
Meta-Analysis of ACCELERATORS

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
1 INTRODUCTION	7
2 BACKGROUND TO STUDY	10
3 LATEST THINKING ON ACCELERATORS	16
4 INVESTOR-LED ACCELERATORS	22
5 MATCHMAKER & SCALE-UP ACCELERATORS	40
6 DISCUSSION AND SUMMARY	48
REFERENCES	59
APPENDIX A: COMPARATIVE PROFILE OF ACCELERATORS	64
APPENDIX B: ACCELERATOR DESCRIPTIVE DATA	65

EXECUTIVE SUMMARY

This report presents a meta-analysis of business accelerators and draws out relevant insights to inform on the Alberta entrepreneurial ecosystem. A summary of key insights are presented below; ordered under three questions that guide the study. A more detailed discussion of findings can be found in Section 6.

Key Insights

What are the benefits & challenges of adopting branded globally recognized business accelerators versus developing regional & local accelerator programs?

Participation in leading accelerator programs may have a strong ‘positive’ signaling effect distinct from program content.

Signaling effects reveal to investors that a founder has undergone a rigorous selection process and may assist founders in recruiting talent & securing other resources.

Leading accelerators possess established & repeatable processes that have proven successful.

Costs of learning by trial & error to create a home-grown program are difficult to forecast but could be substantial and include direct costs (funding) & indirect costs (reputation).

Leading accelerators may provide access to resources that would be difficult to access otherwise.

This includes access to seed funding & follow-on investment, extensive mentor & alumni networks, domain experts & peer-to-peer learning with highly qualified founders in the cohort.

Seed accelerators may help founders learn when & how to fail & aid in more efficient development decisions.

Research suggests that, conditional on idea quality, accelerators appear to provide for more efficient development decisions, in terms of selecting both projects to drop & the optimal amount of effort to put into a given project.

What is the right mix for establishing a “generalist, industry-agnostic” accelerator or more specialized accelerators?

Industry-agnostic accelerators remain the dominate model compared to more specialized accelerators for a number of reasons.

Most challenges facing startup founders are shared across industry verticals; agnostic accelerators offer founders a greater diversity of knowledge and learning; and provide more opportunities for cross-pollination of ideas and technologies. Agnostic accelerators are still able to become leading specialists in particular technology areas.

Leading specialized accelerators share common features and have business models distinctive from other seed accelerators.

Specialized accelerators such as AI Nexus Lab, Muckerlab and Alchemist have strong ties with leading universities (e.g. NYU, Stanford, MIT, Berkley), strong ties with industry and corporations, and partnerships with leading venture capital firms. They also source the best talent globally and their programs are typically longer than other accelerators.

Specialized accelerators bias selection in favor of founders with deep and exceptional subject matter expertise, source mentors with significant technical/domain and market knowledge and attract specialized investors.

Specialized accelerators *may* have a first-mover advantage over later market entrants, in securing specialized knowledge, resources and reputation and in reaping longer-term benefits of company growth, new product development, investment returns and exits.

Establishing a new specialized accelerator requires access to a critical mass of quality founders and mentors, but also requires the ability to rapidly support and fund new emerging opportunities.

Access to industry experts and corporate partners appears critical for specialized accelerators. The absence of direct access to specialized firms in the proximity may also limit opportunities for talent recruitment from universities and the movement of talent between and amongst firms and startups.

What key elements of current accelerator models are most relevant in informing future decisions on Alberta-based accelerators?

Government can play a key role in engaging accelerators to become more active in ecosystem building - as part of a broader ecosystem architecture strategy.

Programs that have an explicit mission to build regional ecosystems are sustained by extensive regional partnerships; to include universities, angel groups, chambers of commerce and economic development agencies. Strong advisory and governance mechanisms are necessary.

Adoption of a ‘franchise’ accelerator model may require putting in place appropriate governance and ‘partner management’ processes, with explicit agreement on shared objectives.

Some investor-led accelerators, which focus on sourcing deals and maximizing startup exit value, may not align with policy expectations to support regional economic development. External parties may also not be familiar with the nuances of the regional ecosystem, or may want to take a program in a different direction than expected.

Startup and scale-up activities can be coordinated through a single entity if it includes centralized and decentralized activities.

Scale-Up Denmark, for example, champions a national startup and scale-up ecosystem, given its origins as a cross regional initiative linking all economic agencies in Denmark. Its ‘centralized’ and ‘decentralized’ model supports a leading accelerator, links startups and scale-ups to key industry players and supports regional specializations.

Support entrepreneurs to lead the startup community.

“Leaders of startup communities have to be entrepreneurs. Everyone else is a feeder into the startup community. This includes government, universities, investors, mentors, service providers, and large companies.”

Brad Feld, Co-founder, TechStars

Specific needs of entrepreneurs should inform new support provision.

Choice of which entrepreneurs and companies to target has important implications for choosing an accelerator model. Regularly consulting the entrepreneurial community provides ‘real-time’ insights into gaps and potential solutions for the startup ecosystem.

Leading accelerators successfully deploy well-established collaborative networks to support high-potential founders.

An accelerator without a strong network is not a viable business model, and leading accelerators place founders in information-rich environments that leverage accelerator networks & capabilities to anticipate and draw in 'on-demand' knowledge.

Founders require local 'post-acceleration' support to scale-up.

Most startups require more capital 'post-accelerator' as well as resources to further develop their business, given the typically short duration of accelerators. Important economic indicators, such as employment growth, investment, R&D activity, new products, etc. will typically occur after accelerator graduation and be influenced by the availability of scale-up resources, investment and market access in the locality.

Moving Local Wealth “off the Sidelines and into the Venture Game.”

Successful startup ecosystems have a higher proportion of regional wealth active in the venture asset class. How can holders of traditional wealth assets and investors in legacy industries be more actively engaged in the venture asset class? Accelerators can raise the quality of investment opportunities for the venture asset class.

Engaging Corporations as key stakeholders in Regional Ecosystem Building.

Corporations are increasingly engaged with accelerators, with startups and in supporting coordinated public-private efforts to develop entrepreneurial communities, with different accelerator models offering different corporate partnership strategies.

The Covid-19 pandemic is having an effect on accelerator models.

The COVID-19 pandemic has caused major adjustments in the delivery of accelerator programs, with many 2020 and 2021 founder cohorts moved to online platforms.

Opportunities and threats for accelerators have arisen during the pandemic as new programs and platforms emerge and programs adjust and adapt.

Whether the pandemic have a longer-term impact on leading accelerators, particularly those providing intensive, cohort-based residency programs, remains to be seen.

1 INTRODUCTION

This report provides a meta-analysis of **accelerators** that are relevant for the Alberta entrepreneurial ecosystem.

The report is guided by the following questions:

1. What are the benefits and challenges of adopting branded globally recognized business accelerators versus developing regional and local accelerator programs?
2. What is the right mix for establishing a “generalist, industry-agnostic” accelerator or more specialized accelerators (e.g. artificial intelligence)?
3. What key elements of current accelerator models are most relevant in informing future decisions on Alberta-based accelerators?

Approach, Methodology and Data Collection

A sample of relevant accelerators will be examined and compared; drawn from the three categories of accelerators noted in the previous report (Gregson, 2019).

1. **Investor-led or ‘deal-flow maker’ accelerators:** This type of accelerator is primarily focused on getting a return on investments into participating startups, with many programs inspired by YCombinator and Techstars models. The following 9 accelerators will be examined:
 - YCombinator
 - Techstars
 - GrowthX
 - Pipeline
 - 500 startups
 - Mass Challenge
 - Alchemist
 - Muckerlab
 - AI Nexus Lab
2. **Matchmaker accelerators:** Matchmaker accelerators provide startup support and also search for strategic opportunities or match up startups with existing firms, markets and customers. The following 3 programs will be examined:
 - L Spark (Ottawa)
 - Quantum Hub, (Israel)
 - Civtech (Scotland)

3. **Scale-Up and ‘ecosystem builder’ accelerators:** These programs typically have government as a key stakeholder to support company scale-up and explicitly contribute to developing local, national or sectoral ecosystems. The following 3 programs will be examined:
 - [MaRS \(Canada\)](#)
 - [Scale-Up Institute \(UK\)](#)
 - [Scale-Up Denmark](#)

A mixed method approach will be used for the meta-analysis, which includes reviewing secondary sources of information on accelerators (e.g. reports, websites, articles, etc.) as well as reviewing the latest literature and study findings on accelerators.

Accelerators will be assessed and compared by their key characteristics, which include program origins, eligibility and selection criteria, cohort size, costs and funding, program context and outcomes (e.g. investment measures, exits and acquisitions and other reported outcomes). Further descriptive data of investor-led accelerators is found in Appendix B.

The study is informed by interviews with a number of respondents, whose insights are integrated in the report. Respondents represent accelerators or policy agencies and scholars/practitioners in the field.

Study Qualifications

A number of qualifications should be acknowledged for the study:

- The study has **not interviewed startup founders** involved in the included accelerators, which may have revealed particular benefits attributed to accelerators by founders.
- Some of the data is **self-reported** by accelerators, which has limitations. Other data is unavailable because accelerators have withheld or not disclosed data related to their cohort, investments, exits or other outcome measures.
- Much available data is from **long-standing accelerators** such as YCombinator and Techstars, with much less information available from newer programs.
- Most academic findings referenced in this report are based on the **study of well-established accelerators**.
- The study **does not evaluate or benchmark accelerator performance**. This would require a methodological approach that needs to consider, amongst other factors:
 - **Region of operation and venture selection criteria**
 - Accelerator’s particular **mandate and purpose** (rather than a fixed set of criteria), e.g.:

- **'Investor-led' accelerators** focus on impacting their ventures' ability to access financing as well as increasing firms' investments received
- **'Scale-up' accelerators** may be expected to develop ventures locally and increase overall employment

Report Structure

The Report is structured as follows. Section 1 provided an introduction to the report.

Section 2 provides a background to the study, while section 3 reviews the latest literature on research related to accelerators.

Section 4 examines investor-led accelerators and section 5 looks at matchmaker and scale-up accelerators. Section 6 provides a discussion and summary.

A comparative summary of the examined accelerators is shown in Appendix A.

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2 BACKGROUND TO STUDY

Business accelerators have emerged as prominent features in many start-up ecosystems over the last decade, with worldwide estimates of 3000+ programs in existence (approximately half the number of incubators).

The rapid emergence of accelerators, led by investor-led accelerators such as YCombinator and Techstars in 2005-06, has been attributed to a **significant fall in the costs of experimentation and costs to launch a startup**.¹

Accelerators have also been widely adopted by venture capitalists and by corporations, given that accelerators may nurture new, potentially disruptive innovations and 'investable' ventures with the potential to generate high investment returns. At the same time, the **effectiveness and impact** of different accelerator models has generated considerable debate amongst practitioners, policy-makers and scholars.

The **COVID-19 pandemic** has also strongly affected accelerator programs, with the need to adapt recruitment, program delivery and mentoring to an online environment. While it is too early to predict the longer-term effects on accelerators, early evidence suggests that online engagement and program delivery will remain important features of accelerators post-pandemic.

Accelerators and Public Policy

Business acceleration is one of the latest tools in a long history of public interventions to improve regional wealth creation. Many governments have encouraged accelerator formation or adoption in the hope of transforming their local economy by focusing on scalable, growth-oriented ventures that can draw in external risk capital.²

*Accelerators attract policy attention in part because **accelerator activities represent key 'wealth creation' building blocks** - entrepreneurs, startups, knowledge-based innovation, private risk capital, science, technology, engineering, and math (STEM) employment – **which fuel regional economic development.***

¹ Kerr et al (2014).

² In the U.S., the number of U.S.-based accelerators increased by an average of 50% each year between 2008 and 2014.

Public support of accelerators may complement a technology transfer objective **to accelerate the ‘learning process’ for emerging ventures in a region** and to promote an ‘innovative milieu’ and regional benefits by generating a high-density of fast-growing enterprises, some of which are exploiting innovations arising from public research.³

Many regional accelerators are **reliant on public funding support** in the absence of private funders or sponsors. Public funding is identified as a critical contributor to accelerators outside of the U.S. In the UK, for example, public funding has been received by a large number (41%) of accelerators.⁴

Startups are high-risk endeavors, and if the potential return from a startup is uncertain, private institutions are unlikely to be willing to absorb the costs and risks associated with supporting it.⁵ This has led to the **emergence of investor-led accelerators**, where investment in a number of promising startups offers a portfolio approach to risk-reduction.

Factors Contributing to Poor Accelerator Results

Many accelerators fail in the long-term, with a higher failure rate amongst publically funded accelerators.⁶ A number of contributing factors are presented below:

- Accelerators **cannot rely on startups & program fees** as a significant source of income.
- Recruiting promising startups is a challenge for accelerators with **no history to justify their value** and no value-adding networks that will motivate founders to apply.⁷
- There are **costs of learning by trial & error** to successfully build a new accelerator model, compared to existing accelerator models.⁸
- New ‘deal-making’ accelerators **must convince angel & VC investors** that their model & approach has advantages over traditional, independent risk capital investing.⁹
- **Taking equity from startups** will be difficult for new accelerators without a track record.
- **High levels of entrepreneurial ambition & talent** are required to sustain a successful accelerator model (oversupply of high-potential projects builds reputation & brand).

Enthusiasm for accelerators is also influenced by attempts by policy makers to emulate successful startup ecosystems, which may not adequately acknowledge that ecosystems

³ Clarysse et al (2005).

⁴ Bone et al (2017).

⁵ Dee et al (2011).

⁶ Ceașu et al (2017).

⁷ Basco et al (2018).

⁸ Ibid.

