

Supporting start-up globalisation in Ireland through incubation and acceleration

Final Report

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Foreword and acknowledgements

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The report provides an account of key issues for incubation and acceleration policies internationally, an assessment of Ireland's current incubation and acceleration landscape and policies, lessons for Ireland from three international case study countries – the UK, Sweden and Estonia – and policy recommendations for Ireland.

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Executive summary

International markets, finance and collaborations can be powerful levers for scaling start-ups, especially in small open economies. Entrepreneurs are increasingly attempting to take advantage of these opportunities by creating “born global” start-ups, ventures that aim to serve the global market from the early stages of their development. Governments operate start-up internationalisation policies and programmes to reap the potential of global markets to create jobs and support exports, productivity, and growth domestically, and incubators and accelerators are playing an important role. However, incubation and acceleration practices are evolving rapidly, and policies must be adapted to the changing context.

The Irish government has made consistent efforts to improve its support for start-up globalisation. For instance, Enterprise Ireland’s “Leading in a Changing World Strategy 2022-2024” has set a clear direction in Ireland’s entrepreneurship and SMEs policy to support the creation of global companies. This report focuses on the role of Ireland’s incubation and acceleration policies in this area, both assessing the current policy landscape in Ireland and reviewing the lessons from incubation and acceleration policies in Estonia, Sweden, and the United Kingdom.

The Irish policy assessment shows that Ireland benefits from a high degree of political buy-in for incubation and acceleration programmes, and from the willingness within government to adapt and innovate. There is also a natural propensity to internationalisation. The small size of Ireland’s domestic market means that the main avenue for start-ups to scale is to access foreign markets, and already many Irish incubators and accelerators include activities to help start-ups to go global. There are, however, some gaps in incubators and accelerators’ internationalisation support, for example relating to the provision of soft-landing supports abroad for Irish start-ups. Funding insecurity – particularly for university-based incubators – is another challenge, as is a shortage of sector-specialised programmes. The overall incubation and acceleration system is also fragmented and would benefit from a co-ordinating entity or network.

The cases of Estonia, Sweden and the United Kingdom provide important insights on good practices in the design of incubation and acceleration policies, including:

Public sector commitment and anchoring. The government’s commitment in terms of budget allocation and institutional anchoring for the incubation and acceleration system is essential. Public support tends to be most effective when managed by a competent and credible central organisation, which provides clear guidelines, targets, and objectives to enable incubators and accelerators to access public funds for services provided and to steer the strategic development of incubation and acceleration programmes.

Competitive selection process. Prioritising start-ups with the strongest internationalisation potential is a first step for facilitating incubation and acceleration of global start-ups. Global markets are extremely competitive, and public expenditure should be primarily allocated to those ventures with the higher chances of success.

Specialised services. Internationalisation-targeted services are necessary to help start-ups to navigate the complexities of operating in international markets, such as foreign regulations and administrative requirements. This also requires access to international experts.

Hardwired evaluation practices. The UK and Sweden policy examples clearly show that tracking and evaluating incubator and accelerator processes and outcomes, and linking this to future public funding, is necessary to improve programmes over time and adjust targeting.

Balance between agglomeration benefits and regional support. Incubation and acceleration benefit from agglomeration effects, as demonstrated by important innovation hubs supporting start-ups in the capital cities in Estonia, Sweden and the UK. Being part of elite global hubs increases start-ups' visibility, access to international investors, resources, and talent, as well as peer learning effects. Public support for world-class incubation and acceleration hubs such as London's Knowledge Quarter or Paris's Station F is therefore a common strategy. However, such hubs should be run in parallel with support for more distributed national incubation and acceleration systems that serve start-ups located in all regional entrepreneurial ecosystems of a country, including both facilities in peripheral regions and connections to resources in the central hubs.

Experimentation and research. Pilot programmes can be an efficient way to gradually steer incubator and accelerator practices towards new public priorities, especially in the internationalisation context.

Co-ordination with other policies. Incubation and acceleration can better support start-up globalisation when synchronised with other policies including infrastructure, fiscal, trade, education, and innovation policies.

The assessment of the Irish incubation and acceleration system and analysis of the lessons from three country cases have informed a series of key policy recommendations for strengthening Ireland's incubation and acceleration system and its support for start-up globalisation. These include:

1. **Increasing the provision of soft-landing facilities abroad.** Many countries are creating foreign branches of domestic incubators and accelerators, often within international incubation and acceleration hubs. This allows small cohorts of domestic start-ups to locate part of staff abroad to establish contacts with potential clients, partners and advisors in international markets and learn from foreign competitors.
2. **Encouraging the development of sector-specific programmes.** An increased offer of sector-specialised incubation and acceleration programmes can help meet the distinct needs of start-ups in different key industries. They can be effective when there is a sufficient critical mass of start-ups and ecosystem resources in the industry and programme location and differences in the advice, innovation, finance and other needs of the start-ups.
3. **Creating an incubator and accelerator network.** Better co-ordination across incubators and accelerators domestically and internationally can improve information sharing, peer learning, strategic alignment, and capacity building. Creating an incubator and accelerator network can facilitate information sharing, resource sharing, strategic alignment, and capacity building.
4. **Investing in increasing mentors' quality.** Increasing investments in identifying, attracting, and retaining high-quality and experienced mentors, both from Ireland and internationally, can make the difference in bringing promising Irish ventures to international scale-up level.
5. **Promoting a flagship national entrepreneurship campus.** Establishing a large national entrepreneurship campus would help Irish start-ups to benefit from greater visibility with clients, investors and others, and leverage location synergies in accessing experts, equipment, investments, public support and other resources. Start-ups elsewhere could benefit from connections to this national campus, whose activities would complement the important supports delivered by regional business support organisations including state-funded enterprise hubs and local enterprise offices.

Synthesis of findings and recommendations for Ireland

Key issues in incubation and acceleration policies and practices internationally

There is not a consensus definition for an incubator or accelerator that is applied internationally. However, in general terms, business incubators and accelerators can be considered as (European Commission / OECD, 2019^[1]):

“...business development support programmes that provide a range of support services to entrepreneurs in business creation and during the early stages of the business lifecycle...”

Accelerators typically provide support to businesses more intensively over a shorter period of time than incubators. They also tend to be more selective than incubators, targeting later-stage start-ups with a high potential for scaling-up. Another distinction is that business incubators usually offer physical space in which client companies can operate, which is not always the case with accelerators.

Incubators and accelerators both aim to improve the conditions for start-ups and scale-ups in two ways (Amezcuca et al. 2013):

1. “Buffering” firms by reducing start-up costs through the provision of, for example, subsidised office space, administrative services, and complementary business support.
2. “Bridging” new businesses to other resources and actors in the entrepreneurial ecosystem.

As well as developing individual start-ups, incubators and accelerators also contribute to the wider development of entrepreneurial ecosystems.

Although most incubators and accelerators seek to support the development and growth of young businesses, the extent to which they focus on globalisation of their start-ups varies. Nevertheless, in small, open economies like Ireland, the goal of stimulating new business growth is very closely tied to that of supporting start-up internationalisation. For incubators and accelerators to be effective in promoting global start-ups, they must be able to identify and target ambitious entrepreneurs with a vision for international expansion and offer them access to tailored mentorship, finance, talent, networking opportunities and other supports specifically designed for start-ups eyeing the international market. Through incubation and acceleration programmes, entrepreneurs may also gain exposure to diverse global markets, enabling them to fine-tune their products or services according to the preferences and needs of international consumers.

Internationally, the size and diversity of the incubator and accelerator population has increased significantly. Despite their wide differences, individual incubators and accelerators are nonetheless highly inter-dependent and affected by common factors, meaning that it is important to view incubators and accelerators as forming part of an overall system. Managing an incubation and acceleration system effectively can significantly enhance its overall capacity to support start-ups and scale-ups. Activities that governments can undertake include:

- **Strengthening linkages among incubators and accelerators:** Initiatives to strengthen linkages within an incubation and acceleration system create rich opportunities for peer learning and resource sharing. Governments in some countries have established national networks of incubators and accelerators, while in other countries, national incubation programmes link groups of publicly supported incubators and accelerators together through networking events or access to shared resources. Incubators and accelerators also often take the initiative of creating their own small networks or groups.
- **Strengthening linkages between the incubation and acceleration system and other ecosystem actors:** There are a number of measures that governments can take to strengthen the linkages between incubators and accelerators and other ecosystem actors (consultants, research organisations, investors, colleges, large firms, public agencies etc.), which enable incubators and accelerators to perform their “bridging” function more effectively. For example, governments can create sectoral cluster organisations or regional innovation hubs that work to bring together various actors in the entrepreneurial ecosystem. They can also help to anchor financial and academic institutions more deeply in the incubation and acceleration system, for example through the creation of networks and events for investors or incentivising research commercialisation within universities.
- **Establishing performance monitoring systems for incubators and accelerators:** Performance monitoring is an important aspect of managing an incubation and acceleration system in order to incentivise and upgrade the performance of different individual publicly-supported incubators and accelerators. Incubator and accelerator performance is multi-dimensional and performance metrics should accordingly cover various different activities and outcomes. Another important consideration is that some incubation and acceleration effects only become visible after the firm has graduated from the incubator or accelerator. A key challenge is ensuring that incubators and accelerators provide the necessary data. In some countries, performance reporting is attached to the criteria for public funding, to incentivise incubators and accelerators to provide data on a timely basis. However, overly demanding reporting requirements can deter incubators and accelerators from engaging in the programmes.
- **Creating standards and certifications for incubators and accelerators in the system:** Incubators and accelerators’ ability to effectively support start-ups and scale-ups is shaped to a large extent by their ability to engage other actors in the entrepreneurial ecosystem, such as investors, consultants, large companies and research institutions. This in turn rests on their ability to establish a good reputation and signal their quality. In many countries, national incubator and accelerator programmes deliver the added benefit of providing a quality stamp to the selected incubators and accelerators. Governments can also adopt a more explicit approach to certifying business incubators and accelerators based on a set of eligibility criteria.

Assessment of Ireland's incubation and acceleration system and lessons from the cases of Estonia, Sweden, and the United Kingdom

Co-ordination of the incubation and acceleration system

There is a significant amount of public investment in Irish incubators and accelerators. This is one factor underpinning the sizeable growth in the incubator and accelerator population in recent years. Currently, the incubation and acceleration system is fairly complex, without an overarching incubation policy or network to bind together the many different public entities active in this space. There are informal networking initiatives between these entities and stakeholders widely refer to the collaborative ethos that exists in the system. With that being said, the Irish incubation and acceleration system is currently fragmented, which can make it difficult to navigate for entrepreneurs and brings co-ordination challenges in the delivery of public support.

In Sweden's National Incubation Programme (NIP), VINNOVA (Sweden's innovation agency) provides funding for a pool of selected incubators and accelerators, which are free to be managed independently as long as they can demonstrate the quality of their processes and their success in generating high-growth start-ups. This is a good example of how a more centralised approach can help to foster a more cohesive incubation and acceleration system while also retaining its diversity and dynamism. The NIP's quality assurance processes mean that high-quality incubators are easily identifiable by start-ups. Moreover, the programme strongly emphasises collaboration among incubators and other actors in the entrepreneurial ecosystem, enhancing the rate of peer learning and resource sharing and thus raising the overall performance of the system and its effectiveness in supporting start-ups and scale-ups.

The approaches of the United Kingdom (UK) and Estonia more closely match that of Ireland, with support for incubators and accelerators delivered through a multi-channel mix of regional and national public policies rather than one centralised funding system. In the UK, more public supports for start-ups are delivered directly to the start-ups, rather than via incubators and accelerators as is the case in Sweden. Conformance with European Union State Aid rules could be one driver of these differing approaches. In the case of Estonia, the creation of Startup Estonia with its specific co-ordination mandate has been important in improving national policy co-ordination while maintaining a bottom-up approach where private-led accelerators co-exist with public entities and are supported by a range of ongoing and time-limited supports, including grants and public tenders. This helps to ensure a diversity of funding sources and enables new approaches to be tested.

Incubation and acceleration supports for start-up globalisation

The small size of Ireland's domestic market means that there is a high degree of overlap between the concepts of scaling and internationalisation. The result is that internationalisation considerations are mainstreamed across many of the supports, for example networking or mentoring, offered to start-ups by incubators and accelerators. Many Irish incubators and accelerators also embed internationalisation potential within the admission criteria for their programmes, resulting in a channelling of support towards start-ups with global potential. A similar approach can be seen in Sweden's NIP, which incentivises incubators to select start-ups with strong potential to compete internationally. Where Sweden's approach diverges from Ireland's is in its efforts to build international networks of incubators and accelerators, which can facilitate incubator staff learning through exchanges and establish useful overseas contacts for incubated start-ups to tap into.

In addition to assisting start-ups with global potential through generic supports, incubators and accelerators can also deploy direct means that specifically aim to help their client companies to internationalise. Soft-

landing programmes and international matchmaking are the most common approaches deployed in other countries. In Ireland, there are some examples of such approaches. For example, BioInnovate supports start-up placements overseas. However, there is scope to scale up the provision of these types of soft-landing programmes. The case of the UK sheds light on how governments can leverage soft-landing programmes as a tool for supporting start-up globalisation. Most notably, Innovate UK's Global Incubator Programme supports cohorts of up to eight innovative UK SMEs to work with world-leading incubators in four countries (the US, Canada, Singapore and Australia) in order to accelerate their internationalisation. A similar model can be found in Korea and Singapore in the form of the Korean Ministry of SMEs and Start-ups' K-Startup Centers and Enterprise Singapore's Global Innovation Alliance.

In Estonia, the small scale of the domestic economy means that start-up support policies place a strong focus on internationalisation, both with respect to helping Estonian start-ups to internationalise and attracting foreign players to the Estonian ecosystem, for example through the e-residency and start-up visa initiatives. This ethos is also reflected in the design of Estonia's major incubation and acceleration programmes. For example, the Creative Destruction Lab Estonia supports the internationalisation of start-ups through the organisation of international networking events, which often feature high-level policy makers and business leaders to raise visibility and encourage participation, the provision of international mentors, international study visits, and the inclusion of many start-ups from overseas.

The role of universities in the incubation and acceleration system

As is the case internationally, university-based incubators in Ireland have an important role to play in developing innovative start-ups with globalisation potential, given their proximity to cutting edge research, facilities and talent. University incubators can also enhance the educational experience for students at the universities. For example, in Estonia, the Creative Destruction Lab's situation within a business school allows students to observe close hand the development of new entrepreneurial ventures.

Irish universities and technology transfer organisations are strongly supported by a range of public programmes, for example Enterprise Ireland's KT Boost Programme and Commercialisation Fund. In similar fashion, the UK offers intensive, time-structured research commercialisation programmes for researchers and PhD students through the Innovate UK-sponsored ICURe initiative. ICURe comprises four programmes of differing intensity, from ICURe engage (a 4-week, part-time programme) to ICURe Exploit, through which the research teams can apply for up to GBP 300 000 in funding.

Notwithstanding the aforementioned public supports, dedicated funding initiatives for university-based incubators are not in place in Ireland. This limits the scope of the support provided by Irish university incubators and their ability to plan strategically over long-time horizons and build a reputation in the wider entrepreneurial ecosystem. Many of the incubators supported by the NIP in Sweden are university-based incubators, which receive financial support over a four-year period on a competitive basis, subject to strict criteria surrounding reporting and standards. In addition to the financial assistance, an added benefit of participation in the programme is the provision of a quality stamp from Vinnova, which can help incubators to establish credibility among other stakeholders. Vinnova's own credibility and longstanding reputation in the entrepreneurial ecosystem is seen as key to the enabling the quality stamps to have a tangible benefit.

Performance monitoring

It is important that financial support from the Irish government for incubators and accelerators is tied to specific performance metrics, where this is not already the case. Performance monitoring can help to align the activities of incubators and accelerators to the needs of start-ups and the strategic objectives of the government, while also increasing transparency on the performance of different programmes. It can also counteract inertia in the incubation and acceleration system whereby the initially strongest incubators and

accelerators retain their dominant position through reputational effects, making it harder for less established programmes to establish a foothold in the space.

Data sharing is key to performance monitoring. In the UK, data sharing is compulsory for incubators and accelerators receiving public funding, which has contributed to improved performance and the spread of information on good practices. Performance monitoring is also a core feature of the NIP in Sweden. Prior to the approval of funding, incubators are required to provide evidence of their procedural viability and start-up quality. The incubators are also regularly monitored according to pre-defined metrics in order to assess whether support should be continued. While Estonia can do more to expand formal evaluations of specific programmes funding incubators and accelerators, Startup Estonia is developing an ambitious data monitoring system to track the performance of the country's start-ups, in partnership with DealRoom. More complete and reliable data on start-up activities can strongly assist the performance monitoring of incubators and accelerators. This approach also reduces the reporting burden of performance monitoring systems on the incubators, accelerators and start-ups.

Sector-specialised incubation and acceleration programmes

Many of the major incubation and acceleration programmes in Ireland, for instance New Frontiers and the National Digital Research Centre, appear to be relatively sector agnostic, accepting businesses from a broad range of sectors. Some stakeholders have noted that it would be beneficial for there to be more sector-specialised incubation and acceleration programmes. The case of the UK suggests that a greater degree of specialisation within the incubation and acceleration system can help to attract promising start-ups from other countries. Indeed, specialised programmes in the UK are significantly more likely to have attracted start-ups from overseas than non-specialised programmes. Specialised programmes are also more likely to attract start-ups and entrepreneurs from other regions of the UK.

Like Ireland, most incubators and accelerators in Estonia operate across multiple sectors. However, there is a growing number of accelerator programmes in Estonia with a specific thematic focus. The policy approach in Estonia is to issue public tenders for developing an incubator or accelerator in a specific field, examples being the recent HealthTech Accelerator and the EUR 700 000 tender in 2022 for science accelerators. While the introduction of more specialised support programmes would represent a positive move for the Irish incubation and acceleration system, it is important to be cognisant of the fact that in order for incubators and accelerators to be effective, they need access to certain key resources and a pipeline of potential client companies. Establishing incubators and accelerators in regions or sectors where these inputs are lacking is unlikely to yield strong benefits. There are different approaches internationally to promoting the development of specialised incubators and accelerators. Sweden does not apply a top-down approach with respect to sector-specialisation. Instead, it provides individual incubators with the flexibility to select their own areas of specialisation, based on local strengths and opportunities.

The importance of mentoring in incubation and acceleration

Mentors are integral to the support provision of incubators and accelerators, both in Ireland and internationally. Entities such as Enterprise Ireland and Dogpatch Labs have extensive mentor networks that represent an excellent resource for start-ups and scale-ups. However, it can be difficult for smaller incubators and accelerators to attract or pay for high-quality mentors. One reason for this is that small incubators have more limited alumni networks, which can be a rich source of mentors for current incubator clients. Another reason is their lower visibility, which can make it more difficult to attract mentors.

Estonia's policies have paid close attention to building a network of experienced mentors, including individuals involved in developing or investing in Estonian unicorns. Estonia has also established a mechanism for matching start-ups with mentors with the expertise relevant to support them. The strength

of the mentorship offer within incubators and accelerators has both improved the quality of support provided to Estonian start-ups and scale-ups and increased the ability of the incubators and accelerators to attract the most promising ventures.

Attracting and retaining high quality mentors is a priority for many countries. Mentoring is viewed as the most important service for start-ups in the UK and the government places a particular emphasis on supporting this activity. It has created a national mentoring day and has introduced multiple national programmes that support access to mentors, although it should be noted that these can be accessed by start-ups both inside and outside of the incubation and acceleration system. Forming international partnerships is another way of accessing a larger pool of experienced professionals that can act as mentors. Serial entrepreneurs, investors or industry professionals often share their time and expertise with start-ups on a voluntary basis. This type of mentoring is built on the goodwill and investment of various actors in the entrepreneurial ecosystem, which is something that incubators and accelerators themselves can help to foster. The visibility of the incubation and acceleration system is also key to attracting mentors, which is where the reputation of co-ordinating entities such as Vinnova can be of great benefit.

Wider factors affecting start-ups and scale-ups

The success of an incubation and acceleration system is inextricably tied to the characteristics of the wider entrepreneurial ecosystems in which incubators and accelerators operate. A key challenge for Ireland and many other countries in Europe is a shortage of scaling finance. There are very few European funds that can provide the very large funding rounds that the most successful global start-ups require at a later stage of their development. The UK government's Venture Capital Unit showcases a potential approach to boost start-ups and scale-ups' access to finance from international investors. The Unit hosts invitation only, sector-specific events that connect UK-based scale-ups and international investors, in collaboration with incubators and accelerators, venture capital funds, and innovation hubs.

Recommendations for Ireland

Increase the provision of soft-landing programmes for small cohorts of start-ups to learn about and establish contacts in international markets

There is scope to ramp up provision of soft-landing programmes abroad offering a supportive environment and resources for small cohorts of Irish start-ups to establish a presence in foreign markets, facilitating market entry and expansion. This could leverage the considerable international resources, knowledge, and contacts of Enterprise Ireland. These soft-landing initiatives can partner with foreign incubators and accelerators or establish Irish incubator and accelerator facilities abroad to support Irish start-ups with mentorship, networking opportunities, market insights, legal and regulatory guidance, and office space tailored to the context of the target market. Soft-landing programmes can also foster collaboration and partnership between Irish start-ups and local stakeholders, including investors, corporate partners, research institutions, and government agencies. In this area, Ireland might consider a similar model to Korea's K-Start Centres.

Including the creation of soft landings in key US cities or innovation hubs could be particularly beneficial considering the strategic importance of the US market for many Irish start-ups. Such programmes could help start-ups navigate the complexities of doing business in the US market, mitigate risks associated with international expansion, and accelerate their growth trajectory.

Consider introducing a grant scheme to fund selected university incubators and accelerators in delivering their incubation and acceleration programmes in order to increase the generation of academic spinouts

Introducing a funding scheme dedicated to university-based incubators could help raise the quality and impact of the incubation and acceleration system. Universities play an important role in building the pipeline of innovative, knowledge-intensive start-ups with the potential to compete on global markets. However, some university-based incubators in Ireland report that a lack of funding security inhibits their ability to support businesses and plan strategically. A funding programme similar to Sweden's NIP could be considered in Ireland, whereby incubators that meet threshold quality criteria are awarded with funding. University incubators in Ireland may be less developed than those in Sweden, many of which have become well-established entities in their entrepreneurial ecosystems through the sustained support from the NIP over many years. This means that in Ireland, it may be appropriate to initially provide funding also to less mature university-based incubators in order to help them to develop their programmes. Over time, Ireland could transition towards Sweden's approach of providing funding volumes proportional to the number and quality of start-ups being incubated.

Any long-term funding that is provided should be based on clear and transparent performance metrics to ensure performance but also enable the incubator(s) to plan for the future

Where this is not already the case, financial support from the government for incubators and accelerators should be tied to specific performance metrics. The management of public support for Ireland's incubation and acceleration system would benefit from more information on the performance and impact of its constituent incubators and accelerators and the development of a performance monitoring system for the public support. Internationally, these monitoring systems typically include metrics on incubators and accelerators' activities and on the performance of the incubated companies. Inspiration can be drawn from the monitoring framework developed in Sweden as part of the NIP, as well as from Canada's performance measurement framework for incubators and accelerators. In designing a performance monitoring system, careful attention should be paid in selecting metrics that capture both the quality of incubators and accelerators' processes and services and the long-term performance of the businesses they support. Another consideration is to avoid excessive reporting requirements that can deter engagement, particularly from smaller incubators and accelerators.

Any public funding that is provided to Irish incubators and accelerators should be on the condition that the supported incubators and accelerators submit data according to the performance monitoring framework. Incubators and accelerators that do not receive public support should also have the option of participating in the performance monitoring system, as is the case in Canada. Where this is not already the case, financial support from the government should also be tied to the fulfilment of specific performance metrics. This would help to align the efforts of the incubators and accelerators with the needs of start-ups and the strategic objectives of government, while also providing more transparency on the performance of different incubators and accelerators. These performance metrics should be appropriate to the nature of the incubator or accelerator. For example, it may be necessary to distinguish between incubators, which focus on start-ups, and enterprise centres, which act more as a hub for SMEs.

Encourage the development of sector-specific incubation and acceleration programmes that take account of sectoral differences in the needs of start-ups. The aim and focus of these programmes should be chosen carefully based on regional and sectoral strengths.

The Irish government should seek to increase the variety of the incubation and acceleration system by further supporting regional initiatives and/or sector-specific support programmes. A choice must be made between a top-down approach, where a new programme is created in a specific field based on the government's strategic assessment and priorities, and a bottom-up approach, where individual incubators select their own areas of specialisation or focus, based on local strengths, resources and opportunities. In the case of the former, careful strategic planning is needed to ensure that the wider ecosystem conditions are conducive to the success of the incubator or accelerator. In particular, incubators and accelerators require managers and mentors with relevant experience and expertise, as well as a healthy pipeline of potential client companies. As a starting point, a regional accelerator programme situated within the medtech cluster in Galway would have strong potential for success, given the existing base of entrepreneurial experience, mentors, research institutions and established multinationals.

Create an incubator and accelerator network to act as a co-ordinating entity that facilitates information and resource sharing, peer learning, strategic alignment, and capacity building

Establishing a national incubator and accelerator network would facilitate more peer learning among incubators and accelerators, the sharing of resources and information, as well as a more coherent alignment of efforts towards specific aims such as promoting start-up globalisation. It could also provide a structure for a more formalised approach to the provision of training to incubator staff, which is an important element of building the capacities of less well-established incubators and accelerators. A key decision when forming a national network is determining its scope and the criteria for inclusion.

In some countries, such as Australia, Norway and Sweden, the national incubation programme plays a key role in co-ordinating the incubation and acceleration system, for example through the organisation of joint networking events and training for incubators in the programme. In Ireland, there is not currently such a dominant or overarching national programme, meaning that incubation and acceleration takes place through a variety of entities and with the support of many different public programmes. A national network that ties together these various different incubation and acceleration initiatives would therefore be most suitable in the Irish context.

Increase investment in identifying, attracting and retaining high-quality and experienced mentors, both from Ireland and internationally

It would be worthwhile to invest in identifying, attracting and retaining high-quality and experienced mentors, both from Ireland and internationally. A combination of approaches could be considered, which link to a number of the other recommendations proposed in this report. Firstly, the creation of shared pools of mentors that are accessible to smaller incubators and accelerators – including in remote regions – would help to raise the quality of mentorship provided to start-ups and scale-ups. The establishment of a formal network of Irish incubators and accelerators would greatly assist the creation of these shared resources. Secondly, efforts should be undertaken to encourage serial entrepreneurs, investors and other experienced professionals to provide their time and expertise to developing Irish start-ups in the incubation and acceleration system. The visibility and reputation of the incubation and acceleration system is key to enabling this. The provision of longer-term funding for selecting incubators and accelerators would enable more to become established and known in the wider entrepreneurial ecosystem. Enterprise Ireland could

also leverage its excellent reputation in the ecosystem to engage with potential mentors, as has been done in France through the French Tech Initiative. Another approach deployed in some countries is to provide incubators and accelerators with earmarked funding specifically for the recruitment of mentors.

Promote a flagship national entrepreneurship campus

A large national entrepreneurship campus would bring significant benefits to the local start-up ecosystem and the broader economy, given the strong network effects that operate in incubators and accelerators as well as the ability of larger centres to attract mentors and investors. There are several reasons in favour of a flagship national entrepreneurship campus.

1. First, is the importance of brand recognition and credibility. A large entrepreneurship campus would enhance the chosen area's reputation as a hub for innovation and entrepreneurship. Station F in Paris, for example, has established itself as a leading ecosystem player in Europe. A prominent entrepreneurship campus in Ireland could similarly attract attention from investors, partners, and talent globally, to enhance the existing links with US investors. The scale of the campus would signal credibility and prestige to the start-ups and entrepreneurs associated with it, making it easier for them to attract funding and partnerships.
2. Secondly, a large entrepreneurship campus would create a vibrant ecosystem for networking and collaboration. By hosting a diverse range of start-ups, entrepreneurs, mentors, investors, and industry experts, the campus would facilitate valuable connections and knowledge exchange. This networking effect is particularly beneficial in a small country like Ireland, where the supply of mentors and resources for start-ups may be limited. Initiatives such as the MaRS Discovery District in Canada, Station F in France, the Unicorn Factory in Portugal and the Startup Campus in Switzerland have also demonstrated the strong agglomeration and peer learning effects that can be realised through the creation of an entrepreneurship campus with a critical mass of start-ups. Evidence links size, and hence opportunities for interaction, with innovation. Research has shown that proximity and interaction play a critical role in driving innovation, with diverse perspectives and ideas leading to breakthrough innovation. Start-ups would have opportunities to learn from each other's experiences, attend workshops, seminars, and speaker events, and gain insights into industry trends and best practices. This collaborative atmosphere fosters innovation and creativity, driving the development of disruptive technologies and business models. The campus would provide a platform for start-ups to access a wide pool of expertise and support, accelerating their growth and success.
3. Thirdly, the size of the entrepreneurship campus would enable resource pooling and shared facilities, reducing overhead costs and increasing efficiency for start-ups. Co-working spaces, meeting rooms, event spaces, and specialised equipment would be readily available, providing start-ups with access to essential resources without the need for significant upfront investment. This shared infrastructure fosters collaboration and innovation, creating a dynamic environment conducive to start-up growth. While the competition within the centre may be intense, it fosters a culture of ambition and drive among start-ups, encouraging them to strive for excellence and differentiate themselves in the market. Overall, the benefits of a large entrepreneurship campus outweigh the challenges, with such a centre having the potential to become a leading destination for start-ups, investors, and innovators from around the world.

Flagships work because they combine strategic vision, political leadership, collaborative partnerships, and effective implementation to address complex challenges and drive positive change at scale. Seven key elements are essential to ensuring the success of a large national entrepreneurship campus.

- **Clear Vision and Leadership:** The entrepreneurship campus should have a clear vision and mission statement, supported by strong leadership from experienced professionals who are committed to fostering a thriving start-up ecosystem. Effective leadership is crucial for setting strategic direction, mobilising resources, and inspiring stakeholders to support the centre's goals. The entrepreneurship campus should be flexible and adaptable to accommodate the evolving needs of start-ups and the changing dynamics of the ecosystem. This includes adjusting programme offerings, services, and resources based on feedback from stakeholders and emerging trends in the market.
- **Strategic Partnerships:** Building strategic partnerships with government agencies, academic institutions, corporate partners, investors, and industry associations is essential for success. These partnerships can provide access to funding, mentorship, expertise, and market opportunities, enhancing the value proposition for start-ups and entrepreneurs.
- **Comprehensive Support Services:** The campus should offer a comprehensive range of support services tailored to the needs of start-ups at different stages of development. This includes access to funding, mentorship, networking opportunities, educational programmes, legal and accounting support, and assistance with product development and commercialization. Access to experienced mentors, advisors, and subject matter experts is invaluable for start-ups navigating the challenges of building and scaling a business. The campus should facilitate mentorship relationships and provide opportunities for start-ups to receive personalised guidance and feedback from seasoned professionals. These need to provide a high volume of 'broad, intense and fast-paced' advice. It is not enough to provide one mentor, instead the start-ups need to be bombarded with advice.
- **Diverse and Inclusive Community:** Fostering a diverse and inclusive community of start-ups, entrepreneurs, mentors, investors, and industry experts is critical for driving innovation and collaboration. The campus should actively promote diversity and inclusion initiatives to ensure that all members feel welcome and supported. Organising networking events, workshops, seminars, hackathons, pitch competitions, and industry-specific meetups helps facilitate connections and knowledge exchange among members of the entrepreneurship campus community.
- **Quality Facilities and Infrastructure:** Providing high-quality facilities and infrastructure is essential for creating a conducive environment for start-up growth. This includes well-equipped co-working spaces, meeting rooms, event spaces, and specialised facilities for prototyping, testing, and product development. This might include "wet-labs".
- **Measurable Outcomes and Impact Assessment:** Establishing clear metrics and benchmarks for success and regularly assessing the impact of the campus is essential for accountability and continuous improvement. Monitoring key performance indicators (KPIs) such as job creation, revenue generation, fundraising success, and start-up survival rates helps measure the effectiveness of the campus and identify areas for optimisation.
- **Long-Term Sustainability:** Ensuring the long-term sustainability of the entrepreneurship campus requires careful financial planning, diversification of revenue streams, and effective resource management. Securing funding from multiple sources, including government grants, corporate sponsorships, philanthropic donations, and membership fees, helps mitigate financial risks and support the centre's ongoing operations and growth.

By incorporating these key elements into its strategy and operations, a large national entrepreneurship campus can create a supportive and dynamic ecosystem that accelerates the growth and success of start-ups and contributes to Ireland's economic prosperity.

Encourage the greater involvement of larger corporates in incubation and acceleration activities to support start-up globalisation by facilitating indirect exporting through integration into global supply chains and enhancing access to international markets and networks

There are rich opportunities in Ireland to support start-up globalisation by involving the country's large number of multinational companies more closely in the incubation and acceleration system. Corporate venturing can take many forms. For example, "hackathons" can be launched to bring together groups of entrepreneurs to work on specific problems set by a large company. The Israeli Innovation Authority has a programme to foster collaborations between multinational firms and start-ups, which may also have transferable lessons for the Irish context.

Promote the retention of high value headquarter and R&D activities in Ireland by building up and enhancing the entrepreneurial ecosystems

While there is certainly scope for further policy actions to support the creation of more Irish-born start-ups that enter global markets, the challenge of retaining these start-ups is likely to persist. In a sense, this challenge falls outside of the scope of the incubation and acceleration system, whose primary role is to foster the creation of (mainly innovative) new companies that go on to grow and achieve success. The outflow of promising Irish start-ups to other countries is linked to a range of wider factors, most importantly the limited availability of scaling finance in Ireland compared with other countries, particularly the United States. With that being said, incubators and accelerators can contribute to increasing the "stickiness" of Irish-born start-ups by building up and enhancing the entrepreneurial ecosystems in which they operate, thus making them a more attractive location for start-ups and investors.

Introduce initiatives to encourage international investors in the Irish diaspora to interact more with Irish start-ups, drawing inspiration from schemes such as Global Scot

Ireland's large global diaspora can be leveraged to enhance Irish start-ups and scale-ups' access to financing, including from investors in the United States. Inspiration could be drawn from Scotland's GlobalScot initiative, which is a platform for connecting Scottish entrepreneurs or business owners with experienced professionals from around the world with an interest in supporting Scottish businesses.

Key issues in incubation and acceleration policies and practices internationally

This chapter introduces the concepts of business incubation and acceleration and reviews the role that business incubators and accelerators play in supporting start-ups and scale-ups. It also discusses how incubators and accelerators can help to stimulate the creation of global start-ups, before addressing considerations for governments and other stakeholders in managing incubation and acceleration systems in order to raise their overall effectiveness in supporting start-up and scale-up development.

