about the noticeably different investment community in Vancouver compared to Toronto, Silicon Valley and New York which had both advantages and disadvantages. Many suggested there was an increasing desire to invest for both financial returns and broader impact spurred by a growing impact investment and angle investment community. This impact focus and future orientation in turn was also quoted as attracting more females into this ecosystem.

### ***3.2 Incubators and Accelerators***

#### ***3.2.1 Role of purpose, sustainability goals and ambitions***

The 12 incubators and accelerators interviewed described the purpose of their own organisations in a variety of ways. Several interviewees stated their purpose was "not what it says on our website", suggesting a disconnect between publicly available information and practical day-to-day reality of these organisations. Given the sampling frame, purpose statements fell on a spectrum of broad, generic schemes designed to support entrepreneurship and innovation in general terms across British Columbia and Canada, irrespective of technology or impact. These larger, often nationally and internationally connected incubators and accelerators therefore sought to help improve the growth of an entrepreneurial culture in and around Vancouver as well as typically across Canada and sometimes the US. Key goals in this endeavour were supporting jobs growth and economic transformation driven by science, technology, and systemic change of the wider national innovation landscape. These organisations and initiatives tended to be technology agnostic and impact neutral

but strongly recognised the importance of wider sustainability issues and concerns for their operations or had embedded more focused streams and themes within their support offerings.

At the same time, many others explicitly linked the existence of their organisation to the integration and achievement of important sustainability goals. Purpose in these cases was defined by clear commitments to supporting national policy goals (e.g., climate change net zero), for example, through the “hunt for ‘gigacorns’” (i.e. unicorns that remove a gigaton of carbon) and generally developing new ventures that target specific social and environmental challenges, either framed as triple bottom line outcomes or drawing on concepts such as ESG and the UN Sustainable Development Goals (UN SDGs).

### **3.2.2 Nexus thinking and sustainability transformations**

One of the most widely shared concerns among interviewees, regardless of their organisations’ purpose, related to recognising and addressing the role of equality, diversity, and inclusion (ED&I) within all activities associated with innovation and entrepreneurship. As such, the role of women and indigenous communities as well as other marginalised members of society was widely highlighted as a key challenge and in substantial need of attention for the wider innovation ecosystem to flourish and fully reflect its members and intended beneficiaries. Accordingly, a key focus on addressing the entrepreneurship-social impact nexus by removing barriers to participation for entrepreneurs from non-traditional backgrounds was very noticeable even if clear challenges and shortcomings were also noted.

Beyond this area of priority, interviewees discussed the interconnections between different sustainability issues through a variety of lenses and approaches. Many targeted specific themes and challenges through their programmes and portfolios (e.g., health, climates, agriculture/food, and inclusive communities/education, reconciliation), others used the UN SDGs and their targets, or ESG metrics as frameworks to measure and target environmental and social impact areas, typically noting that startups and ventures had to meet multiple requirements and/or integrate these as part of their sustainability goals and plans for commercialisation. These commitments were driven both by commercial concerns (i.e. sustainability impacts viewed as a proxy for financial success) and by the intentionality expressed in organisational purpose statements and operational approaches. While many highlighted the challenges of defining, measuring, creating, and articulating an authentic impact strategy, they also recognised that such impact was rarely created through isolated efforts or siloed thinking.

As such, themes and areas of priority at the very least reflected the need for addressing both environmental and social issues together, rather than treating them as separate challenges. Despite a strong focus on the need for creating substantial high-impact IP that could be used to address critical environmental problems, interviewees strongly believed they simultaneously needed to support technologies and innovations that integrated diversity, equity, inclusion, as well as the creation of higher quality jobs and other solutions to elevate inclusive communities in their programmes.

Examples for achieving this included addressing such interconnected sustainability issues across supply chains and recognising the need for climate adaptation and resilience (as well as mitigation). Others focused on pursuing the “sustainability-community-wellness” triangle of interconnected impact areas through their programmes and investments. Some stressed that addressing complex sustainability challenges required not just the development of “deep tech” solutions, but also a need for advocacy, policy change, and social sector interventions, though the extent to which this was their ventures’ responsibility and even part of their capability was uncertain.

### **3.2.3 Metrics**

Given such as ambitious goals and targets, a key challenge for all incubators, accelerators and investors was the process of adequately measuring such impacts. Beyond the “relatively” more straightforward metrics involved in measuring greenhouse gas emissions and water consumption, there was agreement that different frameworks and reporting requirements created significant problems but also opportunities for innovation and differentiation. While the UN SDGs were often used and well understood in general terms, they also tended to be both insufficient and too broad

given other very contextualised issues of importance. While some accounted for their work through reductions in negative (typically environmental) impacts and improvements in positive (typically social) impacts (for example, lives impacted such as supporting underserved and underrepresented entrepreneurs), many other concerns about this process remained. These included the importance of demonstrating intentionality behind a new venture and its offerings, as well as being able to anticipate and evaluate any unintentional consequences or perverse incentives from proposed products/impacts. Some framed this by considering a series of questions such as

*“What impact is being generated, who is experiencing it, how much is being experienced, what the delta, what is the contribution to it and what is the risk of these investments impact not being achieved”.*

Interviewees also stressed the need for developing specific theories of change for key impact areas, evaluating investees’ logic models, conducting competitor benchmarking on impact metrics, and assessing both the product/operational and supply chain impacts by questioning their ventures’ choice of suppliers. To achieve this, interviewees relied on the IRIS+ metric system and combined this with SDG targets, impact investment principles and an ESG strategy based on the concept of “double materiality” to help shift discussions with investors from risks to broader (positive) impact creation.

Ultimately, the aim was to demonstrate the (economic) value of ESG in the private market as well as wider sustainability impacts (e.g., climate and community) of such companies. Others sought to incentivise specific ventures to emerge by offering specific prizes dedicated to key areas of government interest (e.g., region, diversity, industry), or by helping established SMEs grow their financial bottom lines by integrating relevant key ESG issues.

### **3.2.5 Benefits provided**

Interviewees from incubators and accelerators described the benefits provided by their organisations through a multitude of terms. For instance, they included access to general *knowledge and expertise* such as mentorship from serial entrepreneurs and other advisers who offered honest feedback and provided a “market for judgement”, board level and industry insights, subject matter expertise, and guidance on outsourcing. Benefits also typically included *access to networks* of investors, government representatives, and corporate limited partners or the potential for offering corporate staff as a first customer base. Others targeted their efforts to supporting entrepreneurship through *education* from early stages, including raising awareness and *developing entrepreneurial* mindsets among students, as well as *competency building* through CTO and engineering team training workshops, or conveying investor framing and language.

Interviewees’ organisations also offered more *technical and commercial guidance* by validating product-market-fit, offering access to scaling support and product and technology roadmap accelerator programmes. Others supported ventures through programme management (e.g., negotiating pilots with milestones), road mapping, and competitive benchmarking. These efforts were ultimately designed to help de-risk new ventures, shape innovation and ventures by framing and articulating potential opportunities, refining technological attributes involved, and identifying potential user needs.

Finally, many programmes and organisations also directly offered to help “bridging the valley of death and the valley of never having lived” by providing access to *financial capital* (i.e. non-dilutive funding), engaging in “matchmaking” with suitable investors, or running venture competitions which, apart from jury feedback, also rewarded winners with prize money.