⁹ Ibid.

such as Silicon Valley, Route 128 (Boston, MA), and London-Cambridge (UK) benefit from and act as “**regional incubators**”.¹⁰

Strong entrepreneurial communities have developed in these regions over time; fed by high startup rates, high-impact ideas from strong founding teams and dense networks of technical and commercial knowledge and expertise.

High levels of innovation activity by incumbent firms, large and small, offer markets and acquisition opportunities for startups, while high levels of risk capital provide both seed capital and larger investments required to scale these startups.¹¹

Seed accelerators, not surprisingly, are concentrating in these startup hubs; leveraging local advantages while drawing upon their alumni, mentors and investors.

Accelerator Performance and Impact

Despite assertions by promoters of leading accelerators, it remains **difficult to measure startup outcomes that can be directly attributed to accelerators**. This is due to the early stage nature of startups, brief duration of many accelerator programs and possible fundamental differences in the nature and quality of startups accepted into an accelerator program versus those who either do not apply or are not accepted.

This challenges policymakers in determining:

- whether accelerators are the **most beneficial intervention** to directly support entrepreneurial outcomes; and
- if an accelerator program is the **most cost effective solution** amongst other options.

A related question relates to the outcomes expected from the program, where recruiting on ‘potential to benefit’ may imply negative selection by excluding experienced companies. This means it is crucial for policymakers to understand program-level objectives and selection decisions in detail.

From a policy perspective, if accelerators have positive effects on the ecosystem (regardless of their effects on the small number of ventures that attend them), then **investment in accelerator programs may have an impact on the region**.

Further, if accelerators positively influence the regional ecosystem in some fashion - affecting outcomes for both participating and non-participating ventures – then examining the effects on accelerated start-ups or comparing accelerated to non-accelerated start-ups **will not capture the full effects of accelerators for the ecosystem**.¹²

¹⁰ Delgado et al (2014).

¹¹ Florida & Hathaway (2018).

¹² Hochberg (2016).

This presents a challenge for policymakers, who may wish to support, encourage, or invest in accelerators if they have positive effects on the ecosystem, even if they do not differentially affect the small number of ventures that attend them.

Challenges in Measuring Accelerator Performance & Impact

- Accelerator 'success' is typically tied to **startup performance** & few studies have examined attributable process impacts during the program, because, '*acceleration*' is a *process phenomenon that is difficult to capture and measure*.¹³
- **Short timeframe** of such programs makes attributable impact on startup performance questionable.¹⁴
- While the short duration of SA programs reduces start-up dependence on accelerator support, it makes it **more difficult to capture and attribute direct effects**.
- **High selectivity criteria** of leading seed accelerators suggests that chosen start-ups might have 'done well' without the program. If selection or signaling drive program outcomes, the real effect could be minimal.¹⁵
- More research is needed to understand **what accelerator interventions add the greatest value** for which types of startups.¹⁶
- Seed accelerator 'success' is dominated by **investment measures** (e.g. \$ raised at graduation, \$ raised post-graduation, valuation upon acquisition, etc.); many of which occur post-program.¹⁷
- **Difficult to compare accelerators** and their results due to their heterogeneity and differences in mandate, operations and location.¹⁸
- Accelerator programs are **complicated in their design**, and thus there could be multiple elements driving treatment effects on participants.
- Measuring **employment** effects of accelerators is difficult, as it usually occurs post-program (i.e. the 'scale-up' process).
- General **absence of large-scale representative data sets** covering accelerator programs, and no requirement to voluntarily disclose or report data.¹⁹

¹³ Wright & Drori (2018).

¹⁴ Cohen (2013); Dempwolf et al (2014); Hochberg (2016).

¹⁵ Madaleno et al (2018).

¹⁶ Hallen et al (2016).

¹⁷ Kim and Wagman (2014).

¹⁸ Cohen & Hochberg (2014); Hochberg (2015); Smith & Hannigan (2015).

¹⁹ While publicly available data is aggregated by Seed-DB (www.seed-db.com), it offers a number of disclaimers, including that data is incomplete, include data sourced from CrunchBase (<https://www.crunchbase.com/>)

Accelerator Characteristics

Various definitions are used to describe accelerators. The heterogeneity of accelerators has been termed “**accelerator morphology**” and includes the following factors:

- **Funding source**, e.g. for-profit (investor-led), public-private, public
- **Geographic emphasis** (local, regional, national, or international)
- **Product stage** (idea, proof of concept, beta site, etc.)
- **Type of product** (software, hardware, AI, medical device, clean tech, etc.)
- **Investment status** (pre-seed, seed, series rounds, etc.)
- **Stage of team development** (founder, team, first full-time employee, etc.).²⁰

For the purpose of this study, we categorize accelerators as **investor-led/deal-flow; matchmaker**, and **scale-up/ecosystem builder**.

Matchmaker accelerators provide startup support and also search for strategic opportunities or match up startups with existing firms, markets and customers

Scale-Up/‘ecosystem builder’ accelerators typically have government as a key stakeholder to support company scale-up and contribute to developing the local ecosystem. Such accelerators can also be described as economic communities or communities of practice.²¹

Investor-led/deal-flow accelerators, commonly referred to as **seed accelerators (SAs)**, are typically described according to the following characteristics:²²

- A competitive application and selection process
- Cohorts or classes of entrepreneurs/founders and companies
- Mostly a focus on small teams, but may accommodate individual founders
- Possible seed investment, usually in exchange for equity
- Time-limited support, comprising programmed events, mentoring, and other services
- Periodic graduations and investor pitches

There are common ‘inputs’ across all three categories of accelerators, as shown below.

Funding	Support Assets	People	Partnerships
Support for operations; seed funding to cohort; alumni & network management & outreach activities	Infrastructure to support program & cohort, alumni & network; physical facilities & equipment	Full & part-time staff, mentors, investors, corporates, sponsors, etc. that support program	Strategic collaborative partnerships locally, regionally, nationally, globally

²⁰ Chan et al (2020).

²¹ Madaleno et al (2018).

²² Clarysse et al (2015); Pauwels et al (2015); Cohen & Hochberg (2014); Miller & Bound (2011).

Policy Questions

Decisions on public investment in accelerators raise a number of questions, some of which require further evidence-based inquiry, given some of the performance and impact measurement challenges described earlier.

Questions include:

- How does the accelerator **'fit'** with the vision and strategy of regional economic development and with the objectives of its different stakeholders?
- What **gaps** are identified and **outcomes** expected?
- What accelerator model is the **most effective solution** for the regional ecosystem?
- What is the **funding model** and will the accelerator be sustainable without public funding?
- How will **costs and benefits** be measured?
- What is the value (anticipated) of **linking accelerators** to other support interventions and to local industry clusters versus diversifying into new industries?
- What criteria will be used to **'trial run' accelerators or pilot program elements** before making adoption decisions?
 - Arrival of an accelerator program provides the opportunity to answer a set of broader questions, e.g.:
 - How has the accelerator **influenced entrepreneurial capacity** in previous regions?
 - Are there **certain conditions** necessary for both accelerators and their ecosystems to flourish?

This report will examine the different accelerator models described earlier, guided by the following questions:

- ✓ What are the **benefits and challenges** of adopting branded globally recognized business accelerators versus developing regional and local accelerator programs?
- ✓ What is the **right mix** of "industry-agnostic" accelerators or more specialized accelerators?
- ✓ What key **elements of current accelerator models** are most relevant in informing future decisions on Alberta-based accelerators?

3 LATEST THINKING ON ACCELERATORS

This section presents the latest thinking and literature on accelerators to provide relevant context for the meta-analysis. Topics include accelerator features and effects on startups; effects on funding/investment; effects on ecosystems; and policy implications.

Accelerator Features & Effects on Startups

Previous studies of accelerators, and proponents of different accelerator programs, have identified different features and anticipated benefits for founders and startups as a result of their participation in accelerator programs, as summarized below.

Features of Seed Accelerators

- Deliver **time-compressed programs with** high-intensity work regime & set graduation date that foster a sense of urgency - forcing startups to focus their attention.
- **Fast-tracks a nascent idea** into a rapid developmental path through a “hypothesis testing” model of rapid learning.²³
- Speeds up startup development - leading to **quicker growth or failure** which can be beneficial in moving to a higher value opportunity.²⁴
- Aggregates high quality, potential candidates in a **single location**, which reduce costs associated with searching for & screening investment opportunities – especially in smaller regions not traditionally known for entrepreneurial activities.²⁵
- Acts as an **intermediary between promising start-ups & investors**; aiding with the discovery & valuation process.
- **Reduces information asymmetry** between early-stage entrepreneurs & investors by providing a signal of quality - assumes a rigorous screening & selection process prior to admitting a start-up.
- **Lowers search costs** for entrepreneurs & investors seeking early stage investments.²⁶
- Investment raised by startups is **quality signal for the accelerator** & evaluation of future success; also **signals the availability & level of risk capital** investment in region.

Previous studies have also identified the different benefits to startups from participation in accelerator programs, which are presented below.

²³ Leatherbee & Katila (2019).

²⁴ Kohler (2016).

²⁵ Fehder & Hochberg (2014).

²⁶ Hcohnberg (2016).

Accelerator *Benefits* to Startups

- Accelerated startups **outperform** non-accelerated peers.²⁷
- Startups from leading U.S. accelerators have 10-15% **higher survival rates** after 5 years, & earlier & **higher rates of acquisition** than comparable companies.²⁸
- Accelerated startups show a 23% higher survival rate compared to non-accelerated startups.²⁹
- Accelerators **shorten the learning cycle of ventures** by providing intensive consultation & rapid feedback to founders.³⁰
- **Short duration accelerators** reduce dependence on accelerators.³¹
- Successful accelerators **minimize the losses** due to overinvestment (in time or money) of potentially failing ideas.³²
- Accelerator startups receive **higher quality feedback**, which helps them more quickly resolve technological & market uncertainty to progress to the next developmental stage.³³
- Accelerators offer a **combination of previously distinct services or functions** that are each individually costly for entrepreneurs to find & obtain.³⁴
- Top seed accelerator programs substantially aid & accelerate venture development through “**novel learning**” effects.³⁵
- Network effect of accelerators likely **contributes to the probability of startup acquisition**, conditional on quality.³⁶
- Leading accelerators speed the time for **reaching key milestones**, such as time to raising venture capital, exit by acquisition & gaining customer traction.³⁷
- Accelerator companies **close earlier and at a higher rate than non-accelerator companies**. This suggests that accelerators help resolve uncertainty around company quality faster and that accelerator companies learn to cut losses earlier and shut down accordingly.³⁸

The literature suggests that accelerated startups have higher survival rates than non-accelerated startups, gain cost-effective access to quality resources and services, benefit from novel learning effects and reach key milestones quicker.

²⁷ Hallen et al (2017).

²⁸ Birdsall et al (2013).

²⁹ Ahmed & Quinn (2015).

³⁰ Hallen et al (2020).

³¹ Cohen (2013).

³² Ibid.

³³ Yu (2020).

³⁴ Hochberg (2016).

³⁵ Hallen et al (2020).

³⁶ Yu (2020).

³⁷ Hallen et al (2014).

³⁸ Yu (2020).

Evidence also suggests that accelerators provide better signals of the idea quality and, thus, **allow for quicker exits and better funding efficiencies**. At the same time, previous studies have identified a number of downside effects on startups which are presented below.

Accelerator Downside Effects on Startups

- While there is evidence that accelerators work overall - for survival, employment growth & receiving external finance, there is much less clarity about **how accelerator programs achieve results**.
- Many accelerator programs do not accelerate startup development, and in some cases **may be detrimental to startup development**.³⁹
- Accelerator intensity & program schedule **may limit the freedom & flexibility of certain founders & take an element of control away from a founder**. If this takes focus away from a vital task, it can be detrimental.
- Some startups **may not need an accelerator** – opting for virtual accelerators or startup mentoring/coaching. The costs, which may include relocation, giving up equity or paying fees, may affect the startup's short-term & long-term growth.
- Access to certain basic services, such as the co-working space, showed **limited impact on the future performance** of accelerator graduates.⁴⁰
- New ventures admitted to accelerators are **less likely to reach key milestones**, when compared with (non-accelerated) start-ups backed by VCs.⁴¹
- Large exits by startups in leading accelerators is not a common occurrence, highlighting that **substantial exits require longer time horizons** beyond the accelerator program.⁴²

As discussed earlier, direct attribution of accrued benefits to startups from accelerator participation is made difficult by the early stage nature of startups, brief program durations and nature and quality of startups accepted into leading accelerators.

Findings also identify that **not all startups need or benefit from an accelerator**, and in some cases, accelerators may be “detrimental” to startup development. A common observation is that further startup benefits, including access to follow-on investment, will be realized ‘post-accelerator.’

³⁹ Hallen et al (2014).

⁴⁰ Gonzalez-Uribe & Leatherbee (2017).

⁴¹ Yu (2020).

⁴² Crunchbase data showed that in 2018, only 8 of the top 20 US-based seed accelerators had exits of more than US\$1M.

Accelerator Effects on Funding & Investment

Funding and investment are the cornerstones of seed accelerators. It influences the accelerator model, choice of accelerator by founders, mentors and investors and decisions by policy makers to adopt accelerators in anticipation of wider benefits to the local risk capital market.

Accelerators are identified as an important intermediary between founders and investors and further accelerator effects on funding and investment are presented below.