Defining business incubators and accelerators

Business incubators and accelerators can be difficult to define and there is not a consensus definition for an incubator or accelerator that is applied internationally. This is due partly to the very broad range of organisations and support programmes that identify as business incubators or accelerators, each with varying objectives, support services and delivery methods. When incubators first became widespread across OECD countries in the 1990s, they mostly leaned on the provision of free workspaces as the main support offering for start-ups. Since then, the support offer has expanded to include financial assistance, networking events and mentorship. The emergence of accelerators, with a more selective, time-limited and cohort-based approach, also marks an important development in this area. There is further a growing distinction between incubators and accelerators that focus on high-impact start-ups with the potential to scale rapidly and significantly, and those that focus more on fostering “lower potential” businesses that can nonetheless contribute to local economic development and job creation (Bergek and Norrman, 2008^[2]).

Another definitional challenge is the blurred boundary between incubation and acceleration, with many business incubators themselves offering acceleration programmes. There are also numerous other types of entities – such as venture builders, science parks and co-working spaces – that share some of the key features of incubators and accelerators while differing in other important aspects.

Despite these challenges, it is important to establish clear definitions for business incubators and accelerators in order to appropriately allocate public support for incubation and acceleration and to analyse and monitor trends in an incubation and acceleration system. Both incubators and accelerators typically offer a package of support services including business coaching and mentoring, training and workshops, networking opportunities and access to financing. In general terms, business incubators and accelerators can therefore be considered as (European Commission / OECD, 2019^[1]):

“...business development support programmes that provide a range of support services to entrepreneurs in business creation and during the early stages of the business lifecycle...”

Incubators and accelerators can generally be considered to differ along the following dimensions:

- Duration of support: accelerators typically provide support to businesses more intensively over a shorter period of time (approximately 3-12 months) than incubators. Incubators are not cohort-based or fixed-term, although a maximum resident time may apply.
- Businesses supported: accelerators tend to be more selective than incubators, targeting later-stage start-ups with a high potential for scaling-up. Incubation programmes are often fee-based and less selective than accelerators, and incubators may often accept entrepreneurs that are at the pre-start-up stage. With that being said, incubators do often apply some admission constraints, for example relating to geographical location, linkages with universities, stage of development or sector of operation.
- Physical space: Business incubators usually offer physical space in which client companies can operate.¹ This is not always the case with accelerators.

The role of incubators and accelerators in supporting start-ups and scale-ups

Theory of change

Incubators are often considered to increase the survival rate of businesses by helping them overcome the liability of newness (Stinchcombe, 1965^[15]) where new firms are vulnerable because they need to develop their processes and market presence. Incubators have also become adapted to the commercialisation of new technology developed by universities and on technology parks (Colombo and Delmastro, 2002^[16]). A key feature of many incubation programmes is the co-location of start-up activity, which can stimulate creativity and the exchange of ideas (Madaleno et al., 2021^[17]). Incubated companies' capabilities are thus developed through knowledge spillovers and experience exchange (Autio and Rannikko, 2016^[18]; Bøllingtoft, 2012^[19]) that facilitate a process of collective learning (Jack, 2005^[20]; McAdam and Marlow, 2007^[21]).

Accelerators are a more recent phenomenon aimed towards developing businesses with high potential (Hallen, Cohen and Bingham, 2020^[22]; Yua, 2020^[23]). Accelerators typically overwhelm entrepreneurs with a high volume of broad, intense, and fast-paced advice, a phenomenon known as the "hosepipe of advice". A large supply of mentors is essential within these programmes to provide the necessary "hosepipe" of advice, encouraging firms to pivot and adapt. In this way, accelerators help founders to make better decisions, including around exit (Yua, 2020^[23]). Indeed, some studies find that companies participating in acceleration programmes close earlier, suggesting that accelerators resolve uncertainty about company quality sooner due to the provision of a greater intensity of feedback (Hallen, Cohen and Bingham, 2020^[22]). Accelerators in this view are a testing ground for feasibility and the increases in exits or pivots they stimulate would be seen as a good outcome (Camuffo et al., 2020^[24]). Accelerators rely on having

¹ Incubators differ from coworking spaces because they provide growth-related services such as investment readiness training, investor contacts, intellectual property counsel (directly or through third-party service groups), technical assistance, and peer-to-peer engagement.

access to a pool of mentors and programme managers with a sufficient depth of entrepreneurial and industry experience. This may limit the scope for implementing the acceleration approach in certain contexts where these resources are lacking.

Incubators and accelerators both act as an intervention to improve the conditions for new start-ups in two ways (Amezcuca et al., 2013^[25]).

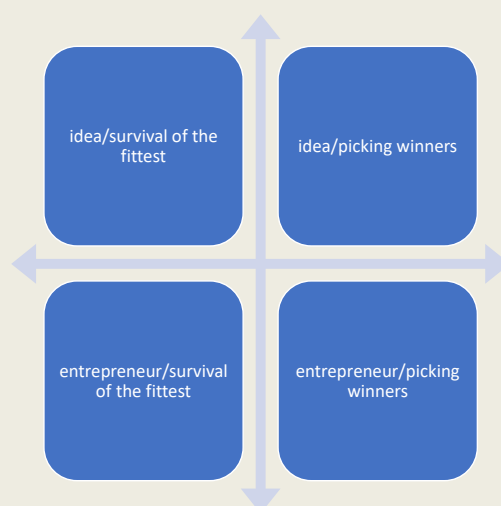
- First, incubators and accelerators act to “buffer” firms by reducing start-up costs through the provision of, for example, subsidised office space, administrative services, and complementary business support.
- Second, incubators and accelerators act to “bridge” new businesses to organisations with resources in the environment (Woolley and MacGregor, 2022^[27]). Incubators can facilitate bridging through events and active introductions and matchmaking (van Rijnsoever, 2020^[28]).

Other conceptual frameworks adopt the terms of sheltering and building, the former corresponding to the support incubators provide to firms in accessing external resources and developing capabilities, and the latter corresponding to the external networking support that incubators can offer (Breivik-Meyer, Arntzen-Nordqvist and Alsos, 2020^[29]). Similarly, (Ebbbers, 2014^[30]) posit that incubators and accelerators increase i). client learning and ii). the breadth and depth of their network.

Box 1. Selection strategies

Incubators’ selection strategies can be idea-focused or entrepreneur-focused (Aerts, Matthyssens and Vandembemt, 2007^[31]). Incubators must also choose between admitting a small number of entrepreneurs (“picking winners”) or admitting more initially and then requiring weaker performers to eventually leave the programme in a “survival of the fittest” approach. “Picking winners” reduces the likelihood of supporting businesses that are very likely to fail but at the cost of rejecting potentially very successful businesses. The “survival of the fittest” approach has the opposite problem with the difficulty of weeding out poor performers.

Figure 1. Incubators’ selection strategies



Source: (Bergek and Norrman, 2008^[2])

Of course, the role of incubators and accelerators varies depending on their particular objectives. It can be argued that incubators can be grouped into those that primarily aim to stimulate firms in emerging technologies and commercialise research and those that seek to boost regional economic development and reduce unemployment (Bergek and Norrman, 2008^[2]). Meanwhile, (Pauwels et al., 2016^[8]) identify three main types of business accelerator: i). ecosystem builders, which are typically set up by corporates and aim to develop an ecosystem of customers and stakeholders around the company, ii). deal-flow makers, which receive funding from investors and have the primary aim of identifying promising investment opportunities, and iii). welfare stimulators, which typically have government entities as the main stakeholder and have the primary objectives of stimulating start-up activity and economic growth, either within a region or a specific technological domain.

As well as developing individual start-ups, incubators and accelerators also contribute to the development of entrepreneurial ecosystems by linking start-ups to the resources of the larger entrepreneurial environment (Goswami, Mitchell and Bhagavatula, 2018^[32]). They also assist in co-ordinating and matching various ecosystem players and select mentors and founders with the appropriate motivation and knowledge. By acting as go-betweens, incubators and accelerators can help to build commitment to the wider ecosystem among other actors, such as investors or large companies.

Success factors

Different businesses have different needs from an incubator or accelerator, meaning that success factors cannot be generalised to all contexts. For example, technology entrepreneurs without a business background are more likely to value having access to mentors with business skills, while networking activities may be less helpful at the early stage of their development (Chan and Lau, 2005^[33]). With that being said, the literature does identify some factors that appear to bolster the effectiveness of incubators and accelerators in supporting start-ups and scale-ups:

- The legitimacy of an incubator or accelerator helps it to perform its bridging function more effectively (Autio and Rannikko, 2016^[18]). Moreover, bridging helps with internal capability development for incubators and accelerators (Breivik-Meyer, Arntzen-Nordqvist and Alsos, 2020^[29]).
- Venture capitalists and business angels connected to an incubator can help to professionalise client firms (Hellmann and Puri, 2000^[34]; Breivik-Meyer, Arntzen-Nordqvist and Alsos, 2020^[29]).
- Financial and strategic support from sponsors is essential for incubators and accelerators' sustainability. Sponsors play a crucial role in setting the direction for incubators and ensuring they meet their objectives (Sherman, 1999^[35]).
- Incubator managers are critical actors in balancing learning approaches to support future growth and provide a competitive advantage to their client firms (Patton and Marlow, 2011^[36]; Woolley and MacGregor, 2022^[27]). Their decisions regarding programme design, mentorship, resource allocation, and performance management significantly impact the start-ups they nurture.
- (Hallen, Cohen and Bingham, 2020^[22]) highlight the importance of broad, intense, and rapid consultation with a diverse range of stakeholders outside of the accelerators on a weekly basis in order to intensify learning among client companies.
- Alignment, both within the incubator and with external stakeholders, is pivotal. Incubators should be integrated into a larger entrepreneurial ecosystem, ensuring a harmonious and synergistic

relationship (Lee and Osteryoung, 2004^[37]). This internal alignment and ecosystem integration requires clarity in goals and strategies, as well as networking and expertise.

Other success factors for business incubators and accelerators include the presence of onsite expertise, financial support, community supports including university ties, entrepreneurial networks, entrepreneurial education, selection of tenants, and programmes that contain clear milestones and transparent policies and procedures (Smilor, 2013^[38]).

University incubators, as characterised by (Mian, 1994^[39]) and (Bruton, 1998^[40]), add a layer of complexity due to their unique setting. In addition to the general critical success factors, university ties become paramount (Mian, 1994^[39]). University-sponsored incubators should establish strong connections to their academic institutions, leveraging university-specific resources and fostering knowledge exchange. This integration enables a more seamless flow of intellectual capital between research institutions and incubated start-ups. University incubators should also ensure alignment between the research capabilities of the university and the incubation or acceleration programmes offered.

Start-up globalisation and the role of incubators and accelerators

While not all incubators and accelerators are concerned solely with global start-ups, most do seek to support the development and growth of young businesses. In Ireland's small, open economy, the goal of stimulating new business growth is very closely tied to that of supporting the internationalisation of start-ups.

Identifying entrepreneurs with internationalisation potential

Entrepreneurs' growth intentions relate positively to subsequent firm growth (Douglas, 2013^[41]; Knockaert, Foo and Erikson, 2011^[42]) and the evidence suggests that those who do not have growth ambitions will not grow (Davidsson, 1989^[43]; Davidsson, 1991^[44]). Founders and managers in born-global firms also possess an international orientation and mindset (Mcdougall, Oviatt and Shrader, 2003^[45]). This means that, in order for incubators and accelerators to be effective in promoting global start-ups, they must first be able to identify and target ambitious entrepreneurs with a vision for international expansion. This targeting can represent a considerable challenge, as the ambition or international outlook of entrepreneurs is not always observable. However, the academic literature has identified some characteristics that are associated with entrepreneurs with a high potential to internationalise their companies:

- Many born globals (Knight and Cavusgil, 2004^[46]) are founded by individuals who have personal international experience or have worked in multinational corporations (Acedo and Jones, 2007^[47]).²
- Growth-oriented entrepreneurs are more likely to be highly educated and to be part of a team (Levie, 2015^[48]).
- Companies with foreign professional experience or international education are more likely to internationalise early (Reuber and Fischer, 1997^[49]). An explanation for this is that prior knowledge reduces managerial risk and uncertainty in internationalisation and speeds up decision-making (Knight and Liesch, 2016^[50]).

² Not all early internationalising founders, however, have international experience, with many global founders lacking international business experience (Knight and Liesch, 2016^[50]) (Freeman et al., 2010^[64]).

- (Levie and Hart, 2011^[51]) find that UK-born regional in-migrants and immigrants are more likely to be entrepreneurs with high growth expectations than lifelong residents.
- (Verheul and Van Mil, 2011^[52]) relate growth preference to fear of failure, self-efficacy, and opportunity motives.
- (Estrin, Korosteleva and Mickiewicz, 2022^[53]) argue that the knowledge spillover theory of entrepreneurship (Audretsch and Keilbach, 2007^[54]) leads to a relationship between the knowledge intensity of a business and the growth aspirations of the entrepreneur.

By strategically identifying and supporting entrepreneurs with a strong inclination towards export, incubators and accelerators can contribute significantly to stimulating the creation and growth of global start-ups. Focusing on supporting internationalisation could also enhance the overall performance and impact of incubators and accelerators themselves. A study of start-ups participating in an Italian private accelerator found that surviving firms were more likely to have export experience than non-surviving firms (Del Sarto et al., 2021^[55]). The evidence also shows that ambitious entrepreneurs benefit more from training (Kotha et al., 2023^[56]).

The role of incubators and accelerators in supporting start-up globalisation

One of the primary advantages of incubators and accelerators lies in their capacity to provide tailored mentorship, resources, and networking opportunities specifically designed for start-ups eyeing the international market. This targeted approach ensures that entrepreneurs not only have access to essential resources but are also equipped with the knowledge and skills necessary to develop international business strategies and navigate the complexities of international trade and compliance regulations (Carayannis and Von Zedwitz, 2005^[57]). Through incubation and acceleration programmes, entrepreneurs may also gain exposure to diverse global markets, enabling them to fine-tune their products or services according to the preferences and needs of international consumers.

The evidence suggests that knowledge-intensive businesses benefit from faster and more focused internationalisation (Schwens et al., 2018^[58]). Acceleration programmes are well-placed to support start-ups in this area, given their rapid and intensive delivery of support, guidance and connections. Businesses that pursue innovation and internationalisation strategies tend also to benefit more from immersion in knowledge-rich environments (Estrin, Korosteleva and Mickiewicz, 2013^[59]), which is also something that many incubators and accelerators can provide.

Internationalising firms employ a combination of causation and effectuation processes (Harms and Schiele, 2012^[60]; Sarasvathy, 2022^[61]). Causation is a strategy used by entrepreneurs to plan and execute a predefined goal by reducing risks through extensive research and analysis. It involves predicting future market conditions and customer behaviours. Effectuation is based on the principle of affordable loss. Entrepreneurs start with their existing means and experiment with different possibilities, taking affordable risks and understanding that failures are manageable. Effectuation is highly flexible and adaptive, iteratively adjusting goals based on emerging opportunities and constraints. It emphasises leveraging available means to create innovative outcomes, while causation focuses on prediction and control. The mentoring, coaching and peer learning opportunities available in incubators and accelerators can support start-ups in developing these different strategies for their internationalisation.

The bridging function of incubators and accelerators is also key. Internationalisation for export-oriented entrepreneurs is inherently a dynamic learning process, characterised by experiential knowledge acquisition and collaborative engagements with network partners (Lee, Jiménez and Devinney, 2020^[62]). Additionally, (Freeman, Edwards and Schroder, 2006^[63]) emphasise the value of collaboration, suggesting that high-performing, born-global firms tend to engage more frequently with key network relationships.

These networks often evolve into formal business linkages in new markets, serving as instrumental relationships that facilitate further internationalisation efforts (Freeman et al., 2010^[64]). In practice, born-global firms often leverage the collective experience of their founding teams and nurture external domestic and international network relationships to acquire essential resources (Laanti, Gabrielsson and Gabrielsson, 2007^[65]). Incubators and accelerators can be key in helping start-ups to expand their networks, including internationally. This assistance in establishing links to international markets may be particularly beneficial for inexperienced entrepreneurs (Wright, Westhead and Ucbasaran, 2007^[66]).

Managing incubation and acceleration systems

Across countries, the size and diversity of the incubator and accelerator population has increased significantly over the past 10-15 years, with a growing prevalence of accelerators and sector-specialised programmes in particular. Despite wide differences in the objectives, areas of specialisation, funding sources and support delivery models, individual incubators and accelerators are highly inter-dependent and affected by common factors such as the quality of the pipeline of entrepreneurs that can go on to become clients, the availability of key resources such as mentors or testing facilities, and the conduciveness of the financing landscape for start-ups and scale-ups. Given these linkages, it is important to view incubators and accelerators as forming part of an overall system.

Managing an incubation and acceleration system effectively can significantly enhance its overall capacity to support start-ups and scale-ups. For example, cohesive incubation and acceleration systems provide greater opportunities for peer-learning or resource sharing among incubators and accelerators, which can raise the performance and impact of less developed incubators and accelerators. From a policy perspective, having organised incubation and acceleration systems can also help governments to direct public support more effectively, for example by facilitating the use of common performance metrics or by highlighting gaps in incubation support at the sectoral or regional level. A key function of incubation and acceleration is also to create a bridge between start-ups and scale-ups and other ecosystem actors, such as investors, researchers or large companies. This bridging function can be more effectively performed when incubators and accelerators are part of a visible and co-ordinated system. Last but not least, well-organised incubation and acceleration systems are easier to navigate for start-ups and scale-ups, enabling them to identify the most appropriate programmes to suit their particular needs.

Internationally, many different types of organisations and stakeholders are involved in fostering coherent, cohesive and co-ordinated incubation and acceleration systems:

- **National government entities:** Some governments explicitly take on the mantle of orchestrators or co-ordinators of the national incubation and acceleration system. This role is generally performed by national government entities, such as Startup Portugal, the Industrial Development Corporation of Norway or Vinnova in Sweden. Public entities can also perform mapping exercises to establish the range of organisations and scope of activities within the incubation and acceleration systems. For example, the governments of the United Kingdom and Australia have each commissioned researchers to conduct mappings of incubators and accelerators in their respective countries (Bone, Allen and Haley, 2017^[67]; Bliemel et al., 2018^[68]).
- **Sectoral and regional agencies:** Incubation and acceleration systems can be defined at different levels. For example, national incubation and acceleration systems comprise many sub-systems defined at the regional or sectoral level. Sectoral and regional agencies are closely involved in co-ordinating these sub-systems.
- **Private entities:** Private bodies, such as incubator and accelerator trade associations, are another important group involved in fostering more co-ordinated incubation and acceleration systems.

- **Incubators and accelerators:** Incubators and accelerators themselves contribute towards building more cohesive systems. For example, it is common for groups of like-minded incubators and accelerators to spontaneously form networks or other shared initiatives.

The remainder of this chapter sets out some of the main activities that governments can conduct to manage or co-ordinate an incubation and acceleration system in such a way as to ensure that the supports it provides are appropriate to the needs and circumstances of the diversity of entrepreneurs, start-ups and scale-ups in the country. It is important to note that a healthy and dynamic surrounding entrepreneurial ecosystem is also an important prerequisite for an effective incubation and acceleration system. Therefore, the task of supporting the incubation and acceleration system cannot be separated from the wider task of fostering a productive entrepreneurial ecosystem. The measures that can be taken to strengthen these entrepreneurial ecosystems fall beyond the scope of this paper but include steps to strengthen the availability of risk capital – for example through co-investment funds – and initiatives to create a more entrepreneurial culture, for example through changes to school curricula or start-up competitions or the introduction entrepreneurship programmes or modules within universities.

Strengthening linkages among incubators and accelerators

Governments in a small number of countries have taken the important step of establishing a comprehensive national network of incubators and accelerators in order to create a more organised and cohesive incubation and acceleration system. The functions of these networks vary. Network members are often provided with free or subsidised access to bespoke training courses for incubator managers and staff to help them to build their capacities. In addition, incubators and accelerators within a network can play an important signposting role, potentially by referring entrepreneurs and start-ups to relevant programmes at other organisations in the network. Incubator networks can also help to organise the delivery of public supports for incubators and accelerators. For example, grant funding programmes for incubators and accelerators may attach membership of the national network as a criterion for funding.

An important policy question for governments when forming national incubator and accelerator networks is which types of entities should be included and which should be excluded. Incubation and acceleration are blurry concepts, and there is not a fixed definition that is applied internationally. This means that a range of different organisations may refer to themselves as incubators or accelerators, even where their activities do not align with those that governments intend to capture when supporting incubation and acceleration. The growing provision of public funding for incubators and accelerators can create an incentive for organisations to label themselves as incubators where, perhaps, this label is not appropriate. Equally, some organisations whose activities align with a government's understanding of incubation and acceleration activities may themselves not self-identify as an incubator or an accelerator. Ultimately, the decision on where to draw the line should reflect the priorities and aims of the particular incubator and accelerator network.

National incubation programmes often link groups of publicly-supported incubators and accelerators together through networking events or access to shared resources. It is also not uncommon for incubators and accelerators to take the initiative of creating their own small networks or groups, often with other incubators and accelerators that operate in a similar sector or region.

Whether by bringing together incubators and accelerators under the umbrella of a common programme or by formally creating networks of incubators and accelerators, initiatives to strengthen linkages within an incubation and acceleration system create rich opportunities for peer learning. This can be an effective vessel for raising the overall competencies within the system by shining a light on best practices and identifying solutions to common challenges. Peer learning can be facilitated formally through dedicated

events and programmes, as well as through informal interactions between members of the network or programme.

In order to be effective in stimulating the creation and growth of impactful new companies, incubators and accelerators need to be situated in a context where there is a sufficient quantity and quality of relevant entrepreneurs, mentors, investors, facilities and research outputs. For incubators in remote regions, or those that are less established or very highly specialised, accessing these key resources can represent a sizeable challenge. Creating opportunities for incubators and accelerators to share and pool their resources is one way in which access to resources can be made feasible even for smaller incubators and accelerators that could not attract or afford these resources alone. An example of this approach can be found in Norway, where, at any one time, start-ups and scale-ups can access the resources and supports of multiple incubators within the national incubation programme. Similarly, in Sweden, incubators often grant start-ups housed in other incubators access to their own facilities. Fostering networks and linkages between incubators and accelerators is key to enabling these forms of resource sharing.

Strengthening linkages between the incubation and acceleration system and other ecosystem actors

A core function of an incubator or accelerator is to connect their client entrepreneurs, start-ups and scale-ups with other actors and resources in the entrepreneurial ecosystem, such as investors, mentors, researchers, large corporations and other start-ups. There are a number of measures that governments can take to strengthen the linkages between incubators and accelerators and other ecosystem actors, which enable incubators and accelerators to perform their “bridging” function more effectively.

Firstly, governments can create cluster organisations and entrepreneurship communities that work to bring together various actors in the entrepreneurial ecosystem. Often, these initiatives are implemented at the sectoral level. For example, Denmark has established cluster organisations for its 13 “sector strongholds”. These cluster organisations are involved in organising the incubation and acceleration support system within their sector. In addition to this, they put incubators and accelerators into closer and more regular contact with other sectoral actors, such as large corporations, investors or start-ups. The creation of regional innovation hubs is another approach that coalesces ecosystem actors at the local level and thus strengthens linkages between incubators and accelerators and the rest of the ecosystem. France has embraced this decentralised model through the creation of 116 “French Tech Communities”, which serve the function of bringing together the key players in the entrepreneurial ecosystem in their city or region. Similarly, New York State’s economic development agency has established an innovation hotspot in each of the state’s 10 economic development regions through the Innovation Hotspots & Certified Incubators programme.

A core objective for many incubators and accelerators is to help their clients along the path towards receiving investment from the private sector. Indeed, incubation and, in particular, acceleration programmes often culminate in demo days and investor pitches. It is critical for the investor community to be aware of and actively engaged with the start-ups and scale-ups within the incubation and acceleration system. The public sector is often involved in supporting the financial institutions that invest in start-ups and scale-ups, which provides opportunities to anchor these institutions more closely within the incubation and acceleration system. For example, the European Investment Fund has created an accelerator that sits alongside its various funds that invest in high impact start-ups and scale-ups. Public investment funds can also create platforms for regular engagement with incubators and accelerators. As an example, Portugal Ventures’ Ignition Partners Network includes more than 50 incubators and accelerators, providing opportunities for regular exposure to investors for the start-ups and scale-ups within the incubators and accelerators.

A critical resource for many early-stage start-ups, particularly those in deep tech sectors, is access to testing facilities. The cost of setting up and operating these facilities is generally prohibitively high for individual incubators and accelerators. Incubators and accelerators must instead tap into existing research infrastructures, which are often attached to universities. Ensuring a close proximity between the university system and the incubation and acceleration system can help to strengthening the pipeline of innovative start-ups and scale-ups. The public sector generally plays a significant role in funding and supporting universities, which provides greater leverage to integrate these institutions more closely within the incubation and acceleration system. For example, research commercialisation and technology transfer (“third mission activities”) are often incorporated into the performance assessment criteria for researchers and universities. This in turn increases interest in incubation and acceleration within the university sector, which can result in them forming their own incubators that provide entrepreneurs and start-ups with access to university resources. Governments in some countries support these initiatives by creating public funding opportunities that university-based incubators can tap into.

Incubators and accelerators also play an important role in signposting start-ups and scale-ups to relevant government supports. Public agencies can strengthen this signposting function by holding regular office hours or installing contacts from relevant government departments at the premises of incubators or accelerators. A prominent example of this can be found in Station F in France, where multiple public agencies have a local contact point that can provide tailored information to start-ups on the range of public supports available and how these can be accessed. Similarly, the French Tech Central programme enables entrepreneurs to meet with representatives of various government departments at their local “French Tech Capital”.

Establishing performance monitoring systems for incubators and accelerators

Performance monitoring is an important aspect of managing an incubation and acceleration system. Across countries, it is common to find many incubators and accelerators that are un-professionalised with a low capacity and a limited effectiveness. The use of more robust performance monitoring is one way of addressing this issue by making it easier for incubators and accelerators to identify their strengths, weaknesses and areas for improvement. Where incubators and accelerators are reliant on public funding, as is the case in most countries to at least some extent, performance monitoring can be used to incentivise incubators and accelerators to improve their practices and/or align their activities with the government’s strategic priorities. For example, in Sweden’s National Incubator Programme, funding volumes are tied to the performance of the incubators along pre-defined metrics. Transparent and comparable metrics also enable entrepreneurs to make more informed decisions on where they should seek support. Furthermore, the use of clear performance metrics can help newer incubators to become more established within the ecosystem. This can create a snowball effect whereby their greater prominence fuels further success by enabling them to attract, for example, better mentors and founders.

Performance monitoring systems serve the function of providing information for decision making and evaluation (Asiaei et al., 2022^[69]). A co-ordinated approach is needed for this. This negates the risk that, within an incubation and acceleration system, different managers report different performance metrics to different entities, meaning that limited inferences can be drawn on the performance of the system as a whole, much less comparisons in performance between incubators and accelerators (Azadnia et al., 2022^[70]).

Setting appropriate performance metrics is key to an effective performance monitoring system. Incubator performance is multi-dimensional and metrics should accordingly cover different dimensions of enterprise development, such as the time taken to develop products or services or the management practices of the supported enterprises (OECD, 2003^[71]). When designing performance metrics, it is also important to

distinguish between incubation and acceleration outputs (e.g. the facilities or services provided) and outcomes (e.g. the number of businesses supported or the performance of the supported businesses).

Another important consideration is that some incubation and acceleration effects only become visible after the firm has graduated from the incubator or accelerator. For example, employment growth predominantly takes place some time after a firm has left an incubation programme, implying that it is not appropriate to assess the incubators' performance based on job creation of businesses during the incubation period (OECD, 2003^[71]). A more suitable metric in this example may be job creation after graduation, although there are challenges with collecting data on businesses post-incubation. An alternative is to consider indicators that capture factors that can be observed over a shorter time horizon, such as the time taken to develop a new product or service or the management practices or technological readiness levels of client companies.

(Messegheem et al., 2017^[72]) emphasise the value of considering all relevant stakeholders in designing performance metrics, adopting a so-called “balanced scorecard” approach that addresses the needs of different stakeholders. In the case of incubation and acceleration systems, the key stakeholders are the client companies, the incubators and accelerators, and the government entities supporting them. Based on consultation with stakeholders in the French system, (Messegheem et al., 2017^[72]) propose a performance measurement framework for incubators and accelerators that encapsulates i). economic and social development, ii). entrepreneurs' perceptions and performance, iii). the business support process, and iv). learning. Canada has put the “balanced scorecard” approach into practice with the launch of a new performance measurement framework for business incubators and accelerators in 2022, which was created by Innovation, Science and Economic Development Canada in consultation with business incubators and accelerators. The framework comprises an annual survey that is voluntarily completed by incubators and accelerators. The aims are threefold: 1). To enable business incubators and accelerators to benchmark their performance, 2). To help companies to choose their best options for support, and 3). To assist governments in increasing the effectiveness of their public investments. The survey is divided into two components. The first component is completed by the incubator or accelerator, with questions on programme structure, the types of support provided, the target group, and delivery models. The second component is completed by the client companies, covering indicators such as job creation, revenue, capital raised and use of government services.

In its 2002 benchmarking of business incubators, the European Commission proposed that the performance of incubators should be judged principally in terms of the results achieved i.e. the impact they have on businesses and on wider economic development and other priorities (European Commission, 2002^[5]). The performance measurement should also focus on long term measures of performance such as the employment growth of graduate companies rather than short term metrics such as incubator occupancy rates or failure rates. The chosen indicators were spread across three categories (setting up and operating incubators, incubator functions, management and promotion, and evaluation of services and impact), with data collected through surveys to incubators and clients as well as through a schedule of interviews.

The National Incubator Programme of Sweden provides a more recent good practice example of managing a performance monitoring system for incubators and accelerators. Since 2007, comparable data have been collected on a range of variables relating to the performance of incubators and the businesses they support. This has provided the programme managers with a time series database to monitor trends, identify best practice approaches, and inform decisions surrounding the allocation of funding support.

A key challenge in managing performance monitoring systems is ensuring that enough incubators and accelerators provide the necessary data. In some countries, performance reporting is attached to the criteria for public funding, to incentivise incubators and accelerators to provide data on a timely basis. This

is the case, for example, in Sweden. However, excessively demanding reporting requirements can deter incubators and accelerators from engaging in the programmes altogether. This is particularly the case for smaller incubators and accelerators with less internal capacity to manage the data collection and reporting process. It is also reported by some incubators and accelerators that client businesses are reluctant to disclose data on their activities or performance, which can be a barrier to implementing performance monitoring systems.

The collection of consistent and reliable data on incubators and accelerators' performance, as well as that of their client businesses, creates an opportunity to improve monitoring and evaluation practices. This can help to address the persistent knowledge gaps that currently exist regarding the types of incubation and acceleration activities that are most effective in promoting start-ups and scale-ups. It is important to have measures of impact that can be compared against other policy measures. The OECD Framework for the Evaluation of SME and Entrepreneurship Policies and Programmes 2023 recommends that all evaluations cover the core metrics of employment growth, sales growth and survival, in part to facilitate these cross-policy comparisons of effectiveness and cost-effectiveness (OECD, 2023^[73]). In the context of impact evaluation, it is also important to consider additionality through comparisons against non-supported firms outside of the incubator (OECD, 2003^[71]).

Creating standards and certifications for incubators and accelerators in the system

Incubators and accelerators' ability to effectively support start-ups and scale-ups is shaped to a large extent by their ability to partner with and engage other actors in the entrepreneurial ecosystem, such as investors, large companies and research institutions. This in turn rests on their ability to establish a good reputation and signal the quality of both themselves and the companies they support. Building this reputation can be very challenging in a context where there are not widely adopted performance metrics for incubators and accelerators. Providing ways for incubators and accelerators to signal their credibility or quality can help to negate the "winner takes all" dynamics that can emerge in an incubation and acceleration, whereby activities and resources are concentrated among a small number of the most established programmes due to strong and persistent reputation effects.

In many countries, national programmes to support incubators and accelerators deliver the added benefit of providing a quality stamp to the selected incubators and accelerators, on the basis that these organisations must satisfy certain criteria to enter onto and remain part of the programme. This enables the incubators and accelerators to more easily attract the active engagement of other ecosystem actors. The credibility of the programme and that of the government entity operating it is key to ensuring that the "quality stamp" delivers a tangible benefit.

Governments can also adopt a more explicit approach to certifying business incubators and accelerators based on a set of eligibility criteria. For example, in Portugal, incubators must fulfil a clear set of criteria in order to become certified incubators within the national incubator network. These criteria cover a range of factors, from the services offered to the events they host or the resources they have access to. The plan in Portugal is to incrementally tighten the eligibility criteria over time in order to gradually raise the performance and standardisation of the certified incubators in the national network. Korea has also established clear criteria for qualifying as a registered accelerator, which are set out in the Act on the Promotion of Venture Investment. Similarly, the European Commissions' Business Innovation Centres (BICs) are accredited based on meeting certain minimum qualifying criteria. This enables the organisations to use their status as an accredited BIC to build credibility and attract start-ups and scale-ups. The accredited BIC status can also shine through to the incubated start-ups and scale-ups, increasing their perceived credibility among investors and other potential partners.

Assessment of the Irish incubation and acceleration system and its supports for start-up globalisation

This chapter offers an assessment of policies and programmes in Ireland to support start-up globalisation, with a particular focus on the supports provided via the incubation and acceleration system. The chapter i). analyses the current internationalisation performance of Irish start-ups, ii). reviews Ireland's incubation and acceleration system and its role in stimulating start-up globalisation, iii). assesses policies in place to strengthen the supports provided by the incubation and acceleration system, and iv). presents conclusions.

The chapter has benefited from both desk research and approximately 30 interviews and round table discussions with key stakeholders in the Irish entrepreneurial ecosystem, including incubator and accelerator managers, entrepreneurs, universities, policy makers, investors, consultants and others.

Introduction

The creation of global start-ups is a key strategic priority in Ireland. The SME and Entrepreneurship Growth Plan developed by the SME Growth Taskforce, which comprises stakeholders and experts from across the public and private sector, sets out a number of policy actions to support the internationalisation of Irish companies. Moreover, Enterprise Ireland's "Leading in a Changing World Strategy 2022-2024" is focused on the creation of global companies, while the government's "White Paper on Enterprise 2022-2030" articulates an ambition to strengthen the export performance of indigenous companies.

Global start-ups can play a crucial role in strengthening Ireland's indigenous exports by introducing innovative products, services, and business models to international markets. Unlike established firms, start-ups are often more agile, adaptable, and willing to take risks, allowing them to identify and capitalise on emerging export opportunities quickly. Ireland possesses many assets that can support start-up globalisation. These include the presence of leading multinationals in high-tech sectors that can offer networks and talent to the entrepreneurial community, innovative Irish-owned businesses, a highly-skilled workforce, and well-established clusters in the health and life sciences sectors.