Outside the traditional competencies of these incubators, accelerators, and investors, several organisations also supported ventures such as SMEs on ESG risks during the screening process by helping them set up policies and set relevant targets, explaining why potential investors would want to have access to ED&I/ESG data, and supporting the MD/CEO with hands-on access to information and detail on ESG evaluation tools. Here, the purpose was to ensure that such ventures will be prepared for conversations with growing investor demand for insights into non-financial data, especially from emerging funds operating with a triple bottom line mandate. At the same time, one



interviewee stressed the importance of helping companies innovate solutions by coaching them to approach complex environmental issues independently to ensure they retained ownership; another acknowledged their investments were creating “tuition value” by supporting organisational learning of the corporate sponsor for the fund.

### **3.2.5 Relationships**

In terms of the relationships between different incubators and accelerators within the BC area, several interviewees praised their close integration with other accelerators nationally and academic institutions including the BC network of cleantech partners. They recognised the importance of clearly defining the role and differences of regional vs. national support schemes, and especially the need for regional ecosystems to contribute directly to local communities through partnerships by developing a strong, coherent regional focus. Other interviewees also illustrated their relationships through participation in other accelerators, for example, in form of mentorship opportunities and attendances at industry specific networking events.

Yet while relationships were generally characterised as “very friendly and collaborative” there were also concerns about some sensitivity around ownership of start-ups in more localised programmes, for example, those targeting small towns. Moreover, the term “fragmented” was mentioned by numerous interviewees when describing the innovation ecosystem in BC. Some looked with envy at other provinces developing their new innovation ecosystems in a more coordinated way from scratch (compared to BC) and suggested occasionally there was a degree of rivalry with east-coast approaches and networks. Others were wondering whether there were simply too many incubators and accelerators spreading their funding too widely and thinly in BC. There were concerns about an overabundance of opportunities available for securing tax deductions leading to duplication of efforts, complexity and confusion for startups and investors about where to start, as well as “some level of protectionism”. Interviewees cited the diversity of objectives by different programmes as inhibiting stronger collaboration and a lack of referrals meaning there was no clear hand-off to other programmes, funding, mentors, and networks.

Even though several actors had begun developing roadmaps, a persistent lack of coordination was also viewed as challenging given that many non-profit based incubators and accelerators were already struggling due to lack of resources, staff, and time. Interviewees also expressed a lack of alignment between publicly funded and for-profit accelerators, but noted that previous levels of competition (especially between VCs and impact investors but also between different programmes and Universities) were shifting towards collaboration at a time when interest rates were rising and access to capital becoming more expensive.

### **3.2.6 Barriers, challenges, tensions, trade-offs**

Beyond the issues and challenges affecting the BC innovation ecosystem, interviewees also raised a variety of other barriers, tensions and trade-offs that shaped their perceptions of and ability to create broader sustainability impacts. At the macro-level, the impacts of Covid19, shifting geopolitics and challenging economic conditions were all acknowledged as significant factors that needed to be taken into account during the development and support of new ventures.

#### **Access to funding**

A first major issue was a perceived funding gap, especially with comparison to the US. Several interviewees believed Canada was significantly undercapitalised and lacking a very strong angel investment community, though VCs were noted to be entering earlier. Equally, some mentioned the challenge of raising philanthropic or other fundings as well as general levels of bureaucracy attached to securing funding.

With regard to government funding for incubators and accelerators, interviewees believed several factors created additional barriers for a more effective innovation ecosystem to emerge. These included the fact that federal funding is typically only available for programmes with national footprints, and at provincial levels the fact this funding is renewable on annual basis was seen as negatively affecting long-term planning and security. Another concern raised was that BC funded programmes require a stake in the ventures thus excluding programme expansion to Alberta/Pacific

US. Several organisations spoke of an urgent need to diversify their funding sources and income streams.

### **Clean tech vs. digitalisation**

Beyond funding, another frequently mentioned concern related to the nature of the cleantech industry which was described as fundamentally different from other industries, especially those based on digitalisation and IT more broadly. Interviewees stressed that for cleantech capex and uncertainty are much higher, therefore requiring larger, more patient long-term access to capital. Additionally, comments highlighted the need for avoiding technological perfectionism and for identifying paying customers early on as well as shifting ventures from technology risk to commercial risk because scaling in this industry is much more challenging.

Moreover, given the complexity of climate change, some believed there was a lack of technological alternatives, or where technologies already exist, they often tended to be uneconomic. Despite significant activity and growth in the cleantech space interviewees were sceptical about the overall effectiveness given rising GHG emissions trajectories. They therefore called for more focused support and programmes, for recruiting ventures with bigger climate ambitions, and for startups with deeper industry expertise and advice, especially in emerging areas of technology. Some also believed that while technology was clearly necessary, more effort was needed to develop ventures based on behavioural interventions such as the use of nudging, and the development of other new sustainable business models. In this context, some interviewees also suggested that social co-benefits might emerge from pursuing “hard environmental goals”; in other words, ecological protection should perhaps be given priority over other social concerns during the development of relevant ventures.

### **Industry inertia**

Aligned with the barriers encountered during the development of clean tech, interviewees discussed the role of industry incumbents in driving cleantech innovation. Repeatedly, concerns were raised about a general lack of adoption by industry because corporate buyers were seen as too risk averse, and managers too focused on short-term share price impacts and their own stock options, thus being unwilling to invest in emerging technology and diversification. Following years of hollowing out their R&D departments, many were simply believed to be waiting to acquire potential startups after they had proven their general viability. Interviewees cited an urgent need for speeding up the transformation of existing businesses through better prioritisation of issues. At the same time, they also acknowledged that many ventures were lacking trust and good faith in driving change within established value chains. For example, a decision to partner with oil and gas companies might help their diversification and lead to broader impact but this required overcoming negative perceptions by both cleantech ventures and established corporations.

### **Talent**

Besides industry effects, interviewees also discussed challenges around talent recruitment and retention as a significant factor. They particularly stressed the need for ensuring diversity and inclusivity across all stages of the venture creation funnel and across their support programmes including the selection of volunteers, mentors, and judges to support start-ups. This was seen as essential for ensuring that sufficient role models were being developed, yet there was also acknowledgement of the lag effects involved in that it takes time for a more diverse cohort of PhDs, project investigators (PIs), innovators, and successful entrepreneurs to become mentors and investors for others. Some therefore sought to reach outside traditional pools for their support programmes, for instance, inviting members of diverse communities from abroad or from outside the innovation ecosystem to sufficiently bridge the gap at least temporarily.

Another concern raised relates to ensuring strong succession and leadership within the ventures supported. For example, some suggested that the original inventor, scientist or engineer behind a start-up might not always necessarily make a good CEO to grow a company. These individuals either needed to be coachable and able to balance their dual academic and business careers or agree to pass on management to an appointed CEO. Here, interviewees suggested that a former trusted PhD or Masters student from founder’s lab who was not pursuing an academic career might be a potential alternative. For that to happen, Universities needed to better support and advise (research) students with this alternative career path beyond academia. Both issues were also seen as particularly critical to better manage and steer immigration as well as avoiding braindrain.

## **Impact reporting**

On the sustainability side, interviewees discussed challenges around reporting requirements and expectations, given constantly shifting standards and frameworks as well as the difference between impact and ESG measurement and reporting. At the same time, they struggled with capturing actual outcomes and impacts of entrepreneurial ecosystems, especially accounting for the attribution of their programmes and ventures and avoiding “impact washing”. While there was a lack of data availability on sustainability performance for their ventures, they were also keen to avoid overdemanding such information too early on during the venture development. Others felt that quarterly reporting and bank covenants might equally be too restrictive to ensure true impact is being created and accounted for.