Accelerator Effects on Funding & Investment

- Accelerator programs are a **leading source of deals & due diligence** for increasing number of angels & VC firms.
- An estimated **6,000 startups have participated in 650 accelerators** and have collectively raised over \$30B in capital (to 2019).⁴³
- Approximately **1/3 of all ventures in the U.S. raising “Series A”** venture capital have previously been through an accelerator.⁴⁴
- Accelerator graduates are more likely to receive their next round of financing significantly sooner & were **more likely to be either acquired or to fail**, than were comparable companies funded by top angel investor groups.⁴⁵
- **VC investors** will typically invest at higher valuations, which may place **greater pressure on startups to hit larger milestones, pursue larger outcomes & potentially relocate the company**.
- Arrival of a seed accelerator is associated with a **significant increase in volume of seed & early-stage deals**; driven by outside investors & new local early-stage investors.⁴⁶
- Emergence of accelerators has led to a shift in the stage composition of deals, with a **higher proportion of investments in software, information technology (IT) & related services made in seed & early stage companies** in a region post-accelerator arrival, relative to before the appearance of an accelerator.⁴⁷

Literature suggests that **accelerators may speed up investment decisions** on follow-on funding and on startup acquisitions, compared to leading angel investor groups. While this suggests that top accelerators may be more beneficial to startups than top angel groups, further evidence is required.

⁴³ Fehder & Hochberg (2019): These statistics were compiled using data from Crunchbase, accelerator websites & confidential information provided from accelerator directors.

⁴⁴ Pitchbook (2016) *One-third of U.S. startups that raised a Series A in 2015 went through an accelerator.*'

⁴⁵ Smith & Hannigan (2015).

⁴⁶ Fehder & Hochberg (2019).

⁴⁷ Ibid.

Evidence that accelerators facilitate a **‘fast-fail’** has important implications on benefits to startups and to regional ecosystems and will be discussed later in the report.

Accelerator Effects on Ecosystems

Accelerator effects on startup funding and investment have clear implications for the local ecosystem. As identified above, accelerators can have a positive impact on regional ecosystems resulting from an increase in seed & early-stage risk capital investment activity - which spills over to non-accelerated companies - occurring primarily from an increase in investors.

However, there are also potential downside effects of accelerators in relation to the local ecosystem. Positive and downside effects are summarized below.

Positive Ecosystem Effects	Downside Ecosystem Effects
<ul style="list-style-type: none"> ▪ Accelerators may serve as a catalyst to draw attention to the region more generally or may serve to galvanize local activity.⁴⁸ ▪ Accelerators can serve as gatekeepers & validators of promising innovations, if properly embedded in the ecosystem & can take an active & salient role in socio-economic & technological advancement.⁴⁹ ▪ Successful accelerators can provide stimulating environments for large corporations, SMEs & startups that develop into innovation hubs. 	<ul style="list-style-type: none"> ▪ Accelerator programs appear to work best in rich urban milieu. This may re-direct startup activity away from peripheral communities. ▪ Investor-led accelerators, through their managing directors, mentors, investors & alumni, may direct founders toward an investment exit. This approach may be contrary to expectations by policy makers to generate home-grown ventures. ▪ An overabundance of assistance programs in a region may lead to competitive pressures.⁵⁰

⁴⁸ Hochberg (2016).

⁴⁹ Drori & Wright (2018).

⁵⁰ Dee et al (2015).

Policy Implications from Literature

While evidence suggests positive accelerator benefits as well as downside effects, few studies have **explored how other elements of an ecosystem may be affected by the establishment of an accelerator.**⁵¹

Significant differences have been found to exist across accelerators in their level of venture support and resources.⁵² Accelerators will also **possess different assets** than other support mechanisms in the regional ecosystem.

A number of policy implications from the literature are identified.

- Policy intervention requires the understanding of the different mechanisms that drive and sustain the innovation ecosystem in order to figure out the components and **how they interact with one another.**⁵³
- Establishing a new accelerator may create adjustments by other elements and in the way different elements interact. This may require adjusting roles and offerings to **create efficiencies and to simplify the landscape for entrepreneurs.**
- Some entrepreneurial ecosystems appear to be **self-regulating**, where filling in missing elements takes place through a mechanism similar to market evolution at the organizational level, rather than a top-down method imposed by policy.⁵⁴
- Provision of support for the entire startup lifecycle may require partnering with diverse organizations who can enable and **empower local entrepreneurs from different parts of the ecosystem** – with the goal to establish effective ecosystem components that are transparent and well-connected.
- A potential risk for government initiatives is in **keeping successful startups in the region post program**; potentially losing them to richer ecosystems, their need to re-locate closer to market or when it is a requirement for further investment.
- Policy support for an accelerator may be **directed explicitly towards its role and contribution as an ecosystem-builder** if that is the desired goal.⁵⁵

⁵¹ Hochberg (2016).

⁵² Chowdhury & Audretsch (2019).

⁵³ Florida & Hathaway (2018).

⁵⁴ Ibid. As shown in a study of the St. Louis, Mo. startup ecosystem.

⁵⁵ Clarysse et al (2014).

4 INVESTOR-LED ACCELERATORS

Introduction

This section will examine the sample of investor-led accelerators, using criteria that include origins, recruitment, eligibility and selection, costs, cohort design, program length, structure and content, program management, outcomes and benefits. The section concludes with a look at how accelerator models are currently changing and adapting.

Accelerator Origins

The distinctiveness of different accelerator models can be traced to **the influence of central founding figures** who may also become key catalysts in their broader ecosystem as accelerators became established.

- **Y Combinator**, established in Cambridge, MA in 2005, relocated to Silicon Valley early on and has adopted an approach of **drawing founders to the California startup ecosystem** and not following the expansive model of other leading accelerators such as Techstars.
- **Techstars**, established in 2007 in Boulder, CO, has established a reputation as a **builder of urban/regional startup communities**. Co-founders Brad Feld and Paul Graham were convinced that successful startup ecosystems could be developed in regions outside Silicon Valley through an investor-led approach.
- **L-SPARK**, established in Ottawa in 2015, has a strong focus on **corporate acceleration**. Co-founder and Director of L-Spark, Pat White, was former head of corporate engagement for Wesley Clover International (WCI), a key corporate partner for L-SPARK.
- **500 Startups**, established in San Francisco in 2010 by Dave McClure and Christine Tsai, began as an early-stage venture fund and seed accelerator. Their vision to be the global champion of entrepreneurship has led to expansion in 75+ countries.

These individuals appear **instrumental in facilitating interactions** between disparate ecosystem actors (e.g. investors, entrepreneurs, corporations, universities, public agencies) which might not otherwise organize and form ties.⁵⁶

This highlights the importance of concerted individual action to transform the entrepreneurial environment of a region.

⁵⁶ Feldman & Zoller (2012).

Original **program sponsors** also influence the mission and model of an accelerator.

- **MassChallenge** received its founding grant in 2010 from the government of Massachusetts - specifically with the aim of **achieving regional employment growth in the wake of the 2008 global recession**. They also received in-kind donations from corporations (including rent-free space in Boston's emerging innovation district).
- **Pipeline**, established in Kansas City in 2006, was established through an extensive partnership model, with 25+ partners including universities, angel groups, chambers of commerce and economic development agencies. A key sponsor of Pipeline is the Ewing Marion Kauffman Foundation, a global leader in entrepreneurship research and support, which aligns with Pipeline's mission to *support great local entrepreneurs*.
- **AI Nexus Lab**, which started its cohort and lab-based accelerator program in 2018, is a collaboration between *ff venture capital* (<https://www.ffvc.com/>), New York City's leading tech VC firm, and New York University (NYU) Future Labs.
- **Alchemist** was started in 2012 by a consortium of VC funds, with a mandate to build the premier launching pad for enterprise startups. Since that time, it has built up its accelerator and network to identify and invest in disruptive technologies that are breaking out quickly.⁵⁷

Recruitment, Eligibility and Selection

Leading accelerators are distinguished by their recruitment of exceptionally promising founder teams through a **highly competitive selection process**. For example:

- **Y Combinator** accepts less than 3% of applicants; (averaging 15k+ applications annually and selecting approximately 500 for interviews)
- Members of the Global Accelerator Network (GAN) receive approximately 450 applications per year, and accept less than 2%.⁵⁸

Eligibility requirements are based on the distinctive characteristics of each accelerator, although there is a bias with seed accelerators towards graduates of leading universities, possessing strong technical and business skills.

- **GrowthX** requests an introduction from someone familiar to GrowthX and applicants need to provide a pitch deck, financial model and cap table (to include details of any outstanding convertible instruments).
- **Techstars** gives preference to entrepreneurs who show evidence that they can overcome obstacles necessary to build a great business. TS seeks evidence on what the founding team has accomplished and how long the team has been together.

⁵⁷ Vator News (2020) *Meet Ravi Belani, Managing Director at Alchemist Accelerator*, <https://vator.tv/news/2020-06-01-meet-ravi-belani-managing-director-at-alchemist-accelerator>.

⁵⁸ Ortman (2016).

- TechStars and Y Combinator requires that at least one team member must possess technical skills.
- **Pipeline** requires that applicants must be working to build a “high-growth” company that can be leading in the Midwest economy, and must reside, or have their principal place of business within partner Regional boundaries.
- For entry into a **MassChallenge** vertical accelerator (HealthTech, FinTech), applicants should demonstrate related technical and domain knowledge.
- **Alchemist** requires that teams must show evidence of distinction to do “something big” and are targeting markets that will warrant the interest of the top VC funds. Alchemist is interested in deep disruptive technologies in Digital Health, Enterprise, FinTech and IoT.

The ideal team is a three-person team with two technical co-founders flanking a business executioner. So, there's somebody who's just charging forward with the business, which is mainly traction or customers, and then you have two engineers or developers who are iterating on the product.

Ravi Belani, Alchemist Managing Director⁵⁹

- **Muckerlab’s** selection criteria are not solely based on whether the company can generate a significant financial return in the long run. Muckerlab needs to be **convinced that it can add value significantly above and beyond its equity ownership** in the company. It requires companies to spend the majority of the program in their office, either in Los Angeles or Nashville.

The composition & makeup of start-up teams appears **more relevant than the actual idea identified during the application process**. The reasoning is that throughout the program, all teams go through several iterations and changes of focus.

One study that examined graduates of **Techstars** and **YCombinator** found that Accelerator graduates are more likely to come from educational backgrounds that include attendance at one of the institutions in the top-thirty producers of computer science doctoral graduates. This suggests that **there is a particular “type” of background that**

⁵⁹ Vator News (2020) *Meet Ravi Belani, Managing Director at Alchemist Accelerator*, <https://vator.tv/news/2020-06-01-meet-ravi-belani-managing-director-at-alchemist-accelerator>.

characterizes startup founders that choose to attend (or are accepted to) premier accelerator programs.⁶⁰

Program Costs

Seed accelerators **differ significantly in costs to participate in their programs**, as shown in the table below. Startups also enter at widely varying stages of development, and may receive different funding commitments from accelerators.

Seed Accelerator Positions on Equity & Funding

Accelerator	Industry focus	Equity required	\$ for equity	Seed Funding	Participation Fee	Other funding (partners, etc.)
YCombinator	Agnostic	7%	\$125k	\$11k-20k		
TechStars	Tech-focus	6%	\$20k (as part of \$100k convertible note)	\$6k-\$18k		6% equity on a fully diluted basis, until company raises a priced equity financing of US \$250k or more
Growthx	Post-revenue, B2B & SaaS	5%	\$100k-\$200k			\$500k-\$1M
Pipeline	Agnostic: (focus on entrepreneur)	No	Zero equity		\$5k (\$2500 in 2020-21)	
500 startups	Agnostic	6%	\$150k		\$37,500 (deducted from investment)	
Mass Challenge	Agnostic	No	Zero-equity			No upfront funding; startups compete for \$3M in zero-equity cash awards at program end
Alchemist	Enterprise-monetizing ventures	5%	\$36k			
Muckerlab	Agnostic	7%	\$21k		\$100k-\$175k	
AI Nexus Lab	Artificial intelligence	8%	\$100k			\$400k in services

⁶⁰ Winston Smith & Hannigan (2015).

Accelerators have distinctive investment models for the deployment of capital to participating startups. Capital provision allows founders to cover basic expenses of experimentation and re-location over the course of the program, and perhaps for a short period afterwards.

For most seed accelerators, the **total funding allocated to each startup is quite small** and not enough to support significant development afterwards. Some accelerators provide a small amount of capital up front and a larger amount of follow-on capital, often as a convertible note.

- **Techstars** typically provides an optional \$100K convertible note to founders, although use of these funds is entirely at the discretion of the founders. Additional funds can come directly from the accelerator or from an adjacent fund provided by investors.
- **Mass Challenge** offers its 4-month program at no cost with a zero-equity requirement at its five accelerators (Boston, Rhode Island, Texas, Mexico, Israel, and Switzerland). Startups receive no funding support but can compete for \$2M in cash prizes.
- **500 Startups** requires a 6% equity stake for an investment of \$150k and charges a \$37,500 fee to participate in its 4-month program.

Alchemist Deal Terms

- Offers their 6 month program with an **average cash investment of \$36,000** for each startup for single digit piece of equity (up for negotiation)
- \$36k is to cover living expenses in San Francisco for 6 months
- Teams receive \$500k in perks
- Expectation is that the 'hard metric' for the ROI for the team is **increasing its funding valuation**
- Alchemist's follow-on fund is a separate vehicle and operates like a traditional VC fund (i.e. to maximize return-on-investment) and they must fundraise for that fund.
- Follow-on funding **averages \$300k** (approximately 6 investments/year) and Alchemist is very selective in which companies they chose for follow-on funding.

Although the equity stakes in our sample of accelerators range from 0 to 8%, there can be large differences in terms of the amount of equity an accelerator takes in return for funding (up to 15%). These differences clearly influence the application decision for some founders, but may also affect the strategy for an accelerator's long-term survival.