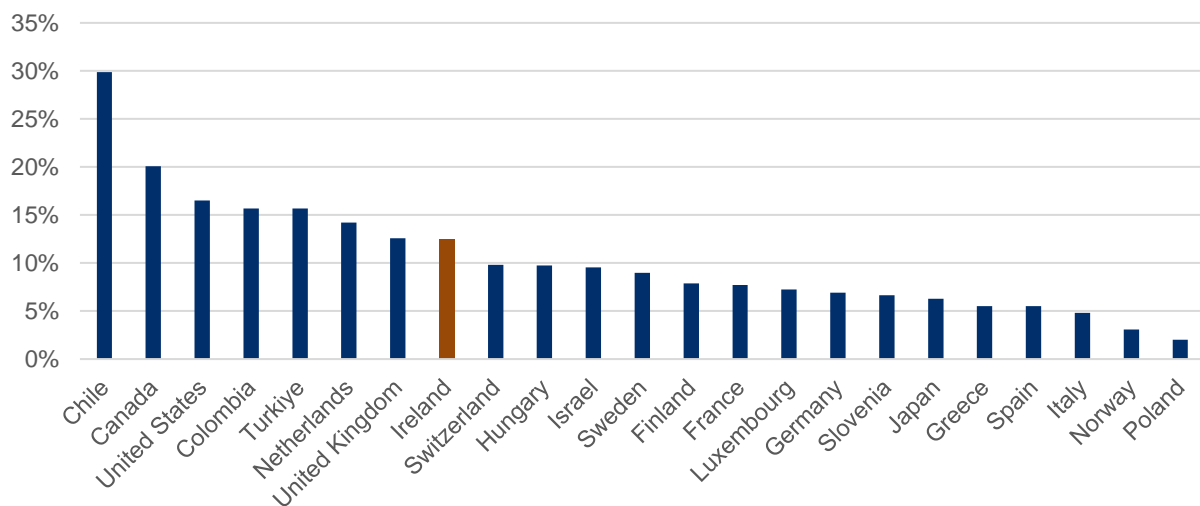
Incubation and acceleration programmes in Ireland can support start-up globalisation by enabling start-ups to make essential contacts, navigate the regulatory landscape, develop appropriate business models and fine-tune their products or services according to the preferences and needs of international consumers. In sectors like health and life sciences, these programmes can provide specialised mentorship, resources, and market access. Incubators and accelerators can also act as a gateway to the wider set of policy supports available to start-ups.

Internationalisation performance of Irish start-ups

Irish entrepreneurs are ambitious with a relatively international focus

Data from the Global Entrepreneurship Monitor's (GEM) Adult Population Survey show that Ireland has a high number of early-stage entrepreneurs, a significant share of whom are internationally orientated with strong ambitions for growth. In 2021, 13% of people aged 18-64 in Ireland were either a nascent entrepreneur or the owner-manager of a new business aged less than 42 months old. This is the eighth highest share out of the 23 OECD countries for which data are available in 2021. The high number of early-stage entrepreneurs in Ireland, particularly those with international ambitions, presents a significant opportunity for incubation and acceleration policies. By strategically locating these programmes in key urban centres, policymakers can ensure widespread access to support services. Additionally, incubation and acceleration services should prioritise global expansion and market access, offering specialised programmes, resources, and mentorship to navigate international markets and access funding sources.

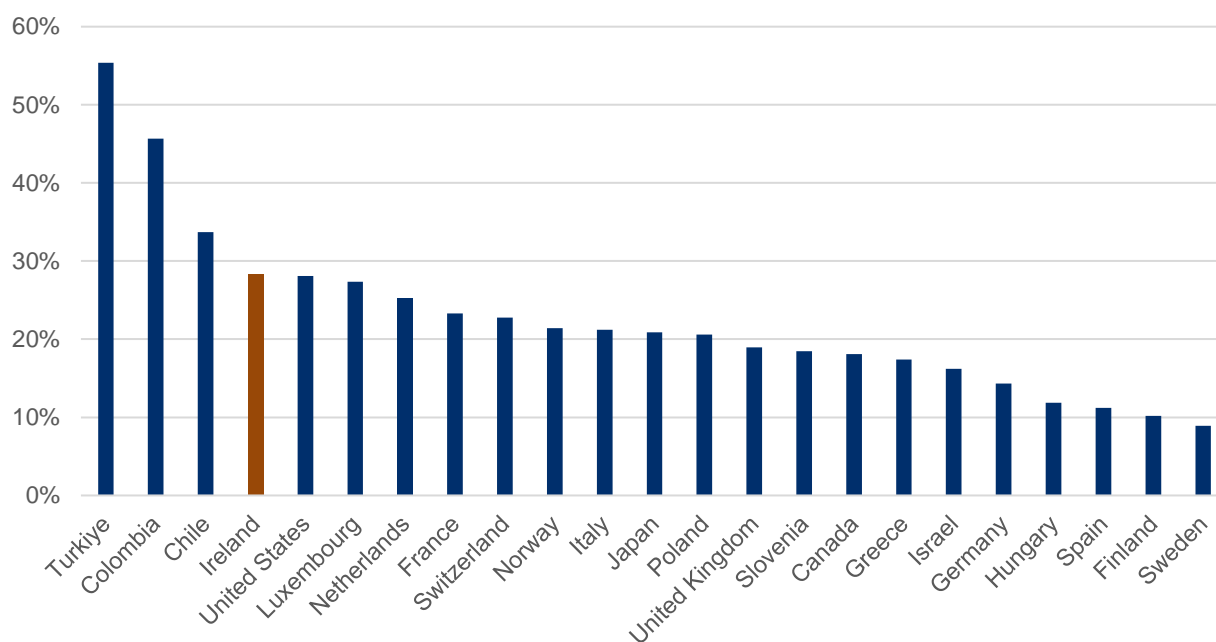
Figure 2. Share of working-age adults involved in early-stage entrepreneurial activity, 2021



Source: Global Entrepreneurship Monitor, 2022

Only a minority of start-ups become, or indeed have the potential or ambition to become, the types of impactful scale-ups that incubators and accelerators are primarily concerned with supporting. It is therefore important to examine the extent to which early-stage entrepreneurial activity taking place in Ireland resembles productive entrepreneurship in the sense of generating wider economic or social impacts. One predictor of this is the growth expectations of early-stage entrepreneurs. Irish start-ups have high growth expectations, with 28% of those involved in early-stage entrepreneurial activity anticipating creating at least six jobs within five years. This is the fourth highest share of growth-oriented entrepreneurship among the OECD countries for which data are available. Whilst creating a number of jobs is important, the ambition to be a global start-up might reflect a smaller subset of those growth-orientated entrepreneurs who are intent on creating a EUR 1 million annual turnover business.

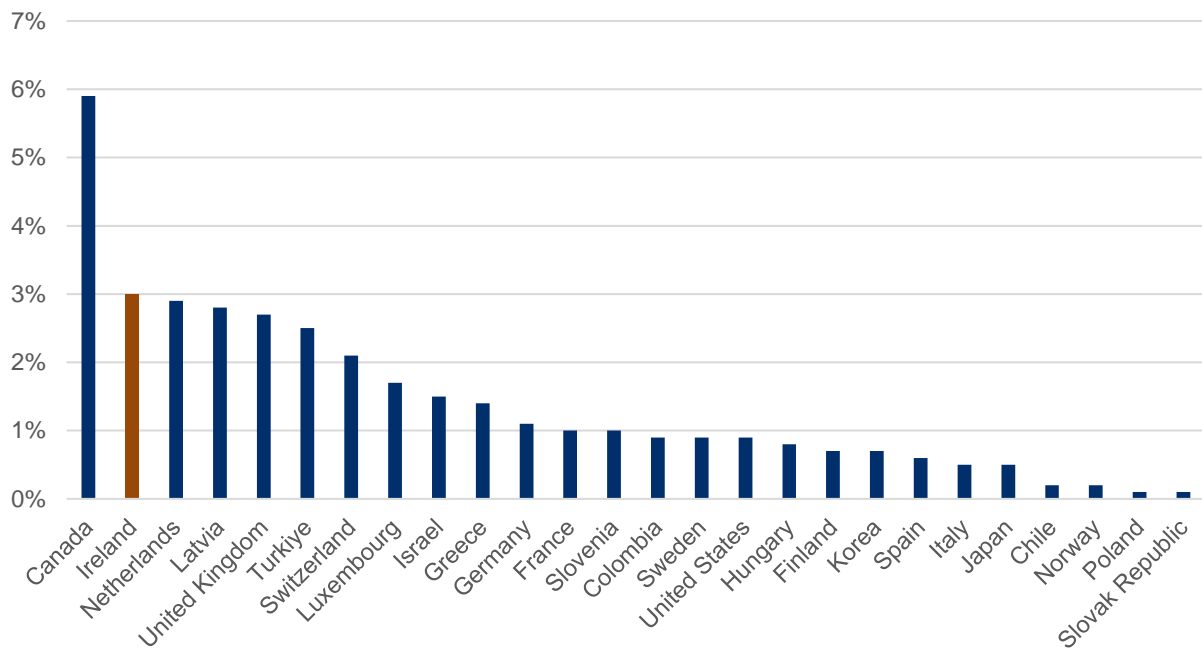
Figure 3. Share of early-stage entrepreneurs expecting to create at least six jobs within five years



Source: Global Entrepreneurship Monitor, 2022

Irish entrepreneurs also have a more international outlook than their counterparts in other OECD countries. Among OECD countries in 2021, only Canada had a higher share of working age adults that were starting or managing a new business and expected at least 25% of their revenues to come from abroad (5.9%) than Ireland (3.0%). In Canada, this reflects the proximity and accessibility of the lucrative market of the United States, while Ireland similarly is on the doorstep of major export markets in the form of both the European Union (EU) and the United Kingdom.

Figure 4. Share of 18-64 year olds that are starting or managing a new business and expect at least 25% of their revenues to come from abroad



Source: Global Entrepreneurship Monitor, 2022

A lack of scaling finance may induce Irish scale-ups to relocate to other countries

Irish incubation and acceleration policy faces a significant challenge in securing scale-up finance. Limited access to funding hampers start-ups' ability to invest in critical areas such as product development, marketing, hiring, and infrastructure. Without sufficient financial resources, start-ups may struggle to seize growth opportunities, expand their market reach, and compete effectively against larger competitors. Incubators and accelerators help bridge this gap by connecting Irish start-ups with global investors, venture capital firms, and angel investors. Government policies, such as tax incentives, co-investment schemes, and grants, can further encourage domestic investment in start-ups.

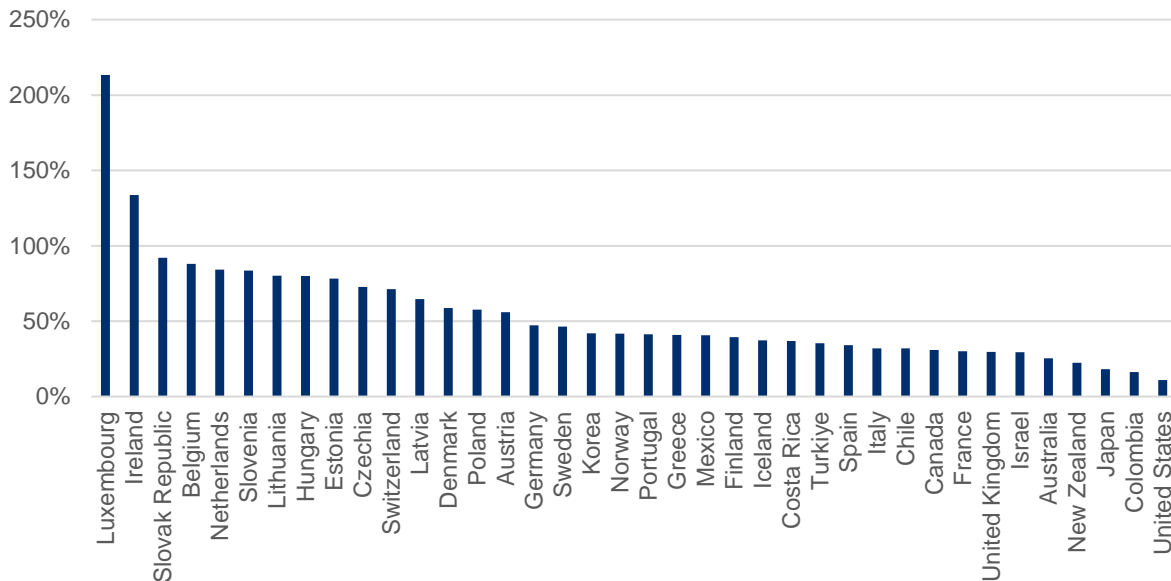
Addressing the challenge of scale-up finance is crucial for the success of Irish incubation and acceleration policies. Figures from the Irish Venture Capital Association show that Irish tech companies raised a record EUR 963 million during the first six months of 2023, although it should be noted that 57% of this investment is accounted for by a single sector, clean energy (IVCA 2023). International investors provided 82% of the venture capital in Ireland during this period, up from 58% in 2022. Ireland's attractiveness to international investors is a double-edged sword. On the one hand, it brings outside equity finance into the system, which tends to increase the incentives for businesses to grow and can also result in a greater allocation of resources towards firms with internationalisation potential. On the other hand, international investors may encourage (or require) the firm to relocate its headquarters or the whole business overseas. This could hinder the growth and independence of the domestic entrepreneurial ecosystem, potentially leaving Ireland as a test bed for promising start-ups that eventually move overseas.

The challenge of Irish start-ups relocating to other countries – predominantly the United States and the United Kingdom – after reaching a certain stage of development is one that is common to many other European countries, particularly those with a smaller domestic market. A key driver of the movement of

European start-ups to the United States is the lack of opportunities to acquire scaling finance from venture capital investors and equity funds in Europe. This means that, while start-up capital is available for early-stage start-ups that require smaller funding rounds, successful start-ups eventually need to seek out US-based investors to obtain larger funding rounds. This narrative is borne out by the data on funding deals from Crunchbase, which indicates that funding opportunities begin to dry up for start-ups in Ireland (and Europe more widely) when they begin to require larger funding rounds. In 2021, start-ups based in Europe accounted for 24% of smaller funding rounds, valued at less than USD 1 million. Meanwhile, European-based start-ups accounted for 17% of funding rounds worth more than USD 1 million and just 13% of funding rounds worth more than USD 10 million. A similar picture plays out in Ireland, with Irish start-ups accounting for 0.8% of funding rounds worth less than USD 1 million, 0.6% of funding rounds worth more than USD 1 million, and 0.4% of funding rounds worth more than USD 10 million. By contrast, US-based start-ups accounted for 47% of funding deals worth less than USD 1 million but 60% of funding deals worth more than USD 1 million and more than two-thirds (68%) of global funding deals worth more than USD 10 million. These results are indicative of two potential dynamics. The first is that a smaller share of Irish start-ups go on to achieve significant scale. The second is that US investors acquire Irish companies. In addition there are some Irish start-ups that relocate to the United States. It is important to note that this issue is observed across much of Europe and is not a uniquely Irish problem. However, a common language and the diaspora may be factors that enhance the ability of Irish start-ups to attract funding from the United States.

Ireland has one of the world's most export-driven economies

Ireland has one of the most export-oriented economies in the world. In 2021, the value of Ireland's goods and services exports equated to 134% of GDP – the second highest figure in the OECD. However, the distribution of exporting activity is heavily skewed towards larger businesses and MNEs. In 2021, Irish SMEs accounted for just 21% of the country's exports. This is the lowest SME export share among OECD countries and half the average SME export share (42%) among other OECD countries where data are available.

Figure 5. Value of goods and services exports as a share of GDP, 2021

Source: OECD National Accounts at a Glance

The concentration of exports in MNEs suggests that there may be untapped opportunities to enhance global start-up performance by stimulating greater collaboration and partnership between start-ups and MNEs. Incubators and accelerators could serve as conduits for facilitating these connections, providing start-ups with access to the expertise, networks, and market opportunities offered by MNEs. By fostering collaboration, knowledge exchange, and technology transfer between start-ups and MNEs, policymakers could unlock synergies that drive economic growth, job creation, and competitiveness in Ireland's export ecosystem. This strategic alignment between start-ups and MNEs through incubation and acceleration represents a promising avenue for leveraging Ireland's export orientation to support the growth and global expansion of indigenous businesses.

Review of Ireland's incubator and accelerator system

Key actors in the incubation and acceleration system

Enterprise Ireland is a central player in Ireland's incubation and acceleration system

With its core mission of "accelerating the development of world-class Irish companies to achieve leading positions in global markets", Enterprise Ireland is the main government agency responsible for promoting global start-ups. The organisation plays a pivotal role in co-ordinating various programmes and initiatives, making the overall support system more easily navigable for start-ups.³

Enterprise Ireland is involved in many incubation and acceleration initiatives in Ireland. The agency's supports for the incubation and acceleration system are multi-faceted, as illustrated Figure 6. Through the

³ Government supports, particularly from Enterprise Ireland, for fintech or technology and innovation were promoted for many years through the Ireland for Finance strategy and action plans

New Frontiers Programme, Enterprise Ireland is involved directly in delivering pre-acceleration and acceleration supports to start-ups. The programme is based in 18 technical universities. The aim is to support fairly nascent entrepreneurs in developing their business ideas towards the creation of viable start-up companies. The level of funding on the programme allows for an entrepreneur to investigate their business opportunity on a part-time rather than a full-time basis. The supports include mentoring, training, access to office space and R&D facilities, and, in some cases, financial support. The broad nature of the programme makes it a good fit for first-time entrepreneurs. New Frontiers is a three-phase programme:

- Phase 1 comprises a 10-week evening programme to research and test the market potential of a business idea. Since 2012, more than 4 000 people have completed this phase, which is a large reach given the size of Ireland as a country.
- Phase 2 is a full-time, 6-month intensive engagement following a competitive selection process. Thus, the move from Phase 1 to Phase 2 of the programme resembles a survival of the fittest selection model in Bergek and Norrman's (2008) terms. Phase 2 focuses on developing and validating the business proposition, with the support of workshops, mentoring, regular milestone reviews, free co-working space and expertise and guidance from the programme team within the research institute or university.
- After completing Phase 2, businesses can be invited to apply for the Phase 3 programme. This provides additional financial support to bring the product to market, an extra three months of co-working space, three further sets of one-to-one mentoring sessions, and introductions to investment opportunities. In 2022, more than 150 entrepreneurs participated in Phases 2 or 3 of the New Frontiers Programme.

Enterprise Ireland also funds separate institutions to operate other incubation or acceleration programmes, including Ireland's four Business Innovation Centres (BICs) – Furthr, AxisBIC (Cork), South East BIC, and WestBIC. These also have some EU funding. The BICs provide a range of incubation and acceleration supports to Irish start-ups, including through delivering Enterprise Ireland's Prep4Seed Investor Readiness programme. Prep4Seed is a 12-week intensive programme supporting cohorts of around 13 start-ups and culminating in a pitch to angel and venture capital investors. BioInnovate, which is based at the University of Galway, is also supported by Enterprise Ireland.

In addition, Enterprise Ireland supports Irish start-ups in making applications for international accelerators, namely the European Innovation Council (EIC) Accelerator. Under Horizon Europe, the EIC Accelerator funds start-ups and SMEs that have a new to the market innovative, 'game changing' product. Enterprise Ireland has had some apparent success in helping more Irish start-ups to gain funding through the EIC Accelerator. As of the end of 2023, Irish start-ups had received EUR 489 million in funding through the programme, distributed across 156 participants (just over EUR 3 million per participant). Only Denmark, Estonia, Iceland, Israel and Norway have comparably high volumes of funding per capita through the programme.

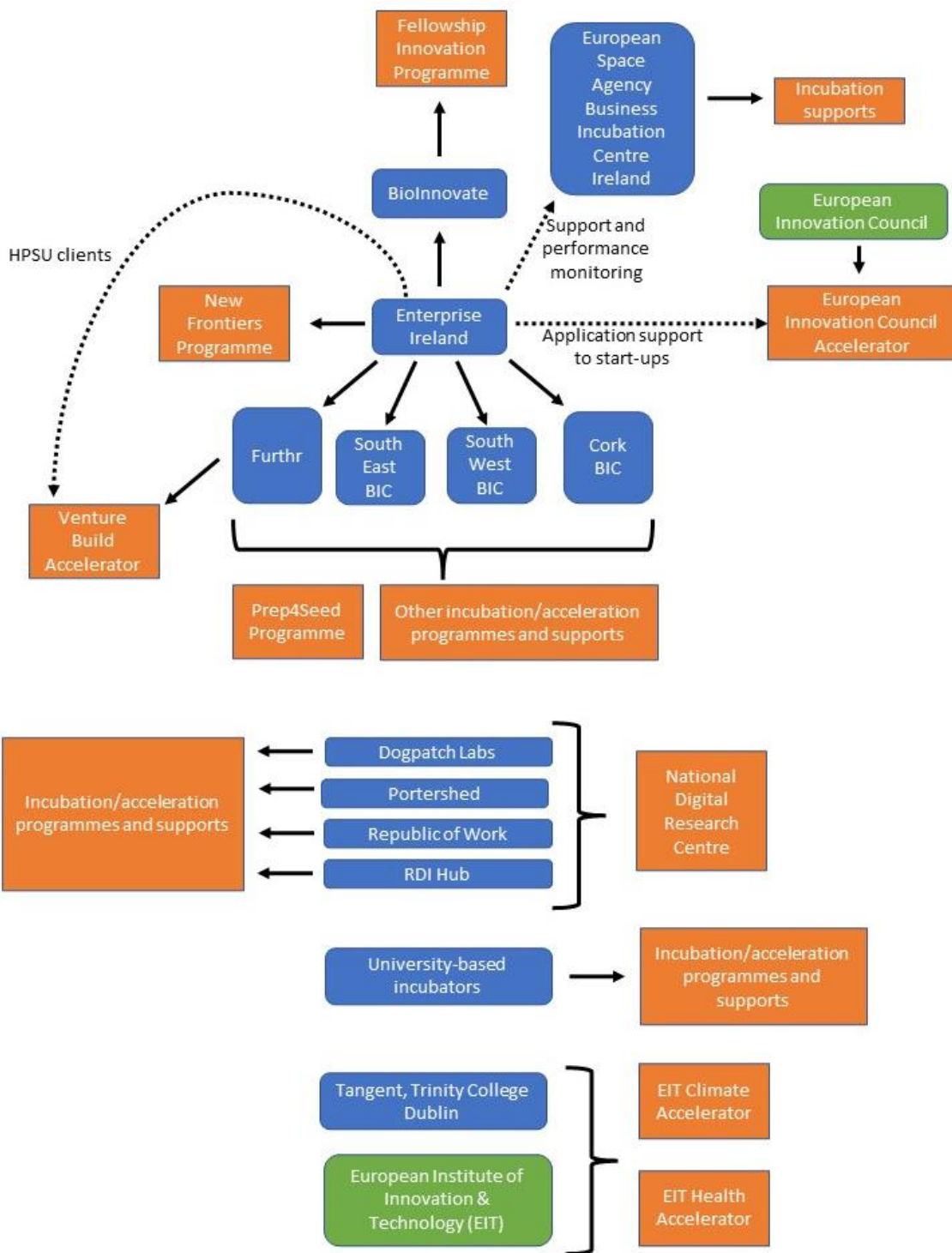
Ireland's incubation and acceleration system is closely tied to Enterprise Ireland's high potential start-up (HPSU) funding support, which targets businesses with the potential to develop innovative products or services for sale on international markets and the potential to create 10 jobs and EUR 1 million in sales within 3 years of starting up.⁴ Incubators and accelerators – including those based at universities – account for a sizeable share of start-ups that eventually become HPSU clients of Enterprise Ireland. It is not, however, a one-way relationship, with the HPSU support also generating a stream of clients for entry onto other incubation or acceleration programmes. The HPSU support itself, while not strictly an incubation or

⁴ <https://enterprise.gov.ie/en/what-we-do/supports-for-smes/enterprise-ireland/>

acceleration programme, provides many of the types of supports that would be found in an incubator or accelerator, such as mentoring, matchmaking, networking and funding opportunities. HPSUs are required to raise outside equity as part of Enterprise Ireland's HPSU funding and support. This acts as a market test for Enterprise Ireland. In 2022, 91 Irish start-ups received support from Enterprise Ireland, having been approved as HPSUs. Enterprise Ireland's support is well received by HPSUs, although the difficulties obtaining matching funding from the private sector were often raised. Additionally, Enterprise Ireland has in place a 5-year funding cut-off tied to the European Commission's General Block Exemption Regulation, after which support for enterprises with longer development timelines has slightly different terms and conditions, and could therefore result in lost potential.

Also involved in the global start-up system are the Local Enterprise Offices (LEOs). As the first point of call for those who want to start a business, the LEOs are an important part of the Irish start-up ecosystem, with a regionally balanced provision of support across the country. The LEOs' mission is to support development of all start-ups, not just those with global ambitions. Accordingly, their focus is on microbusinesses rather than the high potential businesses covered by Enterprise Ireland. Consequently, those businesses which do not qualify for assistance from Enterprise Ireland tend to fall into the LEOs' support structure. At the other end of the spectrum, some businesses are signposted from the LEOs towards Enterprise Ireland, such that the LEOs themselves feed the HPSU system. In 2023, the LEOs transferred 204 clients onto Enterprise Ireland.⁵ This equates to 1.6% of the LEOs' total client base but nonetheless represents an important contribution from the perspective of Enterprise Ireland. Whilst LEOs are an important part of the entrepreneurship system their focus is much broader than the global start-ups. Accordingly much of their considerable activity lies outside of the scope of this review.

Figure 6. Mapping of major incubation and acceleration actors and initiatives in Ireland



Note: Blue boxes represent Irish entities, green boxes represent European Union entities, and orange boxes represent incubation and acceleration initiatives.

Ireland's National Accelerator Programme is operated by a publicly-funded consortium of incubators

Another set of important actors in Ireland's incubation and acceleration system are Dogpatch Labs, Republic of Work, RDI Hub and Portershed. As a publicly-funded consortium, these four private incubators were, after a competitive process, awarded a EUR 17.5 million contract by the Irish government in 2020 to operate the National Digital Research Centre (NDRC) – Ireland's national accelerator programme – for a period of five years. Although these programmes could over-emphasise digital start-ups at the expense of non-digital firms, the NDRC accelerator supports 13 start-ups per year, spread over two cohorts. The start-ups in the programme receive EUR 100 000 through a Simple Agreement for Future Equity (SAFE), in addition to an array of non-financial supports. The incubators in the consortium delivering the NDRC also provide a range of other incubation and acceleration supports to start-ups independently of the NDRC. The NDRC has a pre-accelerator programme in addition to its main accelerator. This pre-accelerator is not specifically designed to feed into the main accelerator, and indeed only a very small share of start-ups participating in the pre-accelerator programme progress to the accelerator programme.

The cost to the NDRC in delivering the accelerator programme, in addition to the opportunity cost of the participating start-ups teams' time, mean that there is a ceiling to the optimal number of start-ups to support. However, the small scale of the NDRC's main accelerator programme – which is a function of a number of factors including the level of funding available – comes with the risk that high potential start-ups are excluded, although it should be noted that various supports for these companies are available from other sources. Indeed, Enterprise Ireland actively engages with the NDRC to mitigate the risks of companies slipping through the support net. Stakeholders have indicated that the reach of the NDRC could be expanded in an affordable way by scaling up the non-financial supports, such as mentoring and peer-learning, which can often provide the greatest benefits to start-ups. In addition, Enterprise Ireland has a Pre-Seed Fund which uses a convertible loan note to support proof of concept. This type of support might be important for the ability of universities to spinout firms because proof of concept is often cited as a barrier to support. In other countries the use of proof of concept funds has proved to be significant.

A large amount of incubation and acceleration takes place at universities

The university-based incubators are better able to connect with research and technology than other incubators. Indeed, stakeholders indicated that university-based incubators are the source of some of the most innovative businesses that eventually go on to become HPSU clients of Enterprise Ireland. This means that these incubators play an important role in generating the pipeline of high impact global start-ups and scale-ups.

Six Irish universities have more than ten active spinout companies, with the three Dublin universities – Trinity College Dublin (TCD), University College Dublin (UCD) and Dublin City University (DCU) – accounting for 56% of the 126 active spin-out companies in 2022. Whilst not all spin-out companies would be HPSU clients, increasing the number of academic spinouts is an important priority. Indeed, Ireland's Research and Innovation Strategy ("Impact 2030") sets out a target of increasing the number of high performance start-ups from the public research system from 13 in 2022 to 30 by 2030. It has been recognised that spinouts from academia requires skills, experience, and infrastructure that the universities have not traditionally possessed. It is reasonable to suggest the expectations of numbers of HPSUs from universities have not yet been met.

There are several incubation and acceleration programmes operated by publicly-supported universities in Ireland, which pursue the commercialisation of research and technologies, such as NOVAUCD at University College Dublin. The university-based incubators support the creation and growth of knowledge-intensive businesses (with the potential for export) by providing key business development supports

including mentorship as well as access to the host institution's academic and technological expertise. The entrants onto the university-incubators include researchers, professionals from the corporate sector, and experienced entrepreneurs, and will generally spend around two years in an incubation centre on campus. Universities also support initiatives such as the Student Enterprise Awards and Ireland's Best Emerging Entrepreneur, which are organised by the LEOs.

A constraint faced by university-based incubators is a lack of supply of entrepreneurs to enter the programmes. Some stakeholders noted that the rich employment opportunities available to skilled graduates in Ireland's labour market mean that fewer people consider becoming an entrepreneur which, they indicated, makes it challenging for some university-based incubators to attract entrepreneurs and also can contribute to an underutilisation of research, technology and intellectual property with strong commercialisation potential. Programmes to address the entrepreneurial supply constraints faced by Irish incubators and accelerators would deliver a significant boost to research commercialisation efforts. Furthermore, a large flagship campus-based programme for global start-ups could also play a role in raising the profile of entrepreneurs, which is one way to encourage more new entrepreneurs with the ambition to create start-ups with global potential. This issue of attracting quality entrepreneurs was also raised by stakeholders active in other parts of Ireland's incubation and acceleration system.

Mostly, university-based incubators are supported by Knowledge Transfer Ireland and are run at arm's length. Incubators must put together funding for their programmes, which they suggest can lead to funding insecurity and can inhibit their ability to operate at scale and plan strategically. However, some university incubators are supported by the European Union (EU). Notably, Trinity College Dublin delivers acceleration programmes in partnership with the EU-funded European Institute of Innovation and Technology (EIT), namely the EIT Climate Accelerator and the EIT Health Accelerator. Enterprise Ireland has also developed a series of programmes to help to increase the number of academic spinouts that become HPSU clients. These include:

- The EI Commercialisation Fund, which has a dedicated team and an annual budget of EUR 15 million to invest in deep technology research and collaborate closely with research teams in order to support commercialisation. This is a further attempt from Enterprise Ireland to support deep tech and hence to increase the number of academic spinouts from universities. Deeptech firms tend to take longer time to mature.
- The EI Business Partners Programmes, which pairs experienced entrepreneurs with talented third-level researchers who are interested in commercialising their research through spinout companies. This results in the creation of a foundation team with a combination of technical and commercial skills, with a credible commercial leader from the beginning.
- The KT Boost programme, which is a EUR 33 million knowledge transfer programme over four years that provides support and resources to Technology Transfer Offices in Irish higher education institutions. The programme succeeds the Enterprise Ireland Technology Transfer Strengthening Initiative (TTSI). The support for technology transfers offices has been recognised for many years.

Universities also play an important role in hosting existing incubation and acceleration programmes (e.g. the New Frontiers programme) and/or signposting students towards them. For example, the European Space Agency's Business Incubation Centre (ESA-BIC) Ireland is hosted by four of Ireland's Technical Universities: the Tyndall National Institute (lead partner), Maynooth University, the Technological University of the Shannon, and University College Dublin. Co-funded by Enterprise Ireland, ESA-BICs provide a range of incubation supports to Irish start-ups aged less than 5-years old with innovative ideas based on utilising space data, technologies, and assets, including up to EUR 50 000 in incentive funding as well as exclusive access to business development assistance, advice, coaching, workshops and seminars. Incubated companies also benefit from access to an international network of experts, suppliers

and investors. ESA-BIC Ireland's incubated firms to date have a significantly higher survival rate than the wider business population.

Incubation and acceleration practices

Mentorship and training are a key focus (and challenge) for Irish incubators and accelerators

Overall, Irish incubators and accelerators place a strong focus on providing mentoring, entrepreneurship training, and management training. This is evidenced by the expansive mentor networks comprising experienced entrepreneurs and professionals boasted by some of the leading entities involved in incubation and acceleration in Ireland, such as Enterprise Ireland and Dogpatch Labs. The survey conducted by the Social Innovation Monitor confirms this result, estimating that teaching and tutoring accounts for an estimated 36% of incubators and accelerators' costs, making these the largest single source of expenditure (Social Innovation Monitor, 2022^[11]). Stakeholders from the incubation and acceleration system have also emphasised the enduring benefits that mentoring (and peer to peer learning) delivers to start-ups. This suggests that there is a benefit from "smart money" in the context of incubation and acceleration, whereby funding support is combined with extensive guidance and opportunities for learning and networking opportunities. Indeed, studies of academic spinouts show how entrepreneurs modify their new ventures' business models as they improve their knowledge of resources and opportunities (Druilhe and Garnsey, 2004^[21]). Research suggests that accelerators typically overwhelm entrepreneurs with a high volume of broad, intense, and fast-paced advice, a phenomenon known as the "hosepipe of advice" that is typically delivered through mentors. This approach is effective in instigating strategic pivots by entrepreneurs by counteracting the false positive opinions that are often held by founders about their potential business.

The high expenditures on mentoring reflect not only the strong emphasis that incubators and accelerators place on this form of support, but also the high costs associated with bringing on board high-quality mentors. This was identified as a challenge facing some incubators and accelerators during stakeholder discussions. With that being said, the barriers to developing mentor networks are not only financial. Building a network of mentors is a time-consuming endeavour. Those initially successful incubators and accelerators can more easily attract the best mentors, which in turn drives their continued success. This results in inertia whereby the strongest incubators and accelerators retain their dominant position. Another consequence is that some programmes become oversubscribed while others remain undersubscribed, causing disparities in the level of support provided to start-ups (Hallen et al. 2020). One approach for new incubator programmes to establish credibility and become more attractive is to leverage the reputation of the entities involved. For example, a new incubator programme at King's College London has highlighted the reputation of both the university and the partner organisations in order to strengthen their reputation early on.

Alumni engagement is a critical function of incubators and accelerators, as the literature shows that the experiential knowledge offered by former incubatees can be of great value to current incubatees. This is another factor that can make it difficult for new or smaller incubators and accelerators to compete with more established entities that can already tap into vast alumni networks to access valuable mentors for client firms.