## **Innovation ecosystems**

When reflecting on the challenges of the broader innovation ecosystem in British Columbia, some interviewees worried that University-based innovation programmes risked being overwhelmed by bureaucracy, yet they also needed the affiliation with academia for their social licence to operate and were in fact very complimentary about their relations with and impact on the higher education sector more broadly. Others criticised siloed thinking and conflicts of interest in terms of representation and advocacy of services as problems, thus emphasising the importance of neutrality as critical to ensure entrepreneurs and investors could trust the wider the system.

The notion of additionally was mentioned several times where interviewees wondered to what extent their programmes had truly led to the creation of a new venture or whether this would have happened anyway. Equally, the same applied for funding support and the risk of financial crowding-out if a venture could have been served by traditional investment.

On the sustainability side, there were concerns about the difficulty of identifying high-potential startups with significant impact, and about creating an effective programme that helped ventures not only to startup but also to scale-up. There was also a view that foreign-funded start-ups might be leaving during the scaling up phase. More importantly, some wondered how many ventures simply entailed “solutions searching for problems” and instead called for more problem and impact-driven entrepreneurship.

## **VC model**

Finally, there was also some discussion about the role of the venture capital funding model adopted and targeted by many of the programmes interviewed. Some believed that to achieve significant impact ventures had to scale and thus needed the VC funding to achieve this target, however, they also acknowledged that this was associated with significant economic growth expectations. They therefore questioned whether it was indeed possible to reconcile long-term sustainability goals with the demands for short-term explosive growth from investors.

Aligned with that, some argued that the VC model was broken, that it was based on the self-serving creation of artificial industries, highly concentrated capital ownership among a small non-diverse elite, and the misspecification of actual (socio-ecological) problems. Similarly, there were concerns about an excessive focus on identifying unicorns, rather than supporting mid-tier ventures which could, for example, provide clean energy services to rural communities in Canada without having to reach the same scale expected by some VC funders. They also suggested that genuinely impact-driven entrepreneurs were encouraged to pivot their pitch or at least target more profitable markets (first) in order to meet investor expectations, yet they acknowledged that a shift was occurring towards greater reconciliation between growth and impact. This also meant that investors and ventures needed to develop a realistic and “responsible exit strategy” designed to strike the right balance, recognising that success chances were also widely affected by market conditions and sales cycles, though this was seen less relevant in regulated industries.

### **3.2.7 Incubators’ and accelerators’ recommendations**

Based on their comments and reflections, interviewees explicitly identified a variety of suggestions and recommendations for all stakeholders involved in BC’s innovation ecosystem. These have been summarised in table 1 below and should provide readers with first insights and ideas for how to improve the overall effectiveness and impact of this wider network of organisations.

**Table 1: Incubators' and accelerators' recommendations**

<p><b>Capital Funding</b></p>	<ul style="list-style-type: none"> <li>• Create framework funding to ensure Canada's inherent technological leadership and skilled, educated workers can really accelerate the transition to a green economy and accelerate Canada's global competitiveness</li> <li>• Grow angel investment and pre-seed funding (e.g., federal "investment readiness programme") to help de-risk technologies and make them investment ready</li> <li>• Reduce the bottleneck around capital distribution, project financing and operating finance</li> <li>• Bridge the gap between research council funding schemes based on research excellence and investor logic</li> <li>• Government to ensure long-term funding security, or at least some level of predictability</li> <li>• Ensure BC funded ventures stay and grow locally through "crowding-in" and by taking equity positions that help recycle funding locally</li> <li>• Expand "slow capital" sector</li> </ul>
<p><b>Policy</b></p>	<ul style="list-style-type: none"> <li>• Increase pace of policy updates and permitting for special projects</li> <li>• Stop subsidising industries with negative sustainability impacts and support cleantech ventures instead</li> <li>• Ensure "just transition" by supporting low-middle incomes when changing incentive system through taxation</li> <li>• Learn from/replicate Israel's "Start-Up Nation" ecosystem platform (<a href="https://startupnationcentral.org/">https://startupnationcentral.org/</a>)</li> <li>• Learn from other/similar funds across Canadian provinces and further abroad (e.g., Scotland, Ireland, Finland)</li> <li>• Drive corporate business behaviours towards innovation, investment, and sustainability</li> </ul>
<p><b>Innovation Ecosystem</b></p>	<ul style="list-style-type: none"> <li>• Discuss, identify and agree the goals of the wider innovation system</li> <li>• Create a map of all BC programmes and support schemes</li> <li>• Stress the importance of running lean</li> <li>• More collaboration between, sharing and integration of BC organisations and initiatives</li> <li>• Acknowledge that some diversity and duplication of efforts is beneficial for start-ups to allow for choice</li> <li>• Accelerators to be transparent and open about their advice to startups and referrals to other programmes</li> <li>• Foster stronger collaboration between programmes and networks across Canada</li> <li>• Create sector roadmaps</li> <li>• Increase diversity of mentors and investors</li> <li>• Develop standardised entry approach for all potential ventures to avoid bias</li> <li>• Be mindful of language and wording used when describing and discussing entrepreneurial activity (avoiding use of overly militaristic or violent metaphors) that put some people (especially females) off</li> <li>• Encourage new audiences to consider entrepreneurship (e.g. arts) by reframing it as "making impact" rather than a competitive pursuit of profits</li> </ul>
<p><b>Industry partners</b></p>	<ul style="list-style-type: none"> <li>• Work in partnership with private sector</li> <li>• Anonymously increase industry transparency on sustainability gaps, technical problems and needs</li> <li>• Encourage early corporate investment</li> </ul>

	<ul style="list-style-type: none"> <li>• Encourage leadership (in business) that uses its power to empower others, that nurtures curiosity and exploration rather than steering and control of others</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Ensure entrepreneurial thinking and training are embedded across all forms of education</li> <li>• Broader and earlier outreach to high schools, particularly on STEM and entrepreneurship</li> <li>• Encourage a culture that values curiosity through asking exploratory questions over the need for being definitive; avoid tendency for risk aversity because of feeling the need to have answers, especially in early education</li> <li>• Extend support for entrepreneurship training and entrepreneurial thinking courses in schools, e.g. <a href="https://yellcanada.org/">https://yellcanada.org/</a>, to help with diversity and inclusion</li> <li>• Promote entrepreneurship in academia, tolerate/encourage failure (pathway for STEM PhDs who don't want to become academics)</li> <li>• Help academics successfully pursue both academic and entrepreneurial careers (review/broaden tenure and promotion criteria)</li> </ul>
<b>Investors</b>	<ul style="list-style-type: none"> <li>• Ensure diversity (including regional) of fund managers and management teams</li> <li>• Be willing to invest in physical infrastructure, not just digital platforms</li> <li>• Need a shift in mentality around returns expectations</li> <li>• Help support development and funding of mid-tier ventures that provide sustainable services and infrastructure to underserved rural communities, rather than focus on global unicorns</li> <li>• Aim for sustainable growth (not necessarily 10x)</li> <li>• Avoid reference to or framing of “scalable” businesses – this may inadvertently exclude entrepreneurs who don't think their businesses aren't scalable (when they may well be)</li> <li>• Take a more patient, long-term investment approach</li> <li>• Invest in companies with slower growth trajectories but which retain employees as they continue to grow (rather than scaling fast but then also need to lay-off when hitting first road bumps)</li> <li>• Recognise that risk appetite varies (especially with more diverse owners and managers)</li> <li>• Adopt realistic expectations when growing startups in the resource-based sector, don't overinflate performance</li> </ul>
<b>ESG reporting and management</b>	<ul style="list-style-type: none"> <li>• Accelerators need to prepare the startups early on about integrating ESG considerations into their business models</li> <li>• Match ESG reporting requirements with growth stage – don't overburden too early but also don't ignore</li> <li>• VCs to communicate the importance of ESG to acquirers, maintain long-term goals and objectives</li> <li>• PE investors to help ventures with ESG integration</li> <li>• Funders and investors to align their ESG/sustainability reporting standards and data requirements</li> <li>• Teach SMEs how to measure GHG emission scopes 1-3</li> </ul>

### **3.3 Startups and early-stage ventures**

#### **3.3.1 Role of purpose sustainability goals and ambitions**

When asked, interviewees from almost all startups and existing ventures were able to identify a clear statement to capture the overall purpose of their existence, and their long-term vision or mission. These statements were broadly related to addressing either ecological and/or social deficiencies, and served as a beacon guiding the long-term journeys of their businesses' existence. Consistent with the sampling process, all interviewees expressed a clear urge for driving changes towards sustainability outcomes or impacts. While many framed their purpose in technological terms, other statements entailed much broader aspirations to transform entire industry sectors or society more holistically through their ventures.