For-profit accelerators must figure out how to economically sustain the program over the medium-term. Given that historically, 75% of VC investments are written off,⁶¹ it may take

⁶¹ Ljungqvist & Richardson (2003).

multiple cohorts to realize a successful exit in addition to the time needed to generate returns, which are typically 7-10 years in the future.

The *Valuation Dilemma* for Founders Joining an Equity-based Accelerator

Many seed accelerators offer a startup small amounts of seed capital (\$50K to \$150K) in exchange for a small stake of equity. The exchange results in **immediate dilution of the founders' holdings**. If founders believe their startup is worth \$5 million and the offer is \$150K for a 5% stake, this implies the startup is only worth \$3 million, which is a \$2 million drop in the startup valuation.

If the startup is already gaining traction, has proprietary technology, etc., it may be relevant for founders to **seriously consider whether it is worth it** to reduce their startup valuation, and to ask what value will be gained by participation in the accelerator. Research has shown that the **percentage of equity taken by the accelerator** is strongly & negatively associated with better performance post-accelerator.⁶²

Early access to each accelerator cohort allows VCs to place larger bets out of their primary funds both with more information in hand and an established relationship with the founders, which may make them preferential to unknown investors.

A number of seed accelerators have attracted one or more VCs sponsors who contribute to supporting the expenses of the accelerator over multiple years. The expectation is that, rather than expecting a high return on that contribution, the **VCs will reap returns in the longer-term through their larger direct fund investments in accelerator graduates** that they identify through the mentoring process and through their ongoing connections through the accelerator.

A second approach is to **diversify the activities of the accelerator**, through pre-seed programs, geographical expansion and other strategies discussed later in the report.

While for-profit accelerators must provide favorable returns to their investors, **not-for-profit accelerators** are challenged to sustain themselves with outside funding from corporations, foundations and governments. In addition to the ongoing challenge of securing funding from these sources, they **potentially compete with better resourced accelerators** that are able to attract the high-potential founders seeking access to venture capital.

⁶² Cohen et al, (2019).

Cohort Design

Cohort structure is a key design innovation introduced by early accelerators such as **YCombinator** and **Techstars**. Grouping startups into cohorts allows accelerators to organize and attract key resources such as mentors, who can meet multiple founders during each visit, and investors, who can access multiple deals.

The size of incoming accelerator cohorts can vary widely, and in our sample, cohort size ranges from 5 (**AI Nexus Lab**) to 300 (**Techstars**).

Cohort size is an important factor, as it will determine the scale of resources required to successfully service each cohort. This is especially important for resources such as mentoring, since finding an adequate supply of the right types of mentors is challenging in some regions.

Too small a cohort or program may limit the appeal for others to join, support or collaborate with the accelerator. Size is also important because it can influence the cohesion of the cohort, as well as the attention available for each startup from fixed resources, such as the managing directors, mentors and investors.

Length of Program

Establishment of the typical **3 month seed accelerator program** is attributed to Paul Graham, who launched YCombinator in 2005, after observing that the development cycle of a startup in web-mobile applications is usually no longer than three months.⁶³ Such startups also have **relatively low development costs**, which allows product development, iterations and ‘pivots’ to be done rapidly.

The 3 month program, adopted by Techstars and others, is characterized by **intensive mentoring and coaching**, supported by experienced entrepreneurs, mentors and investors. The end of the program is commonly marked by a ‘**Demo day**,’ where graduating ventures pitch to groups of investors to raise follow-on funding.

By comparison, **Alchemist** has a 6-month program which recognizes that more time is required to support startups pursuing ‘moonshots’ and deep disruptive technologies.

Muckerlab’s focus on category-leading companies in enterprise, fintech, B2B and consumer products is also characterize by a longer program; averaging 12 months but can be as long as 24 months. Companies only “graduate” when they have achieved

⁶³ Miller & Bound (2011).

mutually agreed-upon business, customer, and financing milestones. Muckerlab's ethos is to *"treat every company as if they are our only investment."*

Benefits of Longer Programs, Smaller Cohorts & Internal Advisors

Research has shown that a longer program duration is associated with **higher performance** for alumni startups post-graduation. Smaller cohorts also appears to be associated with **better performance** for their graduates. **External mentorship shows a negative relationship to startup performance**, which suggests that the approach taken by some accelerators of using only internal advisors & staff for mentoring startups, may be the superior approach.⁶⁴

Program Structure and Content

Most investor-led accelerators offer standardized activities, including mentor meetings, peer gatherings, and educational seminars, as well as the sequence of events and focus. However, a few accelerators allow each venture to tailor its activities to its unique needs. The common logic is that founders' time is valuable and this level of autonomy allows founders to optimize their own learning.

Many accelerators **facilitate and encourage open and active peer engagement**. Increasing transparency between peer ventures has been shown to increase the flow of vital information about behaviors and performance as well as provide opportunities for direct comparisons across ventures in the same cohort.⁶⁵

Engagement activities include: allowing ventures to frequently observe each other's pitches; sit in open and tight spaces; and share public progress updates.

Such engagement may highlight to founders where prior 'satisficing' may have been suboptimal, and stimulate broader search based on observations of peers' behaviors and consequent performance.

*For very early-stage ventures, the **complementary value of standardized activities** appear particularly important, whereas more independent, customized activity may be more important for more advanced ventures.*

While accelerators like **YCombinator** do not adhere to a strict program, **Techstars** offers a more structured program, with approximately 10 teams for each batch, and a co-working space where they are expected to work and engage with other teams. Techstars has

⁶⁴ Cohen et al, (2019).

⁶⁵ Ibid.

traditionally placed a strong emphasis on the **Lean Startup** methodology as well as the **Business Model Canvas**. Key elements of their 3 month program are presented below.

Techstar 3-month Accelerator Program



GrowthX also delivers a more structured program through their 4-month Market Acceleration Program (MXP). It requires participants to complete requirements of each phase of the program in order to advance to the next phase. Interestingly, **the percentage ownership** by GrowthX increases upon certification of each of the 3 phases, for a total of 5% equity, in addition to amount purchased by the investment from GrowthX.

GrowthX differentiates itself with its go-to-market expertise and formalized program components, its cloud-based, on-demand version available to entrepreneurs around the world and to on-demand and live coaching. MXP components are shown below.

GrowthX Product-Market Fit Path Components⁶⁶

Market Foundation	Market Discovery	Market Messaging	Marketing Instrumentation	Market Outreach	Market Scale
Prepare company for go-to-market journey by establishing market development resources	Identify the people who have the most pressing problem or urgent need	Clearly, consistently communicate what company does for its customers	Creation of systems & tools to capture & analyze market feedback	Generate enough conversations to test customers and message hypotheses	Validate ready-to-scale by achieving a consistent flow of new customers from a known series of steps

Pipeline delivers an introductory session to their annual cohort in January, followed by 4 mandatory modules that combine work on the company with peer mentoring and network building events.

⁶⁶ <https://mxponline.growthx.com/organizations/>

Modules involve 3-day learning/networking events that have a tight focus on specific topics related to entrepreneurial success. Modules are spaced every few months (e.g. Feb, June, Sept., and Nov.), with entrepreneurs expected to commit approximately 5 days of independent work to complete between modules; participate in group events with peers to support class dynamic and program; and have regular contact with advisors.

Alchemist's 6-month program allows them to get a strong feel for how quickly teams can move, and at what pace they can set an objective and achieve it or pivot. Alchemist has developers on their accelerator team who **build software for founders**, and claim to have the largest global network of influencers in the enterprise space, with approximately 26,000 people, including 4,000 mentors (80 equivalent of partners), 7,000 VCs and corporates that provide a market for founders.

AI Nexus Lab offers its 4-month go-to-market accelerator run by the Future Labs at New York University (NYU) to support AI companies going from MVP to product-market fit. The program is a joint initiative between the NYU Future Labs and ff Venture Capital (ffVC), with each cohort limited to no more than five companies. All cohorts are taken to Silicon Valley to meet with investors and their entrepreneur network.

Working Space

- **Techstars** provides co-working space and expects founders to spend the majority of their time in this space.
- **MassChallenge** expects that startup teams will use the space throughout the summer. Shared facilities allow teams to discuss problems and find solutions and allow for more efficient provision of advice from managing directors in the program.
- **AI Nexus Lab** founders receive four months of space during the program and up to three months of additional free space at the Data Future Lab following completion. They also received AI technical mentorship from NYU faculty, a student fellow from NYU and approximately \$400K worth of services
- **YCombinator** does not do not provide space - a design choice motivated by the idea that startup teams have different ideal work environments and should optimize accordingly to develop their own unique identity.

Program Management

The main **tasks of accelerator staff** are to maintain the network of mentors and investors, coordinate the day-to-day operations, marketing and administration.

Some accelerators employ a small team of internal advisors who provide direct advice to participating firms, while others supplement internal advisors with external mentors; often drawn from program alumni, entrepreneurs, investors, lawyers and other experts.

Y Combinator provides founders with regular feedback from a program's partner, who are able to provide introductions to technical and industry experts as required.

Techstars managing directors provides advice directly to startups as well as introducing each startup to as many as 75–100 additional mentors as and when required during the first month of the program. Each startup is matched with an appropriate **lead mentor**, who meets with the startup regularly throughout the program.

Techstars introduced the lead mentor based on the logic that intense, ongoing mentoring from a single voice helps founders incorporate advice received from the broader mentoring group in their decision-making. Some Techstars programs have startups check in at the end of each day to share their progress

Amongst accelerators, there is considerable variation in how mentors and startups are matched and number of mentors provided. **YCombinator** teams are encouraged to meet with their lead mentor once per week, who are contracted as full time employees.

Alchemist draws in mentors from Stanford and Berkeley and former heads of business units of leading tech companies such as Salesforce and Google.

Mentors often participate without monetary compensation, and typically for altruistic reasons or symbolic compensation, and the recruitment and retention are critical element of accelerator program management.

It is suggested that **developing local mentorship capacity** should be led by those seasoned in the local system and networks of entrepreneurship, as inserting an outside coordinator to find local mentors is unlikely to be useful.⁶⁷

The exchange of knowledge between mentors & startups is critical, but so is how this exchange is managed.

Program Outcomes & Benefits

For investor-led accelerators, **funding and investment** generated through their cohort startups are key metrics. One of the questions for this study relates to distinctions between industry agnostic and specialized accelerators.

VC activity associated with leading seed accelerators for 2019 is shown below by sector and by total investment exits.⁶⁸ It shows that **500 Startups** is active across a broader

⁶⁷ Motoyama & Knowlton (2017).

⁶⁸ Pitchbook Annual Global League Tables: <https://pitchbook.com/news/reports/2019-annual-global-league-tables>

range of sectors, with particular dominance in software, media and consumer goods, and is the most active investor globally.

Leading Seed Accelerator Activity by Sector & Investment Exits (2019)

	Software	Hardware	Commercial Services	Media	Health -care	Consumer Goods	Other	Total Exits (2019)
500 Startups	1 st (124)	2 nd (10)	2 nd (25)	1 st (25)	4 th (12)	1 st (22)	2 nd (62)	1 st (41)
YCombinator	3 rd (82)		3 rd (24)			4 th (7)		2 nd (38)
TechStars								3 rd (30)

Although 500 Startups is identified as a sector-agnostic accelerator, they nevertheless became specialists in particular technology areas, and as shown above, are particularly dominant in software, media and consumer goods.

The table below provides **some data** on reported funding in our sample of accelerators.

Seed Accelerator Funding Comparisons⁶⁹

Seed Accelerator	Investments	No. of Exits	Exit funding (USD)	Total Funding (USD)	Ave. per company (USD)	Average Valuation (by accelerator)
YCombinator	2000+	321	\$9.4B	\$48B	\$26.7M	\$1.7M
TechStars	1900+	243	\$6.1B	\$12B	\$9.3M	
Growthx	51	5				
500 startups	686	102	\$446M	\$3.7B	\$5.5M	
Mass Challenge	2458			\$6.2B		
Alchemist	359	31	0	\$1.4B	\$3.8M	\$720k
Muckerlab	27	7	0	\$8B	\$26.8M	\$300k

YCombinator is the lead accelerator regarding total investment raised by their startups, with 25 YC companies valued at over \$1B, and almost \$50B invested. However,

⁶⁹ Information is drawn from different sources, including Seed-DB (<https://www.seed-db.com/accelerators>), Crunchbase and accelerator disclosure.

Muckerlab has the highest average investment, and has the highest percentage of startups which raise outside capital. Not surprisingly, they have significant VC backing.

Pipeline has also disclosed some financial and related data on their program outcomes.

- Average Pipeline entrepreneur has raised \$7+ million.
- Average valuation of Pipeline firm exceeds \$9.5 million
- 40% of Pipeline member companies do business overseas, in over 85 countries.
- 79% of Pipeline entrepreneurs create new intellectual property (IP) in a typical year.
- 34% of Pipeline entrepreneurs are serial entrepreneurs, having founded at least two different companies and 31% of Pipeline entrepreneurs are angel investors.

Comparison of YCombinator, TechStars & 500 Startups

(20 months after graduation)⁷⁰

- **Average startup age** in YC is much lower than TS and 500 SU, as YC carefully selects only those startups that can grow exponentially, while 500 SU accepts only companies with solid traction or stable revenues (hence, they have the highest average startup age).
- **Females are underrepresented** in all accelerators. TS has the highest proportion of female founders (20%), while 500 SU has the lowest (13%).
- TS has the highest **failure rate** (14%), followed by YC (12%) and 500 SU (11%).
- TS has the highest **startup acquisition rate** (6%), followed by 500 SU (4%) & YC (1%).
- **Average fund** raised by each YC startup is almost double the average of TS and 500 SU alumni (\$3.36M, \$1.95M & \$1.63M respectively).
- Five YC startups raised over \$10M, while only one startup from TS and 500 SU raised over \$10M.
- On average, **one in four startup graduates didn't raise any investment**, but most startups that graduated from these 3 accelerators raised funding between \$1M & \$10M.