Most incubation and acceleration services in Ireland are provided without charge

Only a minority (40%) of incubators and accelerators charge a fee to businesses participating in their programmes, while just 10% offer incubation or acceleration programmes in exchange for equity stakes in

participating start-ups (Social Innovation Monitor, 2022^[11]). There are of course some exceptions to this pattern. For example, the NDRC Accelerator adopts a Simple Agreement for Future Equity (SAFE) model, whereby the EUR 100 000 provided to participating start-ups is converted to equity at a 20% discount based on the valuation at the subsequent funding round. Rent is the main source of public incubators' revenues (39% of income) followed by subsidies (28%). Donations (35%) provide the most revenue for private incubators, followed by participation fees (24%) and subsidies (17%).

Public entities are more engaged in incubation type programmes while the private sector is more focused on acceleration programmes.

There is a significant amount of public investment into incubators and accelerators in Ireland, and 44 out of the 69 incubators and accelerators in the country are primarily managed by government entities (Social Innovation Monitor, 2022^[11]). Meanwhile, 25 are managed predominantly by private entities (private incubators or accelerators), four are managed by a corporation with a business model separate from incubation activities (corporate incubators or accelerators), and 19 are university incubators or accelerators. It appears that most of the public incubators or accelerators are incubators rather than accelerators, given that the majority (62%) allow businesses to apply on a rolling, open basis (the offer of time-limited programmes to cohorts of start-ups is one of the main features that distinguishes accelerators from incubators). Meanwhile, almost all private incubators or accelerators in Ireland appear to be accelerators, with 82% recruiting clients through time-limited calls and challenges.

Characteristics of the incubation and acceleration system

Sector specific incubation and acceleration is relatively rare, but with notable exceptions

An international trend in incubation and acceleration practices in recent years is the emergence of programmes that are more specialised, tailoring supports to the highly particular needs of start-ups operating in different sectors. Many major incubation and acceleration programmes in Ireland appear to be relatively sector agnostic. For example, Launchbox at Trinity College Dublin, Dogpatch Labs and the NDRC's pre-accelerator and accelerator programmes each welcome start-ups from a broad range of different sectors. Some stakeholders have reported that there is a shortage of sector-specific, tailored incubation and acceleration programmes and supports in Ireland, which can risk resulting in a one-size-fits-all approach that does not always fully capture the diverse needs of start-ups in different sectors. The recommendation to develop more sector-specific incubation and acceleration programmes aligns with the need for targeted support to address the unique challenges and opportunities facing start-ups in different industries. Participants in Irish accelerators who were involved with deeptech mentioned the different timescales for a digital business versus a manufacturer. Sector-specific incubation and acceleration programmes can provide start-ups with tailored resources, expertise, and networking opportunities specific to their industry, enhancing their chances of success and scalability. Moreover, there is potential for synergy with the EU competitiveness programme, which aims to enhance the competitiveness of European businesses and promote innovation-led growth. Sector-specific incubation and acceleration programmes can complement EU initiatives by aligning with strategic priorities and leveraging EU funding opportunities to support start-ups in targeted industries.

There are some notable examples of sector-specialised programmes in Ireland. BioInnovate, which is based at the University of Galway, delivers a 10-month Fellowship Innovation programme to develop and commercialise high impact medical technologies. It adopts a team-based, learning-by-doing approach to finding solutions to specific challenges in the health tech sector, placing an emphasis on developing entrepreneurs and solutions to problems, as well as businesses. This innovative approach appears to fit well within Galway's highly productive medtech entrepreneurial ecosystem. BioInnovate has inspired the

“Innovators’ Initiative”, with three further programmes currently being rolled out in DigiHealth, Agtech and Cybersecurity to examine whether BioInnovate’s approach could be replicated successfully in other sectors. EUR 30 million has been allocated to this initiative, which is supported by the European Regional Development Fund. In the fintech sector, the Central Bank of Ireland’s Innovation Hub is designed to support start-ups, academics and established businesses in developing financial services using new technologies in navigating the regulatory landscape. The CBI will also be launching an Innovation Sandbox programme in the second half of 2024.

It is important to emphasise that programmes are implemented within a particular context – in the case of BioInnovate, against the backdrop of a thriving medtech ecosystem with many serial entrepreneurs and multinationals – meaning that the same approach in another context will not necessarily deliver the same results. In Galway, the entrepreneurial ecosystem may provide the entrepreneurial experience, pool of mentors, and other enabling resources needed for a new regional accelerator programme to be successful. Further exploration would be needed to identify whether this would be the case in other parts of Ireland with less conducive and developed entrepreneurial ecosystems.

The incubation and acceleration system is dominated by a small number of very impactful incubators and accelerators

As is the case in many countries, Ireland’s incubation and acceleration system is heavily skewed in terms of size, reach and impact, with a relatively small number of programmes providing the bulk of successful entrepreneurs. Indeed, an estimated 75% of incubators and accelerators have fewer than 10 employees and can thus be considered as micro enterprises, with many of these having two employees or fewer. However, the remaining 25% of larger incubators and accelerators with more than 10 employees employ more people than the others combined. Moreover, the results of the Social Innovation Monitor survey indicate that nearly two-thirds (65%) of total applications for entry were received by a relatively small group accounting for less than a third (30%) of Ireland’s total population of incubators and accelerators. A wider group of incubators can harness a more disparate group of entrepreneurs, yet concentration of resources and a concentration of outputs is a feature of global start-up investing. Consequently, it is more likely that the large concentrated incubators and accelerators are more efficient in producing global start-ups.

There is a similar picture when it comes to partnerships with corporations and investors. The majority of incubators and accelerators in Ireland do not have any formal agreements with investors, with the bulk of such agreements accounted for by a handful of larger incubators and accelerators. Collaborations with established companies are slightly more prevalent, with 64% of incubators involved in at least one collaboration with corporations by formal agreement.

Ireland’s incubator and accelerator population has grown in recent years, leading to some fragmentation and co-ordination challenges

As of 2022, there were an estimated 69 incubators and accelerators in Ireland, employing an estimated 642 people (Social Innovation Monitor, 2022^[1]). The total number of incubators and accelerators appears to have grown substantially in recent years, with the majority (58%) of incubators and accelerators created after 2013. The system is characterised by its bottom-up approach and “no wrong door” ethos, whereby entrepreneurs and start-ups are encouraged to move freely across the system to find appropriate supports. Stakeholders in Ireland report that, among the different organisations operating incubation and acceleration programmes, there is generally a collaborative ethos and a willingness to share resources and experiences. However, networking and peer learning generally take place on an informal basis. For example, staff from Enterprise Ireland or leading incubators may visit other organisations in the ecosystem to provide advice or training, but this is done on an ad-hoc basis.

The absence of formal networks or training for incubators and accelerators contributes to a fragmented system overall, with an increased risk of duplication and “programme hopping” among start-ups. Stakeholders emphasise the strong connections between different actors in the ecosystem, with organisations often referring businesses to other sources of public support. However, co-ordination will become more difficult as the pool of incubators and accelerators continues to expand. The fragmentation also makes it difficult for decision makers to have a clear and comprehensive overview of the wider support system, which is needed to identify gaps and introduce new programmes that effectively address specific bottlenecks in the ecosystem.

The fragmentation of the incubation and acceleration system reduces the networking and agglomeration effects that come from having a critical mass of start-ups, services and other ecosystem actors in close proximity to one another. An approach that has been successful in other contexts, most famously in Paris through the Station F start-up campus but also elsewhere, is to create a large flagship entrepreneurship centre that houses a very high number of start-ups, mentors, and support programmes, and attracts the active engagement of other stakeholders including large corporates, public agencies and investors. Box 2 below presents some prominent examples of this type of initiative from OECD countries.

Box 2. Building large entrepreneurship centres to reduce fragmentation, raise visibility and unlock agglomeration and networking benefits

MaRS Discovery District, Canada

The MaRS Discovery District is North America's largest urban innovation hub, with nearly 140 000 square metres of office, lab, meeting and event space across four buildings in downtown Toronto. It is a non-profit organisation funded through a combination of public support and service fees, as well as corporate and philanthropic donations.

MaRS currently houses more than 120 start-ups and established companies. Since 2010, MaRS-supported start-ups have raised over CAD 19 billion of investment and currently employ over 33 000 people. MaRS offers three programmes for start-ups, tailored to their stage of development:

- The Build programme, which provides mentorship and support services to companies with less than CAD 5 million in revenue or CAD 15 million in funding.
- The Growth Acceleration programme, which targets cleantech, health, fintech or enterprise software companies with annual revenue of CAD 5-15 million or CAD 15-50 million of funding raised.
- The Momentum programme, targeting high-growth companies with the potential to reach CAD 100 million in revenue within 5 years. The programme provides access to mentors with experience in growing late-stage companies, a peer community of similar companies, and scheduled events and on-demand advisory services.

MaRS also runs thematic acceleration programmes for cohorts of 6-12 start-ups, in fields such as biotech, cleantech and advanced manufacturing. These programmes place an emphasis on internationalisation, helping start-ups to find international collaborators, partners and customers. Among the supports provided to start-ups in these programmes are specialised mentoring, market insights, exposure to investors and partners, as well as training and peer learning events.

In addition to its start-up support programmes, MaRS is a convener of the innovation ecosystem. It has partnerships with a large number of corporate, academic, venture capital, public, and philanthropic institutions. MaRS' location is central to its support offer to start-ups, with its proximity to federal offices, universities and financial institutions is considered a key asset. This asset is exploited through the organisation of around 2 000 events each year, which facilitates strong interactions between these different actors in the entrepreneurial ecosystem. Another success factor is its network of more than 100 volunteer experts with specialised and niche expertise.

Station F, France

Station F is housed in the 34 000 square metre hall of a former railway station in Paris. It was launched in 2017 and now houses more than 1 000 start-ups. Station F is a collection of more than 30 incubators and incubation programmes based in a single location. These incubators have various sponsors, mainly in the categories of i). business and engineering schools, ii). large industrial groups, and iii) groups of players in a specific field. Station F also has its own incubation programmes.

In addition to its incubation and acceleration offering, much of Station F's success can be traced to its ability to attract the active engagement of players and services from across the entrepreneurial ecosystem:

- Selected companies such as Apple, AWS, Qonto and Google have dedicated teams in offices on the Station F campus, which answer questions and meet with entrepreneurs.
- Station F has created an investor community of more than 300 funds. Some venture capital funds have offices at Station F, and others visit regularly in spaces reserved for them.
- Station F also hosts public services linked to the French Tech Central programme, through which experts from 40 public services are available directly on campus to meet entrepreneurs and help them solve administrative problems.

Station F was developed gradually over the long term, with nearly 10 years in between the first project discussions and its inauguration. Key to its appeal is its large community and social network (both physical and digital) that includes those in Station F currently but also the thousands that have passed through it in the past. Although Station F is a private initiative, the Paris City Council has supported the initiative from the outset, notably through its early and public endorsement and through using its right of pre-emption to purchase the now Station F site and sell it to the private developer for the same price.

Unicorn Factory, Portugal

Startup Lisboa is a non-profit incubator that was founded in 2012 with strong support from the city council. Using its extensive mentor network, it hosts accelerator programmes focused on specific industries. In addition, it serves as a hub for the Lisbon start-up community.

In 2022 Startup Lisboa initiated a new stage with the launch of the “Unicorn Factory Lisboa”. This programme aims to support the Lisbon ecosystem by adding a focus on scale-ups and internationalisation. The site for the Unicorn Factory Lisboa – the “Beato Creative Hub” building that opened in 2017 – is one of the largest spaces for entrepreneurship and innovation in Europe, with around 50 000 square meters of space distributed over 18 buildings and a capacity to host more than 3 000 people. It has a wide range of catering, leisure and cultural services and facilities open to the entire city, and is a place for entrepreneurs, start-ups, scale-ups, investors, incubators, and professionals to coalesce.

The Unicorn Factory Lisboa is to be developed in three stages:

1. The launch of an international scale-up programme.
2. The creation of specialised hubs in areas such as AI, Cleantech, Gaming and HealthTech.
3. The creation of a centre for Entrepreneurship and Innovation.

The international scale-up programme began in 2022, providing supports through mentorship, corporate matching, internationalisation, and community networking. Eight start-ups have participated in the fourth edition of the programme, together raising EUR 49 million in investment, creating approximately 135 jobs during the eight months of the programme, and signing many partnerships with large corporations. Some have also taken the step of internationalising, particularly to Brazil.

At the end of 2023, the Unicorn Factory Lisboa entered its second stage with the introduction of the Gaming Hub. The hub is a space dedicated to the production of video games that aims to create synergies between start-ups, investors and multinational companies. It hosts scale-up programmes and an incubator and operates as a meeting point for the gaming community.

The success of the Unicorn Factory Lisboa relates to the pre-existence of a local vibrant community of entrepreneurs and internationalised start-ups, including several Portuguese unicorns. In addition, start-ups benefit from the proximity of seed stage local venture capital firms that collaborate with major international co-investment partners.

Startup Campus, Switzerland

Startup Campus is an initiative designed to support and nurture entrepreneurs throughout their start-up journey. It was established in 2013 by Innosuisse – the Swiss Innovation Agency – and provides extensive training, coaching, mentoring, and access to resources.

The primary financial support for Startup Campus comes from Innosuisse, which calls for consortiums of Swiss Universities to bid for a series of education programmes. The Startup Campus consortium is led by ZHAW (a University of Applied Sciences) and is financed through the tender procedure of Innosuisse. This support allows The Startup Campus to offer most of its training and events free of charge, ensuring accessible support for entrepreneurs across Switzerland.

Startup Campus is part of the Innosuisse Training Programme, which provides digital materials, practical workshops, and individual coaching. The focus is on developing entrepreneurial skills, fostering a clear understanding of business setup, and enhancing participants' ability to present and pitch their ideas. Emphasising diversity and sustainability, the programme continuously monitors effectiveness through KPIs and feedback, adapting courses to meet participant needs and international benchmarks. This comprehensive approach targets students, the active workforce, and aspiring entrepreneurs, ensuring they are well-prepared to launch and manage successful, sustainable start-ups.

Startup Campus also provides co-working spaces through the RUNWAY Startup Incubator and the Büro Züri Innovationspark (sponsored by the Zürcher Kantonalbank). Through its comprehensive ecosystem, Startup Campus has trained and coached over 4 000 entrepreneurs, scaling several successful start-ups.

Regional distribution

According to the mapping conducted by the Social Innovation Monitor, the majority of Ireland's incubators and accelerators are situated in Dublin, the South West and the West of Ireland (Social Innovation Monitor, 2022^[11]). The high number of incubators and accelerators in the South West region can be attributed to the multiple incubators and accelerators in Cork, while the West's strong coverage can be attributed to the influence of Galway. The Galway medtech ecosystem is a success which needs future support. There appear to be some regional gaps in incubation and acceleration support, with no identified incubators or accelerators in more than a third of Ireland's 26 counties, although incubators and services (e.g. AxisBIC) offer services beyond their county. It is important for policy makers to consolidate existing strengths in Ireland's incubation and acceleration hotspots while also considering strategies to improve support provision in more underserved areas. Stronger national linkages can be built up among university technology transfer officers (TTOs) and between incubator managers to help remote start-ups access incubator and acceleration services from facilities elsewhere where there are no facilities locally.

Supports for start-up globalisation

Providing direct internationalisation supports

Many of the supports provided by incubators and accelerators in Ireland could be considered as direct internationalisation supports, in the sense that a primary benefit they offer is helping start-ups to expand internationally. An example of this form of direct internationalisation support can be found in the case of the NDRC's accelerator, which provides access to an international network of international investors and

partners, as well as soft-landing supports including overseas missions, global demo days, and hotdesking opportunities in more than 50 countries. In addition, the NDRC's mentors are individuals with experience in starting up businesses in a range of different countries, and the mentorship and advice itself includes a focus on internationalisation. Similarly, Enterprise Ireland's mentor network includes entrepreneurs and executives with international experience. ESA BIC Ireland also has mechanisms to support the internationalisation of its start-ups, including access to an international network of 29 ESA BICs in 22 EU countries, while the BioInnovate programme provides opportunities for Irish firms to spend time overseas, for example in hospitals in the United States.

Enterprise Ireland's access to overseas market intelligence and its network of international offices are valuable assets within Ireland's internationalisation support system that are potentially underutilised. By partnering with incubators and accelerators to deliver soft-landing programmes and overseas placements that leverage Enterprise Ireland's international presence, more impactful support could be provided to a larger number of start-ups to help them progress along their globalisation journey. The encouragement of these programmes is not without its challenges including the fear that soft-landing support would enable Irish firms to move abroad. Another valuable resource that incubators and accelerators could tap into are the local contacts and expertise of Team Ireland (the collective term for Ireland's embassy network and state agencies). Currently, the Irish missions abroad and the local market teams of Irish state agencies provide important assistance to businesses by helping them to make connections in overseas markets.

Nonetheless, a past Enterprise Ireland initiative that has been singled out as having been a particularly effective tool for stimulating start-up internationalisation is the Leadership 4 Growth programme, which ran between 2008 and 2012. The programme placed cohorts of approximately 30 entrepreneurs per year within the Stanford School of Business. The scheme targeted later stage start-ups with an established revenue base and is thus a rare example of a later stage accelerator programme in the Irish context. While the scheme was subsequently replicated in other universities at a lower cost, such as IE in Barcelona, the proximity that the Stanford programme provided to the Silicon Valley ecosystem meant that the effects could not always be reproduced.

Identifying and supporting start-ups with global ambitions and potential

One of the key decisions of an incubator and accelerator is setting the selection criteria for client firms (Bergek and Norrman 2008, Butz and Mrożewski 2021). By identifying and supporting the “right kind” of start-ups, incubators and accelerators can play a role in supporting start-up globalisation, even without providing direct internationalisation supports. The relatively small size of Ireland's domestic market means that for most start-ups with growth aspirations, the concepts of scaling and internationalising are closely intertwined. This is reflected by the fact that Irish entrepreneurs have a more international outlook than those in most other countries (see Figure 4). This international outlook can reasonably be expected to be even more prevalent among the subset of ambitious, innovative, high potential start-ups that incubators and accelerators often seek to attract. As such, the view can be taken that the provision of generic (not specifically geared towards internationalisation) incubation and acceleration supports will also stimulate start-up globalisation by supporting the growth of start-ups, which, in most cases in the Irish context, will mean going global.

Some initiatives go further by embedding internationalisation potential within the criteria for selecting start-ups for support, thus funnelling support to (potential) global start-ups. For example, the NDRC accelerator programme is available to start-ups with a globally scalable technology solution. Meanwhile, entry into ESA-BIC Ireland is only open to companies with a commitment to developing a business that will trade internationally.

Overview of policy support for start-up globalisation through incubation and acceleration

Unlike in some OECD countries, there is not a single, overarching policy for supporting the incubation and acceleration system in Ireland. Instead, the government supports the system through five main channels:

1. **Creating publicly operated incubation and acceleration programmes.** The most prominent example of this is Enterprise Ireland's New Frontiers Programme. This programme, while less internationally oriented than other accelerator programmes in Ireland that target companies at a more advanced development stage, contributes to the overall pipeline of high potential start-ups with internationalisation potential.
2. **Publicly funding non-governmental entities to operate incubation and acceleration programmes on an ad-hoc basis.** The major example of this is the EUR 17.5 million, 5-year contract awarded to the consortium of Dogpatch Labs, PorterShed, Republic of Work and the RDI Hub in December 2020 to operate the National Digital Research Centre (NDRC). Ireland also provides funding to other entities, including EUR 2 million in funding in 2022 to Ireland's Business Innovation Centres (BICs). The terms and conditions of public funding are an important lever that shapes the nature of support provided by these publicly funded incubation and acceleration supports. For example, restrictions may be set on the types of supports that can be provided through the funding agreement.
3. **Facilitating access to wider incubation and acceleration supports.** Enterprise Ireland is actively involved in supporting Irish start-ups in gaining funding through the European Innovation Council's (EIC) Accelerator Programme. This includes the provision of financial and non-financial assistance to researchers applying to the EIC Accelerator Programme.
4. **Incubation in publicly-supported universities.** University-based incubators are an important element of the overall incubation and acceleration system in Ireland. While the government does not specifically fund the incubators themselves, it does fund and support the overall university system through which the incubation and acceleration programmes are delivered. In particular, there are a range of public programmes for supporting research commercialisation at universities, such as the KT Boost programme, the Department of Further and Higher Education, Research, Innovation and Science's TU RISE Programme, and Science Foundation Ireland's Arc Hub programme, which are all supported by the European Regional Development Fund. However, these are supports which may lead to future incubator and accelerator clients rather than being directly for incubators and accelerators.
5. **Signposting to government supports.** Enterprise Ireland holds office hours within incubators and accelerators, whereby an Enterprise Ireland representative can advise companies on potential challenges they are facing and relevant supports that are available. Incubators' clients can also now access information and resources on over 180 government supports from 19 government departments and state agencies through the recently launched National Enterprise Hub, which includes a section dedicated to exporting assistance.

There is not a specific policy in Ireland to stimulate start-up globalisation through business incubators and accelerators. It is true that Enterprise Ireland's central role in the incubation and acceleration system means that its stated focus on the promotion of global start-ups can, to some extent, shape the overall orientation of the wider incubation and acceleration system. For example, Enterprise Ireland's HPSU programme is only open to companies with strong internationalisation potential. Since entry onto this programme is often the ultimate objective of businesses in the wider incubation and acceleration system, this may apply a pressure on incubators and accelerators to increase their provision of internationalisation supports.

However, having an overarching incubation policy, network or certification would help to consolidate the system and make it easier to steer incubation and acceleration activities towards start-up globalisation in a more effective and coherent way.

Conclusions

Ireland appears to be in a strong position to strengthen its global start-up performance through incubation and acceleration, with a high degree of political buy-in towards this agenda and a number of successful incubation and acceleration programmes that are playing an important role in supporting start-up internationalisation. While challenges and complexities exist within the system, there is a willingness within government to adapt and innovate.

The small size of Ireland's domestic market means that there is a high degree of overlap between the concepts of scaling and internationalisation: few start-ups will scale without internationalising, and equally few start-ups will internationalise without scaling. The result is that internationalisation considerations are mainstreamed across many of the supports offered to start-ups by incubators and accelerators in Ireland. As an example, traditional networking and mentoring supports often take on an international angle in the context of Irish incubation and acceleration programmes. In addition, many incubators and accelerators include internationalisation potential within the core criteria for admission onto their programmes, resulting in a funnelling of support towards start-ups with global potential. With that being said, there do appear to be some gaps in the direct internationalisation supports currently offered by incubators and accelerators in Ireland. Also, in other countries, there is a greater involvement of corporates (including banks) in acceleration programmes (Bone, Allen and Haley 2017). This represents an opportunity to support start-up globalisation by facilitating indirect export activities through integration into global value chains and by enhancing access to international markets and networks. There is a particular opportunity to benefit from this internationalisation channel in Ireland, given the plethora of multinational companies that are active in the country.

Although national entities such as Enterprise Ireland provide substantial support across the incubation and acceleration system, many incubators and accelerators operate independently to a large extent. Notwithstanding the collaborative ethos that exists within the system, reducing the extent of fragmentation would have its merits. There is not currently a formal network or representative body that can bring together and align the efforts of Ireland's incubators and accelerators. This form of co-ordinating entity could help to reduce fragmentation in the system and also raise its overall capacity. A large national entrepreneurship campus that co-locates a high number of start-ups, services, support programmes and other ecosystem actors would also raise the cohesiveness and visibility of the incubation and acceleration system and the entrepreneurial ecosystem more broadly. Such a campus would also improve the effectiveness of the support provided by incubators and accelerators to global start-ups by creating opportunities for networking and collaboration, as well as by facilitating the sharing of resources and facilities between incubators and accelerators.

University-based incubators play an important role in developing the pipeline of global start-ups and HPSUs. Public funding and programmes for universities and technology transfer organisations support university incubators by stimulating the generation of knowledge and technologies that can form the basis of spinout companies, providing testing and research facilities that can be leveraged by university incubators, and building awareness of and capabilities in business development and research commercialisation among students and researchers. With that being said, many universities do not receive direct financial support from the government for them to operate their incubation and acceleration programmes. This limits their ability to deliver supports and plan strategically over longer time horizons. Another issue raised by some stakeholders is that accelerators often employ a one-size-fits-all approach

with “cookie-cutter” programmes. The Irish government should seek to increase the variety of the incubation and acceleration system by further supporting regional initiatives and/or sector-specific support programmes.

The importance of mentors in shaping the quality of incubation and acceleration that is provided to start-ups cannot be overstated. Indeed, many stakeholders indicated that the mentoring received during accelerator programmes is, in the long run, the most beneficial element of the support provided to start-ups. The implications of this are two-fold. Firstly, there may be scope to increase the reach of acceleration supports by developing programmes (or variants of programmes) that place a greater emphasis on mentoring and peer-to-peer learning as well as the funding supports. Secondly, it would be worthwhile to invest in identifying, attracting and retaining high quality and experienced mentors, both from Ireland and internationally.

The success of an incubation and acceleration system is inextricably tied to the characteristics of the wider entrepreneurial ecosystems in which incubators and accelerators operate. Stakeholders report that Irish start-ups (similar to those in many other countries) often rely on international investors – particularly from the United States – to fulfil their financing needs. Although this report focuses on the effectiveness of the incubation and acceleration system in supporting global start-ups, the availability of domestic finance is a key constraint on global start-ups.

Lessons from incubator and accelerator policy in Estonia

Estonia's incubation and acceleration ecosystem

Overview

As of May 2024, there were 22 active incubators and accelerators in Estonia, including both large international operators (e.g. Tenity and Creative Destruction Lab) and smaller home-grown incubators and accelerators (e.g. Startup Wiseguys). In some cases, these home-grown initiatives have grown internationally. Table 1 lists the main incubators and accelerators in Estonia.

Although the number of active incubators/accelerators is high for a country of the size of Estonia, only a few of them account for a large share of deals and investments.⁶ The top players – measured in terms of investments and deals – are StartupWise Guys (investments value EUR 810,000 and 39 deals), Cleantech ForEST/Beamline (investments value EUR 710,888 and 49 deals), and Prototron (investments value EUR 689 324 and 62 deals). Together, these three accelerators account for 49% of all investments and 67% of all deals. Other significant investments were contributed by the public innovation lab 'Accelerate Estonia', which provided EUR 600 000 in 2019 for enterprises addressing specific societal 'mission' type challenges. International accelerators also play a role in the country. For instance, over the past decade Seedcamp, 500 Startups, and Techstars collectively provided investments for a value of EUR 807 000 and 17 deals.

The Estonian incubation and acceleration ecosystem is complemented by several venture capital firms/equity investors. Along with capital, they often also provide start-up/scale-up support and mentoring services. Startup Wise Guys, Changing Ventures, SuperAngel, and Tera Ventures offer investment vehicles mainly focused on early stage (seed), while BaltCap and Ambient Sound Investments are more focused respectively on buyout and later-stage venture capital.

Business angels are also important actors in the ecosystem, offering support services alongside early-stage capital. Namely, the Estonian Business Angels association (ESTBAN) and the Estonian Venture Capital Association support capacity building, market analysis and exchange of information on the investor side of the ecosystem.⁷

Another key player supporting the investment side of the start-up ecosystem is SmartCap, a subsidiary of the Estonian Business and Innovation Agency. SmartCap provides support through cornerstone funding

⁶ Source: https://docs.google.com/spreadsheets/d/1csgtaNSI949AumfOBhwhD_S-o7wc1UIhKZdWUS4Vy-Q/edit?usp=sharing

⁷ Sources: <https://estban.ee/> and <https://www.estvca.ee>

for Estonian-based venture capital (VC) funds and through co-investment with private investors in green technology start-ups. SmartCap has stakes in venture capital firms such as Tera Venture, SuperAngel, the NATO innovation fund, Plural Fund, and 2C Ventures Fund. SmartCap's commitment for an investment can range between EUR 500 000 and 5 000 000. Since 2022, SmartCap has increasingly invested in green technologies, often through co-investment activities under the new SmartCap Green Fund on a pari passu basis with independent private investors. For instance, in 2024 it has invested EUR 20 million in 2C Ventures Fund the first Estonian investment fund focused on clean technologies, with a total capital of EUR 50 million. The participation of SmartCap in 2C Ventures Fund is the first investment realised under the 'Greentech Fund 2022/09'.

Other private initiatives have also contributed to enrich the Estonian start-up ecosystem. Namely, the Garage48 initiative, launched in 2010 by six active Estonian entrepreneurs, helps future entrepreneurs by providing kick-off prizes including funding, free coworking space, free tickets to start-up events with an opportunity to pitch on stage, networking with leading investors, and publicity for their products. They also offer follow-up mentoring for three consecutive months, access to early-stage acceleration programmes and the possibility to continue working in start-up incubators. The Garage48 Base Camp – designed for young startups working on prototypes – offers a training programme in partnership with Superangel. Another private initiative is Latitude59, an annual festival/conference in Tallinn that brings together start-ups, investors, and tech enthusiasts, providing a platform for networking and potential funding opportunities. In the 2024 edition, 526 applications were submitted for a pitch competition and a EUR 1 million syndicate prize will be awarded by Estban and Specialist VC.

Together, these actors, initiatives, and public agencies (described below), compose a relatively strong ecosystem. In 2024, the Startup Estonia ecosystem database lists 1 296 start-ups, with a total net valuation of USD 28 billion (as of 2023), out of which 152 are classed as scale-ups and growth firms and 10 as unicorns. Notable firms are Bolt and Veriff. This is an impressive performance for a country of less than 1.4 million people.

Table 1. Estonian incubators and accelerators

Type	Tallinn	Other locations
Incubator	ANJ Ventures (2020) Tallinn Creative Incubator (with growth programme) Nula incubator ESA BIC Estonia (2017) (Tallinn)	Parnu Business Incubator (2022) Objekt (2016) (Narva) Enskied (2021) (Narva) Kesk-Eesti incubator (2022) (Viljandi) Tartu Biotehnoloogia Park Tartu Science Park Sparkup Incubator ESA BIC Estonia (2017) (Tartu) Tartu Centre for Creative Industries (2009)
Accelerator	Start-up Wise Guys (2012) Tehnopol Startup Incubator ⁸ (2003) Tenity (2020) Beamline ⁹ (2021 previously Cleantech ForEST) Ajujaht (2006) ¹⁰ Prototron (2012) Health Founders Accelerator (2020) Storytek (2017) ImpactBuilders (2019) GameFounders (2015)	Buildit Accelerator (2013), Latvia, originally from Estonia and maintains operations in Tallinn and Tartu Creative Destruction Lab (2022) (Tartu)

Source: <https://ecosystem.startupestonia.ee>

Sector specific incubation and acceleration programmes

Most of the incubators and accelerators operating in Estonia are multi-sector but a number do focus on specific technologies or sectors and there is a trend towards launching thematic accelerator initiatives. Table 2 presents a breakdown of incubators and accelerators by type, based on the Startup Estonia ecosystem dataset.

⁸ <https://www.startupincubator.ee>

⁹ <https://www.beamline.fund/>

¹⁰ <https://ajujaht.ee/>

An example of a thematic/sector specific accelerator is the Health Founders accelerator, which is one of the first vertical health technology accelerators in the Baltics. It operates both a pre-accelerator and a full acceleration programme. The pre-accelerator is targeted to aspiring founders. It provides short (four-month) training sessions, with a lead mentor supporting the founders and a Demo Day with investors. The main accelerator programme is dedicated to early-stage teams. It is a longer programme (nine months) with user/ product testing in the accelerator's living-lab and a Demo Day with investors.

The accelerator has supported over 20 companies so far, including, for example, Transformative AI, an AI-driven healthcare company, founded in 2016, focused on early detection and prevention of life-threatening conditions. The company is transforming patient monitoring through predictive analytics and deep learning. Its flagship product, an AI-powered model, predicts the risk of sudden cardiac arrest and detects subtle changes indicating patient deterioration, enabling earlier intervention and improved outcomes. Transformative AI has raised well over USD 2 million in funding to advance its technology and scale its operations worldwide.

Table 2. Incubators and accelerators by sector/technology

Sector/technology	Incubator	Accelerator
Generic (all technologies/sectors)	ANJ Ventures	Ajujaht
	Tehnopol Startup Incubator	Prototron
	Nula	Impact Builders
	Kesk-Eesti business incubator	
	Parnu Business Incubator	
	Sparkup Tartu Science Park	
B2B / SaaS / Fintech / Insurtech		Startup WiseGuys
		Tenity
IoT / Hardware / robotics		Buildit
Cleantech (incl. energy)		Beamline
		Buildit Green ¹¹
Defence/security/space	ESA BIC	NATO Diana Accelerator
Digital, deeptech, cyber security		CDL (Tartu)
		Tehnopol Cyber Accelerator
		Tehnopol AI Accelerator
		GameFounders
Health / biotech / food	Tartu Biotechnology Park	CDL (Tartu)
		Health Founders Accelerator
		Beamline
Creative industries	Tallinn Creative Incubator	Tehnopol Film and Multimedia Accelerator
	Tartu Centre for Creative Industries	Storytek
	Objekt	

Source: <https://ecosystem.startupestonia.ee> and information from web-based search

Types of support provided

A wide range of services is offered to start-ups through national and regional incubators. The larger, and internationally active accelerators generally offer different programmes at different stages of start-up development, and/or programmes specialised on specific topics (e.g. fintech, proptech, cleantech). Smaller, regional incubators tend to provide more basic and specialised programmes. Notably those

¹¹ Source: <https://builditgreen.ee/>

supported by EU/national public funds provide more tailored services including grants, loans and equity. Table 3 summarises the types of support provided by Estonian incubators and accelerators.

Most incubation and acceleration programmes last between 6 and 12 months, offering a wide range of services. Accelerator-specific examples offer a glimpse of the service offerings and the variety of approaches taken across programmes.

Ajujaht is a start-up accelerator with private sponsors (SEB, ELISA and Microsoft) and public support supplied through the Estonian Development Fund (EDF) and the European Regional Development Fund (ERDF). The programme has been active for over 16 years. It admits 20 ventures every year and it offers “prize funding” to the admitted start-up, together with a participation in a TV show that helps in promoting the start-up. It is focused on early-stage ventures which are supported through a comprehensive curriculum that include tips from successful start-ups, personal mentoring, access to a global network of contacts, financial support and investment proposal from established investors. The funding per company is up to EUR 30 000.

Tehnpol Science and Business Park in Tallinn is the largest science park in the Baltics, located in a smart research campus, beside Tallinn University of Technology, hosting well-regarded technology companies such as Skype, Cybernetica, Starship Technologies, Ektaco, and SMIT. The Tehnpol campus hosts over 200 innovative technology-based companies. The Tehnpol Startup Incubator, through access to some of the best mentors from Estonia and Europe, helps technology-based start-ups develop their businesses, enter foreign markets and access investments. The Startup Incubator is both a general programme for technology-based startups and a specialised accelerator with a focus on cyber-technologies, AI, defence and space. Support is provided through 125+ training sessions, a co-working space, investor panels, and events to connect with potential investors, partners, and other start-ups. It also offers investor panels, sales workshops, and community gatherings. Tehnpol’s curriculum encompasses various aspects of business development such as product development, marketing, and fundraising. Crucially, admitted start-ups can benefit from mentoring from a network of over 100 experienced mentors from Estonia and Europe. Throughout its history over 500 have participated in the programme, raising over EUR 27 million in capital.