For example, many sought to either eliminate and replace existing technologies and incumbents based on fossil fuels or other inefficient products or processes. Here, the purpose was to scale up cleaner and greener technology alternatives both in B2C and B2B markets and thus drive industry change towards sustainability.

In a few cases, there were also ambitions to address the relationship between people and planet more holistically, for example, by "bringing balance back to life", "inspiring long-term health and wellness", and by "enabling people to live in harmony with nature". While these ventures ultimately had again specific product offerings that underpinned their vision, these statements were also suggestive of a need to examine and question the purpose of business and economics, lifestyles, and consumption patterns more broadly in order to drive a wider sustainability transformation.

Interesting were also comments that suggested entrepreneurs and leaders sought to draw on and integrate purpose within their own businesses, for example, by providing employees with meaningful work through a sustainable, long-term oriented business, by giving back in multiple ways and challenging existing ways of thinking. Here a strongly people-oriented perspective highlighted business philosophies based on taking care of employees and creating a culture based on solving interesting problems, for instance, through a focus on engineering excellence. It was clear that many entrepreneurs had thought deeply about the state of planet and society to the point they even doubted that chasing money was essential for solving such problems.

Regardless of their philosophies about economics and business, however, when asked about their medium or long-term plans, most startups and ventures also identified clear commercial and organisational goals that ranged from highly ambitious plans to "building a 'trillion dollar organization', join the four comma club because that's 12 zeros" and becoming world leader in their field or market, to more tactically-driven quests and milestones such as going to market with a minimum viable product, getting x number of plants operational, scaling up and increasing sales and throughput, and achieving an x% market share.

In terms of sustainability goals, interviewees' responses again ranged from the ambitious creation of entire new sectors (e.g., aquaculture; forest economy) and "bringing 10% more sustainability into the world" to more operational plans such as using more sustainable material sourcing, reducing waste and virgin plastics through recycling and reuse, increasing efficiency and decreasing toxicity, as well as reducing their product's current impact on health and the environment. Some also cited specific targets such as reduction of synthetics by 100% or reforestation 20,000 hectares a year, planting one billion trees by 2030. Perhaps more difficult to measure, other key goals mentioned were changing the conversation about the effectiveness of biologic pesticides and fertilisers or being at the forefront of a massive energy transition and helping to make it reality.

#### **3.3.2 Nexus thinking and sustainability transformations**

Beyond broader goals and purpose statements, both concepts such as the circular economy and the UN Sustainable Development Goals were mentioned by several interviewees as means to communicating an awareness of the need for addressing complex, interconnected sustainability challenges. This tended to be fairly abstract and high-level, with only few examples of direct impact mapping across the 17 specific SDGs provided or explanations of how the venture sought to shift our

economic model away from linear consumption patterns. Others identified broad themes of impact, for example, a venture operating at the intersection between food security, climate change mitigation, and pollution.

Much more common instead were references to a list of specific environmental metrics and indicators with carbon emissions the most widely cited. This was closely followed by energy and water consumption as well as waste. Given the nature of many ventures' products, then, a key focus here was an evaluating the avoidance of emissions, waste, consumption, chemicals, and pollutants by way of substitution with renewable or more efficient alternatives – a substantial challenge given the need for establishing baselines or business as usual predictions against which to measure improvements. Biodiversity was also on the radar of several respondents but was deemed to be even harder to measure for the time being.

Additionally, many interviewees clearly recognised the interconnections between addressing social and environmental issues more broadly, such as those reflected under the broad umbrella of equality, inclusion, and diversity (ED&I). Generally, frameworks used in this context include 6 Sigma and the UN Global Compact women's principles as well as the SDGs, GRI, and SASB.

Ensuring the venture had targets for females and other diversity categories among managers and staff was seen by some as both morally the right decision and also important to prepare the company for future growth phases including scaling and IPOs when such data and information would be mandatory. Some even commented that it was much easier than thought to integrate such ESG metrics right from the early stages. One interviewee equally acknowledged that while their product was designed to contribute to clean energy and climate action, it was also essential to become carbon neutral as a manufacturer themselves as soon as possible despite still being in the startup stage.

This also meant that even as startups some had already begun measuring scopes 1-3 GHG emissions, i.e. including their suppliers'. This focus on addressing both social and environmental sustainability issues across the supply chain was particularly prominent among startups in the agricultural and fashion sectors where there was also greater concern for the economic realities faced by many of their suppliers, both in Canada and abroad. Interestingly, some had even decided to reshore manufacturing processes despite the economic disadvantage to increase control over inputs used, reduce emissions during transportation, and address ethical concerns in the supply chain. More exceptionally, two ventures explicitly sought to support local indigenous and other disadvantaged communities by providing dedicated employment opportunities.

### **3.3.3 Perceived benefits**

When asked about their reasons for joining different incubators and accelerators, interviewees identified a wide range of benefits received from such programmes and membership. Probably the most common response related to the access provided to key individuals and networks. Whether they were executives and entrepreneurs-in-residence, lawyers or other functional and industry specialists, even end consumers and regulators, such "hyperconnections" of a powerful network were frequently seen as shortening the time it takes to identify the right partners, and crucially also investors.

While there was recognition that the frequency and quality of mentorship could vary across different programmes, accelerators provided clear opportunities to access industry and technology peers, share stories and learn best practices, develop their business strategy, receive ongoing training and education, generate positive press and support with customer discovery. Moreover, interviewees valued help with pitch practice, project management, developing technology roadmaps and obtaining external technology validation, including, for instance, gaining access to hydrogen test facility for safety demonstration and for proof of concept.

There were also suggestions that attendees were beginning to understand how sustainability fits into their business, for example, by identifying material issues and learning how to create impact reports. The typically competitive, milestone driven support system in some accelerators therefore prepared them for discussion with angel and other investors to secure early-stage non-dilutive investment.

Some believed that incubators and accelerators worked best when they provided an interdisciplinary lens and relevant industry focus and support, but also noted general difference between programmes in terms of industry and network depth, coaching quality, and objective setting. Importantly, mentors could challenge them to adopt critical systems thinking, as their ventures often could not compete within established markets, and thus needed to create purposeful alternatives.

Beyond their incubators and accelerators, interviewees mentioned partnerships with various federal and provincial bodies and departments, research labs and institutions, especially in terms of grants for R&D, such as SR&ED and IRAP, and the National Research Council's Accelerated Growth Service. Apart from other industry specific accelerators, interviewees also valued close working relationships with different Universities and Polytechnics across BC, Canada, and the US.