Corporate and industry engagement is a critical feature of investor-led accelerators as well as matchmaker and scale-up programs (discussed later in the report). Corporates and startups have **complementary needs** that favor engagement: the former being **very**

⁷⁰ Founderkit (2018) compared 100 startups from each accelerator approximately 18 months after they graduated (summer, 2016). Data was drawn from the accelerators, Pitchbook, Crunchbase and other sources. <https://blog.founderkit.co/accelerators/comparing-accelerators-yc-techstars-500-infographic/>

good at scaling but weak on innovation and the latter being **very good at innovation but weak on scaling**.

Seed accelerators can also positively influence corporate venture capital activity in a region, as discussed below.

Influence of Seed Accelerators on Corporate Venture Capital (CVC)

Unlike independent venture capitalists (IVC), which focus exclusively on return on investment (ROI), CVC investment motives include the need by corporations for learning and for gaining exposure and access to emerging technologies.⁷¹

Seed accelerators provide corporates with new innovations as well as investment diversification opportunities. Stimulating CVC activity can enable ecosystems to become sustainable by providing more local risk capital, industry knowledge and market-led engagement opportunities for local entrepreneurs and startups.

Key Findings:

- Upon launch of a seed accelerator cohort, there is an **increase in the overall amount of investments made by a CVC** in a region.⁷²
- This increase is greater in investments into early and seed-stage start-ups than those made in late-stage start-ups, suggesting that **accelerators help alleviate assessment and valuation problems** – so that CVCs become more comfortable investing in ventures they would typically avoid.
- Launch of a seed accelerator leads to a greater increase in investments by CVCs into start-up ideas less related to their core business than those made into start-ups that are closely related – suggesting that **CVCs are more willing to invest in a diverse technology space**.

Techstars is the **most prominent seed accelerator engaged in “powering” corporate accelerators**. In this model, the outside powering organization provides services such as program creation and management, staffing, marketing, and back office services as well as physical space where requested.⁷³ Corporate accelerators have been launched by Techstars for Disney, Barclays Bank, Sprint and Kaplan.

Corporations can help improve startup performance by providing the startup with access to strategic resources; the most common resource being **the time and attention of a corporation's executives**. Other resources include financing, as well as pilot contract opportunities, which are often of higher value to the startups than other resources such as financing.⁷⁴

⁷¹ MacMillan et al (2008).

⁷² Mayya & Huang (2019).

⁷³ Hochberg (2016).

⁷⁴ Fehder et al (2018).

In addition to their value for corporate partners, seed accelerators also appear to have an impactful role in teaching founders how to *fast-fail*, as suggested below.

How Do Accelerators Impact the Performance of High-Technology Ventures?⁷⁵

Key Findings:

- The institutional setup of seed accelerators is **well-aligned with the incentives of founders** who are typically optimizing for private financial returns.
- As these are **riskier investments**, seed accelerators are incentivized to cut losses short & position companies for a quick exit.
- Given the potential for large private returns, **accelerators are motivated to give rapid feedback** and supply information to founders in their portfolio to optimize performance.
- The presence of mentors, cohort-mates, alumni and investor that provide feedback can encourage faster iteration of ideas, prototyping, and consumer testing.
- Accelerator companies **close earlier and at a higher rate than non-accelerator companies**.
- Accelerators help resolve uncertainty around company quality faster so that founders learn to cut losses earlier and shut down accordingly.
- Accelerators provide better signals of the idea quality and, thus, allow for quicker exits and better funding efficiencies.
- **Consistent with the ethos of the Lean Startup method, participating in an accelerator can help founders learn when and how to fail.**
- Founders of lower-quality accelerator companies know when to cut losses and do not attempt to raise more money, whereas founders of lower-quality non-accelerator companies will continue to raise money, essentially paying for additional information until the uncertainty is resolved.
- Conditional on idea quality, accelerators appear to provide for more efficient development decisions, in terms of **selecting both projects to drop & the optimal amount of effort to put into a given project**.

⁷⁵ Yu (2020). This study used a novel data set of 900 accelerator companies across 13 accelerators and 900 matched non-accelerator companies. Accelerator criteria included: (1) located in U.S.; (2) have invested in at least 30 companies across two cohorts; (3) taken equity in exchange for investment; and (4) are not affiliated with a university or sponsored by a corporation.

While investors play a prominent role in many seed accelerators, it is important to acknowledge that they are ‘feeders’ to support the development of a startup community.

“Venture capital is a service function, not materially different from accounting, law, or insurance. It is a type of organization that services existing businesses, not one that causes such companies to exist in the first place. While businesses need capital, it is not the capital that creates the business. Pretending otherwise is reversing the causality in a dangerous way.”

Brad Feld, *TechStars* Co-founder

It is also important to recognize that differently designed accelerators may have different objectives and priorities, as suggested below.

Accelerator Design Effects on Startup Performance & Wider Benefits

- Research has shown that **differently designed accelerators have differences in the performance of their portfolio firms**, with investor-led accelerator portfolio companies tending to have higher amounts of capital raised post-graduation.⁷⁶
- **Government-sponsored accelerators** founded by directors with public service backgrounds may well focus on economic & regional development, while investor-led accelerators founded by former risk capital investors focus instead on the maximization of returns.

Policymakers sponsoring accelerators should be **aware of the variation - not only in accelerator outcomes, but also in objectives** - as any increased performance for participating startups in investor-led accelerators may be fully captured by the sponsors & equity holders of the accelerator without regard to the interests of the policymaker.

Evolving Accelerator Models

Accelerators continue to evolve, with long-established seed accelerator brands transitioning into other models. Clearly, accelerators are learning organizations which adapt their model to different ecosystems.

⁷⁶ Cohen et al, (2019).

GrowthX, for example, places emphasis on understanding how different support ecosystems function, the complementary roles of different agencies and organizations, and which regional partners to target. While their flagship program content may be similar, attention is paid to building local 'delivery' capacity which includes training local coaches.

While many accelerator programs have been established at a single location and run one to two cohorts each year using the same managing directors and mentors, a more recent phenomenon is the **franchising of accelerator programs** to multiple locations with different managing directors and mentors for each location.

Prominent among these groups is:

- **Techstars**, with programs in Toronto, Austin, Berlin, Boston, Boulder, Chicago, London, New York City, Seattle, San Antonio (Techstars Cloud) and Oslo (Techstars Energy Accelerator with Equinor). It now operates seed and Series A stage funds.
- **500 Start-ups**, with programs in San Francisco, Mountain View, and Mexico City. It operates a number of funds focused on different geographical areas and invests in their accelerator graduates as well as other seed-stage companies.

Muckerlab is working not only with startups but also with existing businesses to stimulate growth and to spin off non-core assets, as described below.

- **New Venture:** Support and invests in early stage ventures and "pre-seed," as the first institutional capital. Focuses on startups achieving product-market fit in preparation to raise institutional venture financing.
- **Strategy Reboot:** Assists existing businesses to revamp their strategies, increase their addressable market opportunities, and operationally focus on accelerating revenue growth to become a high-growth, venture-fundable businesses.
- **Spin-Off:** Works with companies to spin off non-core divisions or assets to create operationally and strategically independent new ventures.

YCombinator also launched a Series A program, which works with founders 18 to 36 months after each cohort, and have launched a growth program and growth funds. They now have an outreach program in India, with Indian startups representing a high proportion of recent YC accelerator cohorts.

YC now runs three startup programs, as shown below. Startup School was launched in 2011, which is a free online course delivered to 10,000 founders at a time.⁷⁷ These new programs are acting as a feeder for the YC accelerator; 44% of companies accepted into the YC accelerator are Startup School alumni.

⁷⁷ <https://www.startupschool.org/>

YCombinator Startup Program ‘Pipeline’



Another trend, seen with some regions, has been to adopt an accelerator model alongside earlier-stage business incubation. For example, Central Houston, Texas, has adopted Mass Challenge along acceler8tor, as described below.

Startup Ecosystem Building in Central Houston, Texas

Central Houston has drawn in **two top-10 ranked accelerators** co-locating in one regional startup hub. **MassChallenge** was adopted for its recognition as a high-impact accelerator that could provide scale and transform the Houston market. **Gener8tor’s gBETA** pre-accelerator program was adopted to “*take care of who is in your backyard*” and to focus on local rooted founders.⁷⁸

These different formats are part of **Houston’s strategic design of ecosystem components** to empower and support local entrepreneurs from different parts of the ecosystem and startup lifecycle. In recognizing the volatility of the energy sector, and that local talent was being underserved by the market, it was recognized that diverse organizations and ecosystem components needed to flow into each other and intertwine. Another component has been physical real estate to provide startups with a place to scale, grow, establish, expand, and mature.

The expectation is that this integrated approach will generate new job growth opportunities by the startups.

⁷⁸ Robert Pieroni, Director of Economic Development at Central Houston Inc.; interviewed by Clara Scheinmann (19-11-20), <https://masschallenge.org/article/building-innovation-ecosystems-how-houston-transformed-by-supporting-startups>

5 MATCHMAKER AND SCALE-UP ACCELERATORS

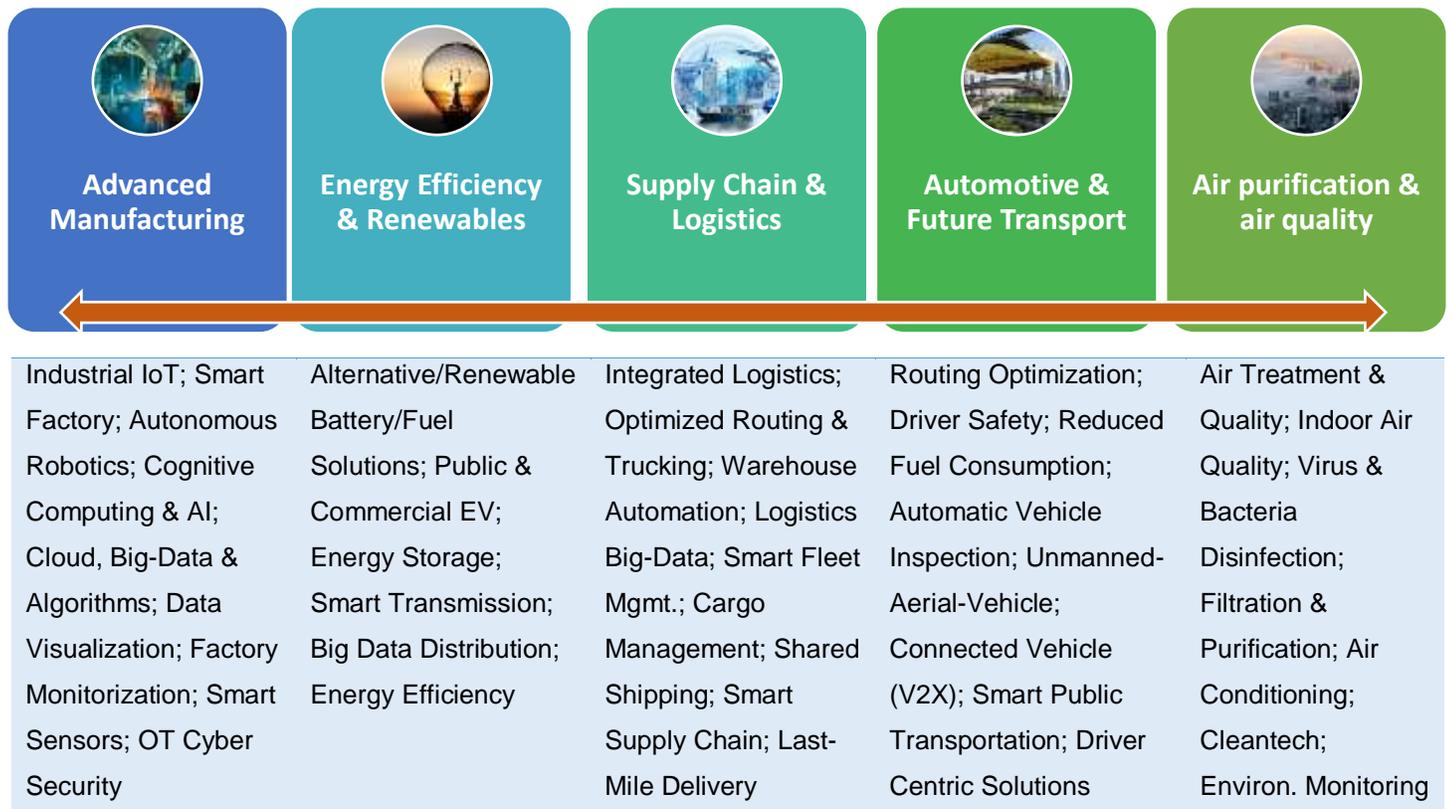
This chapter will examine the six sample accelerators, followed by a discussion.

Quantum Industry & Technology Hub (Israel)

Quantum Hub was founded in 2020 by **Taavura-Livnat Group**, one of the biggest privately held groups in Israel, which focuses on data, mobility and logistics.⁷⁹ Other founding partners include **Hyundai Motors Group**, **VDL Groep** (industrial family-owned group in Netherlands) and **Tadiran Group** (leading air conditioning manufacturer, air treatment solutions provider and energy services company).