Startup Wise Guys, based in Tallinn, has been active for about 10 years, supporting over 440 alumni companies including 112 Estonian ventures as well as international ventures from over 60 countries. The programme focuses on early-stage B2B startups in SaaS, Fintech, Cybersecurity, XR, Sustainability, Web3, and PropTech, delivered through over 45 vertical-focused accelerator programmes. With a fund size of about EUR 25 million, the main services offered include leverage seed capital and follow-on investments for promising startups. The programme has focused especially on underserved markets and talented founders from less-served regions and female entrepreneurs. A recently launched non-profit unit targets youth education and economic recovery.

Table 3. Estonian incubator and accelerator services

Services	Incubators	Accelerators
Workspace	Often (but not always) provided on a fee-paying basis as part of programmes or basic service offerings – notably by regional incubators	Less often proposed by accelerators but some linked, for instance, to science/technology parks do offer paid access to workplaces.
Mentoring / advisory services (marketing, branding, etc.)	Provided by all incubator programmes &/or access to services of partners.	Mentorship is a core element of all accelerator programmes. In some cases part of financial support (grant/seed funding) provided as business development services (e.g. Beamline)
Prototyping and test facilities / product development support	Support for prototyping and product development provided by more specialised incubators (e.g. Tartu Science Park)	Some specialised accelerators offer access to test, living lab (e.g. Prototron, Cyber Accelerator, NATO DIANA, etc.).
Exporting and international growth.	Incubators usually provide advice or access to advisors on exporting and market	Accelerator programmes all require firms to be export/internationally oriented and this is a key element of the programmes.
Investor-readiness	Access to network of business angels, advice on finance, etc.	Pitching events, investor readiness and fundraising training
Grant / loan funding	Grant / loan / prize funding provided by some incubators (e.g. ESA BIC, Sparkup)	Grant funding provided by several accelerators as part of government support schemes (e.g. NATO DIANA accelerator, AI Accelerator)
(Pre-)seed / early investment funding	Support for investment readiness but usually incubators only provide equity-free support.	Syndicate investments via business angels (e.g. Ajujaht). Larger accelerators provide up to €100k (e.g. Startup WiseGuys)

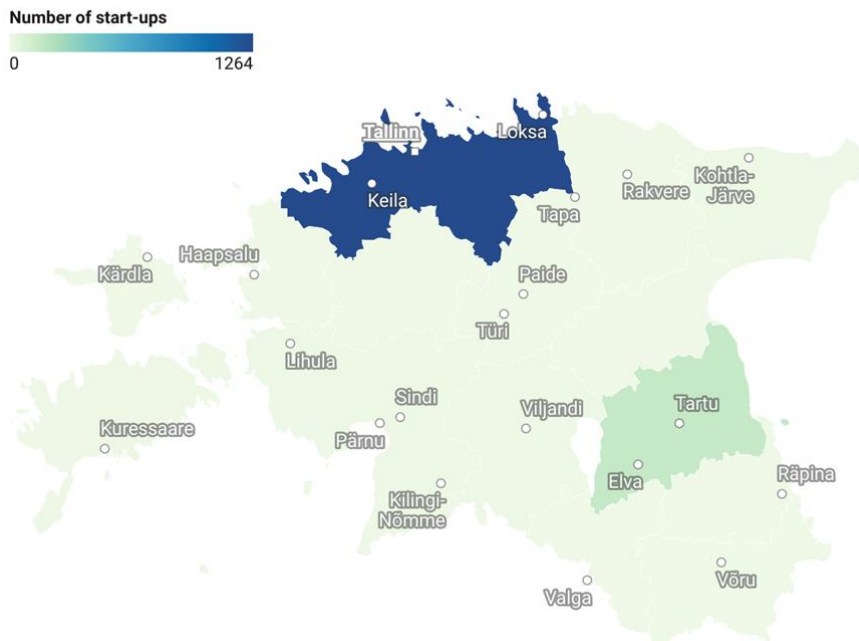
Source: websites and information documents of incubators and accelerators.

Regional distribution of start-ups, incubators and accelerators

The distribution of incubators, accelerators and start-ups in Estonia is skewed towards the most densely populated areas. A large proportion of incubation and acceleration programmes are located in Harju county, where half of the Estonian population lives, and where the capital city, Tallinn, is. According to StartUp Estonia, there are 1 254 start-ups operating in the county. The second most important location for incubation and accelerators is the Tartu County, where about 152 start-ups are based. The third most important area is the north-Eastern Ida-Viru County, while the other counties barely record any start-ups in the StartUp Estonia dataset.

Figure 7. Distribution of start-ups and scale-ups by Estonian county

Start-ups by Estonian County



Source: Startup Estonia

Tallinn is Estonia's business and financial centre. It is the best-connected city through air and ferry lines, and the city that hosts most Estonian public universities. Two out of the three largest public universities – Tallinn Technical University and Tallinn University – six public specialised universities, and the private Estonian Business School are all in Tallinn. Beyond Tallinn, Tartu is the second most dynamic city. Tartu University is the largest and oldest Estonian university, and the university of life sciences, the National Defence College and the Pallas University of Applied Science are also based in Tartu. Together they have a significant capacity to support tech-based entrepreneurship in multiple sectors. Most incubators and accelerators are thus based around these two cities, to benefit from the presence of education/training/R&D facilities and a critical mass of financial/business capabilities.

Narva (Idu-Viru County) and Pärnu (Pärnu County) are the next two most populous counties, but few towns in these counties and in other parts of Estonia have sufficient scale for generating tech-based entrepreneurship. In some regions incubators/co-working spaces have been developed with the support of European funds (ERDF), often in partnership with specialised organisations in Tallinn or Tartu.

Public policies and programmes to support the incubation and acceleration system

Start-up policy context

Estonia's start-up incubation and acceleration policy began over 20 years ago, before Estonia's accession to the EU, when the Ministry of the Economic Affairs and Communications requested a study on the status of incubation and acceleration in the country. Some incubators and accelerators already existed at that

time, but a national policy had yet to be formalised.¹² The policy developed over the past two decades has taken a broad approach, aiming at enabling general conditions for tech-based entrepreneurship rather than focusing on funding incubators and/or accelerators. The main policy objective in this space is to encourage and attract start-up entrepreneurs and international incubators/accelerators to operate in the country and work with national players to make Estonia increasingly appealing to national and foreign investors.

A central public entity in this space is the Estonian Business & Innovation Agency (EAS). This organisation emerged from the merger between the former Enterprise Estonia and Kredex. EAS is the main national agency dedicated to developing Estonian enterprises and to increasing export capacity, tourism, and foreign investment attraction. It controls Startup Estonia and SmartCap, which are its two main operational subsidiaries supporting the start-up ecosystem.

Between 2000 and 2010, the development of a start-up ecosystem culminated with the launch of the innovative Estonian Development Fund (EDF) which offered foresight and support co-funding and training for business angels and for the emerging investor system. Between 2010 and 2020 a new entity, SmartCap, was created as a subsidiary of the Estonian Business and Innovation Agency to manage the EDF portfolio and was tasked with investing in Estonian VC firms. From 2020 onwards, SmartCap has become a co-investor in ventures focused on new green technologies.

Figure 8. Timeline of the development of Estonian start-up ecosystem policy

2003	2006	2011	2014	2015	2016	2017	2020
<ul style="list-style-type: none"> Pre-accession study on incubation for Ministry of Economic Affairs 	<ul style="list-style-type: none"> Estonian Development Fund created – public equity investor and ecosystem developer 	<ul style="list-style-type: none"> SmartCap created as VC arm of EDF – managing portfolio of direct investments 	<ul style="list-style-type: none"> e-residency programme launches By 2023 over 100k e-residents 2023 - €64.3m in tax revenues 	<ul style="list-style-type: none"> Launch of Start-Up Estonia The Startup Estonia programme is financed by the ERDF. 	<ul style="list-style-type: none"> SmartCap integrated in government agency and becomes fund of fund. EDF dissolved 	<ul style="list-style-type: none"> Launch of Start-Up Visa programme 	<ul style="list-style-type: none"> Start-Up Estonia White Paper 2021-2027

In parallel, important reforms have improved the regulatory landscape for entrepreneurship in the country. In 2014, the ground-breaking e-residency scheme opened up the small Estonian ecosystem to attract international start-ups. It also enhanced, with the support of ERDF, investments in private R&D competence centres and other innovation support measures. Aware of the limited scope of the national market, incubation and acceleration policies have focused on internationalization from the beginning, often considering potential connection with foreign countries, including neighbouring Baltic and Nordic markets.

In 2016, after a two-year pilot period, Startup Estonia was launched and has established as the main ecosystem orchestrator. This has been an important step forward in consolidating past policy efforts and investments. Startup Estonia is a subsidiary of the Estonian Business and Innovation Agency and has been initially funded via the ERDF 2014-2020 programme. A second round of ERDF co-funding of EUR 10 million over the period 2021-2027 created the financial conditions for its current and future operations. Today, Startup Estonia coordinates and supports the development of the start-up ecosystem in the country

¹² Business incubation: review of current situation and guidelines for government intervention in Estonia. January 2003. Innovation Studies 3, Ministry of Economic Affairs and Communications of the Republic of Estonia. DOI: 10.13140/RG.2.2.36588.16009. Available at: https://www.researchgate.net/publication/312612643_Business_incubation_review_of_current_situation_and_guidelines_for_government_intervention_in_Estonia

and plays a key role in fostering collaboration between stakeholders, including start-ups, investors, and other partners, to promote innovation and entrepreneurship in the country.

In addition to managing and connecting the main actors in the ecosystem, Startup Estonia also provides start-ups with access to information, visibility prospects and matching with mentors, partners, talent and capital (e.g., through the start-up database, and networking opportunities).

To date, Startup Estonia has a positive reputation among the stakeholders of the country's start-up ecosystem. Since its creation, the organisation has contributed to building a community of start-ups, incubation, and acceleration support programmes, to creating links with investors, and to easing administration for start-ups and support organisations through common templates. It is widely recognised as a competent authority with a good market overview, and a valuable ecosystem database. Its role in strategic development, and priorities setting is also considered important by local stakeholders. Moreover, Startup Estonia is expected to be a driving force in addressing challenges such as regional diversification, gender balance, and the development of emerging fields such as EduTech or Deeptech.

Accelerate Estonia is a Government Innovation Lab, funded by the Estonian Ministry of Economic Affairs and Communication. Accelerate Estonia runs a public-private programme to remove regulatory barriers to create new markets and address systemic legal challenges. The programme also aims at understanding market needs to resolve regulation bottlenecks. In addition, Accelerate Estonia also provides support to start-ups that respond to specific challenges defined in Estonian Government priorities, with a funding of a maximum of EUR 300 000 per company. Eligibility includes both national and foreign ventures, yet they must be located or registered in Estonia.

Strategy 2021-2027

In 2020 Startup Estonia drafted its Strategy for 2021-2027, which set out the key strategic priorities and actions for the period, accompanied by key performance indicators (KPIs). These are:

1. *Enabling a forward-looking start-up ecosystem, including regional hubs.* The start-up sector is expected to grow by 30% per year on average (in terms employees, employee taxes or investments). Growth is expected to source especially from scale-ups or ventures with at least 10 years of operational history, in high-tech and high value-added industries. Growth should also involve regional start-ups.
2. *Promoting an entrepreneurship and start-up mindset in science and R&D and supporting the growth of scale-ups.* The objective encompasses the growth of science and technology intensive startups, the increase in patents from the startup sector, the increase in specialist employees in startups with an academic, science or other high level educational background. It also includes a growing adoption or utilisation of startup innovation in other business and economic fields via relevant product development, export and other business support actions.
3. *Ensuring a diverse and competitive start-up ecosystem through greater diversity in gender, age and cultural or geographic background.* Specific gender targets are envisaged. The share of female founders should grow from 15% to 30%, the share of female employees in start-ups should grow from 46% to at least 50%. A specific target, set at 40%, aims at increasing the share of high-skilled personnel with international experience among start-up employees. Further, start-ups' founders and employees' diversity in terms of age, education and location are targeted.

In February 2023, Startup Estonia published an action plan for the development of the science and technology-intensive start-up business ecosystem. The plan aims at increasing the number of deep tech start-ups from 100 in 2022 to 500 in 2030 and the number of growth companies in deep tech from 8 in 2022 to 75 in 2030. A 2023 study identified six deep-tech sectors where Estonia may have a comparative

advantage. These are: alternative production of meat, wood biorefining, digitised development of cell lines, distributed systems and chip technologies, artificial intelligence and machine learning and hydrogen technology. The selection of these specific areas was based on the development, production, and commercialisation potential of Estonian technologies, as well as the expected effects in the economic, social and health, environmental and security fields.

Extent and approach of the national start-up support policy

Estonian start-up policy focuses on developing at the same time, supply components (e.g., the investment ecosystem, incubators and accelerators) and demand components (start-ups and scale-ups) of the ecosystem. Targeted and time-limited funding is provided to incubators and accelerators for their support services to start-ups and scale-ups.

Incubators, including regional ones, can receive financial resources for capital and operational expenditure through national funding, grants and ERDF funding. However, access to these resources is subject to eligibility criteria. Accelerators instead are mainly supported through calls for tenders, and to a lesser extent through grants and direct funding. Public tenders are managed directly by SmartCap / Startup Estonia, following standard public procurement procedures.

An example of this mechanism comes from the HealthTech Accelerator project. Funding is provided by Startup Estonia and ERDF funding, involving the University of Tartu, TalTech as well as Tartu and Tallinn science parks. Observing that only 109 of the 1 500 start-ups operating in Estonia are in the health sector, the objective of the programme was to accelerate 14 Estonian health tech start-ups and develop strategic documents for advancing Estonian health tech start-up ecosystem. To start the programme, the Enterprise and Innovation Foundation and Startup Estonia launched a tender for the development of an incubator in the field of health technology and services, with a time horizon of four years.

To date, start-up founders can access up to 66 entrepreneurship programmes including incubators and accelerators as well as direct grants and funds. These financing lines are available to all SMEs but are aimed at supporting innovative firms with growth potential. EAS does not have a “dedicated programme” for support to incubators and accelerators. Startup Estonia is the support initiative for both the supply and demand side of the ecosystem and provides a variety of targeted grant instruments which can help companies develop innovative products and services, support digitalisation, sustainable development, or exporting/internationalisation.

Grants include:

- *Grants to start a business.* These grants provide support of up to 80% of costs for a maximum of EUR 20 000. They are available to ventures with less than 10 employees, and an annual turnover below EUR 40 000. Access to this grant requires a pre-consultation from a county development centre.
- *Innovation grant.* It consists of a voucher of EUR 7 500 aimed at supporting co-operation with research institutes, testing laboratories or IP experts. It requires a 20% own financing, but it can be awarded twice (within the de minimis limits).
- *Development grant.* It offers financing for a value of up to EUR 35 000 for the acquisition of services and/or the hiring of personnel necessary for development activities. It requires a 30% own financing.
- *Grant for applied research (RUP).* This scheme provides support for development of innovation technologies, products, processes, and services. Businesses can apply individually or in cooperation with other companies or R&D institutes. The process involves mandatory discussions

with an EAS advisor to ensure the project meets the required conditions before applying for either type of grant. There are two levels of grants. A smaller level grant offers support for a value between EUR 100 000 and 150 000, with a rate of support of between 25-80%. A higher-level grant offers financing a value between EUR 250 000 and EUR 2 million, with a rate of support of 25-80%.

- *Product development grant.* This offers financing for R&D staff costs, services, materials and supplies for a value up to EUR 500 000 and a rate of support of 25-45%. Eligibility is not targeted to start-ups; companies must have sales revenue of at least EUR 200 000 over two consecutive years.
- *Development programme.* This provides funding of between EUR 100 000 and 500 000 with a rate of support of 25-45% for the development of products and services including internationalisation. The aim of this grant is to support the implementation of a long-term strategic development plan and increased international competitiveness.

A key eligibility factor for all EAS grants is that the company must be active in one or more of the national R&D and innovation strategy's focus areas. These are digital solutions, health technologies and services, valorising local resources, and smart and sustainable energy solutions.

Another resource for incubators, accelerators and start-ups is SmartCap. Although SmartCap's main activity is managing an investment portfolio, it also offers support to accelerator initiatives, usually in partnership with Startup Estonia. The delivery often happens through public (open) tenders such as HealthTech Estonia, and financial support is offered for two years. Applicants to the tenders are usually drawn from active accelerators or newly formed consortia (e.g. universities, technology centres, science parks, investors, etc.). In the 2022-2023 cycle of HealthTech Estonia a total funding volume of EUR 686 000 supported 14 companies. The 2023-2025 plan aims at reaching 200 health tech companies by 2030.

Two previous procurement projects were launched in 2021 and 2022. The 2021 procurement project allocated EUR 1.4 million to support service for the establishment of high-tech (deep tech) start-ups. The 2022 procurement project allocated EUR 700 000 for science accelerators. In addition, SmartCap commissions studies to guide the development of government-funded policies in support of the investment and start-up ecosystem. Two examples of these studies are the 2020 survey of Estonian start-up investment needs and the 2024 research on deep-tech business accelerators.

Support to regional development

Since 2024, Startup Estonia has adopted a stronger regional dimension, aimed at advancing the start-up ecosystem at the regional level. The Regional Development Experts Programme – co-funded by the ERDF – aims at strengthening cooperation between regional development experts and county development centres (CDCs) and enhancing the growth and development of start-ups in the regions. To achieve this goal, experts will provide:

- counselling, including group counselling for start-ups and idea-stage teams.
- organising joint information sessions with CDCs.
- and additional training for CDC staff.

A total of over 200 hours of free counselling will be available, covering topics such as marketing, branding, networking, business models, among others.

This collaborative effort aims to bring more knowledge and expertise to the regions, helping idea-stage teams and start-ups on their path to success.

Internationalisation policies

Internationalisation is supported through Startup Estonia, which supports the internationalisation activities of accelerators and incubators and of their start-ups/scale-ups. The strategy of incubators and accelerators is to scale-up start-ups through international growth using international mentors and attraction of investors from main financial centres.

Startup Estonia also establishes contacts between local and foreign companies. The support has enabled start-up companies to start exporting products and/or services (e.g. targeting Germany, the Czech Republic, the Netherlands, and Denmark). Startup Estonia regularly organises trips to tech summits and fairs for groups of Estonian start-ups, enabling them to present their products/services and network with other firms internationally.

EAS also provides export advisory services, which includes information on export markets and free advice (up to 2 hours) as well as target market seminars. For those firms requiring more in-depth support, it is possible to receive advisory services from an international expert selected by the company or by EAS. The funding covers up to 50% or a maximum EUR 10 000 of the cost.

In Estonia internationalisation policies include both efforts to boost global reach of local companies and attraction of foreign start-ups into the Estonian ecosystem.

In this space, the e-residency programme has proven an effective tool to attract and retain start-ups by providing access to skills and talent and by promoting the Estonian start-up ecosystem internationally. The e-residency programme was launched in 2014, reaching over 110 000 individuals from 170+ countries. The e-residents are provided with an Estonian digital identity (a card and an Estonian registration number), which enables digital signatures with EiDAS standard. Through this card, e-residents can access public and private e-services enabling them to create and manage an Estonian registered business, open a bank account, and run the business remotely with 24/7 secure access.

Another tool used to attract foreign start-ups is fiscal policy. The tax rate on corporate distributed profits is low (20%) and bilateral taxation agreements with over 60 other countries have waived capital gains tax for companies' residents in signatory countries. According to an analysis commissioned by Startup Estonia and the Estonian e-Residency programme, in 2021, almost one third of Estonian start-ups had been founded by e-residents. Most of those startups focus on business software development (SaaS) and FinTech solutions.

A further tool is the Startup Visa programme. Activated in 2017, the programme allows founders to relocate their businesses to Estonia benefiting from e-Residency and e-voting. The programme also facilitates staff recruitment from outside the EU in Estonian start-ups. Over the past six years over 2 700 applications to Startup Visa have been received, and today 25% of Estonian start-up founders are of foreign origin. According to data from Startup Estonia, in the first quarter of 2024, companies founded with an Estonian Startup Visa contributed EUR 2.9 million employment taxes (+20% compared to Q1 2023), employed almost 400 people in Estonia (+0,3% compared to Q1 2023), and reached a turnover of EUR 30 million (+10% compared to Q1 2023).

Monitoring and evaluation practices

Startup Estonia is responsible for systematic monitoring of the development of start-up enterprises and the activity of incubators and accelerators. Startup Estonia publishes quarterly reports on the ecosystem performance.

In November 2023, Startup Estonia migrated its start-up database to the Dealroom platform. The platform provides a broader view of the ecosystem, allowing the Startup Estonia team to analyse it more comprehensively than before. With the migration, the focus shifted from start-ups (companies with innovative and scalable business models, aged up to and including 10 years), to monitoring both early-stage and 'mature' start-ups, scale-ups, and successful exits that continue their operations in Estonia.

This expanded scope provides valuable insights into the entire lifecycle of companies within the ecosystem. By including established businesses and successful exits, the new data platform tracks ongoing development of companies as they evolve.

In 2024, a pilot will be launched to enhance the accuracy of the company lists on the Estonian Startup Ecosystem Dealroom platform. The goal is to refine methodologies and procedures to ensure that future reports provide the most accurate representation of economic performance.

Startup Estonia also monitors and assesses the deployment of European Regional Development Fund (ERDF) initiatives. A specific ERDF action (4.2.6 Boosting start-up entrepreneurship) delivered in Estonia between 2014-2020 was evaluated. The study found that the target number of companies receiving aid was met at 85.5%. The evaluation noted that the initiative was an "agile catalyst" for developing a start-up community, which made the estimation of its overall impact difficult.

Despite this challenge, the evaluation found that the action had a generally positive impact on the development of the start-up sector and market, by allowing start-ups to access markets, capital, and workforce, including benefiting from foreign specialists through the start-up visa programme.

According to the 2014-2020 ERDF evaluation, from a regional perspective, the development of start-ups outside the major population centres has been impacted more by the ecosystem and existing preconditions (access to services, mentors, workforce, etc), than by the activities of Startup Estonia. The evaluation also noted that support to incubators in the less favoured region of Ida-Virumaa (in the north-east part of Estonia) is being provided for the period 2021-2027 via the Just Transition Fund. This initiative aims to address the unequal regional distribution of entrepreneurship activity and support.

Strengths and challenges

The Estonian incubation and acceleration system has developed significantly over the last two decades with the aim of promoting start-ups based on Estonian research and innovation potential as well as attracting ventures to Estonia (through programmes such as e-residency). On a global scale, the ecosystem remains small but has achieved significant international recognition and the number of unicorns developed from the Estonian entrepreneurial ecosystem is impressive.

In some areas Estonia has progressed but has also yet to address related challenges.

- *Retaining top scalers.* Estonia has been able to develop a small but important group of high-growth start-ups and unicorns. This shows that the ecosystem is complete enough to generate innovative ventures despite the small market size. However, an important challenge is how to retain home-developed start-ups when they attract the interest of foreign capital. The top 20 start-up companies account for 74% of start-up ecosystem turnover and 59% of employment and generate

considerable tax revenues for the Estonian budget. Hence, retaining scale-ups and unicorns in Estonia or at least their core value added activities (R&D, design, strategy) is critical. Based on anecdotal evidence, experts in the country are relatively optimistic about the possibility of retaining at least some core functions of scale-ups and unicorns in the country, yet, similarly to other small countries, Estonia may see their emerging top start-ups move to other locations.

- *Sector targeting.* Recently, an effort has been made to shift sector targeting from SaaS/fintech firms to cleantech and deep tech. Some successful cases have emerged, yet the target to create 500 Deeptech start-ups by 2030 or 200 healthtech startups and to further boost the cleantech sector will require stronger public-private-university-society partnerships, changes to curricula to shift skills sets towards the new emerging needs, and more investment in test-beds/living labs and regulatory experiments to attract founders and investors. The Estonian Government and specialised public agencies have supported a range of new more targeted incubators in cybersecurity and defence, but it has yet to be seen if a significant number of new scalable start-ups in these sectors can be generated regularly.
- *Regional concentration.* The strong concentration of start-up activities in Tallinn (and to a lesser extent Tartu), while mirroring to a certain extent population patterns, underscores how regional disparities in accessing incubators and accelerators remain. A new project has been launched to extend the reach of Startup Estonia support to the regions and investments have been made into incubators in several regional cities. However, it is probable that Tallinn will continue to dominate the Estonian start-up system given the concentration of stakeholders and ecosystem players located in the capital.
- *Further specialisation.* In Estonia, there is not a ‘thick accumulated capital’ and financial capabilities rest with ‘historic’ unicorn founders. At the same time, the start-up system has not been able yet to fully involve banks, large corporates, and multinationals in start-up investments. Despite efforts to enhance the funding available, exports indicate that more anchor investments for smaller specialised funds could be needed. Engaging established companies as corporate partners/investors in accelerators could be beneficial for deepening financial resources and further linking accelerators to specific industries. In addition, investments are currently concentrated in a few accelerators, and the involvement of specialised funds (e.g. cleantech/green tech, deep tech defence funding, etc.) may help to broaden the range of funding available. Local experts observed that, in North America, funds come not only from angel investors and venture capital firms but also from corporate partners. In Europe the culture of corporate venturing is currently weaker.
- *Commercialisation of research.* Experts in the country consider that more can be done to turn university research into commercial products/services. This is a challenge in many countries. A proposal to address this issue has been to build a national commercialisation structure.
- *Skills upgrading.* Skills for scaling-up has emerged as an area for improvement, which may be particularly challenging to address in the newer emerging technologies where Estonia is specialising. The scaling process may be different in these new nascent sectors relative to what has been observed in previous-generation scalars.
- *Regulation updates.* Adopting innovative approaches to regulation has been partially addressed by the introduction of Accelerate Estonia, yet regulatory experiments could be used more frequently. For instance, in the food tech field, there could be space for regulatory experiments to bridge regulatory knowledge gaps that could unlock the creation of novel foods in the Baltic area through the potential of new agro-based firms.

Case studies of Estonian incubators

Creative Destruction Lab-Estonia

Objectives and specialisation

The Creative Destruction Lab (CDL)-Estonia is the Estonia branch of the CDL global start-up programme for seed-stage, science-based companies, originally launched in Canada. The CDL has now 13 sites globally, including in Berlin, Oxford, and Paris in Europe. Each site tends to specialise in thematic ‘streams’ (advanced therapies, climate, AI, energy, etc.) plus in three sites there is a prime stream which is distinct from CDL’s specialised thematic streams. CDL Prime admits diverse ventures pursuing many different applications of technology to industry problems.

CDL-Estonia is located in Tartu, where it can take advantage of synergies with the Tartu University’s Delta Management School including the Institute of Computer Science, Cybernetica (a private firm responsible for much of the Estonian digital development who provide mentors), Tartu Science Park, UT Entrepreneurship and Innovation Centre (the TTO of the UT).¹³ The focus of CDL Estonia is on a digital society stream, and aims to support early-stage founders working on digital governance, cyber security, and public health or genomics innovations.

The programme employs an objectives-based mentoring process by a selected group of accomplished entrepreneurs, angel investors, economists, and scientists. It can also benefit from the high-level research capacity of University of Tartu, which is in the top 1% of the world’s most-cited universities and research institutions in the fields of clinical medicine, chemistry, biology, biochemistry, and biochemical engineering, and computer science.¹⁴ In addition, scientists, in fields such as computer science, from Tallinn Technical University (Taltech) are mobilised to support start-ups.

CDL has been developed under the assumption that the primary cause of unsuccessful commercialisation of research is lack of market knowledge. Experienced entrepreneurs who have market knowledge can help inexperienced entrepreneurs to set and prioritise objectives for translating their research-based innovation into a successful venture.

The thematic focus of the programme has contributed to select and attract highly specialised mentors, who play a critical role in bridging the market knowledge gap. Participants in CDL-Estonia can develop and pilot their business models leveraging data produced by the Estonian digital government ecosystem, which gathers information from 300 government registries. During the programme, business school students work to support ventures including developing financial models, evaluating potential markets, and fine-tuning strategies for scaling.

Budget and funding

The programme has a budget of about EUR 1 million per year, which includes operation costs and licence fees. The largest budget item is staff salaries, which primarily consists of a team of about ten venture managers and supporting personnel. Venture managers select ventures, collect information, and follow entrepreneurs on an ongoing basis to monitor progress and make sure that they fully participate in the programmes’ mentorship opportunities.

¹³ Source: <https://creativestructionlab.com>

¹⁴ Source: <https://www.studyinestonia.ee/university-tartu>

Another important cost item is the organisation of courses and events. Events often bring together about 100-130 people, although some events are organised in a hybrid format. On average, the budget of events logistics is estimated at about EUR 100 000 per event.

The programme does not charge fees nor take an equity participation, hence, to finance its operation, leveraging Tartu's university status, the programme partners with tech-entrepreneurs/investors (Sten Tamkivi and Taavert Hinrikus) and Vabamu (the largest non-profit private museum in Estonia).¹⁵ These two partners provide grants necessary for the programme needs. The Ministry of Economic Affairs and Communications (MKM) contributes an additional non-competitive grant through the university to support the programme. Together these three partners have agreed to provide funding between 2022 and 2027. Smaller financial contributions by the University of Tartu and Delta Management School contribute to finance the cost of rooms, and general infrastructure and services.

Support delivery

Many CDL services are developed for different customers, and not standardised, yet the programme's key support instrument is mentoring, offered over a nine-month period, and delivered for a period of four full weeks taking place every eight weeks. All sessions consist of physical meetings, no virtual or hybrid session is available.

Based on the venture's applications, the CDL-Estonia team pre-matches each venture with the most appropriate mentor. In the first week ('decision session'), the pre-selected mentors meet with the ventures and identify three objectives the venture should set for the following eight weeks and what they should achieve within each interval. This helps to ensure that the ventures have a clear set of actions they can work on in autonomy. At the end of the individual group meetings, participants meet in a plenary session, where objectives are refined through structured exchanges between objective setters, objective critics, and an open discussion. In the final phase of each session, mentors vote to decide whether they want to work with each venture for the next eight-week period. If no mentor accepts to work with a venture, the entrepreneur must leave the programme. The process is repeated at the end of each of the four working sessions of the programme, leading to a maximum of nine graduates per cycle. Reasons for stopping support may include both insufficient progress and maturity of the venture as well as the realisation that the programme cannot offer specific-enough mentoring services for the specific characteristics of the venture. This ensures that the ex-ante selection analysis can be validated through actual working sessions and progress check.

A fifth session taking place in Toronto, Canada, offers CDL's staff, ventures, and mentors from all 13 locations the chance to connect. Many of the mentors are business angels or are connected to venture capital firms, thus, during sessions they can link ventures with funds. Investments should be transparent, so that the information about which fund has invested in which firm must be accessible to all. To enforce this rule, mentors cannot vote for firms they have directly or indirectly invested in.

Reach and selection criteria

The programme accepts about 20 ventures every year. The CDL-Estonia selection process is based on a push-and-pull system. The knowledge of the local tech ecosystem is combined with a call for participants from Estonia and abroad. Ventures are selected based on the technology field, the soundness of technology (checked by the scientists) and the scalability potential. A team of CDL scientists reviews the technology aspects of the candidates, while the CDL-Estonia programme team first reviews the venture

¹⁵ For more details refer to <https://taavetsten.com/> and <https://vabamu.ee/en/>

scalability potential. Scalability is also monitored at later stages of the programme. The CDL-Estonia programme team targets ventures which are developing novel, workable and scalable technologies, and have a credible staff. The programme specifically targets technologies related to digital governance, cyber security, public health, or genomics innovations. Marketing can take place through the E-resident platform, Startup Estonia, CDL Global, or other platforms.

Approaches to stimulating start-up globalisation

The CDL programme does not concentrate on targeting start-ups and entrepreneurs from any particular country but has a wide reach to Estonian and foreign start-ups. The last batch, for instance, included 13 foreign start-ups. Aware of the limits of the Estonian market, CDL embraces the “born global” approach, and internationalisation is enhanced from the beginning in multiple ways. First, high-level events allow stakeholders to network nationally and internationally. To attract a critical mass of participants they often feature high-level Estonian policymakers, ministry representatives, entrepreneurs, and business leaders. Second, participants receive support from international mentors who advise them and help them to internationalise. Third, the international background of participant start-ups allows founders to compare with different peers’ approaches and mentalities in developing their ventures. Firms that achieve the last round travel to an event, held in Toronto, where they meet international peers and investors.

In the past few years, the programme has seen a switch from a limited international participation to a majority of admitted ventures coming from abroad. The latest cohort was composed of about 15 ventures from different countries and about 4 from Estonia. This trend is expected to continue in the future given the focus of the programme on deep tech. While this may seem to reduce benefits for local start-ups it makes sure that only the top few ventures generated each year get access to a large international network.

Monitoring and evaluation

Financial data have been collected for the first-year cohort, showing that participating start-ups could access funding for about EUR 15 million at the end of the programme (or about half a million per venture graduating). The capital raised by the second-year cohort has not been measured yet, but it has been estimated that there might have been an increase in the total funding raised compared to the first cohort.

At an international level, CB Insight ranks accelerators globally according to a set of performance variables, and placed CDL in 10th place overall.¹⁶

Key takeaways

CDL’s keys to success have been its specialisation focus, aligned with a broader national strategy, and its emphasis on mentors’ quality. This has contributed to the programme quality as well as its capacity to attract ventures. The programme recruits internationally-recognised unicorn founders to be mentors, and in turn, mentors and founders of CDL-Estonia recruit new mentors on a continual basis. A second key aspect of the programme is the business school context in which the accelerator operates. Students can observe real life venture cases, which serve as a live-learning experience that shows them what it takes to create and grow entrepreneurial ventures. The possibility of integrating innovation, mentoring, education and research contribute to create a stimulating environment for start-up founders. In addition, CDL’s funding structure allows to offer a significantly cheaper programme compared to other Estonian accelerators while creating significant equity value for participant ventures.

¹⁶ Source: <https://www.cbinsights.com/research/report/most-active-startup-accelerators/>

Beamline Accelerator

Objectives and specialisation

Beamline Accelerator is an accelerator programme launched in 2021.¹⁷ It builds on the experience of two previous initiatives: CleanTechForEst, an EU-funded initiative through the EIT Climate KIC,¹⁸ and CleanTech Estonia, a not-for-profit that operated from 2016-2024.¹⁹ These previous initiatives helped to focus attention on cleantech start-ups in Estonia. Cleantech Estonia partnered with Sunly, a renewable energy company, to launch the Beamline Accelerator programme for cleantech start-ups from Central and Eastern Europe (CEE).

