Sector convergence – a significant growth opportunity!

Expertise, capabilities and capital



Gothenburg, June 2019

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Foreword

The fifth industrial revolution is here. With even more collaboration and convergence between advanced technologies and people.

We are seeing sector convergence and more industrial collaborations than ever before. This is changing the business landscape and providing the basis for new innovative solutions. As in all industrial shifts, the transformation involves challenges for corporations and established brands, but also exciting business opportunities for new entrepreneurs and entrepreneurial organizations.

The convergence we are witnessing is a growth opportunity and puts the Gothenburg region in a unique position, thanks to its high density of expertise and capabilities. Investors and corporates are seeking out cross-sector opportunities in search of new and disruptive innovations.

Given this background, Sahlgrenska Science Park and Lindholmen Science Park commissioned a "Pilot study – Growth Capital" in January 2019 with the purpose of exploring the need for, the challenges with, and the access to innovations, startups and capital for the region's strongest growth industries.

This report highlights the Gothenburg region's unique capabilities and also its challenges when it comes to capitalizing high-tech innovations. The industry is undergoing a shift characterized by increased interest for de-risking high-tech innovations. We are seeing the evolution of new collaborative models along with the search for multiple utilities of innovation, influenced by open innovation.

The report also points to the significant leverage effect that can come from an even more developed cooperation and prestigeless collaboration between different sectors, corporations and the innovation system.



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Martin Svensson

Lindholmen Science Park

Co-Director,

Al Innovation of Sweden

Report

THE STUDY

The pilot study was commissioned in January 2019 by Lindholmen Science Park and Sahlgrenska Science Park and was delivered in partnership between the two science parks. The purpose was to examine the need for, the challenges with, and the access to innovations, startups and growth capital for the region's strongest industries.

In the pilot study, conducted and completed between February and April 2019, a number of face-to-face interviews were conducted with leading decision makers at large corporations. In parallel, an online survey was conducted. 20 out of the 22 interviewed decision makers took part in the survey. All information was provided on the basis that survey results would only be used in aggregated form.

THE AUTHORS

Carl-Peter Mattsson

Carl-Peter has more than 20 years' experience of international business projects within a variety of industries, project partners and forms of financing. He combines an international outlook with strong venture capital network and knowledge. He has experience from direct investments and fund investments at national and international level.

Bachelor of Science in Business Administration and Economics, in the field of Innovation and Marketing from the Gothenburg School of Business, Economics and Law and the Christian-Albrechts University, Kiel, Germany.

Martin Svensson

Martin is a business and innovation professional with extensive experience of international business in several sectors, including automotive, telecom, IT and biotech. He has dedicated over 10 years to growth companies, typically addressing large corporations.

He holds a Master of Science in Electrical Engineering from Chalmers University of Technology.

Lindholmen

Science Park



Lindholmen Science Park is both a dynamic area and an arena for collaboration across geographical borders. It is home to several of Sweden's leading development projects, with a focus on mobility for tomorrow.

Without private gain, Lindholmen Science Park AB strives toward the vision to strengthen Sweden's competitiveness with focus on future mobility for people and goods through two parallel assignments. One is to develop the ecosystem within Lindholmen Science Park's geographical area and the second is to run programs and activities promoting innovation and research.

Lindholmen Science Park provide a neutral development environment where players from the business community, academia and society, together can conduct major research and development projects. Lindholmen Science Park offers space for new networks, new expertise and new opportunities to develop and grow. We understand that strong ideas are born from collaboration.

Lindholmen Science Park AB is jointly owned by Chalmers University of Technology, the City of Gothenburg and the business community. For almost 20 years, owners and partners have worked together to invest and purposefully develop a modern and inspiring innovation environment for several of Sweden's leading development projects.



Sahlgrenska Science Park is where health meets new technology in the midst of digital transformation. The team at Sahlgrenska Science Park connects skills and capabilities between the business sector, healthcare, academia and the Nordic startup arena.