### **3.3.4 Barriers, challenges, tensions, trade-offs**

Despite the general appreciation of the comprehensive and highly valuable support received from everyone involved in the wider innovation ecosystem, interviewees also voiced a wide range of issues and grievances affecting their ability to achieve their personal and organisational aims and ambitions. Specifically, when asked to reflect on the ability of this ecosystem to effectively provide products, services, and solutions to address the various complex sustainability concerns, interviewees identified numerous barriers, challenges, tensions, and trade-offs. Broadly, these fell into the categories of technology and market readiness, staffing skills and mindsets, regulation, entrepreneurs and location, sustainability, investors and funding, and accelerators.

#### **Technology and market readiness**

The first major concern raised related to the extent to which technology and markets are ready for effectively absorbing emerging cleantech and other greener products and solutions. Interviewees believed that in many cases solutions and technologies were already available but simply not coming together at the pace and the scale needed. There was widespread recognition that (technological) complexity was an enduring challenge and that managing unforeseen technical issues during rollout was an accepted part of entrepreneurial reality. Accordingly, the persistent tensions between continuing R&D and starting commercialisation were best addressed by pursuing minimum viable products that could be refined with time and further investment.

While the capital-intensive nature of many startup businesses required significant engineering and manufacturing efforts, it was also acknowledged that technology creates (at least temporary) barriers to entry for others. And yet, in order to reach sufficient scale and impact, a major challenge was potential customers' perceptions about the broader viability of a new technology, leading to a chicken-and-egg situation where small demonstration projects and pilots are insufficient for raising customer trust and demand. This was especially the case for industries that require extensive track records before new products are being accepted as suitable alternatives (e.g., up to 16 years in building), or where buyers expect like-for-like performance characteristics from substitutes such as regenerative materials that can vary more naturally or are unrealistic from a scientific perspective.

The general level of risk aversity among corporate buyers as well as the slow and conservative mindsets and norms in established industries like mining and farming also extended to an unwillingness to pay despite environmental benefits provided or where excessive third-party verification was required in case technology did not work as expected. Some believed established corporate systems and structures were "killing" entrepreneurship and innovation needed in critical areas despite arguably having access to the best talent. Such circumstances exacerbated the barriers for ventures lacking established sales networks and whose access to corporate partners was at risk of being dropped every time there was a business reorganisation.

Further, there were calls to recognise that cleantech often involves both product and process innovation and that it was important to clearly distinguish between cleantech hardware and software as this could influence investor perceptions as well as different levels of government support, such as tax breaks. In several cases, there was detailed discussion of the lack of a hydrogen infrastructure to support existing duty cycles and long lead times and competition for hydrogen parts and equipment as critical barriers.



Interviewees highlighted differences between selling B2B vs. B2C with the latter either unaware of the true costs of their product purchases or lacking choice. Overcoming customers' perceptions that their impact was tiny or irrelevant if others don't change was also seen as critical for activating changes in customer behaviour. While one complained about a lack of volume orders to be able to scale their business, another actually had insufficient capacity to meet demand. Another felt that customers were getting used to consultants underdelivering in order to sell follow-on projects, in effect penalising businesses like theirs that aimed to overdeliver.

### **Staffing skills and mindsets**

The next area of concern related to the general availability and suitability of skills and talent, particularly in terms of recruitment and retention of specialist skills. While one pointed to the difficulty of hiring senior executive talent from US who didn't want to move to Vancouver at half their current salaries, another also suggested that talented managers successful at scaling businesses in Canada were often likely to leave.

One entrepreneur claimed they needed to employ a full-time employee just to manage grant-related projects because of reporting requirements. There were also interesting differences noted between employees who focused on technology commercialisation and customers and other staff who perceived of business as having broader responsibilities to a variety of stakeholders and issues. These were often also associated with notable age difference, with younger employees taking a more holistic approach compared to older employees focused on more traditional business outcomes. This led to challenges in terms of effectively communicating a sustainability strategy internally to all staff as well as managing a mix of financial, engineering, and science cultures within a growing business.

### **Regulation**

Several interviewees believed regulation posed a significant barrier to progress. Concerns were raised that government regulation was too slow or not always technology neutral, e.g., favouring fuel cells over use of hydrogen in ICEs such that comparisons with established fuels or fuel cells was not always conducted consistently. With incumbents lobbying against more sustainable entrants, in other sectors there was either no regulation at all (e.g., managing corporate water consumption), effectively creating barriers to entry to sustainable alternatives (e.g., biopesticides, hempcrete), or creating disincentives by evaluating performance incompletely (e.g., focusing on grid interruptions and outages rather than also including carbon performance). Finally, comments suggested there might be significant trading barriers even within the Commonwealth (e.g., Canada to UK) and that selling to government agencies could be unpredictable due to frequent governmental reorganisations.

### **Entrepreneurs and location**

Perhaps more idiosyncratically, entrepreneurs reflected on themselves and their ventures citing a general lack of time and money as well as being terrified about the consequences of not securing funding for their colleagues and family as powerful tensions. It was also acknowledged that growing a startup creates personal and professional challenges during the integration of other business partners into one's own ecosystem, or that they had to think carefully about managing tensions between driving commercial activities and advancing research activities. Another admitted they were actually not sufficiently interested in money and finance, and thus needed to hire a CEO to raise capital to allow them to focus on technology development as CTO.

Despite the general attractiveness of living and working in British Columbia, there were also concerns that the high cost of living might provide a disincentive to entrepreneurial activity. Equally expensive real estate was seen as adding to the challenges for ventures requiring physical space for hardware development (e.g., compared to digital ventures). Despite the widespread adoption of virtual communication and collaboration technologies, the physical separation between team members working on Vancouver Island and others on the mainland was mentioned as another barrier. Lastly, one interviewee believed a lack of familiarity with manufacturing in BC also caused problems when speaking to investors.

### **Sustainability**

Perhaps unsurprisingly, a significant source of tension for interviewees arose from the complexities involved in working on ventures designed to address sustainability challenges. For those more

familiar with many of the key concepts, frameworks, and terminology in this field, this meant, for example, a struggle to communicate with potential investors and customers the benefits of approaching complex issues through the lenses of the circular economy or the energy-food-water nexus. Some admitted using such language and concepts cautiously to avoid being disregarded by potential business partners.

Even where associated intelligence and data were available, the biggest barrier to progress identified came from a lack of agreed frameworks and standards on measurement, reporting and verification (MRV). Both in terms of their products' sustainability impact and their own operational efforts, interviewees stressed the general lack of trust in the accuracy of their measurements as being problematic with customers and slowing down the emergence of new markets. This was even more challenging when trying to verify one's own green product claims without being accused of greenwashing.

While customers clearly had increasing and emerging expectations on businesses' environmental and social credentials, interviewees found it difficult to meet them all in the absence of clear and trustworthy signals and labels designed to aggregate that information effectively. Even the B Corp certification seemed challenging for investors unfamiliar with this standard as they seemed unwilling to make legal changes to ventures' incorporation status.

In other cases, consumers and investors were unaware of the impact achieved when this had already been created during the production phase through emissions or waste avoided (invisible baseline). There was also discussion about the fact that sustainability measurement was inevitably based on incomplete data and thus a need for "relying heavily on averages". This also led to tensions between scientist entrepreneurs seeking truth and accuracy in measurement, and business and investor communities perhaps more comfortable with "guesstimates".

Lastly, there were questions around the extent to which it was even possible to develop new sustainable business models that lead to the greatest triple-bottom line impact. While some targeted serving society as a means to becoming economically viable, others believed they were unable to create impact on sustainability when operating in an economic system that demands financial sustainability regardless of the wider social and environmental impacts.