The Beamline Accelerator's Deeptech Programme aims to empower science-based start-ups in cleantech that are incorporated in Estonia. The primary focus areas include new materials, resource efficiency and green chemistry. The goals of the programme are to:

- Boost cleantech innovation
- Help to navigate regulations
- Accelerate product development – grow Technology Readiness Level (TRL) at least 1 level
- Build industry partnerships
- Unlock funding opportunities, already during year 1
- Foster sustainability through climate change mitigation

To support cleantech start-ups, Beamline provides a mix of education, funding, and networking to connect start-ups with key stakeholders. Based on self-reported information, Beamline has provided EUR 1.66 million of investments into 30 start-ups from 17 countries and has attracted more than EUR 35 million of follow-on investments, which have generated a revenue of about EUR 2.2 million euros per year.

Budget and funding

Beamline is a private accelerator and most of its activities are financed by private funds, however, it receives public funding for its Deeptech programme. This programme is supported by the Estonian Environmental Investment Centre (KIK) under the Estonian Recovery Plan, funded by the European Union's Recovery and Resilience Facility (RRF)²⁰ and the Ministry of Climate Change²¹. The initiative is part of a proactive approach to green technology development, highlighting the importance of science-based solutions to global environmental challenges.

The programme is supervised by an advisory board composed of the Estonian Ministry of Regional Development and Agriculture, the Ministry of Education and Research, the Ministry of Climate Change and the Ministry of Economic Affairs and Communications, to ensure the programme's alignment with national economic and environmental objectives.

¹⁷Source: <https://www.beamline.fund>

¹⁸Source: <https://www.beamline.fund/post/estonia-s-most-active-clean-technologies-developer-starts-with-an-international-accelerator>

¹⁹Source: <https://www.cleantechestonia.ee/blog/estonian-cleantech-association-founded-to-boost-the-development-of-the-sector>

The Estonian Cleantech Association grew out of the activities of the non-profit Cleantech Estonia. Cleantech Estonia operated from 2016 to 2024, supporting the development of the cleantech sector in Estonia from its early stages.

²⁰Source: <https://kik.ee/en/eic-projects/development-services-green-technology-start-ups/> and https://commission.europa.eu/projects/green-technologies-development-programme_en

²¹Source: <https://kliimaministeerium.ee/uudised/uudsete-materjalide-ettevotted-alustavad-teekonda-beamlinei-suvatehnoloogia-rohekiirendis>

Public funding was raised during 2023-24 via a call for tenders that has awarded two contracts for science based cleantech – on noble materials and energy resources for clean construction.²²

Package of supports and delivery

The Beamline Accelerator's Deep Technology programme provides non-equity grant funding for business development and equipment support worth up to EUR 100 000 for a single start-up. The funding can be used to buy business services flexibly if the start-up core team are engineers or to bring a mentor on board as an employee for a short period. The programme also offers mentoring, product development support, business strategy and market validation, legal, outreach, and marketing services.

The one-off grant is designed to accelerate the growth and success of participating companies by helping them achieve significant milestones in terms of technology readiness and investment mobilisation.

At the heart of the programme is a vision to empower start-ups specialising in the focus areas of materials science, resource refinement and chemical use reduction. The programme expects the ventures to develop a prototype and test commercialisation potential. The science-based approach adopted by Beamline Accelerator aims to help start-ups, building on their intellectual property (IP), move up one or more TRL levels.

The programme delivery is composed by an application period, a pre-acceleration programme, and a main acceleration programme. The latest cycle was launched in October 2023 with a call for applications that lasted a month, followed by a two-month pre-acceleration, and a main programme that is ongoing (April-October 2024).

Reach and selection criteria

Beamline Accelerator runs the Deep Tech programme for a cohort of ventures of about 15 start-ups. During the application process, the Beamline Accelerator team scouts and launches campaigns to find applicants. The applications are selected based on a set of criteria including team composition, degree of innovation, scalability, climate/nature focus and an interview on whether Beamline Accelerator and the start-up are a good match (i.e. the startup is suitable for the programme and the programme is suited to helping the start-up to grow). To be selected, a start-up must meet the following criteria:

- Develop science-based solutions in cleantech.
- Focus on new materials, resource efficiency and green chemistry.
- Have a prototype tested in the lab or relevant environment.
- Be in the fundraising phase or planning to start fundraising within 6-12 months.
- Be registered or incorporated in Estonia.
- Have a dedicated team with at least 2 founders.

While meeting the criteria, the model is flexible, and the decision to provide in-kind and grant funding to start-ups is given to the Beamline Accelerator without requiring approval from the ministries overseeing the programme.

Selected companies are expected to address cleantech challenges such as food security, energy storage and management. The current cohort includes ventures such as Myceen, a start-up developing a carbon-storing technology that uses mycelium for designing and building materials; Funki, a start-up developing high-quality protein products based on fungi, Sutur, a start-up developing material for thin film

²² Beamline submitted two further bids for the award of a contract for a mobility technology and a contract for applying open data sets on forest bioresources, but these bids were not successful.

manufacturing to help card producers lower their product footprint using a reed plant, SMAGRY, a start-up developing soil health analytics technologies with lab-accuracy soil analysis, Vetik a start-up developing new ways to use local red seaweed, Clyza, a start-up developing a sustainable low-cost silicon carbide growth solution for the semiconductor industry.

Approaches to stimulating start-up globalisation

A key aspect of the programme is to create links between start-ups, industry mentors and the wider cleantech community, both nationally and internationally. The main support for internationalisation is the structure of Beamline which operates internationally and uses a network of international mentors to offer advisory services. The first step of the programme is an Onboarding Week in Tallinn to engage teams in the Estonian cleantech and startup community. The teams had the opportunity to meet local mentors and investors, media and industry experts such as Lemonade Stand, 2C Ventures, Sunly Future Ventures, EstBAN members, Äio Tech, among others.

These networking opportunities not only enrich the entrepreneurial journey, but also ensure that companies understand the complexities of international markets and establish contact points to branch out internationally.

Estonian e-Residency, the SmartCap and KredEx/EAS agency, and other organisations' representatives intervene in the Onboarding week, and help ventures identify opportunities for support for internationalisation.

In addition, the Beamline Accelerator works with other cleantech organisations abroad, offering a within-accelerator opportunity to identify partners and investors that can support start-up internationalisation.

Monitoring and evaluation

The programme sets three main KPIs: i. ensure that at least 10 companies improve their technology readiness level (TRL) by 1 level and at least 3 companies achieve TRL6; ii. attract private capital to at least 3 ventures; iii. comply with DNSH and reduce greenhouse gas emissions.

To date, the accelerator has achieved a 90% survival rate of the start-ups. Examples of successful innovators from past cohorts include ÄIO, a start-up in the food industry that produces oils and fats from byproducts, Naco Technologies, creators of advanced solutions for producing green hydrogen, and Renewcast a start-up that forecasts renewable energy sources availability using artificial intelligence, aiming to enhance the efficiency of wind energy production²³.

Key takeaways

The Beamline Accelerator model is a case of a private accelerator initiative, investing via convertible notes, that has received targeted equity free public funding to support an additional cohort of scalable firms. It provides an example of how public-private cooperation can boost tech-based entrepreneurship in a specific sector (in this case, cleantech). Beamline builds on past experiences and efforts to grow the cleantech sector in Estonia. One successful strategy adopted has been hardwiring prototyping into the core of the accelerator activities rather than leaving it as an add-on step at the end of the process.

²³ Source : <https://estban.ee/news/beamlines-jana-budkovskaja-shedding-light-on-cleantech-sector/>

Conclusions and policy lessons for other countries

Given the small scale of Estonia's domestic economy, market internationalisation is a strong focus for start-up support policies in Estonia.

Other small open economies can draw inspiration from Estonia's success in creating global scale-ups and unicorns and fostering the development a dynamic entrepreneurial ecosystem over a relatively short period of time. Policy lessons from Estonia pertain not only to its incubation and acceleration system but also its wider start-up globalisation policy. The main take aways include:

- *Coordination.* Efforts to coordinate policy support and create a cohesive Estonian incubation and acceleration system have been key to maximising efficiency and synergies. The creation of Startup Estonia with a specific coordination mandate has played an important role in improving national policy coordination. Although relatively small, the agency has established cooperation lines with other players (SmartCap, ministries, e-residency, programme, investment community, universities), creating a sense of coherence and inclusion in the system. It has also steered the emergence of new incubator and accelerator initiatives towards specialisation in the targeted emerging fields.
- *Bottom-up approach.* The Estonian system is not designed around a single 'ideal' incubator or accelerator. Private-driven accelerators co-exist with public or quasi-public bodies entities, such as science and technology parks and universities. Continual start-up support through incubators and accelerators programmes is supplemented by time-limited support through grants and tenders. This allows a diversification of sources and the possibility of testing new approaches.
- *High quality mentors.* Experts in the country frequently underscore the importance of high-quality mentors. Estonia policy paid particular attention to building a network of experienced mentors such as individuals who developed or invested in Estonian unicorns. The policy has also established a mechanism for matching start-ups with the mentor with the most relevant and specific expertise relative to the start-up needs.
- *Two-way internationalisation policy.* Estonia aims at supporting at the same time both local companies to export abroad and attracting foreign players into the Estonian ecosystem. The policy mix for internationalisation thus encompasses talent attraction (e.g. through e-residency and Start-up Visa), creation of an ecosystem attractive to foreign founders, international accelerators and investors, and support to foreign expansion of Estonian start-ups. Startup Estonia and EAS provide support to start-ups in internationalising by connecting domestic and foreign accelerators, mentors, and investors.
- *Ambitious data tracking system.* Startup Estonia is developing an increasingly detailed and granular monitoring system in partnership with DealRoom to track long-term contribution of start-ups to the economy. However, more should be done to expand formal evaluations of specific funding programmes (e.g. ERDF support).

Lessons from incubator and accelerator policy in Sweden

This chapter discusses the case of incubator and accelerator policy in Sweden by examining Sweden's the National Incubation Programme (NIP). It starts by introducing Sweden's start-up ecosystem. It then describes NIP's approach to governing the incubator and accelerator system, the services and support offered by the programme, how incubators and accelerators are selected for NIP support, monitoring and evaluation arrangements and results. It offers two examples of incubators and accelerators in Sweden and how they operate. Finally, it offers conclusions and policy lessons from Sweden.

Introduction to Sweden's start-up ecosystem

Knowledge-based entrepreneurship has been a key driver of Swedish economic growth for decades, and over the past 20 years, the Swedish National Incubator Programme has played an important role in advancing Sweden's innovation ecosystem, incentivizing technological innovation, and fostering collaboration among academia, industry, and the public sector.

The Swedish National Incubator Programme (NIP) was introduced in 2003 as a pilot initiative aimed at streamlining national incubation efforts and it became formally established in 2005. Since 2015, it is under the direct responsibility of the Swedish Agency for Innovation Systems (VINNOVA), and it is endowed with a budget exceeding EUR 200 million per year. To date, no other national incubator or accelerator programme is available in the country.

Over time, NIP has evolved into a dynamic programme that provides substantial resources, strategically contributing to Sweden's innovation trajectory. When VINNOVA took oversight of the programme in 2015, a new approach was implemented. This new approach defines clear targets for ventures' selection, focusing on start-ups with high growth and internationalisation potential. It also sets standards on reporting activities of incubators. More recently, in line with the 'Agenda 2030' for sustainable development, NIP has placed particular emphasis on enhancing inclusivity, female entrepreneurship, and diversity, as well as AI-assisted entrepreneurship, and sustainable entrepreneurship.

Today, there are 28 NIP-backed incubators in Sweden, and approximately 12 other non-NIP-backed incubators.²⁴ NIP serves as a coordinating hub for collaboration among these domestic incubators and

²⁴ The 28 NIP-sponsored incubators (and their regions, in alphabetical order) are: 1) Arctic Business Incubator (Norrbotten); 2) Blekinge Business Incubator (Blekinge), 3) Brew House Göteborg (Västra Götaland), 4) Chalmers Ventures (Västra Götaland), 5) Create Business Incubator Mälardalen (Västmanland), 6) Företagsfabriken i Kronoberg (Kronoberg), 7) Founders Loft (Västra Götaland), 8) GU Ventures (Västra Götaland), 9) Inkubatorn i Borås (Västra

accelerators and contributes to international connections between Swedish and foreign incubators and accelerators.

The National Incubator Programme – Governance and structure

NIP plays a central role in the ecosystem, collaborating extensively with key stakeholders nationwide, including universities, Science Parks, and regional organizations to form a network that spans across multiple sectors and entities.

Notably, NIP works closely with SISP (Swedish Incubators & Science Parks), a coalition encompassing 62 incubators and Science Parks, collectively hosting over 5 000 firms and more than 70 000 employees. This collaboration effectively reaches NIP's target audience, bolstering NIP's engagement efforts. Partnerships with these stakeholders also reinforce NIP's pivotal role in the national entrepreneurial landscape as coordinator of policies, financial support, and promotion of business growth and sustainability.

The programme also enhances collaboration with universities, fostering technology-based start-ups and innovation. The so called 'professor's privilege policy' allows researchers to own their work and to create opportunities for building businesses based on research findings.

NIP is entirely public-funded and all incubators in its system are public, yet in designing the programme, it has been decided to assign a 'pure financier' role to the central government rather than a centralised, direct management role. Thus, although public funded, NIP is at an "arm's length distance" from the government, allowing for an independence management of the incubators network by VINNOVA. Participating in NIP requires incubators to have a public certification and not to distribute profits to their owners, effectively discouraging private incubators from seeking participation.

NIP does not have a sector-specific focus and adopts a bottom-up approach granting ample independence to incubators' managers in selecting sectors and startups. For instance, the BoråsINK incubator supports new tech start-ups with sustainable and scalable models in textiles and fashion, the Brewhouse Incubator focuses on creative start-ups in music, Sahlgrenska Science Park accelerates life science start-ups, and Science Park & Skövde Startup specialises in the gaming sector. Despite this bottom-up approach and agnostic sector targeting, however, life science and ICT have emerged as the most represented sectors in Swedish incubators portfolios.

NIP has not yet developed a regional economic strategy, but at least some incubators and accelerators are present in almost every region. Nonetheless, to date, the regional distribution of incubators and accelerators is highly influenced by the presence of universities, and most of the start-ups in the pipelines source from universities. Hence incubation and accelerators tend to concentrate in larger cities, close to or within innovation hubs, taking advantage of agglomeration effects.

Götaland), 10) Inkubera i Örebro (Örebro), 11) Karolinska Institutet Innovations (Stockholm), 12) Kalmar Science Park (Kalmar), 13) Lund Business Incubator (Skåne), 14) Minc i Sverige (Skåne), 15) Movexum (Gävleborg), 16) Sahlgrenska Science Park (Västra Götaland), 17) Science Park Gotland (Gotland), 18) Science Park Jönköping (Jönköping), 19) Science Park Skövde (Västra Götaland), 20) SSE Business Lab (Stockholm), 21) Smile (Skåne), 22) Stiftelsen Dalarna Science Park (Dalarna), 23) Stockholm Innovation & Growth (Stockholm), 24) Umeå Biotech Incubator (Västerbotten), 25) Uminova Innovation (Västerbotten), 26) Uppsala Innovation Centre (Uppsala), 27) Åkroken science park (Västernorrland), 28) Lead i Östergötland (Östergötaland).

Services and support offered

Business incubators and accelerators are very active in supporting Swedish start-ups by providing a diverse array of services and facilities.

VINNOVA designed the national incubator programme based on two fundamental principles: i) promote firm development through incubators/accelerators and ii) support the development of national incubation capabilities. Both principles involve facilitating knowledge exchanges and peer learning among incubators. They also involve expanding and updating incubators and accelerators' tools and methods.

Incubators participating in the NIP are expected to support sustainable development, prioritise hi-tech and deeptech firms, enable effective national co-incubation, advance the use of Innovation Readiness Levels (IRL), increase knowledge of national firm portfolio, enhance international connectivity, and collaborate within other actors of the national incubation ecosystem. In addition, incubators are increasingly expected to focus on digitalisation, sustainability, and diversity of start-ups.

The NIP supports incubators mainly through financial support, in the form of grants and subsidies. This funding however must be used for business development services offered to start-ups and cannot be used to cover incubators' operational costs.

Another important policy introduced by VINNOVA is the national incubators quality-assurance. VINNOVA evaluates incubators' practices and outcomes and issues a quality assurance stamp that incubators can use to access regional funds, business angels and investment funds.

Moreover, through the NIP, accelerators have access to initiatives that strengthen collaboration among national incubators, connect with international incubators, and private actors such as innovation offices, investors, customers, and partners. Over time, also thanks to this support, NIP-backed incubators have developed professional structures, networks, and upgraded operational processes.

Services typically provided by incubators and accelerators to SMEs and recent trends

VINNOVA sees an incubator as an entity that provides tailored business development support, networks (financial, technical, and commercial), and recruitment assistance. Services typically offered by the NIP's incubators and accelerators include:

- Mentorship, coaching, funding, and resources for tech innovations, guiding start-ups to identify promising research, and move from conception to market.
- Funding options tailored to different start-up needs and stages of development, including grants and investment opportunities.
- Connection with stakeholders in the ecosystem and partnerships with other incubators, as well as peer exchange between incubators.
- Sustainability, gender equality, and diversity implementation through day-to-day operations and venture selection processes.
- Performance evaluation through measurement of long-term success rates, revenue generation, international market penetration, diversity metrics, and stakeholder satisfaction.
- Collection of success stories to allow cross-start-up learning.
- Internationalisation support
- Consulting services in sector-specialization and demographic targeting.

Support to internationalization

The NIP's internationalisation policies embody a holistic approach that aims at fostering innovative, sustainable start-ups with the potential of expanding globally.

A first key element of the NIP's internationalisation policy is start-up selection. VINNOVA requires incubators to select sustainable, innovative start-ups that demonstrate scalability and international competitiveness potential. This approach maximizes the likelihood that supported start-ups can indeed branch out internationally.

A second key component of the NIP's internationalisation strategy is the creation of a network of domestic and international stakeholders. Incubators can use this network to find additional funding (outside the NIP's resources), engage in staff exchanges and collaborate with other international incubators. For instance, incubators can obtain educational scholarships to fund extended staff visits (e.g., 10 months) at the Nordic Innovation House in Silicon Valley. Through this experience incubators' staff can upgrade its skills and better understand how top foreign innovation ecosystems work and become better equipped for supporting Swedish start-ups' internationalisation processes. Another example is the connection of incubators with SISP (Swedish Incubators & Science Parks) and IGNITE SWEDEN (a non-for-profit organization), where incubators can match and partner with other domestic and international incubators and exchange practices.

A third way through which national policy supports internationalisation is the connection with multinational companies. Through this channel, incubators and accelerators can facilitate win-win partnerships between local SMEs and corporates, where start-ups get the opportunity to scale up, while multinationals can explore emerging technologies and access entrepreneurial talent.

A fourth element of the internationalisation policy is the provision of internationalisation-targeted support services (e.g., mentorship, coaching, funding opportunities) that can help start-ups in navigating international markets' complexities, foreign regulations, and administrative requirements. They thus assist start-ups in scaling their operations in line with international markets requirements.

Another indirect, yet important support to internationalisation is evaluation. Throughout the incubation phase, VINNOVA evaluates incubators on their capacity to help start-ups to access customers, capital, and expertise. VINNOVA also monitors how incubators encourages start-ups to secure adequate external funding and prepare for international growth. This monitoring and evaluation activity nudges incubators to push start-ups towards internationalisation. The NIP also incentivizes incubators to develop start-up sustainability reporting, in line with Agenda 2030. This leads supported start-ups to align their reporting standards to global standards which, in turn, facilitates access to global markets.

Potential gaps in internationalisation support

Although the NIP has achieved remarkable results and have created a system that promotes start-ups with an international potential, there are some areas for improvement.

Some incubators have reported difficulties in building the international connections or resources necessary to support their start-ups expansions in international markets. In some cases, financial resources that can be used for developing foreign incubators' activities are limited. This partially reduces incubators' capacity to create international business opportunities start-ups and suboptimal international networking.

Another challenge is insufficient access to specialized know-how on foreign laws and regulations. Navigating the complexities of international markets and the application of foreign laws is difficult, and

although an effort to build-up specific legal capabilities has been made, incubators and accelerators do not always possess the legal and compliance knowledge necessary to accompany start-ups in opening their operations abroad. In addition, cultural and linguistic barriers prevent incubators to support start-ups' expansion in certain markets.

Recent trends

Over the past decade, the range of support services offered by incubators has expanded notably, encompassing not only mentorship, coaching, funding access, networking, and internationalisation assistance, but also reflecting evolving trends.

- Services have increasingly been offered digitally, expanding their geographical reach beyond physical spaces. Digital transformation has reshaped incubation methods, driven further by the faster adoption of digital tool during the pandemic.
- Start-up internationalisation support has been widened, increasing the resources and the types of activities that help start-ups to enter and succeed in global markets.
- Sustainability has emerged as a central focus, prioritizing ventures that embrace environmental responsibility.
- Collaboration among incubators and various stakeholders has strengthened, fostering an ecosystem conducive to entrepreneurship and innovation.
- Emphasis on diversity and inclusion has grown and incubators increasingly support ventures led by women, minorities, and underrepresented groups, acknowledging the enriching value of diverse perspectives in fuelling innovation.
- A firm-centric approach is increasingly inducing incubators to prioritize start-ups that demonstrate the scalability criteria set by VINNOVA. This approach led to an increasing share of businesses with international potential in incubators' portfolios.
- Specialisation has augmented within NIP incubators, with a notable increase in food and textiles start-ups. However, a pivot towards a fully specialized system of incubators and accelerators is hold back by VINNOVA's bottom-up approach, as well as by the difficulty of reaching a critical mass of start-ups within specialized areas.

Applications process and funds allocation

The application process is designed to allocate resources primarily to incubators who can demonstrate to attract the most promising start-ups. Every four years, VINNOVA launches a call for funding with specific eligibility criteria. The specific date at which incubators and accelerators can apply is known in advance and the applications should be received within the deadline.

Since 2020, the allocation of funding for each incubator occurs in two stages. In the first stage, incubators are assessed against VINNOVA's quality standards for internal operations and processes. Incubators that meet VINNOVA's procedural standards are admitted to the national incubators network and receive VINNOVA's quality certification. In the second stage, VINNOVA evaluates the strength of the start-up's portfolio within each incubator. Incubators receive funds proportional to the overall start-ups' portfolio score.

Step 1: Evaluation of operations and processes quality. Incubators are evaluated in terms of their processes throughout the whole incubation and acceleration process, encompassing the attraction, formation, onboarding, incubation and exit phases. Incubators are evaluated on how they attract and select new potential entrepreneurs and start-ups, how they design and execute formation courses, how they monitor start-ups, and how they evaluate and improve their internal processes. Moreover, incubators are measured against their capacity to support team development, encouragement of entrepreneurship, guidance in idea and business development, creation of a robust commercialization strategy, evaluation of suitability for incubation, and capacity to provide access to customers, capital, and competence. In addition, the capacity to identify and correct inefficiencies is also considered. Incubators are expected to monitor start-ups in line with state aid conditions mandated by VINNOVA. Incubators and accelerators are also expected to monitor start-up progress closely and to discontinue support to start-ups that fail to meet VINNOVA's standards.

In this step, each element is evaluated on a 0-5 scale, where a 5 corresponds to a well-defined process, with systematic information and well documented implementation. Incubators lose points if they can only provide anecdotal information or vague implementation evidence. The capacity to produce documentation, protocols, or data that demonstrate the existence and application of well-defined processes is crucial. Insufficient documentation, however, does not automatically exclude an incubator but put it on a “conditional approval subject to revaluation” list.

Step 2. Evaluation of start-ups' portfolio of each incubator. Incubators meeting procedures' quality standards in step 1 are asked to submit the profile of 15 start-up firms from their portfolio. The NIP prioritises start-ups eligible for state aid, operated and owned by highly committed founders. In addition, NIP prioritizes knowledge-intensive start-ups with high growth potential, that enter incubation at the Problem Solution-Fit stage. These firms are expected to offer innovative solutions to significant problems within specific customer segments. They should also have a dedicated and capable team ready for the next phase of development or incubation, exhibit scalability in their business model, and demonstrate a strong commitment to contributing to the goals outlined in Agenda 2030.

In this stage, each application is evaluated by a team composed of VINNOVA representatives and external experts. Each team is assembled by selecting evaluators that possess competences aligned with the incubator's area of work. For example, if an applying incubator is specialized in biotechnology, evaluating experts should have a knowledge of biotech business incubation.

During the assessment, the evaluating team meets with the incubator's management, and with some entrepreneurs from the incubator. Each assessment takes a full day during which incubators are evaluated on i) the inflow of sustainable business ideas in the incubator, ii) the extent to which incubation leads to accelerated exits, and iii) predetermined reporting documents that each incubator firm must submit. At the end of the day, all parties involved meet to discuss presentations and reviews. The final decision is communicated to the incubator approximately one month later.

Funding size depends on the number of “strong” start-ups in the incubator portfolio. To obtain full funding (EUR 500 000 for four years), incubators must demonstrate sound operational practices in step one and a portfolio of at least 15 scalable companies. Below this level, funds are reduced proportionally, down to a minimum of EUR 30 000. This mechanism ensures that incubators are not competing against each other but strive to improve within-incubator processes and outcomes. Among NIP-backed incubators, about half currently receive full NIP funding, all others receive a lower amount.

Public funding can only be used to finance services that directly benefit incubators' clients' start-ups. Operational costs can be covered through other sources such as funds from regional or municipal

authorities as well as applications to VINNOVA's smaller programme. All incubators, including both those that are admitted in the NIP programme and those who are not, can seek VINNOVA's financing for smaller and more focused projects. These resources, often not exceeding EUR 50-100 000, aim to support collaboration initiatives among incubators, such as promoting female entrepreneurship, tools for AI-assisted entrepreneurship, team development for early-stage entrepreneurs, and enhanced sustainability and diversity in incubators. The selection process in this case is shorter and less structured.

Monitoring and evaluation arrangements and results

Government monitoring and evaluation arrangements for incubators and accelerators

The government, through VINNOVA, employs various methodologies to monitor the effectiveness of incubation programmes in Sweden.

One critical element is the ongoing evaluation of methodologies, procedures, and resource allocation that incubators adopt in their attraction, formation, and incubation stages. VINNOVA requires that these processes and protocols are documented and complemented by data that demonstrate how incubators adhere to VINNOVA's targeting criteria and comply with the Income Recirculation Law. This assessment takes place before and after funds allocation and ensures that processes quality standards remain high.

The government also evaluates incubators' results through the collection of outcome indicators, including:

- The Percentage of start-ups that successfully achieve milestones, such as securing funding, reaching profitability, or achieving significant growth metrics.
- The Economic contribution of supported start-ups in terms of job creation, revenue generation, and regional value added.
- The innovations generated by start-ups within the NIP ecosystem, using metrics such as patents applications or number of new product launches.
- The amount of external funding raised by start-ups, including investments from venture capital firms, angel investors, or public grants.
- Start-ups market penetration (domestic and international), through metrics such as market share, customer acquisition, or commercial presence in new geographies.
- Long-term success of alumni firms, measured through survival rates, revenue growth, or successful exits (through acquisitions or IPOs).
- The social impact of supported start-ups measured in terms of start-ups contribution in promoting sustainability or improving quality of life.

Through the collection of these statistics and information, VINNOVA and the incubators can have a complete and realistic picture of national start-up development, and a broad health-check of the national incubation policy.

VINNOVA also monitors if incubators provide adequate resources to start-ups throughout the incubation process, and if incubators discontinue supports to start-ups that longer meet performance standards.

Occasionally VINNOVA also conducts projects that evaluate incubators activities. For instance, an ongoing VINNOVA-funded project is analysing incubators' activities through a pre-study for international peer review, and the identification of common incubators' needs and development potential. In parallel, the project collects statistics for evaluating long-run impact of incubators and accelerators programmes, which

are then used in recurring digital seminars and physical meetings to spread best practices throughout the network of incubators and accelerators.²⁵

Monitoring start-ups during incubation

In the NIP, not only incubators, but also start-ups are regularly monitored, and their progress is measured against four 'Innovation Readiness Levels' (IRL):

- Customer Readiness Level (CRL) evaluates the firm's product or service readiness to meet customer needs, considering market research, feedback, and alignment with customer requirements.
- Business Readiness Level (BRL) assesses the overall readiness of the firm in terms of its business model, strategy, and operations, including market analysis, revenue generation, scalability, and regulatory compliance.
- Team Readiness Level (TMRL) focuses on evaluating the readiness of the firm's team members to execute the business plan effectively, considering factors such as composition, skills, experience, and leadership capabilities.
- Sustainability Readiness Level (SRL) evaluates the firm's preparedness to integrate sustainability principles into its business practices, encompassing environmental impact, social responsibility, ethical considerations, and long-term viability.

For incubators, these codified scales offer a systematic identify areas for intervention, and potential adaption of incubation activities. For start-up these scales are a way to identify areas for improvement, align resources, and course-correct in the journey from idea conception to market launch.

Results achieved by the programme

Over the past 20 years, the NIP has supported over 6 000 ventures including start-ups in multiple knowledge and technology-intensive sectors, such as life sciences, ICT, food, gaming, and textile. In addition, some NIP-backed incubators have received international recognition. For instance, STING attained a Global Start-up Awards, while Chalmers Ventures and GU Ventures were ranked #12 and #16, respectively, in the UBI Global university-based incubators ranking.

The Sweden Tech 2023 report underscores the resilience of Swedish start-ups in recent years, with over EUR 4.7 billion raised in investments despite global economic volatility. Notably, nearly 75% of this funding were used directly to develop start-ups, contributing to explain why Sweden is one of the top recipients of venture capital in Europe. Over the past five years 41 unicorn companies have emerged, and alumni from successful unicorns have in turn founded new start-ups, contributing to a positive cycle of innovation. These start-ups have made significant economic contributions and have created 138 000 jobs worldwide and 79 000 in Sweden.

Although a comprehensive data on start-ups generated from the Swedish incubation system is not available, individual examples of start-ups that have achieved international success can offer anecdotal evidence on the results attained by the national programme. Five notable cases are:

Apsis International. Established in 2001 with origins in the Minc incubator in Malmö, Apsis International is a provider of marketing automation software, facilitating digital marketing optimization and customer engagement on a global scale. The firm has grown into a significant entity, offering innovative solutions

²⁵ [Strengthened incubation capability within the national incubator program 2023-24 | Vinnova](#)

that empower businesses to refine marketing strategies and foster growth. Its Marketing Automation platform has garnered widespread adoption among companies in the Nordics and beyond. In August 2021, APSIS became part of Efficacy, a company active primarily in Belgium, France, Spain, The Netherlands, and Denmark, with a workforce of over 500 employees across 18 offices in Europe.

Klarna. Established in 2005 with roots in the SSE Business Lab (Stockholm School of Economics), Klarna is a financial technology company based in Stockholm, Sweden. With approximately 5 000 employees and a turnover of 2.5 billion Euros, Klarna focuses on delivering innovative payment solutions for e-commerce worldwide. Over the years, Klarna has become a significant player in the fintech industry, serving a vast consumer base and collaborating with numerous retailers across diverse sectors, in multiple continents.

Phoniro Systems. Established in 2004 and incubated in the LEAD incubator in Linköping, the firm is recognized for providing solutions for digital care management in the healthcare sector. Acquired by Assa Abloy, it has around 80 employees and a revenue of 18 million Euros. Operating in integrated digital key management solutions and alarms for homecare and nursing homes in the Nordic region, Phoniro Systems emphasizes technology and service, products and services customized to care providers' needs.

Smartshake. Founded in 2009 within the Create Business Incubator in Västerås, the company specializes in manufacturing innovative shaker bottles and fitness accessories. With a workforce of 16 employees, the company has achieved a revenue of 10 million Euros. Over time the firm has achieved a global reach among athletes and fitness enthusiasts.

Storytel. Founded in 2005 with origins in the Ideon Innovation incubator in Lund, Storytel emerged as a pioneer in the rapidly expanding global audiobook market. By 2023, the company achieved a streaming revenue of 0.3 billion Euros and employed approximately 1 000 employees. Offering a wide selection of audiobooks and e-books to readers and listeners worldwide, Storytel extends its reach to more than 20 markets across Europe, Asia, and North America. With a diverse catalogue and a substantial user base, Storytel's platform offers a wide digital access to literary works.

Strengths and challenges

The track record of startups incubated through the NIP indicates that the programme overall is effective in fostering productive entrepreneurship. Analysing the NIP's mechanisms and policies choices allows to identify key strengths and some challenges that the system encounters.

One notable strength of the NIP is its robust public financial backing signalling the government's commitment to nurture entrepreneurship. Public support with clear governance structures is often necessary to de-risking entrepreneurial activity, and the NIP has combined substantial public engagement and support with rules that incentivize incubators to focus on the most promising entrepreneurship ventures. In addition, the presence of a competent and credible central public organization (VINNOVA) has boosted the soundness of the programme. It has provided a clear direction and a long-term perspective to the incubators' community.

A second strength of the programme is the NIP's strategic and active promotion of the most promising/successful start-ups across the three phases of new ventures' development. This has contributed to improve incubators' practices and has incentivized incubators and accelerators to focus on start-ups with high growth and internationalisation potential.

A third positive feature is the creation of collaboration opportunities across incubators as well as the establishment of strategic partnerships between incubators/accelerators and key stakeholders in the ecosystem. For instance, by connecting SISP (Swedish Incubators and Science Parks) to the network of incubators and accelerators has amplified the NIP's nationwide impact and offered additional resources to aspiring entrepreneurs.

A fourth strength is the NIP's strategic emphasis on female entrepreneurship, adaptation to technological change (e.g., AI-assisted ventures), sustainability, and diversity. The NIP not only defines these elements as strategic targets but induces incubators to hardwire these features in start-up selection criteria. In turn this increases the likelihood that new startups incorporate sustainability and inclusivity in their business models.

One element that sits between a strength and weaknesses of the system is its sectoral concentration. Life sciences and ICT firms represent a high share of start-ups in incubators and accelerators' portfolios. The extent to which this outcome is desirable has been subject to debate. Life science and ICT are highly innovative, productive, and knowledge-based sectors, and their development can be seen as a success story that highlights the strength of the NIP's non-sector-targeted policy. At the same time, a high share of start-ups in these sectors can also be seen as a deviation from VINNOVA's objective to develop all sectors and a potential source of missed opportunities in other emerging sectors. While it is hard to judge if the system is steering towards an excessive specialization or not, monitoring the future evolution of the start-ups portfolio and adapt national policies to the evolving needs of industries will be important.

A first area for improvement is the length of administrative and bureaucratic procedures which may discourage incubators to apply and consequently reduce support to aspiring entrepreneurs.

A second area for improvement is the uneven distribution of incubation activities across region. Often urban areas, especially those close to universities, are advantaged over other parts of the country. In the past decade, VINNOVA has made significant efforts to build incubation/acceleration capacity and infrastructure across regions. However, to date, regional disparities remain, and incubation opportunities vary significantly between rural and urban regions. A specific challenge is how to expand the NIP's current core mandate – focused on established incubators with a strong track record and operational excellence – to better support incubators in rural regions and underserved areas where average incubators' performances tend to be below those located in top innovation hubs.