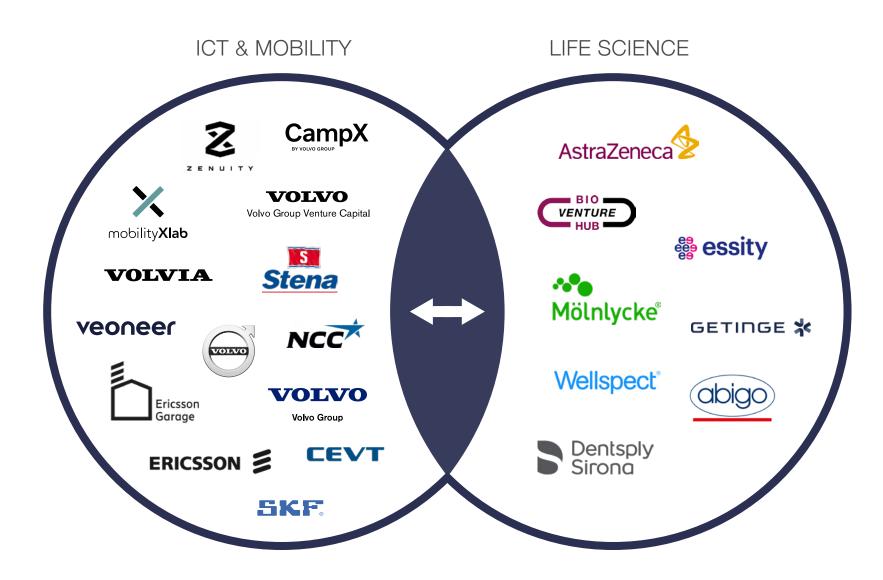
Sahlgrenska Science Park has the task to harness the unique opportunities for West Sweden as IT, mobility, artificial intelligence (AI) and open innovation transform the entire life science industry. This mandate comes directly from the University of Gothenburg, Chalmers University of Technology, Region Västra Götaland, the City of Gothenburg and the City of Mölndal.

The aim is to drive growth to create new companies and new jobs and, thereby, products and services that improve and extend people's lives.

Sahlgrenska Science Park manages an accelerator program specially focused on healthtech. Support to startup companies includes methodical and needs-based business development and access to international financing networks.

Sahlgrenska Science Park also offers an attractive work environment and networking opportunities at the heart of the life science cluster in West Sweden. Sahlgrenska University Hospital and other skills clusters are located close by.

Participants



Key takeaways

A changing world requires more industrial collaborations and integrated solutions

SIX KEY OBSERVATIONS

Sector convergence is transforming the business landscape

2

The accelerating need for disruptive innovation requires cross-sector knowledge sharing



There is an increased interest for de-risking high-tech innovation

In spite of having largely similar environmental challenges, collaboration and cocreation between corporations has so far been limited.

The findings in this report confirm that science parks can play a vital role in processes linked to these observations.

Finally, the fifth industrial revolution is here, and it is leading to even more collaboration and convergence between advanced technologies and people.

4

Industry is looking for multiple uses of innovation, using complementary cocreation with less need for exclusivity



New collaborative models are being evolved, often influenced by open innovation



The sharing economy is spreading into new sectors



COLLABORATION

An innovative and rapidly developing ecosystem

- venture capital lags behind

Interest in taking part in the Gothenburg region's innovative ecosystem has increased dramatically over the past three years. Corporations, entrepreneurs and experts in different areas are attracted by the unique combination of skills and capabilities at hand, which are hard to find elsewhere in Europe.

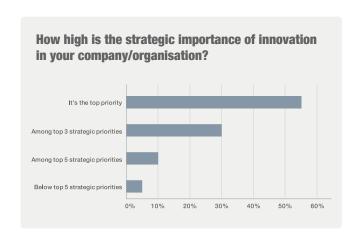
The physical proximity between areas of expertise is an asset. In a very small geographical area, there is an abundance of complementary skills. Proximity breeds collaboration and facilitates informal interactions.

EVOLVING STRUCTURES FOR COLLABORATION ARE POINTING THE WAY TO THE FUTURE

- Lindholmen Science Park is an international multi-arena for innovation with a new data factory, AI INNOVATION of Sweden.
- Sahlgrenska Life is a unique clinical research environment that will weave together the knowledge of researchers, clinicians and industry.
- Johanneberg Science Park is Sweden's leading collaborative arena for urban development.
- GoCo Health Innovation City is an exciting environment under development for growth and collaboration.

New arenas for cocreation, innovation and collaboration such as AstraZeneca's BioVentureHub and CampX and MobilityXlab in the midst of the mobility cluster at Lindholmen, as well as top-rated universities and incubators, are all contributing to a dynamic startup and scaleup environment where new businesses can develop and thrive.