In the latter case, interviewees argued that humans being primarily motivated by social status and convenience were hindering sustainability efforts. Another conclusion was that arguably the "most sustainable product is the one that's never made" and that a second-best option was to design products for durability and efficient use. In any case, there were concerns about a lack of support and funding for new ideas and business models that might not have clear commercial or economic benefits but which the world desperately needed.

### **Investors and funding**

Aligned with many of the previous issues and concerns, interviewees provided a range of comments and critiques on the nature of the financial system within which they were trying to thrive.

First, in terms of the general financial landscape, a key concern was inflation leading to rising costs across the supply chain. Several interviewees pointed out that federal funding was typically covering employee costs which was very welcome (e.g., SR&ED) but also that this presented significant challenges because the capital costs for hardware were a much bigger barrier to making progress at startup/SME stage. At the very least, there were calls to match grants from government with industry partners to help increase trust and credibility while reducing risk.

There were repeated comments about a lack of capitalisation compared to the US or Europe, especially for scaling businesses. A recurring theme was the perception that Canadian banks and investors were significantly more risk averse, favoured software over hardware, or were only providing loans for real estate.

More importantly, many interviewees voiced concerns about a misalignment in expectations between investors and entrepreneurs. First, this related to the nature of their ventures and the need to appreciate the significantly longer development times and risks involved in developing cleantech

products and solutions, especially when compared to digital offerings. As cleantech prototypes could cost an order of magnitude more compared to other tech or software investments, there were calls for investors to go down in TRL level, go up in price point, to extend their ROI calculations over much longer time frames, and to accept that expecting multiples on investment is difficult to reconcile with scientific reality. Some argued that such perceptions even affected how companies presented themselves externally to investors and others (i.e. as platforms or services-based business models rather than as hard cleantech).

Generally, therefore, interviewees were calling for more patience from investors by overturning the “fail fast” culture, to invest in truly sustainable products and businesses of tomorrow in need of urgent investment, not in what looks attractive and available now, and a new approach to assessing risks and returns.

Many, however, felt that that was probably unrealistic given prevailing mindsets and beliefs in an economic model based on venture capitalism that favours fewer people working, cheaper materials, and increased speed of delivery when all of these factors were arguably believed to be counterproductive from the perspective of achieving a healthy society and a healthy planet.

Other concerns raised included investors not being interested in sustainability consulting services that cannot be easily scaled and/or have long sales cycles; investors preferring simple, understandable and relatable stories, and execution on vision, rather than being interested in achievements despite absence of goals; investors expecting businesses to be financially overstretched as a sign they are taking on enough risk; as well as suggestions that some entrepreneurs were deliberately overstating claims and goals to hook potential investors because honesty about goals and risks appeared to be underappreciated by investors who preferred to be told how easy it is going to be.

Lastly, there were also a variety of concerns about the lack of equality, diversity, and inclusion in the investment space. Generally, comments stressed the persisting unconscious bias against ethnic people, visible minorities, First Nations, and females that was preventing broader inclusion of a diversity of entrepreneurs and investors. While one claimed that “investors were completely allergic to social impact”, another believed that investors were in fact excited about First Nations partnerships because it helped with access to resources and de-risking reputational risks. Yet, they also believed that investors were absolutely not interested in helping socially beyond a commitment to First Nations, as this might suggest the business was a charity and/or had poor products. This entrepreneur was also discouraged from using the term social enterprise.

Others commented that the general working culture of nine to five was built on the assumption that an unpaid worker was taking care of the home and the children, in other words, not built for women, but built by men for men. There was recognition that despite all other claims investments were ultimately being emotively driven, and that investors were more risk averse when faced with female entrepreneurs. Specific examples provided included asking questions differently (investments framed through loss-aversion lens) and even telling a female entrepreneur to pitch their business idea in a lower voice register.

### **Accelerators**

Finally, interviewees discussed tensions and challenges experienced as part of their attendance in various incubators and accelerators. Besides one entrepreneur admitting to being confused about the difference between incubators and accelerators, there were concerns about the recruitment and selection processes involved. While screening based on the likelihood of success was seen as potentially creating unfair bias, it was acknowledged that finding the right balance between picking winners (at the risk of supporting unsuccessful ventures for too long) and an overly aggressive investment model was challenging.

In part this was also down to sometimes inconsistent and contradictory advice given on pitching across different accelerators which could lead to a degree of cherry-picking by the ecosystem, in which ignorance was displayed towards ventures or founders who struggled to communicate their ideas in established ways. In fact, it was suggested that some founders, especially with an engineering background, might not fully appreciate the need for practicing pitching and thus the need

for communicating scientific ideas effectively. The difference between scientists and entrepreneurs was stressed repeatedly and thus a need for being honest with oneself to consider if entrepreneurship was a suitable career path.

There were few doubts that more large companies and bigger investors were needed to help the ecosystem, yet concerns were raised that many accelerators might be more interested in product innovation than business model innovation and that especially government-funded accelerators might not be designed to help business truly innovate, but to screen and prepare businesses for private investment.

A last theme revolved around the question of whether incubators and accelerators are effective agents of a broader sustainability transformation. Again, this debate suggested that while innovation ecosystem actors were increasingly looking at triple bottom line outcomes (i.e. social, economic and environmental metrics) and developing theories of change, venture capitalists' prevailing focus on return on investment based on a "sell and scale mindset" was unsuitable for impact driven ventures. The challenge therefore was for accelerators to manage this tension given that they were typically geared towards feeding the VC model.

Interviewees challenged the assumption that everyone's goal was a multi-million dollar exit through an extractive "unicorn sell-off" mentality, moving on to the next project, rather than being interested in finding genuine solutions to social and environmental challenges. Consequently, many accelerators were seen as applying too much of a cookie cutter approach without room for creating creative social impact or developing novel and sustainable business structures. One put it as "too much of a fill in the blank template for how to start a company" approach.

Some interviewees argued the VC funded model of entrepreneurship was creating a self-replicating system in which a few individuals increasingly accumulated wealth through the development of apps and digital technology without a clear mechanism to distribute wealth to all those in need. The fundamental question to be addressed therefore was "how do we create companies and an ecosystem that's more inclusive and holistic?"

### ***3.3.5 Entrepreneurs' recommendations***

Based on their comments and reflections, interviewees explicitly identified a variety of suggestions and recommendations for all stakeholders involved in BC's innovation ecosystem. These have been summarised in table 2 below and should provide readers with first insights and ideas for how to improve the overall effectiveness and impact of this wider network of organisations.