Another important emerging challenge is how to expand the NIP to meet the constantly increasing demand for entrepreneurship support. The fact that the NIP is predominantly public funded and must comply with state aid rules influence incubators' finance, which may lead to an increasingly fierce competition among start-ups who can be admitted to incubation and acceleration programmes. So far, the two-step funding mechanism has been instrumental to allocate resources to the most promising ventures. However, there might have been cases of viable start-ups left out. Going forward, the mechanism should also find ways to alleviate uncertainties in incubators' access to long-term funding which affect their financial sustainability and ability to innovate.

A further challenge is how to continue the transition from an infrastructure-centric system to a company-centric system without diminishing the quality of support. VINNOVA's programme development strategy has proceeded in two phases. In the first phase the infrastructure was built, in the second phase investments have been focused on identify and support high-potential start-ups. In this transition, some of the existing infrastructures are being adapted to new start-ups' needs. However, programme's services and infrastructure upgrades struggle to cope with the speed of technological progress and markets developments. Not only infrastructures such as laboratories and related equipment can become obsolete rapidly, but emerging start-ups may need different types of infrastructure or entirely different (e.g., non-infrastructure based) type of support. Continuous innovation to remain pertinent and responsive to the evolving needs of start-ups is a recurring challenge for national incubation programmes.

A fifth challenge is how to further improve the evaluation of the long-term impact of incubation, and how to use evaluations' results to sustain start-up growth beyond the initial phases of incubation. Going forward, VINNOVA will increasingly focus on behavioural performance management rather than on 'scoreboard management' measurement. Tracking incubation outputs and outcomes is still necessary but no longer

sufficient. More advanced measurements systems must capture successful behaviours and practices, including intangible factors such as team's collaboration, adaptability, problem-solving skill, which are notably difficult to measure.

Case studies of Sweden's incubators and accelerators

Two of the 28 NIP-backed incubators in the system are the Stockholm Innovation and Growth (STING) and Chalmers Ventures. These incubators are good examples of how incubators operate in Sweden and offer concrete example of the National Incubator Policy. For each case, objective, type of support, package of activities, selection processes, approaches to internationalisation and monitoring and evaluation are described.

Case 1: Stockholm Innovation & Growth (STING)

Overview

The Stockholm Innovation & Growth (STING) incubator, funded in 2002, operates primarily in the capital city and conducts both incubator and accelerator activities. Being active for over 22 years, it has been instrumental in shaping the Swedish incubator system and has served as a benchmark for other incubators in the Nordic region.

STING's mission is to cultivate future global enterprises, attracting top innovators and entrepreneurs, and offering them top business development support and networking opportunities. Central to its operations are core values emphasising the equal value of all human beings, individual freedom and dignity, and sustainable development, with a commitment to achieving long-term financial, ethical, social, and environmental sustainability for itself and the ventures it supports.

Since its inception in 2002, STING has supported between 25 and 30 new start-ups per year and has led to success over 300 ventures who collectively employ about 3 000 people. STING is a non-specialized incubator, and start-ups in its portfolio span across health, climate, society, and deep-tech sectors.

Selection

Start-up are selected along VINNOVA's standards (innovative start-ups with strong business ideas and international scaling potential), but additional financial, environmental, social, and governance considerations are considered during the selection processes. Both negative and positive screening methods are used, and ventures that fail to meet ethical standards are rejected. In addition to these ethical considerations, start-up selection also considers gender equality and diversity.

Start-ups need to apply and must provide detailed information about their business idea, founding team, market opportunity, and current stage of development. They must also provide information on their approach to equality, diversity, individual freedom, dignity, and environmental sustainability.

The incubator's funding model, drawing from public-funded NIP and private investments, significantly influences start-up selection. Evaluation criteria often revolve around growth potential, scalability, and alignment with funding criteria.

Governance, network, and funding

STING is set up as a non-profit organisation owned by the Electrum Foundation, an entity that includes representatives from the business sector (Ericsson, IBM, and real estate owners), academia (KTH Royal

Institute of Technology, Stockholm University and Swedish ICT) and the public sector (the City of Stockholm and Region Stockholm). The members of Electrum Foundation constitute the managing board that governs the strategic direction of the incubator and the implementation of its sustainability policy. A CEO has operational responsibility and his performance and compliance with national laws and internal regulations is reviewed annually.

The incubator is almost entirely public funded through the NIP-programme and through contributions from regional authorities. Its funding model includes a combination of public funds (e.g. Electrum Foundation) and private funding from partners and self-funding initiatives. As a non-profit organisation, all revenues generated are reinvested into its programmes to support the success of new start-ups, embodying a "pay it forward" philosophy. This approach allows STING to offer incubation and acceleration services at a subsidized cost and in some cases for free, ensuring accessibility to a broad spectrum of entrepreneurs.

Services offered

STING's support services encompass business development coaching, mentorship, office space and facilities, funding opportunities, and access to workshops and events. It also supports ventures in their international expansion efforts by providing access to international networks, resources, mentorship, and connections with investors and partners worldwide. These incubation and acceleration services are organized into three tracks or programmes: Start-up Academy, STING Incubate, and STING Accelerate.

Start-up Academy serves as an initial step in the entrepreneurial journey, providing a foundation with tools, techniques, and expertise to turn concepts into reality. It's an ideal starting point for those considering future participation in start-up programmes. Throughout the academy, participants gain an understanding of entrepreneurship through seven core modules, each comprising five masterclasses. They develop team-building skills, gain insights into the start-up timeline, validate business ideas, and learn sales and financing strategies. The academy is offered free of charge, with enrolment open at any time, providing flexibility for participants to join according to availability and pace. For participants not yet ready to begin Incubate or Accelerate, a free 20-minute session with a STING start-up coach offers guidance on advancing further in the entrepreneurial journey. Participants receive feedback on start-up pitches, advice on addressing challenges, and exploration of how STING could assist in growth acceleration.

STING Incubate is a six-months programme, where participants are assigned a dedicated coach who help them to define an individual milestone plan. Participants have access to industry mentors, experts, peer-to-peer exchange opportunities, and a coworking space. Participants can secure a EUR 47 500 investment from Propel Capital and meet investors through initiatives like the 'investor of the week' concept. Weekly workshops, meetups, events, and masterclasses cover various areas such as legal, financing, team & talent, marketing, growth, and product development. The programme concludes with Demo Day, offering an opportunity to showcase ventures to investors.

At STING Accelerate, participants engage in a dynamic and fast-paced 4-month programme. In this programme, participants benefit from access to expert coaches with relevant entrepreneurial background, workshops, meetups, peer-to-peer events, masterclasses, and a EUR 47 500 investment from Propel Capital that position start-ups for pre-seed or seed investments. Start-ups also have access to personalised mentorship activities and advisors who assists participants in overcoming challenges and achieving objectives. They also have access to a coworking space fosters collaboration with fellow founders and industry experts. The programme timeline is structured around sprints and milestone plans, and weekly coaching sessions. The programme concludes with Demo Day, providing an opportunity to showcase start-ups to potential investors and secure additional funding. Joining STING Accelerate means becoming part of a lifelong community offering ongoing support, resources, and networking opportunities for sustained growth and success.

Monitoring and evaluation

STING regularly monitors and evaluates start-ups' progress and success, ensuring that the programme continues to deliver impactful outcomes. STING evaluates its performance through several key metrics. One crucial measure is the percentage of accepted firms that remain active and continue to develop after 10 years. STING also tracks the total annual revenue generated by active firms and the percentage of revenue generated outside Sweden, providing insight into international market penetration. The incubator also monitors the number of employees within active firms, highlighting the percentage of female employees as an important diversity metric. Moreover, STING assesses the amount of private capital and soft money attracted by firms annually, as well as the accumulated funding over time, reflecting financial growth and investment attractiveness. Another significant metric is the total value of all active firms, indicating the overall economic impact and potential valuation. Lastly, STING measures the Net Promoter Score every six months, gauging stakeholder satisfaction and perceived value provided by the incubator's programmes and support.

Outcomes

STING's track record of over 300 successful ventures reflects the quality of its incubation and acceleration programmes. One notable example is Yubico. Headquartered in Stockholm, and offices in the US, UK, and Germany, Yubico is a cybersecurity company that offers hardware security solutions, including YubiKey a specialized authentication and encryption service. The company's products support cybersecurity defences, safeguarding against unauthorized access and data breaches. The company is listed on Nasdaq since 2023 with a market capitalization of EUR 1.3 billion.

Case 2: Chalmers Ventures

Overview

Chalmers Ventures is a tech investor and venture builder who offers extensive support for deep tech innovations, facilitating their journey from lab to market through investment and venture building initiatives. It is committed to supporting the growth of newly established firms associated with Chalmers, aiming to bridge the gap between innovation and commercialization.

Established in 2015, Chalmers Ventures combines venture creation and tech investments within a single organization. This approach allows for a rapid identification of new research and deep tech opportunities with both commercial and impact potential. Throughout the entire journey, Chalmers Ventures acts as an investor and venture builder until exit, with profits reinvested through an entrepreneurship recycling process.

Selection

Chalmers Ventures uses tech-scouting to identify research outcomes with a strong innovation and business potential. It focuses on deep tech spinouts within a wide variety of tech sectors such as AI, life science and health, energy, ICT, and industrial tech. Evaluating factors include growth, impact/uniqueness, and team strength.

Governance, network, and funding

This initiative is rooted in Chalmers University of Technology's strategic vision to foster entrepreneurial endeavours, amalgamating the expertise of multiple incubators into a cohesive ecosystem. Chalmers Ventures operates as an evergreen structure with an yearly investment of SEK 90 million.

The programme benefits from public support through the NIP-programme and regional authorities. Public support allows to offer low-cost or free services to start-ups, increasing the accessibility of the programme to a broad spectrum of entrepreneurs. Chalmers Ventures also collaborates with other stakeholders that allow start-ups to take advantage of the ecosystem, including scaling and international expansion opportunities. Key partnerships include the Innovation Office, the School of Entrepreneurship at Chalmers, CIT, and Swedish Energy Agency.

In addition, Chalmers Ventures collaborates with other regional incubators in Western Sweden to leverage collective resources, expertise, and networks. Notably, Chalmers Ventures collaborates with i) BoråsINK, an incubator that supports new tech start-ups with sustainable and scalable models in textiles and fashion; ii) Brewhouse Inkubator, a programme that supports creative start-ups, focusing on music, stage, and tech, while also welcoming related companies; iii) Founders Loft, a value-based incubator that supports sustainable and inclusive start-ups; iv) GU Ventures which empowers scientists and entrepreneurs; v) Innovatum Startup; vi) Sahlgrenska Science Park which accelerates life science start-ups, fostering collaboration between industry, healthcare, and academia; and vii) Science Park & Skövde Startup which focuses on the gaming sector.

Services offered

Chalmers Ventures offers a comprehensive support system that includes tech scouting, team formation, office spaces, mentoring, networking opportunities, and funding assistance. These and other services are complemented by grants and investments opportunities, tailored to the following structured phases of a start-up's development:

- Identify. In the phase, research and technology ideas are collected, and Chalmers Ventures offers evaluation of ideas' potential, tech scouting and matching ideas with entrepreneurs.
- Shape and start. In this initial phase, start-ups establish fundamental conditions to build-up structural capital. Services in this phase include mentoring on start-ups business model design, team formation and financial support.
- Validate & verify. In this phase a start-up business model is confirmed. Services include engaging with paying customers, mentoring on adjustments to the business model and finding appropriate proof points to present the business idea to clients and pitching to potential investors. This is a key phase to secure market viability and investor trust, and Chalmers Ventures supports start-ups through grants for business model verification, pre-seed investments for scalable start-ups, and scale investments for exceptional ventures. Funding amounts range from EUR 30 000 to EUR 100 000 for early-stage ventures.
- Scale. In this phase the start-up focuses on sustainable growth and potentially expand to international market. Services include professional governance guidance and syndicating capital. As ventures advance, Chalmers Ventures fosters sustainable growth, prioritizing international expansion and providing expert governance and capital infusion. In this phase, funding can reach up to EUR 2.5 million.
- Exit. In this phase Chalmers Ventures helps start-ups to set-up a positive exit strategy and to identify the most appropriate time for exit.

Monitoring and evaluation

Continuous monitoring and evaluation are integrated into Chalmers Ventures' operations, ensuring programme effectiveness and start-up progress. Although impact evaluation studies are rarely conducted, a set of metrics such as job creation and revenue growth are regularly collected.

Outcomes

Since 2015, Chalmers Ventures has launched 10 new start-ups every year, and supported over 100 ventures, solidifying over time its role in Sweden's tech-innovation space.

A particularly successful start-up originated from Chalmers Ventures is Minalyze, a firm specialized in XRF scanning instruments and software for the visualization of geological data. The start-up was acquired by Veracio, a subsidiary of Boart Longyear Group Ltd listed on The Australian Securities Exchange (ASX), for a value EUR 32 millions.

Cases studies' take-aways

Both STING and Chalmers Venture highlight notable characteristics of well-run incubators. First, it was shown that their tailored support throughout mentorship, networking, and funding has been instrumental to maximize start-ups' potential. Second, both STING and Chalmers Ventures highlight the importance of collaboration and partnerships between governmental bodies, research institutions, and the private sector. Establishing strong connections maximizes synergise in the start-up ecosystem and broadens start-ups' reach and capabilities. Partnerships with other incubators are particularly effective in enriching the ecosystem and constantly improving incubators' programmes. Pooling resources enables capital-intensive support to entrepreneurs, ranging from access to specialized equipment to high-quality mentorship programmes and networking opportunities. Third, STING's commitment to responsible entrepreneurship, has proved that integrating these values into business incubation policies is a promising approach to build sustainable, inclusive business models. Fourth, strong measurement and evaluation are necessary to track long-term success, international market reach, diversity, financial growth, economic impact, and stakeholder satisfaction. These metrics are instrumental to prove the incubator's effectiveness, secure funds, and align objectives with results. Fifth, the case of Chalmers Ventures underscores the importance of a comprehensive assistance throughout the start-up development process, and how the identification of promising research and support during the foundation stage pay divided in the longer run.

Conclusions and policy lessons from Sweden's experience

The NIP is a public-driven, centralised approach to incubation and acceleration, but with clear governance structures. Incubators and accelerators are public funded but managed independently from the central government. They can take different management approaches and continue obtaining public funding as long as they demonstrate high-quality processes and generate high-growth start-ups.

The NIP showcases how the presence of a competent and credible central organization (VINNOVA) can play a critical role in developing national policy capacity, processes, and quality. VINNOVA's sustained commitment has forged a credible relationship with the incubator system and recognition within the incubator community, propelling sustained change and development. At the same time, having a central reference point has been instrumental for maintaining a long-term perspective that drove significant structural and mentality change in the system.

Public funding has been particularly important to finance incubators and accelerators' mentorship services and infrastructure.

A focus on collaboration and networking can be conducive to enhancing connectivity among incubators, fostering a supportive environment for start-ups.

Integrating sustainability principles into the support system, can be an effective way to make sure that incubation and acceleration delivery incorporate inclusion and sustainability targets.

Systematic documentation of processes and their implementation as well as measurement of results is essential to maintain high incubation and acceleration standards, identify areas for improvement and promote results-based funds' allocation.

The Swedish case provides one example on how the following common challenges in developing a national incubator and acceleration programme can be addressed.

Fragmentation and co-ordination of policy support and incubation and acceleration support

Coordination across national, regional entities and incubators is a frequent challenge for policymakers in most countries. To address fragmentation in the ecosystem, the NIP has centralised the support through clear guidelines, targets, and objectives to access public funds. Its two-step process ensures that only high-quality incubators are part of the national programme, and, through the quality assurance mechanism, they are easily identifiable by entrepreneurs and start-ups. In addition, the programme strongly emphasizes collaboration and coordination among incubators, different support organizations within the regional entrepreneurial ecosystem. This may involve initiatives such as establishing networks or consortia to facilitate information sharing, fostering partnerships between organizations to offer integrated support services, and leveraging technology platforms to connect start-ups with relevant resources more efficiently.

One-size-fits all incubation and acceleration programmes

VINNOVA is aware that a one-size-fits-all approach across incubators and accelerators can be inefficient. It thus allows incubators and accelerators to define their own strategies, as long as they maintain high quality standards and produce high-potential start-ups. The NIP does not focus on specific sector but allows incubators to specialize or tailor their support offer to the needs of the start-ups in their portfolios. VINNOVA's approach recognizes that while some level of conformity is necessary, each incubator is unique, requiring tailored strategies that consider factors such as industry dynamics, market conditions, and team capabilities. Flexibility and adaptability are therefore crucial in addressing the individual circumstances of each incubator. In the case of Sweden, combining a top-down approach on standards and quality with a bottom-up approach on sector targeting and types of supports has proven a sensible strategy in the Swedish context.

Accessing high quality mentors with relevant expertise

Access to high-quality mentors with relevant expertise is crucial to maximize start-ups potential. However, high-quality mentors are not sufficiently available in many countries.

Sweden has addressed this challenge by i) establishing partnerships with foreign incubators. This has enabled international exchanges on incubators practices and has enlarged the pool of experienced professionals. The use of online platforms can ease the access to highly specialized mentors domestically and abroad. ii) Recruiting and building a diverse network of mentors from various sectors and disciplines, including successful entrepreneurs, seasoned executives, investors who are willing to volunteer their time and expertise to support start-ups. iii) Leveraging the alumni community of successful start-ups and entrepreneurs as potential sources of experienced mentors. iv) Offering training and skills updating opportunities to existing mentors to keep their skills relevant and potentially improve.

Funding instability for incubators and accelerators

Short-term funding can be a problem for incubators and accelerators who could run out of resources to continually support new ventures and start-ups.

The NIP can count on a strong government commitment to innovation and entrepreneurship which limits potential fluctuation of total public funding available. VINNOVA has designed a sustained but competitive financing approach for the incubator system. The two-step approach to access funding forces incubators to constantly compete for maintaining their support, but it also creates a positive feedback loop, where only solid venture ideas and start-ups are selected, which leads to better incubation and acceleration outcomes, and in turns ease access to funding. This system puts significant pressure on incubators and acceleration managers to maintain standards with the risk of losing support, but VINNOVA considers it as an inevitable condition to allocate public funding efficiently. In general, however, the constant availability of a substantial central public budget limits cases where private sources are discontinued to well-managed incubators and accelerators.

Gaps in internationalisation support

The NIP's approach to address internationalisation policy relies first on incentivising the selection of start-up with a strong potential for competing and branching out in international markets. Beyond selection, the NIP's internationalisation strategy relies on building international networks consisting of domestic and international incubators and accelerators. Once these relationships are established, ad-hoc programmes such as staff exchanges can be used to transfer know-how. Start-ups can also leverage contacts with foreign incubators to better understand foreign markets, competitors and find market-entry opportunities. The NIP also establishes connections with corporates to facilitate knowledge transfers and open scale-up opportunities for domestic start-ups. Policies to support start-ups success in global markets also include attract and retain top global talent, build-up networks of high-quality consultants and professionals that can help start-ups navigating international laws, regulations, administrative requirements, and standards.

Measuring the performance and impacts of incubators and accelerators

Measuring the performance and impacts of incubators and accelerators is often difficult due to challenges in identifying appropriate metrics and collecting information regularly. In the NIP system, there is a measurement element in all phases and processes. Incubators need to provide evidence of procedural viability and start-ups selection quality ex-ante. The performance of incubators and accelerators are regularly monitored to decide if support should be continued or not and to access new rounds of public funds. VINNOVA defines metrics that should be used to measure programmes' effectiveness. These include i) The percentage of start-ups that successfully achieve their milestones, such as securing funding, reaching profitability, or growth; ii) Economic contribution of supported start-ups and their subsequent impact on job creation, revenue generation, and overall economic growth within their respective regions; iii) Innovations generated by start-ups within the NIP ecosystem (e.g. number of patents filed, new product launched, adoption of innovative technologies); iv) Amount of external funding raised by start-ups, including investments from venture capital firms, angel investors, or public grants; v) Extent to which start-ups penetrate target markets, both domestically and internationally (e.g. market share, customer acquisition, or expansion into new geographical regions); vi) Long-term success of firms that have graduated from the NIP programmes (e.g. survival rate, revenue growth, or successful exits through acquisitions or IPOs); vii) social impact of supported start-ups by measuring their contribution to addressing societal challenges, promoting sustainability, or improving quality of life.

Lessons from incubator and accelerator policy in the United Kingdom

This chapter examines the case of incubators and accelerators in the United Kingdom (UK) and the role that has been played by government policy. It starts by describing the overall entrepreneurial ecosystem in the UK. It then describes and maps the UK's incubation and acceleration system. It then discusses major government policies and programmes for supporting incubators and accelerators in the UK from the main relevant government departments and agencies and gives the examples of the activities of two incubators and accelerators. It then discusses monitoring and evaluation arrangements and results for the programmes and, finally, conclusions and policy lessons from the UK experience.

The ecosystem in which accelerators and incubators operate

United Kingdom's incubators and accelerators benefit from and contribute to one of the most prominent entrepreneurial ecosystems in the world. The UK's ecosystem ranks second in Start-up Blink's Global Startup Ecosystem Index, just behind the United States, and several points ahead other top countries in the ranking (Israel 3rd, Canada 4th and Sweden 5th) (Start-up Blink, 2023^[76]).

With a total value of investment activity of USD 143 billion in 2022, the UK's startup ecosystem is the largest in Europe (Potepa, 2022^[77]). London is the strongest European location featured in city rankings worldwide, with scores way ahead of other cities in the continent and beyond. London is not only the most important hub in Europe, but it is one of the top global start-ups' city-hubs, ranking 3rd just behind San Francisco and New York in Startup Genome's 2023 rankings.

The strength of the UK start-up scene is demonstrated by the number of UK-based unicorns. In 2021, 116 unicorns were created in the UK, more than twice than in Germany (56) and almost four times France (31) (Montebello, 2021^[78]). For instance, global unicorns such as Revolut and Wise emerged from the UK ecosystem.

One of the key features of the UK's ecosystem is its capacity to attract global entrepreneurs and science talent (Start-up Blink, 2023^[76]). London is an extremely attractive location for ambitious entrepreneurs, which, combined with initiatives such as the Innovator visa and a Startup visa, and low corporation tax rates makes the UK an appealing destination for foreign entrepreneurs. In addition, the UK's ecosystem can count on a world class scientific infrastructure. The relatively small university cities of Oxford (where the AstraZeneca COVID-19 vaccine was developed) and Cambridge complement the highly successful fintech hub of London to create a national array of top start-up ecosystems.

The UK remains one of the most prominent start-up ecosystems in the world despite start-up business environment of some UK locations have lost some ground in 2023. Only two UK cities advanced in the

global top 250 city rankings last year, while 11 experienced declines, leading the number of UK cities in the global top 1 000 to decline from 78 in 2022 to 74 in 2023.

Attracting top talents has become more difficult recently, possibly related to the implications of Brexit which has made the relocation of European entrepreneurs more challenging. The government's support for the ecosystem has also diminished. Notably, in 2023, the public sector withdrew a GBP 12 million Digital Growth Grant for Tech Nation. A part of the support will be diverted to the start-up incubation arm of Barclays Bank, yet, Tech Nation – an organization that has greatly contributed to the ecosystem – will now cease its operations.

Nonetheless, the UK start-up ecosystem remains resilient. When Silicon Valley Bank (SVB) defaulted, all the ecosystem stakeholders, prevented a collapse of SVB UK, which is currently operating under HSBC. The very strong position of London is sufficient by itself to maintain the country among the top national ecosystem in the world. However, going forward, policymakers and ecosystem developers should assure that London remain a world-class hub while also sustaining other UK locations.

Description and mapping of the UK's incubation and acceleration system

Differences between accelerators and incubators and services provided

Incubators and accelerators have distinct roles in the UK's ecosystem and operate differently. Incubators often provide space and resources for the full spectrum of startups, from the early stage to the growth stage. They are primarily physical workspaces, with the addition of some shared facilities and business support services such as mentoring, training and access to investors. Incubators typically provide their services on relatively flexible terms and for a longer duration than accelerators. Often, programme durations are open-ended but, on average, start-up incubation lasts about two years. Start-up selection is typically less string and structured in incubators compared to accelerators, and incubators programmes typically attract start-ups in their idea-refinement or early development stages.

Accelerators, instead, are more appropriate for businesses in the start-up stage with a minimum viable product (MVP). The objective of accelerators is to turn promising start-ups into investment-ready ventures, and often, after acceleration, companies attain a seed stage (Beauhurst, 2018^[79]). Accelerators programmes tend to be shorter and intensive than incubators programmes, with about a third of accelerator programmes lasting for 12 to 13 weeks. Accelerators typically have more competitive application processes than incubators, accepting only those start-ups that show high growth potential. Accelerators aim at driving start-ups to either scale rapidly or fail, minimising time and resources invested in low-growth ventures. Accelerators activities typically focus on services (e.g., mentorship) and do not always offer physical space (Bone et al., 2019^[80]).

A recent survey of over 100 of incubators and accelerators found that self-identified accelerators placed a heavy emphasis on mentoring and investment readiness (which were offered directly or indirectly by 100% of programmes) as well as networking with peers and investors, business model improvement and skills training (present in around 96% of programmes) (Centre for Entrepreneurs, 2022^[81]). In contrast, mentoring is not often offered in incubators, while more common services are physical office spaces (provided directly by every organisation), peer networking, skills training, and business model refinement.

Another important difference between incubators and accelerators is that accelerators frequently offer funding opportunities, while incubators do not. Over half of UK's accelerators offer direct funding to start-ups, most of which in the form of equity participation. Some offer other funding instruments such as grants, debt, or convertible notes (Bone et al., 2019^[80]). Accelerators can be corporate, university-based, private sector, charities, or public sector organisations. Based on 2018 data, 56% of accelerators' sponsors are

corporates and 9% are not-for-profit (Beauhurst, 2018^[79]). Although in the UK system incubators and accelerators offer different services, there can be an overlap in the types of services provided, and in some cases, the share physical locations.

Lacking a formal incubators and accelerators census, it is only possible to have a ballpark estimation of the number of incubators and accelerators active in the country. A 2021 estimate indicates that there are over 400 incubators and 300 accelerators in the UK, plus a few other support programmes that were not possible to categorise (Centre for Entrepreneurs, 2022^[81]). This number is about twice the amount estimated by NESTA in 2017, pointing to a strongly positive trend. Thanks to the increased number of incubation and acceleration programmes, new models are being introduced and more start-ups can be supported. Through both incubators and accelerators, over 19,600 unique UK start-ups are supported every year in the country (Centre for Entrepreneurs, 2022^[81]). This represents approximately 5% of all new firms created each year. Other sources report a lower level of incubation and acceleration activity, but there is a consensus that there are more than 600 incubators and acceleration in the country supporting thousands of start-ups (Tracxn, 2024^[83]).

Universities play a particularly important role in both incubation and acceleration. By 2011, over half of all UK Universities had established an on-campus university incubator (Hewitt-Dundas and Burns, 2016^[82]) with a pipeline sourcing from either academic spin-offs or students' ideas. There are examples that combine both approaches. For instance, Kings College London's King's Entrepreneurship Institute combines offers a general programme, open to everyone, and two programmes based on research, and geared towards students' ideas.

Mentoring has been identified as a particularly important acceleration service for start-ups development. A recent government study reports that 76% of UK businesses consider mentoring as a key factor for their business growth; 60% reported that mentoring has helped them to boost their business strategy, and 66% reported that mentoring programmes allowed them to survive.

To underscore the importance of mentoring, the government established a National Mentoring Day, on the 27th of October. In addition to supporting mentoring services indirectly - through support to incubation and acceleration - the government also offers mentoring programmes directly. Three examples are the UK Government's *Help to Grow: Management Course*, the *Mentors-me* programme, and *Wales Business mentoring*. *Help To Grow* guides start-ups and SMEs on a pathway to stronger growth through training delivered by business schools, and via a national network of skilled mentors. *Mentors-me*, and *Wales Business mentoring* are regional-level programmes financed by the UK and Welsh government respectively. *Mentorsme.co.uk* is operated by the Business Finance Taskforce, created by the British Bankers' Association (constituted by Barclays, HSBC, Lloyds Banking Group, Royal Bank of Scotland, and Santander). The *Mentors-me* free site offers access to a list of quality-assured business mentoring organisations across Britain.

Sectoral and geographic distribution

Recently accelerators - and to a lesser extent incubators - have become more specialize in most countries. The UK is not an exception, yet the range of supported sectors remains wide. The presence of numerous incubators and accelerators covers multiple industries including the food and drink sector, climate change and sustainability, life sciences and space research (Beauhurst, 2018^[79]) and (Centre for Entrepreneurs, 2022^[81]). In addition to the industrial sector, incubators and accelerators are also increasingly supporting start-ups with a social and environmental vocation. These types of start-ups are particularly numerous in the Health & Wellness sector (Beauhurst, 2018^[79]). Table 1 provides examples of notable sector-specialised incubators and accelerators in the country.

Available statistics show that the share of specialised accelerators in the UK has increased rapidly over the past decade. Older incubators typically had little sector focus and/or broad areas of specialization such as ‘technology’ or ‘biotechnology’. Before 2015, specialised incubators were only 29% of all new incubators, their share grew to 38% between 2015-2018, and to 75% between 2019 and 2022 (Beauhurst, 2018^[79]) and (Centre for Entrepreneurs, 2022^[81]). A possible explanation of this trend is the increasing level of competition associated with the surge in the number of incubators and accelerators. Differentiation of programmes, specialization and focus on industry verticals might have been a common strategy to remain on the market, especially in areas with a high concentration of incubation and acceleration programmes. In areas with lower start-up creation rates, instead, specialization may be a less viable development strategy due to insufficient critical mass of start-ups in a sector.

While in general increasing specialization is often regarded as a positive development, there are some questions on whether it is on a too steep trajectory. One potential concern is that specialization may exclude start-ups that cannot be readily categorised in a sector from accessing incubation and acceleration support.

In terms of location, London has traditionally held a central position in the UK incubator and accelerator landscape. In a recent study, it was reported that the incubators, accelerators, and co-working spaces are overwhelmingly concentrated in or around the capital city. 58% of UK accelerators based in London, incubators are spread more evenly around the country with about 15% based in the capital. To some extent it is natural that many programmes are based in London, one of the top start-up city-hubs in the world that offers an ideal entrepreneurship environment. Notably, the London’s Knowledge quarter provides a series of interconnected, co-located incubators, accelerators and research organisations that collectively work as one very large incubation site like Station F in Paris (Box 3).

Box 3. London’s Knowledge Quarter

The Knowledge Quarter is a partnership of over 100 academic, cultural, research, scientific and media organisations within a one- mile radius comprising of King’s Cross, Bloomsbury, and Euston. Collectively, the geographic area of the Knowledge Quarter contains possibly the greatest knowledge cluster anywhere in the world and is the UK’s largest innovation district. <https://www.knowledgequarter.london/>

Other parts of the country are much less attractive than the capital city but at least one incubator is present in every Local Enterprise Partnership region (LEP) in England and at least one accelerator is present in almost every region. There is also at least one incubator or accelerator in every region in Scotland, Wales, and Northern Ireland. Hence, although the distribution of support is concentrated, at least some opportunities are available almost everywhere in the county (Centre for Entrepreneurs, 2022^[81]). The Northwest (18), East of England (17) and Yorkshire and Humber (12) all have a comparatively large total numbers of incubators, while the East of England (5), Southeast (5) and Southwest of England (3) are the areas less well-served by incubation and acceleration services despite s high number of new firms are registered in these regions each year (Bone, Allen and Haley, 2017^[67]). Oxfordshire LEP also stands out as a national hotspot for incubation in terms of number of incubators per business population. 13 business incubators (about 7.5% of the UK’s incubators) are clustered here, representing the greatest number outside London, and the highest concentration of incubators in England. The presence of numerous facilities around the Harwell Science & Innovation Campus and Oxford University drives these results. 35

innovation spaces are available in this area, and 13 new facilities are being developed, offering an abundant supply of co-working spaces and large science parks.

A similar picture emerges from the mapping of incubation and acceleration in the 38 English Local Enterprise Partnerships (LEPs). London is the top region for accelerators, followed by the Tees Valley, Oxfordshire and Cambridgeshire where densities of support facilities are relatively high.

Private sector involvement in acceleration varies significantly across regions, and even across well-served areas. In London a large share of accelerators programmes is private, and most of them focus on high growth-potential start-ups. In the Tees Valley, instead, accelerators are primarily publicly funded and are often used for economic regeneration, focusing on slower-growth start-ups.

The high concentration of incubation and acceleration in specific locations of the country is not perceived as a concerning issue as many rural areas, but close to the main hubs, are well connected by the national transportation network. For example, although start-ups in Coast to Capital, Enterprise M3 and Southeast LEPs do not have many options available within the region, thanks to efficient road and rail connections to London, they de facto have access to the London hub. Similarly, start-ups in Thames Valley Berkshire LEP may use facilities in the adjacent Oxfordshire LEP. Better access to incubation and acceleration could nonetheless be improved, especially in distant and less-served areas in Scotland and Wales.

An argument against forcing an even distribution of incubation and acceleration services across the country is the importance that agglomeration effects play in technology clusters and start-up ecosystems. The Silicon Valley example has repeatedly shown the benefits that start-ups receive from being in specific clusters, including knowledge spillovers, labour market pooling, lower transportation costs, easier access to financial and other services. This suggests that a certain degree of concentration is efficient, provided that it does not lead to start-up missed opportunities, and at least one contact point is available in most regions. Over half of accelerators (and over a third of incubators) attracted start-ups from other regions of the UK. It is unclear, however, if these intra-country movements signal a lack of incubation and acceleration capacity in some regions or if they indicate that start-ups tend to migrate in the top hubs where they can benefit from agglomeration effects and where they can access the best accelerators programmes in the country. Agglomeration effects also drive international attraction. A recent survey found that a relatively small share of UK accelerators (38%) and incubators (24%) attracted foreign start-ups.

One possible strategy to reduce regional disparities, without building excessive capacity in each region, is to offer more online support. Since the outbreak of the COVID-19 pandemic, virtual incubation and acceleration has become much more common. There are, however, important differences between physical and online programmes. Physical accelerators tend to offer fixed term, cohort-based programmes, whereas virtual accelerators are more flexible in how and when support is offered, blurring the lines between acceleration and incubation programmes (Bone et al., 2019_[80]). In addition, remote supply does not seem to be a perfect substitute for physical programmes. Notably, remote delivery does not offer peer interaction and networking opportunities which are critical elements of incubation and acceleration programmes, and significantly diminishes local positive spillovers.