Quantum’s flagship 12-week program supports early-stage startups who address one of the five program areas, shown below. The program is targeted towards a **proof-of-concept (POC) or beta-site process** and builds a practical network of business ties and startup support with the help of industry partners, businesses and executives.

Quantum Hub POC Runway Programs



⁷⁹ <https://www.quantum-hub.com/quantum-spark>

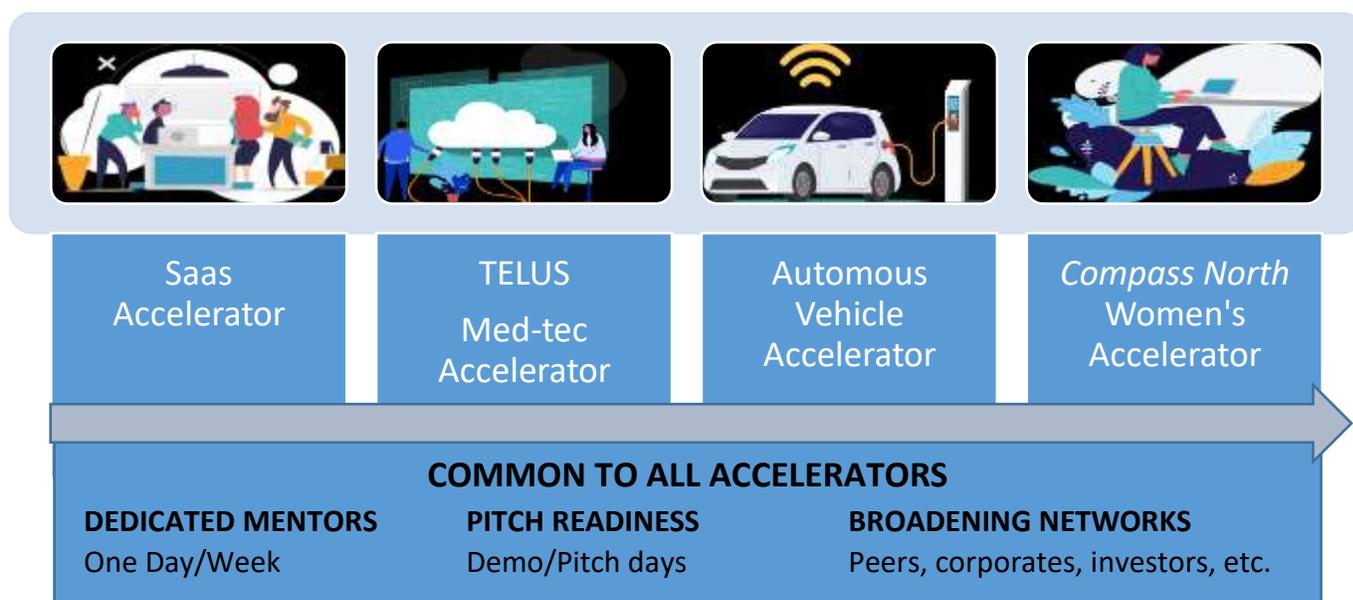
L-SPARK (Canada)

L-SPARK's origins go back to 2014, when the federal government committed \$7.75 million to *Invest Ottawa* as part of the *Canada Accelerator & Incubator Program*. Further funding from the venture capital arm of Wesley Clover International (WCI) and other partners provided **\$24 million** in funding to support L-SPARK.⁸⁰

L-SPARK is currently Canada's only accelerator **exclusively for enterprise SaaS and cloud startups**, with multiple connections identified to venture capital firms, angel investors and key figures within the investment community.

L-SPARK has become a champion of the **Canadian SaaS ecosystem**, through its *SaaS NORTH Conference* and is support female entrepreneurs through its *Compass North* women's accelerator. Different L-SPARK accelerator programs are shown below.

L-SPARK Accelerator Programs



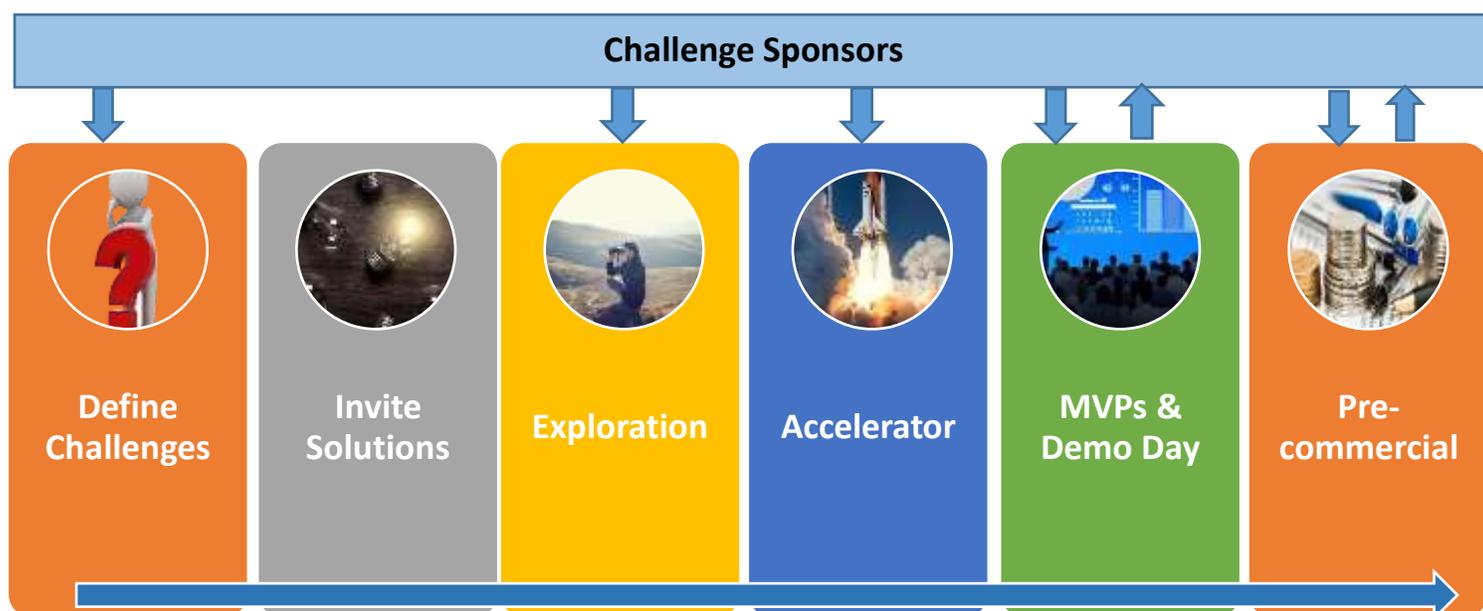
L-SPARK's startup and corporate acceleration programs are designed to give partner companies, such as TELUS, Blackberry and Solace, **exclusive access to leading edge technology**, while **supporting startup funding and scaling**. L-SPARK will also pair other companies, national and international, with its startups and founders.

⁸⁰ <https://www.l-spark.com/>

Civtech (Scotland)

CivTech is the **Scottish Government’s challenge program for innovation**, launched in 2017. The program pioneers an ambitious approach to public procurement to harness entrepreneurial tech innovation and citizen engagement, with the goal to improving public service delivery, creating economic development opportunities and fostering an entrepreneurial mindset within government.⁸¹ Their program process is shown below.

CivTech Innovation Flow Process⁸²



Organization setting problem poses Challenge as an open question, rather than target pre-determined solution	Challenges are released and proposals invited; 10 applications per Challenge go through to interview for one of three places at Exploration Stage	Two weeks for selected teams to further develop proposal hand-in-hand with their Challenge Sponsor; teams (or individual) receive £5k	14 week accelerator to produce a Minimum Viable Product that works and is capable of further development; teams completing Accelerator receive £25k; presentation at Demo Day	Teams can extend relationship with their Challenge Sponsors to further develop & roll out; Challenge Sponsor will receive an in-perpetuity royalty free license
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⁸¹ <https://www.civtechalliance.org/>

⁸² <https://www.civtechalliance.org/civtech-innovation-flow>.

"Companies that grow profitably to scale often consider themselves insurgents...They are obsessed with the details of the business and celebrate the frontline employees who deal directly with customers."

The Founder's Mentality, Bain & Company⁸³

Scale-Up Denmark

Scale-Up Denmark was founded and funded by the 5 Danish Regions in partnership with the Danish Ministry of Business & Growth and are managed by The Danish Business Authority and the assigned Scale-Up Denmark administration.⁸⁴

The focus of Scale-Up Denmark is to **foster accelerated growth among businesses and establish an elite of high growth companies in Denmark**. Scale-Up Denmark has drawn inspiration and insights from the world's best ecosystems for business growth, and has the following objectives:

- attract high performing enterprises – Danish and international
- provide access to seed capital and venture capital
- engage market leading firms from the regional eco system
- involve leading universities, research institutions and science parks
- provide easy access to the services of the entire Danish business support system

Scale-Up Denmark supports **12 industry hubs** that draw in related industry collaboration, support, mentoring and funding.

Scale-Up Denmark also supports **Accelerace**, the leading startup accelerator in the Nordic countries which was founded in 2008. Accelerace scales startups within foodtech, cleantech, IoT, soundtech, fintech, future of work, medtech, biotech and digital health with help from experienced serial entrepreneurs, mentors, camps and a vast network.⁸⁵

Eligibility requires that applicants demonstrate a scalable business model. Accelerace offers participants 500,000 DKK (US\$81k) in convertible loans, in addition to funding from partner investors. Accelerace also offers a free, online **pre-accelerator program**, which acts as a feeder for the 5-month accelerator.

⁸³ Zook & Allen (2016).

⁸⁴ <https://scale-updenmark.com/>

⁸⁵ <https://www.accelerace.io/>

MaRS (Canada)

MaRS Discovery District, founded in 2000 in Toronto, is a not-for-profit corporation founded by leaders from the business and public sectors to **improve commercial outcomes from Canada’s foundation of science, technology and social innovation**. MaRS is identified as North America’s largest urban innovation hub.⁸⁶

The MaRS Centre, opened in 2005, provides facilities to tenants across the innovation spectrum. The Centre also houses several Canadian venture capital firms, with MaRS having its own Catalyst Fund to support early stage founders developing social ventures.

MaRS provides different support services to entrepreneurs to grow and scale their ventures into global market leaders in **key technology areas** that include:

- life sciences and health care
- information, communications and digital media technologies
- cleantech, advanced materials and energy
- innovative social purpose businesses

MaRS provides business advice and mentorship, market intelligence, entrepreneurship education, seed capital and access to critical talent, customer and partner networks.⁸⁷ MaRS also offers ‘market adoption’ support, with the goal of making it quicker and easier for governments, established businesses and community partners to test, buy and integrate new technology. These core support services are presented below.

MaRS Core Support Services

Venture Support	Venture Education	Connecting Ventures to Talent	Connecting Ventures to Customers	Connecting Ventures to Capital
Market Adoption Support	Innovation Capacity Building	Data Access & Collection Innovation	Business Model Innovation	Policy & Regulatory Innovation, Alignment and Connection

The **Toronto Innovation Acceleration Partners (TIAP)** specializes in venture building of early-stage health science technologies emerging from its members.⁸⁸ TIAP was formerly MaRS Innovation. TIAP’s portfolio draws from three universities, nine teaching hospitals and two research institutes.

⁸⁶ <https://www.marsdd.com/>

⁸⁷ https://www.marsdd.com/wp-content/uploads/2018/09/MaRS_Impact_Report_2018.pdf

⁸⁸ <https://tiap.ca/>

Scale-Up UK

The ScaleUp Institute (SUI) is a private sector, not-for-profit company focused on **making the UK the best place in the world to scale up a business**.⁸⁹ The SUI provides linkages to 208 programs (46 which are endorsed). The SUI is also the pre-eminent body producing definitive data on scale-ups.⁹⁰ As defined by SUI:

A 'scale-up' is an enterprise with average annualised growth in employees or turnover greater than 20 per cent per annum over a three year period, and with more than 10 employees at the beginning of the observation period.

Goldman Sachs is a founding partner of SUI, and their *10,000 Small Businesses UK* is an investment program providing greater access to education and business support services for entrepreneurs. SUI also partners with BGF (**Business Growth Fund**), the UK's most active provider of growth capital for SMEs.

BGF targets profitable businesses, typically with a turnover of £5m-£100m, and through BGF Ventures it offers venture capital for pre-profit technology companies. BGF initially invest up to £10m for a minority equity stake and provides further funding as a company grows.

SUI also support the **Scale-Up Group** (SUG), which helps technology scale-ups secure 'Series A' growth capital and provides tailored advice and support.⁹¹ It comprises a membership of 28 entrepreneurs, including 22 former CEOs and other C-suite leader. A summary their support service is presented below.

SUG Fundraising Process	Business Development & Coaching	CEO Forum
Start-to-finish support & guidance to secure growth capital & matching of clients with relevant Funds	Leadership advice, talent introductions & operational guidance and studies	Free access to membership of accomplished entrepreneurs, SUG Ecosystem, CEO Handbook & access to a CEO-only peer group

⁸⁹ <https://www.scaleupinstitute.org.uk/>

⁹⁰ <https://www.scaleupinstitute.org.uk/>

⁹¹ <https://scaleupgroup.co/>

Discussion: Matchmaker and Scale-Up Accelerators

One of the obvious distinctions between matchmaker/scale-up accelerators and investor-led seed accelerators is the level of 'interactive' engagement with corporations. **L-SPARK, Quantum Hub** and **Civtech** engage corporate partners early on. In the case of Civtech, the engagement with entrepreneurs is led by a public partner who brings a challenge forward to be solved.