**Table 2: Entrepreneurs' recommendations**

<p><b>Incubators and Accelerators</b></p>	<ul style="list-style-type: none"> <li>• Provide clear advice on which incubator, accelerator, or other venture support scheme to join</li> <li>• Provide training on avoiding unconscious bias during investment decisions</li> <li>• Consider trialling “blind” pitches</li> <li>• Make sure that ventures in an accelerator also learn from each other (or even collaborate) (peer learning)</li> <li>• Ensure cleantech ventures in particular have a diverse team with different type of skillsets</li> <li>• Provide sufficient support on business fundamentals and identification of relevant team members with key skills, especially for entrepreneurs without business background</li> <li>• Explain how pre-revenue companies can pay for an accountant and having patent number (e.g., sources of funding available, how to do this efficiently and effectively)</li> <li>• Create incubators and accelerators for waste and pollution as well as water tech</li> <li>• More support for and attention to ideation on addressing different sustainability outcomes, especially prototyping, trials, and pilots</li> <li>• Less focus on apps but new technology, better ways of packaging, technology for recycling, absorb pollution and chemicals, material sciences, sensors that can provide the right type of data for action</li> <li>• Drive the substitution of existing infrastructure and products</li> <li>• Integrate EiRs' compensation to the ventures they are supporting to strengthen interest, e.g., work together on a specific project or specific output rather than paying for time and advice (some form of gain sharing)</li> <li>• Encourage partnerships through superclusters and matching grants from government and industry to help with scaling and acceleration</li> <li>• Encourage information sharing and learning from across different innovation ecosystems</li> <li>• Promote Vancouver as an entrepreneurial hotspot to attract talent and capital</li> <li>• Clearly explain purpose and operation of all ecosystem initiatives and organisations</li> <li>• Ensure incubators and accelerators have full-time representation in Victoria</li> </ul>
<p><b>Entrepreneurs</b></p>	<ul style="list-style-type: none"> <li>• Timing matters – ensure entrepreneurs are in the right accelerator programme at the right stage of their venture's evolution</li> <li>• Focus on learning while scaling</li> <li>• Ensure founders and investors aligned on a single vision and key growth milestones to avoid tensions and urges to pivot away from the vision</li> <li>• Stay agile and nimble, e.g., through use of expert consultants and outsourcing, use of research students</li> <li>• Be ambitious and set stretch goals to increase general success chances even if unlikely to be successful</li> <li>• Maintain focus on solving the problems that entrepreneurs are working on (rather than getting side-tracked by short-term or most profitable avenues)</li> <li>• Manage the tensions between economic vs. sustainability impact and which comes first or drives the other: Need market share to have impact</li> </ul>
<p><b>Consumers</b></p>	<ul style="list-style-type: none"> <li>• Help raise consumer awareness shift their attitudes and expectations on price and product qualities</li> </ul>

	<ul style="list-style-type: none"> <li>• Educate customers by telling the venture's story through other customers</li> <li>• Provide market education on different types of offsetting projects and their relative benefits and challenges to ensure innovation is appropriately directed</li> </ul>
<b>Industry partners</b>	<ul style="list-style-type: none"> <li>• Purchasing/procurement managers to revise spec sheets and performance metrics to enable adoption of innovative materials</li> <li>• Entrepreneurs to help corporate buyers overcome fear of greenwashing if they are unsure about green credentials of a new sustainable product</li> <li>• Increase the number of corporates involved in the ecosystem through blending with start-ups in incubators to ensure early network and scaling effects and/or start their own VCs</li> <li>• Introduce supply leader (including superclusters) who brings innovation and money together, and add layer of network and promotion on top</li> </ul>
<b>Policy</b>	<ul style="list-style-type: none"> <li>• Develop new policy to recognise and address the fossil-fuel element in plastics</li> <li>• Increase political commitment and accountability to achieving big sustainability ambitions</li> <li>• Create a mandate for large corporates to invest in cleantech R&amp;D and startups, e.g. by increasing tax credits and by allowing startups to work inside large corporations</li> <li>• Develop technology-neutral policies to enable the development of a wider hydrogen economy, allowing different technologies to support different stages of the rollout</li> <li>• Encourage a cohort of retailers or public sector organisations to be open for trials and support very early-stage innovation, e.g., provide free pilot locations</li> <li>• Set up a provincial research and development lab or institution tasked with helping to convert specific waste streams or materials into new products, funded and supported by VCs (also see <a href="https://albertainnovates.ca/">https://albertainnovates.ca/</a>)</li> <li>• Government to consider whether to promote reshoring as a means to provide both environmental (reduced scope 3) and social benefits (employment, stronger ethical oversight), but needs to be economically competitive</li> <li>• Provide government funding in form of equity stake rather than non-dilutive grants, at least as an option</li> <li>• Create an economic system that incentivises for sustainability</li> <li>• Provide economic incentives that are technology agnostic but specify clear environmental outcomes/benefits, e.g., design for durable products and longevity; avoid supporting artificial, financially unsustainable technologies or sectors that cannot become competitive</li> <li>• Ensure all regulations are applied consistently and enforced evenly – no special treatment or loopholes that disincentivise sustainable innovation; fines and penalties to ramp up rapidly for consecutive breaches</li> <li>• Enhance trust, legitimacy and legality of offsetting and insetting projects</li> <li>• Implement a 100% lobbyist tax to help fund cleantech and sustainable ventures</li> <li>• Create statistics on Canadian fish waste as a foundation for evaluating waste avoided</li> <li>• Ban discarding fish waste at sea (e.g., EU)</li> </ul>
<b>Funding</b>	<ul style="list-style-type: none"> <li>• IRAP funding should go on materials and goods that can be converted while SR&amp;ED claims should go towards staff costs</li> </ul>

	<ul style="list-style-type: none"> <li>• Need more early-stage financing, more purpose-driven and patient, based on a longer-term strategy and a bigger vision to help cleantech ventures with getting through various challenges</li> <li>• More BC grants</li> <li>• Appreciate the trillion-dollar opportunities of the energy transition</li> <li>• Invest in new technologies rather than established, polluting ventures and products</li> </ul>
<b>Research institutes</b>	<ul style="list-style-type: none"> <li>• Support more R&amp;D into soil and blue carbon market opportunities</li> <li>• Set up and fund sustainable challenge-led innovation parks or clusters to help drive innovative solutions in collaboration with large businesses and others</li> <li>• Need concerted efforts of worldwide investment in hydrogen and other clean tech solutions</li> <li>• Need national investment commitment to hydrogen</li> </ul>

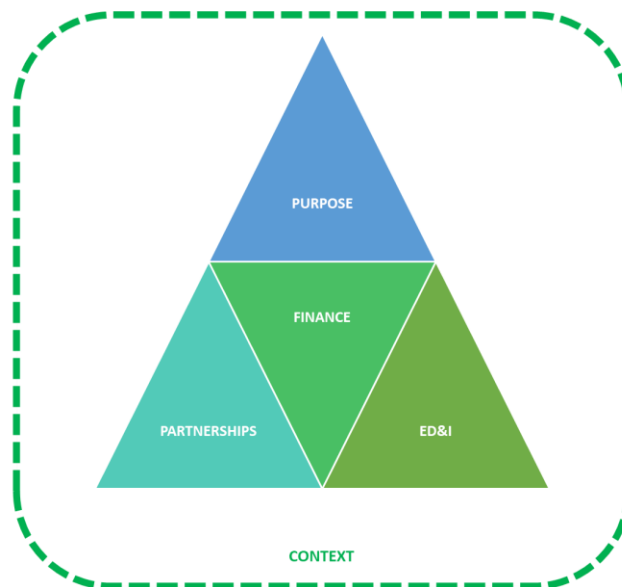
## 4.0 CONCLUSION

This research aimed to develop understanding and insight into whether and how the BC innovation ecosystem is effectively designed towards steering new business activities that address complex interconnected sustainability issues.

Generally, there was significant overlap and agreement between both incubators and accelerators on the one hand and entrepreneurs on the other. In fact, themes emerging were surprisingly consistent between both sets of interviews and yet they also pointed at persistent tensions and challenges. While some of these may have been examples driven by personal opinion and experience, the fact that many issues identified were shared across different interviewees points to the likelihood that these are more common and indeed valid beyond the sample.

Given the wealth of comments and recommendations already provided by interviewees, it may seem superfluous to add further suggestions. From the perspective of an outsider, however, it is perhaps still useful to identify several key themes that might help readers better summarise and make sense of the data presented. These are necessarily the author's personal opinions and therefore should not be conflated with interviewees' own perceptions and concerns. Broadly, however, the following calls to action may be useful starting points for further debate and consideration among all readers (Figure 1):

**Figure 1: Five calls to action for the innovation ecosystem in BC**



### **1. Recognise and leverage the *uniqueness of British Columbia's context* as a key driver of and benefit for the wider innovation ecosystem**

British Columbia has something to offer to all its members of the innovation ecosystem in ways that perhaps sometimes go somewhat unnoticed and are undervalued when discussing sustainable business innovation. The collaboration between a diversity of people in a combination of unique natural and urban settings is a significant strength and benefit for driving innovation generally, and for those interested in social and environmental issues specifically.