Nevertheless, despite the well-integrated ecosystem, few financial institutions or venture capital investors are headquartered or even have a presence in Gothenburg.



32% of Sweden's total R&D investments take place in the Gothenburg region*

2nd
Gothenburg ranked the second smartest city in the world**

Source: *Statistics Sweden, **2019 Tech Trends Annual Report, futuretodayinstitute.com

Sahlgrenska Life

Lindholmen Science Park

Johanneberg Science Park

GoCo Health Innovation City

Sahlgrenska Life is a large scale, new environment in close connection with the innovation cluster around Sahlgrenska Science Park as well as Sahlgrenska University Hospital and the University of Gothenburg.

By stimulating closer connections between future healthcare, research and the innovative life science industry, it will attract new establishments and investments within the life science sector.

Lindholmen Science Park is both a dynamic area and an arena for collaboration across geographical borders.

It is home to several of Sweden's leading development projects, with a focus on mobility for tomorrow. Lindholmen Science Park provide a neutral development environment where players from the business community, academia and society, together can conduct major research and development projects.

Sweden's leading collaboration arena for urban development

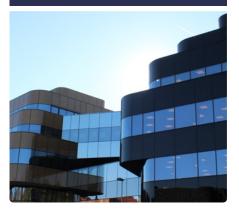
Johanneberg Science Park cocreates innovations that are good for people and the environment. Johanneberg Science Park brings together academia, organizations and companies, and runs national and international innovation projects to test solutions for future challenges.

GoCo Health Innovation City is a meeting ground for new knowledge, new solutions and new ways of healthy working and living.

The neighborhood is already home to numerous well-established global players in health and life sciences, including AstraZeneca, Essity, Wellspect and Dentsply. Next Step and Investor AB-owned Vectura are now adding space for 350 companies and 7,000 people. Opening 2021.







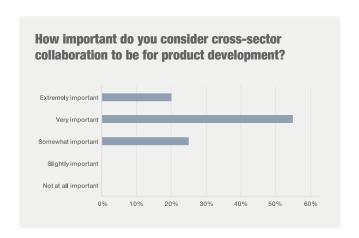


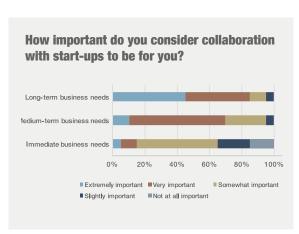
Sector convergence is a growth opportunity

- the ability to combine expertise and capabilities from different industries will be vital

An individual's influence and power over her/his own situation is on the rise, and will continue to increase. With continually increasing access to personal data, it's a development that cannot be reversed.

This builds up transformation pressure within the life science industry. New possibilities are opening up and the changes that can be expected in people's everyday lives, and within the healthcare industry as a whole, provide a paradigm shift of a similar dignity as that of autonomous vehicles. Healthcare will soon be available in completely different environments and platforms driven by new mobility, and media, technologies.



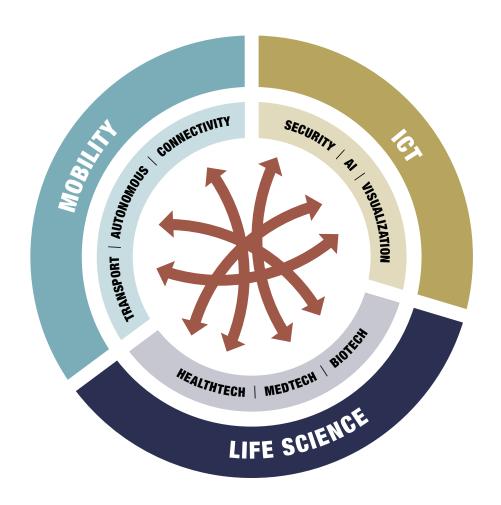


85% consider long-term business needs to be extremely or very important

We are seeing a change in the business landscape, with increased sector convergence and more industrial collaborations than ever before. All this provides the basis for new innovative solutions.

Technological and environmental changes are bringing different industries together and new collaborative models evolve, influenced by open innovation. Industries are undergoing a shift characterized by increased interest for de-risking high-tech innovations.