Corporations sponsor the formation of the largest number of accelerators. In a recent study, they found:

- 62% of accelerators have some form of direct sponsorship from corporations.
- 57% of accelerators were founded by investors.
- 34% founded by government sponsors.⁹²

Quantum Hub and **L-SPARK** have secured significant corporate sponsorship for their programs to tap into leading edge technologies and founders with deep technical knowledge. A key challenge for many corporations is **executing a successful proof-of-concept** project, and as Techstars has identified, the pain point is significant enough to make it lucrative for seed accelerators to make corporation engagement another revenue stream for them.

The scale-up accelerators appear to demonstrate some common **assumptions** related to: 1) the importance of particular needs/resources for their client companies; 2) the company's relationship of the local environment and regional economy; and 3) the role that it will play to mediate that relationship between company and external resources.

They also demonstrate the significant role played by multiple partners in scale-up programs, which will strengthen the validity of some of the above assumptions.

Investor-led or seed accelerators, by comparison, are unlikely to have such an in-depth knowledge of the underlying features of the local ecosystem. The negotiation between economic development agencies and leading seed accelerators is likely to better inform where and how program adoption is needed and delivered.

For many corporates, startup innovations need to **strategically fit with corporate needs and requirements**. Startups pursuing **unconventional innovation** (i.e. potentially disruptive but higher risk) may be particularly attractive to corporate sponsors. As such, corporates may be less interested in ensuring startup development and viability if directly applicable corporate value is not forthcoming.

⁹² Cohen et al, (2019).

In terms of ecosystem building, **MaRS** has been in existence for two decades; initially developing a reputation as an ecosystem 'coordinator' for enterprise support. With the aid of substantial funding, it was able to offer multiple services to entrepreneurs and ventures either directly or through the development of an extensive partner network.

In 2005, MaRS entered the property development business, with a large investment in real estate to house innovators and entrepreneurs. As the ecosystem has developed, other entities have emerged and taken responsibility from MaRS, such as the Toronto Innovation Acceleration Partners (TIAP), which was formerly MaRS Innovation.

L-SPARK, Quantum Hub and **Start-Up Denmark** appear to manage or partner with accelerators via two integrated processes: namely, accelerating strategic fit and accelerating venture emergence, while **Start-Up UK** is nurturing a national ecosystem of scale-ups.

L-SPARK partners with corporations to share risk with its accelerator model, engages in a broader mandate to support new venture emergence and contributes to different industry ecosystems by supporting and investing in startup pilots and trials. A commitment to a paid pilot is often a trigger for the corporate to make an investment in the startup.

6 DISCUSSION AND SUMMARY

This section begins with a discussion on accelerator contributions to regional ecosystem building, which is one of the central themes of this report.

This is followed by a discussion of findings in response to the three study questions, presented below, and a summary of key insights.

1. What are the benefits and challenges of adopting branded globally recognized business accelerators versus developing regional and local accelerator programs?
2. What is the right mix for establishing a “generalist, industry-agnostic” accelerator or more specialized accelerators (e.g. artificial intelligence)?
3. What key elements of current accelerator models are most relevant in informing future decisions on Alberta-based accelerators?

Accelerator Contributions to Regional ‘Ecosystem Building’

Accelerator programs vary in their contributions to regional ecosystem building. While many leading accelerators have become international in scope and operations, **entrepreneurship remains primarily a local phenomenon**, where geography and proximity tend to be predictors of success.

In some cases, accelerator models **do not have an explicit mandate to engage in ecosystem building** – as is common with a number of investor-led accelerators. Rather, the contribution to regional ecosystem building will be indirect.

As the discussion in this section will suggest, government can play an important role in **engaging and empowering accelerators to become more active in regional ecosystem building** - as part of a broader ecosystem architecture strategy.

Programs such as **Pipeline** (described below) have an explicit mission to build their own regional ecosystem so that all of the services, tools, networks, connections, and money **needed to grow companies** are readily available to regional high-growth entrepreneurs.⁹³

⁹³ Pipeline Partnership 2019-2020.

Pipeline does not operate like a typical accelerator, based on its modus operandi.

- From its origins in 2006, Pipeline has worked to build a **stronger base of entrepreneurs** across the state of Kansas and has now expanded into other regions of the U.S. Midwest (e.g. Missouri, Kansas and Nebraska).
- Pipeline targets entrepreneurs working to build a “high-growth” company with capacity to innovate & grow fast and which **must reside within partner Regional boundaries.**
- *“Pipeline provides comprehensive, step-change resources & mentoring aimed at company scaling and high-growth, delivered in a customizable format.”⁹⁴*
- Pipeline is **sector-agnostic**. Although Pipeline’s original focus was on technology entrepreneurs, Pipeline has broadened its industry sector scope in order to embrace high-growth potential entrepreneurs and businesses across sectors.
- All entrepreneurs interviewed by Pipeline **receive feedback and connections** to assist them along their paths (and potentially to reapply to Pipeline in the future).
- Pipeline alumni (referred to as ‘Pipeline Members’) are **actively engaged with Pipeline Fellows** (N=13) throughout the 12 month program, and are involved in designing the professional development sessions for the program modules.
- Pipeline has become “the aspirational bar” for regional entrepreneurs and an active network for Pipeline Members to scale their companies and contribute back.
- **Entrepreneurial recycling** is evident after 14 years: 34% of Pipeline Members have founded at least 2 companies; 31% are active angel investors, with a Pipeline angel group now created and active.
- Pipeline is sustained through an **extensive regional partnership model**: 25+ partners which include universities, angel groups, chambers of commerce and economic development agencies.
- Pipeline benefits from its **affiliation with a key sponsor**: the Ewing Marion Kauffman Foundation, based in Kansas City, which is a globally recognized leader in supporting and funding entrepreneurial programs and research.⁹⁵
- Pipeline has established an **extensive advisory and governance model** to manage its partner network, ensure participation value for all Pipeline stakeholders, and to **continually build connections** throughout the region and nationally.

GrowthX has franchised its Market Acceleration Program (MXP) to partner with different accelerators, such as Propel in the Maritimes⁹⁶; which complements existing services, provides targeted VC investment and **contributes indirectly to ecosystem building**.

⁹⁴ Pipeline Partnership 2019-2020: quoted from Brad Roth, Pipeline mentor.

⁹⁵ <https://www.kauffman.org/>

⁹⁶ <https://mxponline.growthx.com/>

Ecosystem building is not an explicit mandate for YCombinator; rather, the focus is more on building its own 'ecosystem'.

- 'Ecosystem-building' begins with each cohort of founders, who share their experiences, become beta users for each other and remain friends post-program.
- YC draws heavily on **support from Silicon Valley** itself, and the accelerator benefits significantly from this relationship. Strong network connections are the result of a large number of successful portfolio companies that establish themselves in the Bay area, in addition to the notable density of investors, support services and tech companies.
- YC graduates who do return home or do re-locate to other regions **further strengthen the YC culture, network and brand** and provide new resources and linkages that expands the YC accelerator ecosystem itself.
- Contributions to regional ecosystem building (outside of Silicon Valley) **arise indirectly** as YC alumni, mentors and investors engage in their local communities.

L-SPARK facilitates startup engagement with corporates, which supports new venture emergence and contributes to different industry ecosystems (e.g. Autonomous Vehicle, Medtech), as corporates invest in pilots, tech trials and in the startups themselves.

- L-SPARK contributes to regional (Ottawa/ON) and national ecosystem development.
- Its broader mandate is to **create a high-tech investment community in Canada** that can compete with programs such as YCombinator.

MassChallenge supports regional ecosystem building through its partnerships with corporations, industry and governments.

MassChallenge has been adopted by economic development agencies such as Central Houston (see p. 39); in part because MassChallenge:

- does not take equity from founders;
- offers a proven high-impact accelerator that may provide scale to other support programs in the region (e.g. incubators or pre-incubators); and
- provides linkages to a vibrant tech ecosystem in Boston, which may assist in validating the emerging startup ecosystem and providing its entrepreneurs with access to existing MassChallenge vertical programs (e.g. HealthTech & FinTech).⁹⁷

⁹⁷ <https://masschallenge.org/article/building-innovation-ecosystems-how-houston-transformed-by-supporting-startups>

Quantum Hub is more of an **industry and technology ecosystem builder**; drawing in regional and multinational companies to provide tools for growth and connectivity between select startups and established tech industry companies in the fields of automotive and mobility, industry 4.0, energy and logistics.

- Quantum Hub is focused on **building strong regional industry clusters** while providing global market opportunities for local entrepreneurs.

MaRS has been an **urban ecosystem builder** (Toronto and area) for two decades; drawing in over 200+ corporate, government and community/academic partners and providing a central destination for regional entrepreneurship.

- Recent ‘spin-outs’ from MaRS (e.g. Toronto Innovation Acceleration Partners) and controversies regarding executive salaries, building new facilities, etc. suggest that there may be limitations to the effectiveness of support organizations that centralize activities and grow large over time.

The **UK Scale-Up Institute (SUI)** champions a **national scale-up ecosystem** via three primary activities: 1) leading the UK’s world-class research agenda on scale-ups; 2) linking scale-ups to over 200 support programs and services; and 3) linking scale-ups to SUI’s investment partners (financial intermediaries, corporations)

Scale-Up Denmark champions a national startup *and* scale-up ecosystem.

This ‘dual’ role has its origins in Scale-Up Denmark’s birth as a **cross regional initiative linking all economic agencies in Denmark**. Its ‘centralized’ and ‘decentralized’ model offers multiple benefits:

- Links startups and founders with well-established companies and key industry players across the country.
- The cross regional scope ensures a critical mass of businesses and skills, while regional specializations are supported and utilized.
- Supports *Accelrace*, one of Europe’s top accelerators, to scale startups in key sectors (e.g. foodtech, cleantech, IoT, fintech, medtech) with help from experienced entrepreneurs, mentors, a vast corporate network and complementary programs.

CivTech’s distinction is building an entrepreneurial ecosystem that **draws in the public sector** and champions an entrepreneurial mindset within regional government.

- Another distinction is that every team is working on a product that, if developed successfully, will **have a buyer** (i.e. public sector organization or corporation).
- The CivTech model, not surprisingly, is being adopted outside Scotland by other regions, because this model also encourages development of innovative, cost-effective solutions, as teams work closely with Challenge Champions over 4 months.

1. What are the benefits and challenges of adopting branded globally recognized business accelerators versus developing regional and local accelerator programs?

Benefits

Participation in leading accelerator programs may have a **strong ‘positive’ signaling effect distinct from program content.**

- This signaling effect will be relevant to investors, who acknowledge that a founder has undergone a rigorous selection process to be further considered for investment.
- It may assist founders in recruiting talent, securing other resources, gaining recognition from peers and local economic development agencies, etc.

Leading accelerators have **established and repeatable processes** that have proven successful.

- **Processes that inform program management**, recruitment and selection of cohorts, and perhaps most important, securing, deploying and retaining human assets (program directors, mentors, investors, professional service providers, etc.).
- The **costs of learning by trial and error**, particular when trying to develop a new accelerator model, are difficult to forecast but could be substantial. These could include direct costs (i.e. funding) and indirect costs (i.e. reputation).

Adopting a leading branded accelerator may also provide **access to resources** that would be difficult to access otherwise.

- This includes access to seed funding and follow-on investment, an extensive mentor and alumni network, domain experts and peer-to-peer learning with other highly qualified founders in the cohort.

Recent research on seed accelerators identifies their role in **helping founders learn when and how to fail** and aiding in more efficient development decisions; conditional on idea quality. This suggests that a leading seed accelerator *may* provide an effective intermediation mechanism, compared to conventional enterprise support.

Challenges

The **franchising of accelerator programs** to multiple locations with different managing directors and mentors for each location is now common amongst a number of leading accelerators.

The **significant level of tied-up venture capital** is placing additional pressures on investor-led accelerators to expand into new markets and source promising new startups, as described further below.

The challenge of Accelerator funding & sustainability

Investor-led accelerators have trade-offs, as described in this report, but accelerators cannot rely on startups & program fees as a viable source of income.

- **Investor-led accelerators** must meaningfully shift either 1) startup quality (to be investable) or 2) decrease costs for investors to access startups of a given quality.
- Successful programs **required time for investments to ‘pay out,’** with admission into programs becoming a certification mechanism or signal of quality - for investors, founders, mentors and the wider community.
- It takes **multiple cohorts to realize a high multiple successful exit.** VC sponsors contributing to support accelerator expenses over multiple years will seek to recoup investment in the longer-term through larger direct fund investments in accelerator graduates, often identified through the mentoring process.
- A second approach is to **diversify the activities of the accelerator,** e.g. through operating accelerator programs for corporations (e.g. TechStars) and/or local governments (e.g. MassChallenge), in return for an annual or multi-year fee.

As described earlier, a **focus on sourcing deals for VCs and maximizing startup exit value** may not be compatible with a public agency’s expectation of an accelerator’s contributions to regional economic development.

This suggest that adoption of a leading accelerator program **may come with challenges if not managed effectively.** For example:

- External parties **may not be familiar with or appreciate the regional (e.g. Alberta) ecosystem,** or may want to take a program in a different direction than expected.
- Adopting an **accelerator which requires equity** from founders may also raise questions from entrepreneurs, particularly in the absence of a track record (in Alberta).
- Alberta has been recognized for its plethora of support initiatives for entrepreneurs, and the entry of **another program** may generate some concern and confusion amongst entrepreneurs and other support providers.

The adoption of a ‘franchise’ accelerator model may therefore require putting in place **appropriate governance and ‘partner management’ processes,** with explicit agreement on shared objectives.