Beyond virtual programmes, other support programmes such as the 'pre-accelerator' and 'start-up studios' have emerged recently. The 'pre-accelerator' provides very early support, lasting from a day to a month, to entrepreneurs who aim to join an accelerator in the future. The start-up studios aim to generate multiple, parallel ideas inhouse before spinning them out, co-working spaces and venture capital funds which provide early-stage support such as workspace and mentoring (Bone et al., 2019_[80]).

Table 4. Sector specific incubators and accelerators

Sector	Location	Funder	Target audiences & type of support	Further information
Food & drink				
Mission Ventures	London	Consultancy with industry sponsors (Warburtons, Sainsburys)	Aims to incubate and invest in opportunities created by the Food Revolution	https://www.missionventures.co.uk/
The Hatchery	London	Black Farmer	Helps promising brands, mission-focused entrepreneur behind it looking to stand out from a sea of corporate labels. Collaborative incubator enables those who fit the bill to benefit from the resources that large businesses take advantage of – including knowledge, reputation, scale, and finance.	http://www.theblackfarmer.com/the-hatchery/
Life sciences				
Life sciences: Oncology Accelerator	London	Innovate UK	Oncology Accelerator part of its Cancer Therapeutics programme (2023). Aims to unleash business-led innovation from the UK's vibrant research base. Intensive five-month programme supporting them to tell a compelling story to potential funders.	Oncology Accelerator launched - Innovate UK KTN (ktn-uk.org)
Digital Health	London	Digital Health	London Accelerator programme is for digital health companies with a product or service that has high potential to meet the current challenges facing the NHS and social care today. Companies successful in gaining a place on the programme usually have a product or service that has already been piloted in the NHS and is ready to scale.	https://digitalhealth.london/programmes/accelerator
Bioscience	Scotland, various locations	Life Sciences in Scotland	Incubating start-ups, spinouts, and scale-ups. BioCity & MediCity Scotland.	Incubating start-ups, spinouts and scale-ups - Life Sciences Scotland
Fashion				

The Mills Fabrics Fashion Tech Incubator	Hong Kong & London Kings Cross and online	Private company	A go-to solutions platform accelerating techstyle and agrifood technology innovations for sustainability and social impact. Aims to create positive social impact for future generations with like-minded entrepreneurs and strategic partners, we focus on incubating and investing in sustainable innovations, building an international community of sustainability, innovators, entrepreneurs, and visionaries, and sharing with everyone our physical spaces (co-working/ events/ prototyping lab/ experiential store).	https://www.themillsfabrica.com/press/fashion-tech-incubator-the-mills-fabrica-to-open-london-branch-in-june-wwd/
Acquaculture				
Sustainable Aquaculture Innovation Centre	Scotland, Stirling University Innovation Park	SAIC Consortium	SAIC Consortium is a free network for aquaculture professionals and academics to connect, collaborate, and get advice on funding opportunities. It is a collaborative body of over 350 businesses and organisations, from SMEs to large multinationals, and from cutting-edge research institutes to Scotland's oldest universities. Aim work to reduce the environmental footprint and increase the economic impact of aquaculture. Connecting businesses and academics, we fund and support commercially relevant, collaborative research. We also fund university places and run tailored training programmes.	Home (sustainableaquaculture.com)
Construction				
Construction Scotland Innovation Centre	Hamilton, Scotland	Scottish Government, Scottish Funding Council, Scotland's Enterprise Agencies	Specialises in construction. They provide mentoring, advice, training, funding, administrative support, meeting rooms.	Built Environment - Smarter Transformation - BE-ST
Creative industries				
CREATe, Glasgow University	Glasgow University	AHRC, EPSRC, ESRC.	Established in 2012 as the UK Centre for Copyright and new business models in the creative economy Now core funded by AHRC as UK research infrastructure, with a focus on the regulation of creativity, technology, and markets (intellectual property law, competition law, information and technology law.	CREATe – UK Copyright and Creative Economy Centre University of Glasgow

Data and AI				
The Data Lab	University of Edinburgh	Scottish Funding Council through the Innovation Centres programme.	Scotland's innovation centre for data and AI, is one of four innovation centres selected by SFC to be funded to drive innovation and collaboration in Scotland, alongside Built Environment – Smarter Transformation (BE-ST), Industrial Biotechnology IC (IBioIC) and Digital Health and Care IC (DHI).	Home - The Data Lab
Climate and sustainability				
The Sustainability Accelerator	Wales	Amazon	Amazon, WRAP and EIT Climate-KIC, Europe's leading climate innovation hub have teamed up to support entrepreneurs with sustainable consumer products and recycling technologies. The Amazon Sustainability Accelerator is an equity-free programme supporting start-ups who are driving sustainable innovation. We're here to help entrepreneurs to grow their skills and scale their businesses so they can maximise their climate impact	https://businesswales.gov.wales/news-and-blog/sustainability-accelerator
Defence and security				
Defence and Security Accelerator (DASA)	London, Southwest, Regional centres, London, Imperial College	DASA.	DASA is a cross-Government team from a wide range of backgrounds including defence, security, the private sector, and academia. co-located with Dstl at Porton Down and Portsmouth West. DASA finds and funds exploitable innovation to support UK defence and security	https://www.gov.uk/government/organisations/defence-and-security-accelerator/about
Satellite applications				
Satellite Applications Accelerator	Aylesbury Buckinghamshire	Innovate UK & European Space Agency funding	Business Incubation Centre was set up to develop new companies working in the strategic growth areas of rocket propulsion, 5G communications, drones, and other autonomous systems. Incubator programme offers strategic growth advice and support for the commercialisation of space related products and services. This includes technical guidance and design thinking, and commercialisation strategies for service development. This programme is focussed on early-stage business and small or medium enterprises. Expert clinics offering access to technical, design, and business expertise. Access to mentors, industry, academic and financial networks.	https://sa.catapult.org.uk/wia/
CleanTech				

Carbon Limiting Technology (CLT)	Fleet, Hampshire	BEIS, ERDF	CLT is the largest and most established clean tech incubator in the UK. Have helped over 350 companies launch new products and services by providing business advice, market insights and commercialisation support. CLT has coordinated and delivered over 500 support tasks including through BEIS's GBP 72m Energy Entrepreneurs Fund and the ERDF Cleantech Incubator.	https://carbonlimitingtechnologies.com/incubation-support/
Social impact				
Social Incubator Fund	Various locations in England	The National Lottery Community Fund on behalf of the Office for Civil Society (OCS).	The fund (10 million) was designed to provide investment into 'social incubators'; organisations that will offer a period of intensive support to social enterprise start-ups. This will help turn early-stage ideas into successful businesses that change lives, by giving social entrepreneurs access to the resources they need to get their ventures off the ground. Wayra Un Ltd and Bethnal Green Ventures	Social Incubator Fund The National Lottery Community Fund (tnlcommunityfund.org.uk)
Ethnic Minority entrepreneurs	Plymouth / Devon	Part funded by the National Lottery Community Fund, Plymouth City Council, Plymouth University and the Rank Foundation	The Diversity Business Incubator is a business hub for minority ethnic entrepreneurs, supported by a community who is anchored by our faith and helping all. We can assist you more than ever with business advice, including finding essential grant money for start-ups and existing businesses help you grow.	DBI - Diversity Business Incubator

Public policies and programmes to support incubation and acceleration

Main institutions for incubators and accelerators policy

In the UK, the national strategy for supporting incubators and accelerators follows a multi-channel support model. Different types of national public funding target multiple objectives including early-stage start-ups development, scale-up, start-ups' globalization, and reduction of regional inequalities.

Delivery is national through central government departments and agencies but often managed at regional level, in conjunction with local authorities, or through European ERDF programmes.

The main agencies tasked with incubators and accelerator policy responsibility are: i) the UK Research and Innovation (UKRI) which is a non-departmental public body funded by Department of Science, Innovation and Technology (DSIT), ii) Innovate UK, the government's innovation agency, iii) the Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy Energy Entrepreneurs Fund, iv) the British Business Bank, v) the Venture Capital Unit and the National

Lottery Fund,²⁶ and vi) the British Business Bank's Enterprise Capital Funds (ECFs), which focuses on increasing the supply of equity capital to high-potential, early-stage UK companies by supporting new and emerging VC for early-stage equity. ECFs are commercially funds that bring together private and public finance to invest in high growth ventures.

Types of funding and programmes

Overall, both incubators and accelerators rely strongly on public funds to operate, often in partnership with the private sector and universities. In addition, most incubators are at least partially self-funded through membership fees or rent charged to customers (Bone et al., 2019^[80]; Beauhurst, 2018^[79]). A recent study estimated that the yearly public expenditure allocated to incubator and accelerator support is between GBP 20-30 million. This includes national UK public funds, EU funds, and quasi-governmental funding channelled through universities (Bone et al., 2019^[80]). Public funding constitutes around one third of incubators and accelerators' budgets, often used to cover their operating costs. Recently some private incubators and accelerators have received public funding.

On average, 41% of all UK accelerators receive public funding, including ERDF funding. This is in line with the European average (40%) (GUST, 2015). Notably, more than half of the incubators and accelerators that focus on Space and Satellite Technology, as well as more than half of the incubators that focus on Agritech and Transport, are more reliant on public resources than other programmes. Over two-third of Agritech incubators (67%) relied entirely on university and public funding, satellite, and space technology nearly 60%, conversely only 16% of life sciences and 17% of food incubators depend on public funds. Similarly among accelerators, 100% of deeptech incubators and 50% of accelerators space and satellite technology rely on public or university funding, whereas only 22% life sciences, engineering and manufacturing (20%) and social enterprise (19%) depend on public funds (Bone, Allen and Haley, 2017^[67]).

The objectives of publicly funded incubators and accelerators are often different from those of corporately funded programmes. Public funding is often linked with local economic development, while corporate funding is often aimed at tackling a technology-specific problem or building an ecosystem around a core technology (Bone, Allen and Haley, 2017^[67]).

A further feature of the UK innovation ecosystem is that national funding coexists with more local funding streams with specific priorities that may not be fully consistent with the central government strategy yet contribute to enrich the UK network.

National activities

Among the central government institutions, Innovate UK is particularly active in providing financial support to incubators and accelerator ecosystem. It offers a variety of financial support instruments including UK Innovation loans, Innovate UK investor Partnerships, as well as grant funding for R&D. Innovate UK also funds pre-acceleration programmes for university researchers and technicians.

Moreover, Innovate UK sponsors ICURe, a pre-acceleration programme for university researchers, technicians and PhD students focused on early-stage commercialisation. The programme, established in 2013, is designed to address system failures that inhibit the commercialisation of academic research. It is delivered in conjunction with partner organisations such as SETSquared (a partnership of universities in

²⁶ Table 1 provides an example of a clean tech incubator delivered through the Energy & Industrial Strategy Energy Entrepreneurs Fund. It also features example the Impact Accelerator and the Diversity Business Incubator which are examples of accelerators and incubators delivered through the Venture Capital Unit and the National Lottery Fund.

the Southwest of England), and Helix Way (a private organisation which supports academics and businesses on research, technology, and product development). Notably, ICURE has been effective in driving participants to validate the commercial strength of their technologies at a high level and to pursue licensing or continue research before they prematurely create a start-up firm. ICURE has also improved access to pre-acceleration services at regional level. A recent evaluation has estimated ICURE's benefit to cost ratio to range between GBP 3.43 to GBP 3.84 per each GBP 1 of expenditure (Ipsos MORI, 2020^[84]).

Box 4. The ICURE programmes

ICURE has 4 key programmes: ICURE engage – a 4 week, part-time programme; ICURE DISCOVER, 8 week discovery programme for researchers and technicians, up to GBP 2,500 support for testing assumptions and market discovery; Explore – 12 week full time incubation programme that provides up to GBP 35 000 for an Entrepreneurial lead's full salary, assumption testing and customer discovery activities and; the ICURE Exploit phase of the Innovate UK ICURE programme which provides after-support for ICURE.

Explore teams recommended for spin-out with ICURE support or licensing, can receive up to 12 weeks of intensive support through Spinout and Business readiness to prepare them for company formation and business growth. This preparation enables them to apply for up to GBP 300 000 with ICURE Exploit Funding.

By 2024, 200+ spinout companies had been created with 2 100 participants, 650+ jobs created, and 2 750 market experiments conducted.

In terms of **internationalisation**, Innovate UK offers a variety of specific funds. It also runs the Global Incubator Programme, an initiative for innovative SMEs to grow and scale through exploring the potential of global markets. It supports cohorts of up to 8 innovative UK SMEs to work with world-leading incubators abroad to accelerate their global growth. Eligible firms are UK-based SMEs with the ambition and commitment to scale globally. The programme currently operates in four countries (USA, Canada, Singapore, and Australia), and encompasses three-stages to tackle the main challenges that most innovative companies face when entering global markets. These three stages are 1. "Prepare", a two-day preparation workshop delivered to the entire cohort of start-ups in the UK; 2. "Pursue", a 4 to 6 months term where start-ups work with a foreign incubator; 3. "Exploit", a period in which firms work with innovation and growth specialist to continue expanding their internationalisation capabilities, building on all the connections, knowledge, and expertise gained. In this phase, firm get access to world-class mentors and trainers on how to reduce internationalisation risks and barriers.

Another initiative that favours the internationalisation of UK start-ups is the series of events that the government's Venture Capital Unit organises regularly. These invitation-only, sector-specific showcase events, allow international VC funds to connect with the UK scale-up firms and offer an opportunity to access international funding, which can also serve as a gateway for global market access. It is a collaborative model that target scale-up firms operating in sectors prioritised by the UK Government's strategy. The objective is to obtain international investments into knowledge-intensive, high-growth sectors in the UK. Targeted sectors include DeepTech, AI, Quantum, Robotics and Semi-Conductors, Life Sciences and Healthcare, CleanTech, FinTech, Cyber and Space. The Unit collaborates with national and

international VC funds, Corporate Venture Capital, innovation hubs, university spinouts, incubators, and accelerators, to identify high growth potential companies that are seeking venture capital investment.

Another dimension addressed by the national UK incubation system is the social impact of start-ups. Since 2014, the UK National Lottery Community Fund finances the Impact Incubator which is a partnership between six leading UK philanthropic foundations and Social Finance that aims at developing innovative solutions to social issues and improve the lives of vulnerable people in the UK.

Regional and local activities

National resources are distributed to Local Enterprise Partnerships (LEPs) to support local incubators and accelerators, through three main funds: the City Deal programme; Growth funds; and the Getting Building Fund.

The City Deal programme provides resources at city level that local authorities can autonomously decide to spend to help local businesses grow, benefiting the local economy. Growth Deals provide funds to LEPs for projects that directly benefit the local area and economy. The Getting Building Funds announced in 2022, is a GBP 900 million fund designed to deliver jobs, skills, and infrastructure across the country. This investment targets geographic areas particularly affected by the 2020 pandemic.

The cases of the West Yorkshire and of the Oxfordshire help to clarify how local LEPs can obtain national funding.

In Yorkshire, the West Yorkshire Combined Authority, in partnership with the local LEP, invested 2.9 million of Leeds City Region Growth Deal funding into the Huddersfield Incubation & Innovation Programme at the University of Huddersfield. It is located at the university's 3M Buckley Innovation Centre. This project aims to boost innovation among local SMEs and entrepreneurs by providing better access to specialist, communal working areas and state-of-the-art technologies, including a 3D printer, x-ray machines and 'visualisation zones'.

The Oxfordshire LEP receives national funding from the City Deal, Growth Funds and Getting Building Fund, as well as ERDF funding. For instance, the Begbroke Innovation Accelerator received funds from the City Deal and the Energy Systems Accelerator Pilot is linked to the Getting Building Fund. The Begbroke Innovation Accelerator is based at Oxford University Science Park with the University of Oxford being the Delivery Partner. Its total budget is GBP 11.2 million, out of which GBP 4.2 million are provided by the City Deal. The new multi-use building located in the Begbroke Science Park is intended to help science SMEs to take their projects to market and provide facilities for researchers from the University developing new innovative products and technologies. The Oxfordshire City Deal programme plans to build three additional Oxfordshire incubator centres: Harwell, Culham, and the Oxford Bio-escalator in Headington. The Energy Systems Accelerator Pilot (TESA) aims to foster collaboration between industry and academia across all energy sectors to develop new approaches to help meet the zero-carbon challenge. Its total budget is GBP 785 000, out of which GBP 600 000 are financed by the Getting Building Fund. A new co-working space is being developed, with the objective of hosting up to 100 workstations and create 102 jobs by 2025.

The Oxfordshire LEP case can be considered a success story. In the Oxfordshire there are 48 innovation spaces, including 35 existing and 13 planned (SQW, 2017^[85]). They range from small co-working spaces to large science parks and are found across the whole of the county though with a strong concentration in and around Oxfordshire. The Oxfordshire LEP has 13 business incubators, which represent 7.5% of the UK's incubators, the greatest number outside London, and the highest concentration of incubators in England.

The main two factors that allowed the region to obtain funding and delivering the projects are first, the human capital in the LEP. The LEP employs 35 people with extensive networks and connections with each of the 5 local authorities, the two universities, the public sector research laboratories, and key business leaders. The involvement of two universities in the science parks is determinant for attracting investments. Second, the University of Oxford and Oxford Brookes university have built teams dedicated to connecting research relevant for local industries with businesses and incubators and accelerators.

Sub-national initiatives also contribute to enrich the ecosystem. In Scotland, the Scottish Funding Council supports 4 sector-specific incubators, and the Scottish Funding Council (SFC) provides long-term investments to the local Data Lab Innovation Centre for data and AI. Four innovation centres receive SFC funds to drive innovation and collaboration in Scotland: Built Environment – Smarter Transformation (BEST), Industrial Biotechnology IC (IBioIC) and Digital Health and Care IC (DHI). Together, these initiatives aim at turning Scotland into a global leader in data, AI and related skills development. Over the last ten years, through academic and industry collaborations, over 1 000 graduate students received financial support, 1 449 jobs and GBP 200 million have been generated.

In Wales, to date, there are eight accelerators and 26 incubators. This is the second highest concentration of incubators per 100 000 businesses in the UK, after Oxfordshire. Among these programmes, two stand out. Accelerator Wales is a fully publicly funded, non-equity business accelerator, while Business Wales is an initiative dedicated to support incubators and accelerators engaged with sustainability.

The examples confirm the importance of national funding for running local activities (BEIS (2018)). All five incubators in the Northeast of England are completely public- or university-funded, and probably could not support local entrepreneurship policy without national help. Incubators in Wales, Scotland, and the West Midlands also depend on these funding sources, with over 35% of their incubators depending solely on public or university funding. Although no regions rely at 100% on public or university funding for their accelerators' programmes, in Wales, Northern Ireland and the West Midlands about half of the local acceleration programmes rely directly or indirectly on national public funding to conduct their activities.

Until 2020, and in some cases until 2021, European fundings were an important source of financial means for local UK incubators and accelerators, however this support is now no longer available. In 2018, the European Regional Development Fund (ERDF) was the most frequent sponsor of acceleration programmes in the UK (Beahurst, 2018^[79]). Examples of ERDF-funded programmes are the Westcott Business Incubation Centre (BIC) which is now supported by the Satellite Applications Catapult, Rockspring Hanover Property Unit Trust, and Buckinghamshire LEP.

The UK is also part of Startup Europe's Accelerator Assembly which is the network for start-up accelerator programmes in Europe. It was born out of the European Commission's leadership towards supporting tech entrepreneurs and is a key part of the EU initiative called Startup Europe. The Accelerator Assembly is an industry-led network, delivered by Startup Olé Accelerator, with the support of Nesta, How to Web, Techstars London, UPGlobal, Betahaus and Wayra UK.

Trends over the past five years

Seven major trends in the UK policy can be identified.

1. The total number of the existing incubators and average accelerator attendance are increasing (Beahurst, 2018^[79]), yet, churn rates are increasing as well. In many regards, start-up support programmes are start-ups themselves, searching for sustainable business models. The difficulty in finding a sustainable business model for some of the smaller programmes partially explain why churn rates are increasing. This can however also be a sign of dynamism in the sector, and a symptom of rapid adaptation capacity.

2. Accelerators are becoming increasingly specialised, with newly created accelerators being sector-specialised from the start. At the same time, the space has seen new entrants from unexpected directions (e.g. coffee shops and garden centres becoming co-working spaces), while incubators with wet-labs (laboratories equipped to handle chemical and biological hazards) appear to be in short-supply (Centre for Entrepreneurs, 2022^[81]).
3. Lines between incubators and accelerators are blurring. Models of support continue to evolve, with the emergence of new programmes which defy classification as either accelerators or incubators. Examples of accelerators that have changed their offerings include BGV and Cylon.
4. Internationalisation is expanding. Around one third of programmes have attracted start-ups from overseas. Specialised programmes are more likely to attract start-ups from overseas and from other regions of the UK than are non-specialised programmes.
5. Accelerators are becoming funds. There is a gap in the market between accelerators and VCs. Although this is typically the role of business angels, accelerators have started to manage micro funds that invest directly in start-ups they know well and where they have undertaken extensive due diligence.
6. Increasing emphasis on diversity and inclusion issues across the innovation ecosystem. UKRI's Strategy 2022–2027 and in NESTA's strategy clearly state their diversity and inclusion objectives, and, at regional level, Wales has introduced women-specific approaches in co-working spaces management to encourage the participation of women.
7. Increasing efforts to addressing regional imbalances. The “levelling up” agenda has become more prominent recently. A new fund with an explicit regional focus was announced in 2023.

In addition to these seven trends, looming risks can become problematic going forward. Some studies have raised concerns about potential future funding gaps. In the past, EU structural funds have been an important financial resource for incubation and acceleration programmes. Since Brexit, few UK replacement programmes have been launched, and relatively few programmes are currently involved in discussions relating to the first round of UKSPF grants. Funding is thus expected to decline in the future. Long-term funding plans are particularly concerning valid for programmes that depend on public funding such as pre-accelerators and generalist programmes in less-developed ecosystems.

Impact evaluations remain relatively scarce, and evidence of support programmes benefits are poorly measured. Only about 10% of programmes have conducted a control group in evaluation.

Case studies of United Kingdom incubators and accelerators

This section features two notable UK incubators/accelerators: ***Bethnal Green Ventures (BGV)*** and ***The NatWest Bank Entrepreneur Accelerator***. Both accelerators are among the top 10 SEEDLegals accelerators, incubators and bootcamps 2024. They are chosen because they embody specific aspects of how UK incubators and accelerators operate.

Case study 1: Bethnal Green Ventures (BGV)

The BGV case brings together (i) a social impact agenda; (ii) globalisation as a priority; (iii) the role of public funding in enabling its activities. BGV supports the creation of new tech companies that tackle social and environmental issues, such as climate change. It is Europe's leading early-stage tech for “good” VC.

Objectives

BGV invests in ambitious and diverse founders using technology to create positive impact at scale. BGV claims to be at the forefront of supporting tech start-ups that address current pressing global challenges.

Public support

In 2023 BGV announced their newest and largest fund, valued GBP 33 million. It has been co-funded by multiple investors including the British Business Bank (through its Enterprise Capital Funds programme), M&G Catalyst and Big Society Capital.

Package of support

BGV is committed to using the fund to support 100 new ventures for four years through the Tech for Good Programme. Each venture admitted to the programme will receive a GBP 60 000 investment in exchange for 7% equity. BGV will make further investments in the most promising ventures that complete the programme, helping them to grow until they attain up to a Series A financing level.

BGV is proud of its portfolio of companies. Collectively these start-ups have made a positive impact on society and the environment, demonstrating the potential of technology to drive positive change while delivering returns to investors.

Reach and selection criteria

BGV invests in ambitious early-stage tech-for-good founders. According to BGV's definition, a tech-for-good start-up is a venture that proposes a technological solution to health, sustainability or climate change, and/or promotes social inclusion through education, fair work and social justice. While successful applicants are typically evenly spread across different sectors, over the past two years the share of applications from climate tech and health-tech ventures have increased significantly.

The programme targets very early-stage start-ups. A venture does not have to be incorporated to be accepted into the programme, and on average, 79% of applicants have not raised any money before applying. Eligible start-ups are those based in the UK and those who commit to be incorporated in the UK with BGV's support. Each year, BGV receives about 500 applications, out of which only about 20 are retained. Successful applicants are organised into two cohorts of 10-12 teams per year.

Diversity and inclusion are at the heart of BGV's strategy. For instance, it has committed to allocate at least half of its investments to female-founded ventures. Over the past three years BGV has been the top-ranked UK organisation in the Global Inclusive PE & VC Index. To date, 43% of founders are women (2021), 41% of founders are from ethnic minority backgrounds (2021), 18% of founders are disabled (2021), 19% identify themselves as LGBTQ+ (2021). On average, for every pound invested, 29 cents are allocated to mixed-founder teams and 16 cents are allocated to women-only teams.

Monitoring and results

BGV has established a measurement framework and conducted analyses on the diversity and inclusion impact of its start-up portfolio and start-up specific impact analyses. However, it does not publicly report the results of these analyses. It however, reports data on economic results attained by start-ups in its portfolio.

As of 31st of December 2022 BGV invested in 177 ventures of which 84 are still active, and 5 have exited by the end of 2022. The innovations introduced by these ventures reached 16M users, generating a total

revenue of GBP 80 million per year. Among these successful ventures, 14 have raised follow-on investment in 2022.

Key Takeaways

This example demonstrates the increasing policy interest in supporting societally important initiatives that such initiatives can be profitable.

Case study 2: The NatWest Bank Entrepreneur Accelerator

The NatWest Accelerator is the UK's largest fully privately funded business accelerator network, with 13 physical hubs located throughout the country. It boasts a large network of partners including Beauhurst and the Startup Institute. Other "programme partners" are Hiscox, Deloitte, Equifax, FreeAgent, Dell EMC and Pinsent Masons. NatWest has also recently launched partnerships with universities. In 2021 it opened its first accelerator on a university campus and in 2023 it officially started a partnership with Birmingham University.

Objectives

The NatWest Accelerator supports and empowers UK entrepreneurs to scale their businesses to the next level.

Package of support

Support encompasses multiple instruments, including access to a co-working space, events and to a community of like-minded entrepreneurs, who work in the same area and often meet in person. Local hubs are designed to be true centres of entrepreneurial activity for the regions they represent.

The Accelerator programme offers one-to-one coaching with experienced acceleration managers, thought leadership and events, access to a network, supported by ecosystem managers, access to sector experts.

Through these activities, the programme aims to help SMEs in accessing new markets, attracting talent and building an effective team, access growth funding, developing leadership, and building a scalable infrastructure.

The programme also includes a Climate accelerator designed to help climate focused businesses to grow and scale.

Reach and selection criteria

The accelerator programme is open to all business owners, beyond the group of NatWest customers.

Monitoring and results

In 2022, Nat West supported 1 300 entrepreneurs through the NatWest Group Accelerator programme, of which 50% were female-led businesses. It expanded the footprint to 13 Enterprise Hubs across the UK to further enhance local and regional ecosystems and networks and provide modern co-working space for entrepreneurs. During 2022, Nat West continued to deliver its Accelerator Programme through in-person and virtual coaching sessions, workshops, thought-leadership, and events. Further details of these and other activities can be found in the 2022 ESG Disclosures Report.



Key Takeaways

Corporate accelerator programmes, working with commercial partners, can offer a pathway to achieve economies of scale in providing free incubation and acceleration support. At the same time, the NatWest's operational strategy objectives include values such as supporting local and regional ecosystems, and focus on equality, diversity, and inclusion.

Programme monitoring and evaluation arrangements and results

In the UK, the impact of incubation and acceleration programmes is often measured deploying multiple methods, encompassing surveys, composite indicators, and data on survival of attendees and raising external finance. These data allow to compare accelerators' types (e.g. university or corporate accelerators) and show that there is not a single accelerator type that outperforms the others (Start-up Blink, 2023^[76]).

Surveys are regularly used to track participants' satisfaction with the programme and potential disconnects between expectations and realised objectives. On average, mentoring comes out as the main value added of accelerators (75%), followed by financial investment (49%). Business advice, office space, access to business networks and workshops are also mentioned but less frequently (Beauhurst, 2018^[79]). Other surveys find that direct funding, access to office space, lab space and technical equipment are important benefits for early-stage entrepreneurs (Bone et al., 2019^[80]).

In addition to customer satisfaction surveys, incubators and accelerators' performance is measured through outcome indicators such as employment growth, change in the proportion of employees that hold a degree, patent applications change, R&D expenditures and investment raised. The analysis of these data shows that there is a positive association between participation in incubation and acceleration and at least one outcome measure. Results are not always consistent, but some indicators are regularly positively correlated with participation in incubation or acceleration, including access to investors, access to peers, access to funding, press or media exposure.

Statistical impact evaluations are relatively rare and are often difficult to compare due to differences in methodologies, context, design, and objects of the evaluation. However, some studies provide a partial snapshot of the effectiveness of UK's incubation and acceleration programmes.

(Hewitt-Dundas and Burns, 2016^[82]) reviewed evidence on the effectiveness of university incubators (UI) in supporting the commercialisation of university spinouts (USO). This study focused on two research universities in the UK and compared university spinouts with access to an incubator to those without access to an incubator. The study finds a positive and significant effect of incubators on connections with external organisations, without, however, impacting the nature of these ties. The study also shows that the impact of incubation facilities depends on the spinouts' technical and commercial viability. The main benefits from university incubations are IP management, investment, and accounting services.

An example of a successful university incubation programme is SetSquared (Bristol). This programme offers individually tailored business support. Its self-assessment states that the survival rate of their incubated companies is 4 times higher than the average Gov UK business 3-year survival rate. Box 5 provides more details.

Box 5. The impact of the SETsquared in Bristol

In 2022, the SETsquared programme supported 85 companies across 20 sectors.

Its companies raised a combined GBP 33.1 million, which led to a cumulated investments raised of over GBP 660 million.

SETsquared's companies generated over GBP 20 million in revenues and created over 150 jobs with a founder diversity above the UK average for the tech sector and for overall business sector.

These include:

1. 42% of companies' founders/C-Suite members are women.
2. 28% of companies' founders/C-Suite members are from a minority ethnic background.
3. 6% of companies' founders/C-Suite are people with known disabilities.

Source: setsquared-bristol.co.uk

A 2022 study analysed the portfolios of the nine most active UK accelerators between 2011 and 2018, ranked by the percentage of portfolio companies that have raised external funds (Sifted, 2022^[86]). The study shows that 3% of start-ups have raised more than GBP 40 million and are still active. The top accelerators in raising external funds include Technation, an accelerator that also offers VC services and only accepts founders at Series A; PwC scale Programmes, Enterprise fellowships (Royal Academy of Engineering), Entrepreneur First and Innovation-to-commercialisation of university research (ICRe/Innovate UK) and Bethnal Green Ventures. On average these nine accelerators show strong survival rates, with 79% of the attendee pool still registered on Companies House, compared to the standard success rate for UK start-ups where only 40% survive three years. 55% had gone on to raise external funding.

Another study shows that companies that attend UK accelerators have raised 44% more funds than those who did not (Beauhurst, 2018^[79]). Attending an accelerator can make the difference in validating a start-up idea and establishing contacts with investors. The benefits of participating in an accelerator programme somewhat diminishes at seed and venture stages, as companies at this stage can also raise significant funds and attain relative high valuation. However, relatively few start-ups achieve this level on their own

and the involvement of an accelerator at an early stage maximizes the likelihood that a start-up achieves an investment-ready level. A further finding is that companies that have been through accelerators with corporate sponsors raise significantly more funds than those who have not, and their average valuation is higher.

Moreover, accelerators and incubators do not only benefit their client start-ups, but also tend to generate positive spillover effects on the wider business ecosystem. It has been shown that the launch of a new accelerator is associated with a significant increase in the number and the value of VC investments into non-accelerated seed and tech firms. (Centre for Entrepreneurs, 2022^[81]) and (Bone et al., 2019^[80]) also present evidence of ‘spillover effects’ such as increasing venture capital funding to nearby start-ups. Transmission channels, however, are not fully understood. Possible explanations point at incubators playing an important role as ‘ecosystem nodes’ connecting actors (e.g., founders and co-founders, angel investors, VCs, patent attorneys, other skilled talent). It seems plausible that this function as an ‘ecosystem connector’ benefits start-ups outside the programme itself and provides an additional justification for public funding.

For instance, in London Boroughs incubator and accelerator programmes have a positive regenerative effect on their surrounding areas. This is often linked to the increasingly effectiveness of temporary space in enhancing and further developing business ideas. Repurposing redundant commercial space helps tackling negative effects on surrounding businesses.

It should be noted that programmes vary significantly in their content and methods, and that the local context (such as university affiliation or competitiveness of the local business environment) seems to have a significant impact on success (Bone et al., 2019^[80]).

Conclusions and policy lessons from the United Kingdom’s experience

The UK case provides one pathway that delivered notable results. In general terms, the UK approach is relatively decentralised, widening the possibility of identifying high-potential start-ups. Such decentralised approach also allows tailored support across sectors and regions, and the emergence of multiple methods for supporting start-ups’ internationalisation. Potential policy lessons include:

- *Flexible funding mechanism.* The support of incubators and accelerators is delivered through a multi-channel mix of regional and national public policies rather than one centralised funding system. This has worked relatively well in the UK, enhancing a strong private sector component, even in public funded incubators and accelerators. Public-private facilities tend to perform relatively better than fully publicly funded programmes. Some funding mechanisms do not use accelerators and incubators and directly support domestic scale-ups, international scale-ups, and translation of research into commercial products or services. Notable examples are the Global Incubator Programme and ICURe.
- *Crowd-in private capital.* Public funding has been instrumental to catalyse private resources, especially in those locations where the private sector would have not been deployed without a public sector initiative. This approach has spread the availability of incubators and accelerators geographically, with some programmes achieving a global reach and becoming part of the global entrepreneurial ecosystem.
- *Pilot to success.* Experimentation through pilot programmes and research has opened the way for gradual improvement of incubators and accelerators’ practices, reducing displacement effects and increasing the long-run impact of these programmes.

- *Combined effect of other policies.* Incubators and accelerators policies do not happen in a vacuum but benefit from the deployment of other types of intervention such as tax credits, direct grants, and network building. The UK has actively combined these instruments.
- *Data sharing and measurement.* Data-sharing is compulsory for accelerators and incubators receiving public funding. This has contributed not only to improved performance overtime but also to the spread of good practices through the sharing of information and experiences and to a better understanding of how to integrate incubators and accelerators within local industrial strategies.
- *Mentoring at the heart of acceleration.* Mentoring is the most important service for start-ups in the UK, and the government is supporting this by both providing public funds to incubators and accelerators as well as through ad-hoc national funding mechanisms. In addition, the government has made mentoring more visible through the creation of a national mentoring day.
- *Internationalise through top hub and soft landing.* The Global Incubator programme is an example of a public policy support showing that London-based and international incubators/accelerators often act as bridges to international markets. These top incubators and accelerators offer soft-landing options to UK start-ups by establishing an office within foreign incubators abroad.
- *Hardwire inclusion and diversity in funding access.* The commitment to equality, diversity and inclusion is firmly established in government policymaking by including these values into funding criteria.

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