This geographic context forms both the motivation for and inspiration to many who live and work here. While it seems superficial to recommend using this for branding purposes, the different ways in which this setting creates both tangible and intangible value should perhaps be better recognised and used in all forms of communication, especially in connection with the following statements.



## **2. Create a *purpose-driven innovation ecosystem* around entrepreneurship for sustainability**

Several individuals commented on the fragmented nature of BC innovation ecosystem, calling for greater integration and coherence. Given the widespread efforts to develop new businesses and technologies that address social and environmental issues, there is a clear opportunity for different stakeholders, notably incubators and accelerators, to pool resources and develop a clearer identity underpinned by a shared purpose.

While some overlap and duplication with other schemes is unavoidable and in fact even desirable, a more strategic effort driven by a well-specified goal on supporting entrepreneurship for sustainability (however defined and operationalised) could help with attracting and retaining resources, talent, and capital in the region.

In combination with greater recognition of the BC context, stakeholders should consider how best to organise and implement such an initiative, or perhaps reflect on whether simply adopting a shared purpose as an organising meme might allow coherence and collaboration emerge more organically. The author's view is that an approach based on combining both structured efforts and organic emergence around a shared purpose statement might most effectively galvanise efforts and resources. Such an approach might also allow sufficient flexibility to allow for interoperability with schemes and programmes in neighbouring provinces and states.

## **3. Encourage and drive *partnerships* across sectors, organisations, and institutions**

Absolutely essential in any case is the intensification of various partnerships across public and private sectors, (higher) education, non-profits, charities and other stakeholders. Aligned with UN SDG 17, Partnerships for the Goals, stakeholders across the ecosystem should create new channels for communication and collaboration. The numerous comments about the need for policy coherence and impetus strongly suggest that entrepreneurs and others are looking to lawmakers for effective legislation and regulation aligned with achieving sustainable outcomes.

Combined with education, training, and awareness raising among customers and consumers, there is also a substantial need for skills development, R&D and basic research in key areas with promising economic and sustainable impact. This further entails greater engagement with established private sector partners in incumbent sectors or with the relevant market access and financial resources. While there is no one-size-fits-all for developing such collaborations, incubators and accelerators in particular should seek new ways of engaging with and inviting non-traditional partners into their programmes to broaden the talent base, drive creativity and identify commercial opportunities.

## **4. Develop and promote new models of *sustainable financing* that better reflect the needs of impact and purpose-driven entrepreneurs**

There is no doubt capital is essential for all entrepreneurial and commercial activities. Despite many promising innovations in the financial sector and growing interest in this area, it is also clear that many entrepreneurs in particular are looking for novel philosophies and approaches towards financing their ventures, reflecting the challenging circumstances of their technologies or simply the need for more sustainable models and mindsets. While it is beyond the scope of this report to make suggestions, references to slow capital, greater involvement of banks, new profit- and gain-sharing models with employees, EiRs and others, corporate financing, and the revision of investor expectations in terms of scale and return, all point towards potential characteristics viewed as desirable by interviewees.

In combination with the significant challenges around measuring, reporting, and verifying impacts created, there is a further need to ensure that new (financial) models account for complex social and environmental metrics, while also driving innovation towards effectively achieving the ultimate goals of such activities, that is, to solve broader sustainability challenges and concerns.

## **5. Significantly address and integrate *equality, diversity and inclusion* questions and concerns across organisational cultures and working practices**

Finally, a consistent thread throughout was the need to value, integrate, and enhance the contributions from a wide range of non-traditional community members as essential for creating an

“ecosystem that’s both more inclusive and holistic”. Without again touching on specific details and recognising both the complexity and inevitable inertia involved in changing many systems, it is clear that everyone involved in the ecosystem has a role to play by changing organisational cultures and working practices. Here too small changes can quickly add up and create a self-reinforcing process that drives benefits for all involved. This would also be entirely consistent with the context discussed above and serve to strengthen the wider purpose of this ecosystem.

Innovation and sustainability are both undoubtedly broad and complex topics, especially when viewed in combination. This report is a first attempt to capture this through the lens of key stakeholders directly involved in the context of BC. The author hopes, however, that there are also insights and ideas that might usefully be transported to other locations and/or inform debates around the role of developing purpose-driven innovation ecosystems for sustainability transformation more generally.

## 5.0 AUTHOR

Fred Dahlmann is Associate Professor of Strategy & Sustainability at Warwick Business School, UK. His (often interdisciplinary) research focuses on understanding how companies respond to global sustainability challenges in their business strategies, management practices and corporate governance systems. A specific stream of research examines the factors that shape how companies address climate change and reduce corporate carbon emissions. Fred is also interested in the emerging phenomenon of the purpose ecosystem and its role within wider earth system governance and sustainability transformations. Finally, his research is concerned with the ethical implications of the Anthropocene for business and managers. Fred's research has been published in journals such as Organization Studies, Business Ethics Quarterly, Business Strategy & the Environment, Journal of Business Ethics, Environmental Science and Policy, Earth System Governance, and the Anthropocene Review.



Fred is an Associate Editor for the journal Business & Society and sits on the editorial review board of Organization & Environment. Fred is also a Senior Research Fellow of the Earth System Governance network, and member of the ESG Taskforces on the Sustainable Development Goals (working group Private Governance and Partnerships for the SDGs) as well as Governance of Nature and Biodiversity. He contributes to discussions with business and industry through various media engagements.

Fred holds a BSc Construction Engineering Management (Loughborough University), MSc Management (University of Bath), and PhD Management (University of Bath). Prior to joining WBS, he also gained professional experience in the construction sector and working as an energy analyst in London.

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## APPENDIX

### Interview respondents' job titles and length of employment

<b>ACCELERATOR/INCUBATOR</b>	<b>RESPONDENT JOB TITLE</b>	<b>WITH ORGANISATION SINCE</b>
A1	CEO	2018
A2	Director	2016
A3	Partner	2012
A4	Senior Associate	2021
A5	Founding Partner and Executive Chairman	2001
A6	Academic Director	2015
A7	ESG Partner	2021
A8	Founder & Executive Director	2018
A9	Executive Director	2011
A10	Chief Executive Officer	2021
A11	COO	2022
A12	Associate Director, Engagement	2015
<b>STARTUP/VENTURE</b>	<b>RESPONDENT JOB TITLE</b>	
S1	President & CEO	2014
S2	CEO	2019
S3	CEO	2014
S4	Sustainability Manager	2021
S5	Chief Scientist	2012
S6	CEO	2017
S7	Founder & CEO	2020
S8	Marketing Director	2020
S9	Innovation Manager	2017
S10	Cofounder/CEO	2018
S11	Cofounder/CEO	2016
S12	Founder	2019
S13	Director of Sales and Marketing	2019
S14	CEO	2020
S15	CTO	2014
S16	CEO	2009
S17	Marketing & Communications Lead	2020
S18	Founder & CVO	2015
S19	Founder, CEO & Senior Water Specialist	2010
S20	CEO	1999
S21	Founder and Primary researcher	2019
S22	VP of Stakeholder Relations	2020
S23	Head of Brand and Sustainability	2021
S24	Ladyboss	2018