One shared objective could be the targeting of more high-quality firms in Alberta which requires that the accelerator also demonstrate its ability to **align with other ‘upstream’ and ‘downstream’ programs and partners in the regional ecosystem** (e.g. incubators, pre-accelerators, corporates, local investors, etc.).

2. What is the right mix for establishing a “generalist, industry-agnostic” accelerator or more specialized accelerators?

Industry-agnostic accelerators remain the dominate model compared to more specialized accelerators for three observed reasons:

1. Most challenges facing startup founders are **shared across industry verticals**, particularly for early-stage founders. It was mentioned earlier that for very early-stage ventures, the **complementary value of standardized activities** is important, whereas more customized activity is important for more advanced ventures.
2. Agnostic accelerators offer a **diversity of knowledge** and learnings available in bringing together founders, mentors and investors representing different sectors.
3. Agnostic accelerators provide **more opportunities for cross-pollination of ideas and technologies**.

However, industry-agnostic accelerators can become specialists in particular technology areas. It was earlier discussed that **500 Startups** is the most active accelerator across a broader range of sectors in terms of investments, but it is also the most dominant in software, media and consumer goods.

One distinction with specialist accelerators such as **AI Nexus Lab**, **Muckerlab** and **Alchemist** is the **nature of their ‘business’ models**. AI Nexus Lab runs a small cohort of 5 founders per year, but is part of New York University, and is backed by NY City’s leading tech venture capital firm. Companies receive \$100k to join the lab, and gain access to two full-time technical experts, a network of mentors including NYU AI faculty experts, abundant resources, and a rigorous program to guide startups to market entry.

AI Nexus Lab is able to recruit the top AI startups from across the world to come to NYC for the four-month program. While it remains true to its lab research model, it also has significant VC backing and links into Silicon Valley.

A considerable number of AI accelerators are now operating globally and one question is whether established specialist accelerators, such as AI Nexus Lab, could be a potential collaborator in AI with Alberta?⁹⁸

⁹⁸ <https://www.aiimarketplace.com/resources/ai-accelarators>

Muckerlab's model is able to support a 12+ month program due to its partnership with different VC firms and its revenues from working with existing businesses and corporations to stimulate growth and to spin off non-core assets.

Alchemist was started in 2012 also by a consortium of VC funds, with the mandate to build the premier launching pad for enterprise startups. The accelerator allows VCs to stay **abreast of new opportunities emerging from the ecosystem and allows the accelerator to fund opportunities** that are “breaking out quicker.”⁹⁹

Similar to Muckerlab, Alchemist's program is longer than most seed accelerators (6-months), which allows program directors and investors to closely assess how quickly teams can work, adjust, pivot and perform while building out their business.

Alchemist's focus on Enterprise, Digital Health, Enterprise, FinTech and IoT (internet-of-things) is supported by mentors from leading research universities such as Stanford and Berkeley and from former heads of business units of leading tech companies such as Salesforce, Microsoft and Google.

Some observations can be made regarding specialized accelerators.

- Specialized accelerators, such as AI Nexus Lab, Muckerlab and Alchemist, tend to avoid selecting founders attempting to ‘figure it out.’ Rather, their strict selection criteria favors founders with **deep and exceptional subject matter expertise**.
- Startups working on deeply disruptive technologies require exposure to people with significant technical/domain and market knowledge, access to sophisticated investors and a global reach to attract talented founders – **key advantages seen with leading specialized accelerators**.
- Specialized accelerators **may have a first-mover advantage** over later market entrants, in securing specialized knowledge, resources and reputation and in reaping the longer-term benefits deriving from successful companies and investments.

What are the potential risks when establishing a new specialized accelerator?

- Lack of a sizable cohort, or critical mass, of **quality founders**.
- Limited **domain knowledge and resources** to support and mentor founders engaged in deep tech development and commercialization.
- **Lack of specialized ‘anchor’ firms**, which limits opportunities for talent recruitment from universities and the movement of talent between and amongst firms and startups.

The combination of deficiencies noted above will make it difficult to attract and develop specialized knowledge, resources, investment and build reputation.

⁹⁹ <https://www.aiimarketplace.com/resources/ai-accelarators>

3. **What key elements of current accelerator models are most relevant in informing future decisions on Alberta-based accelerators?**

Support entrepreneurs to lead the startup community.

“Leaders of startup communities have to be entrepreneurs. Everyone else is a feeder into the startup community. This includes government, universities, investors, mentors, service providers, and large companies.”

Brad Feld, Co-founder, TechStars

- Entrepreneurs in successful tech regions create the dynamism, enthusiasm and socio-economic benefits that **inspire the community** and next generation of entrepreneurs.
- Successful entrepreneurs generate the regional **entrepreneurial recycling** that leading, established accelerator programs help facilitate.
- Accelerator programs such as Pipeline and others, can play a key role in **consistently showcasing regional entrepreneurial talent, stories and successes.**

Specific needs of entrepreneurs should inform new support provision.

- Choice of which entrepreneurs and companies to target has **important implications for choosing an accelerator model.**
- Regularly consulting the **entrepreneurial community** provides ‘real-time’ insights into gaps and potential solutions that can strengthen an evolving startup ecosystem.
- **Mapping out existing support pathways** available for entrepreneurs in the Alberta ecosystem could inform where gaps exist - allowing incoming programs to more clearly define founder and startup profiles in targeting support.
- Creating different ‘classes’ of founders could occur with policy emphasis on prioritizing an investor-led model which focuses exclusively on ‘scalable’ ventures (e.g. teaching founders how to *raise* money rather than how to *make* money).

Leading accelerators successfully deploy well-established collaborative networks to support high-potential founders.

- **An accelerator without a strong network is not a viable business model**, and leading accelerators place founders in information-rich environments that leverage their networks & capabilities to anticipate and draw in ‘on-demand’ knowledge.

- Leading **specialist accelerators give preference to cross-functional teams** with deep subject matter & business execution expertise.
- An alternative to - or preparation for - a specialized accelerator may be to facilitate opportunities for entrepreneurs, researchers & industry to identify & iterate on problems for addressable markets & gain valuable team-based experience.

Founders require local ‘post-acceleration’ support to scale-up.

- Most startups require more capital ‘post-accelerator’ as well as resources to further develop their business, given the typically short duration of accelerators.
- Leading accelerators may **draw talent into the region**, but other characteristics of the local ecosystem determining whether founders will re-locate post-program.
- Important economic indicators, such as employment growth, investment, R&D activity, new products, etc. will typically occur after accelerator graduation and be influenced by the availability of scale-up resources, investment and market access.
- Successful tech regions have a critical mass of startup, scale-up, medium and large firms all engaged in innovative activities.

Moving Local Wealth “off the Sidelines and into the Venture Game.”

- Successful startup ecosystems have a **higher proportion of regional wealth active in the venture asset class**. The challenge is not a lack of capital but a lack of capital *participating* in startup and scale-up activity.
- Accelerators can **raise the quality of investment opportunities** for the venture asset class.
- How can **holders of traditional wealth assets and investors in legacy industries** be more actively engaged in the venture asset class?
 - Harvest Builders is one example of a regional initiative to stimulate wealth diversification.¹⁰⁰

Leading accelerators raise entrepreneurial ambitions to ‘go big.’

- Leading accelerators **attract ambitious founders** with novel solutions, which in turn **attract high-quality support resources** (e.g. mentors, investors, industry partners).
- Conservative ambitions do not attract external risk capital or build capacity in the local risk capital market.
- **Can Alberta identify a key partner who enthusiastically supports entrepreneurs**, e.g. the Ewing Marion Kauffman Foundation has allowed Pipeline to expand, engage

¹⁰⁰ <https://www.harvest.builders/>

a larger and more diverse base of entrepreneurs and better align itself with the natural contours of the state and regional economy.

Engaging Corporations as key stakeholders in Regional Ecosystem Building.

- Corporations are increasingly engaged with accelerators (e.g. Techstars), with startups (e.g. L-SPARK) and through their corporate venture capital investments
- Corporations are increasingly involved in supporting **coordinated public-private efforts to develop entrepreneurial communities** (e.g. Central Houston)
- Different accelerator models provide different opportunities to bring Alberta entrepreneurs and corporations together to solve corporate challenges.

Covid-19 pandemic is having an effect on accelerator models.

- The **COVID-19 pandemic** has caused major adjustments in the delivery of accelerator programs, with many 2020 and 2021 founder cohorts moved to online platforms.
- Online platform delivery has challenged some accelerator programs that have **limited structured content** and which rely primarily on facilitating interactions between founders and mentors, program directors, guest speakers and investors.
- Some leading accelerators are **unable to leverage their significant locational advantages** that had physically placed cohorts into resource-rich ecosystems
- Opportunities and threats have arisen for accelerators during the pandemic as new programs and platforms emerge and programs adjust and adapt.
- Whether the pandemic have a **longer-term impact** on leading seed accelerators providing intensive, cohort-based residency programs, remains to be seen.

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Appendix A: Comparative Summary of Accelerators

<p style="text-align: center;">YCombinator</p> <ul style="list-style-type: none"> • “to help startups take off & be in dramatically better shape 3 months later” • core belief that Silicon Valley is center of ‘gravitational pull’ for tech startups & founders need to spend time here 	<p style="text-align: center;">Techstars</p> <ul style="list-style-type: none"> • “to help entrepreneurs succeed” • Region-specific support from global network of accelerator locations • most prominent seed accelerator engaged in “powering” corporate accelerators 	<p style="text-align: center;">500 Startups</p> <ul style="list-style-type: none"> • “To uplift people & economies through entrepreneurship” • most active early stage investor globally (75 countries) • 140-plus team members in 17+ countries to support 500 Startups' global portfolio • 15+ micro-funds for specific geographies or industry verticals
<p style="text-align: center;">GrowthX</p> <ul style="list-style-type: none"> • invests in post-revenue, B2B & SaaS ventures • deep expertise in product-market fit • runs accelerator & online Market Accelerator Program • typically \$100-\$250k for 5% equity only when market milestones are achieved 	<p style="text-align: center;">Pipeline</p> <ul style="list-style-type: none"> • focus is on the entrepreneur • does not take an equity stake in their companies • recruits 13 entrepreneurs for one-year Fellowship • 25+ partners: economic development agencies, universities, angel groups, Kauffman Foundation 	<p style="text-align: center;">MassChallenge</p> <ul style="list-style-type: none"> • “to help entrepreneurs easily launch & grow their startup ventures” • zero-equity non-profit accelerator, with emphasis on employment outcomes • no upfront funding startups compete for \$3M in zero-equity cash awards at end of program
<p style="text-align: center;">Alchemist</p> <ul style="list-style-type: none"> • top B2B accelerator, only for startups whose revenue comes from enterprises • top accelerator in total funding raised by its startups (YC ranked #2) 	<p style="text-align: center;">Muckerlab</p> <ul style="list-style-type: none"> • “to help entrepreneurs build great, category-leading companies” • No set duration or set start date; ventures “graduate” only after achieving agreed upon milestones (3-12 mo.) 	<p style="text-align: center;">AI Nexus Lab</p> <ul style="list-style-type: none"> • to recruit world’s top AI startups to NYC for 4-month program • companies receive \$100k from ff venture capital & access to NY University’s AI faculty to guide startups to market entry
<p style="text-align: center;">L-Spark</p> <ul style="list-style-type: none"> • to scale Canada’s best in SaaS to 10x revenue growth & Series A funding • Offer corporate acceleration services & focused sector-based and thematic programs 	<p style="text-align: center;">Quantum Hub</p> <ul style="list-style-type: none"> • 12-week proof-of-concept ‘runway’ program focused on 4 main verticals: Mobility & Automotive, Logistics, Energy & 4.0 	<p style="text-align: center;">Civtech</p> <ul style="list-style-type: none"> • “challenge-based” accelerator for digital entrepreneurs to tackle technological hurdles • entrepreneurs receive contract of £25k with further funding available; 12 wk. program
<p style="text-align: center;">MaRS</p> <ul style="list-style-type: none"> • creating a leading urban innovation cluster • 200+ partners; 1,400 Can. science & tech companies • 4 sectors: cleantech, health, fintech, enterprise software 	<p style="text-align: center;">Scale-up UK</p> <ul style="list-style-type: none"> • provides linkages to 208 growth-supporting programs • Scaleup Group helps tech scale-ups secure ‘Series A’ growth capital & provides tailored advice & support 	<p style="text-align: center;">Scale-up Denmark</p> <ul style="list-style-type: none"> • cross regional initiative supporting company growth • linked to Accelerace: “the most tailored accelerator in Europe” • engage with companies across 12 industry sectors

Appendix B: Investor-led, Seed Accelerators: Descriptive Data

Name & Location	Year formed	Duration (months)	Cohort Size	Attendee fee
YCombinator (San Francisco, CA)	2005	3 mo. (2 cohorts/yr.)	400 Startup School (online: 10k+)	
TechStars (Boulder, CO)	2006	3 mo. (2 cohorts/yr.)	300	
Growthx (San Francisco, CA)	2015	4 mo.+ (online; no set start & end date)	Varies (online); cohort size varies depending on accelerator partner	
Pipeline (Kansas City, KS)	2006	12 mo. (1 cohort/yr.)	13 Fellows/year	\$5k (fellowship fee)
500 startups: San Francisco, CA	2010	4 mo.	40-45	\$37,500
Mass Challenge, Boston, MA	2009	4 mo.	56	Application fee of US\$49.
Alchemist Silicon Valley	2012	6 mo. (2 cohorts/yr.)	50 (25 x 2)	
Muckerlab (LA, CA, Nashville, TN)	2012	3-24 mo. (12 mo. average)	10-12/yr.	
AI Nexus Lab	2018	4 mo.	5	