As in all industrial shifts, the transformation involves challenges for corporations and established brands, as well as exciting business opportunities for new entrepreneurs. Sector convergence is a growth opportunity and puts the Gothenburg region in a unique position thanks to its high density of expertise and capabilities.



Today's technical and environmental changes open up opportunities to create collaboration across different sectors.

Cocreation/innovation arenas

- openness to wide-ranging collaboration brings great competitive advantage

Industry is undergoing a shift characterized by in-creased interest for de-risking high-tech innovations.

We see new collaborative models evolving, influenced by open innovation. Different models are sometimes used in parallel, depending on the needs of verticals and startups. Initiatives to find multiple utilizations of new technologies or platforms result in so-called complementary cocreation with no exclusivity.

OPEN INNOVATION ENABLES

- Arenas for experience sharing
- Faster input-to-response cycles
- Bringing in an entrepreneurial culture
- Innovation scouting initiatives
- Recruiting and developing talents

How experienced do you consider your company/ organisation to be in dealing with start-ups?

40%

30%

20%

Not at all slightly experienced experienced with start-ups experienced experie

What are the most important reasons to collaborate with start-ups?

Access to new technology & products
Talent recruitment
Culture refresh
Reputation building
Other
Process improvements
Financial returns
Access to new markets/customers

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

What are your main challenges when it comes to collaborating with start-ups?

Internal capability
Lack of time
Budget restrictions
Not agile enough
Start-up solutions do not scale
Quality of start-ups
Too high risk
Other
Start-ups lack process knowledge
Low priority

0% 10% 20% 30% 40% 50% 60% 70%

70% consider internal capability a main challenge

"Like a music piece, easier when the musicians use the same notes"

"Vital to select the right partners"

"Establish a culture, need interested employees"



AstraZeneca R&D in Gothenburg offers academic groups and biotech companies unique access to its corporate R&D infrastructure and drug development expertise.

The BioVentureHub is looking to attract high caliber academic groups active in areas aligned to AstraZeneca's strategy, as well as biotech and medtech companies that could gain a competitive advantage by tapping into AstraZeneca's expertise and infrastructure.

The BioVentureHub is today home to more than 30 companies, both national and international. The innovation system at the heart of the AstraZeneca Gothenburg site spans the value chains of pharma, medtech, digital health and diagnostics.





MobilityXlab was founded by leading Swedish firms CEVT, Ericsson, Volvo Cars, Volvo Group, Veoneer & Zenuity. MobilityXlab was also co-founded and is hosted by Lindholmen Science Park.

These partners have all joined up to be global game changers within the field of future mobility. Together with startups MobilityXlab can cocreate solutions that develop into successful companies delivering products and services fit for the next generation.



CampX is a concept for innovation and collaboration.

In CampX Gothenburg, 400 of the Volvo group experts in the areas of automated driving, electrification and connectivity are gathered. The focus is on boosting internal capabilities, as well as inviting selected stakeholders from the partner ecosystem like customers, companies, academia and authorities to join in with cocreating future transport solutions.

CampX with its labs and workshops allows for fast iterations of ideas to be tested, evaluated and developed.

The CampX concept is global and will be implemented at other Volvo Group sites.







ACCESS TO IDEAS

increased interest for de-risking high-tech innovations, along

Will the Wil with the search for multiple uses of innovation

LABORATORY TESTS

Spin-outs

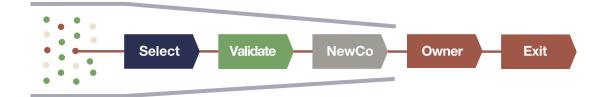
- locked-in innovations transformed into economic growth

Corporations face increasingly difficult choices regarding the allocation of internal resources to their R&D programs. It has become more and more difficult to fully fund and advance the development of all initiatives. Therefore, a surplus of innovation falls outside corporation's core strategies and are left on the "shelves", as locked-in industrial innovations.

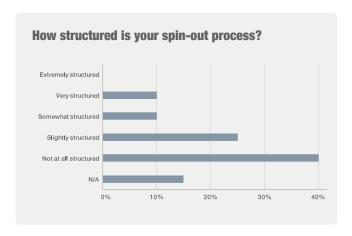
Spinning out shelved assets for subsequent use as a basis for new adventures – generating value from seemingly sunk costs – is a win-win approach for all involved, but requires a carefully structured, proactive and value-adding process (see figure below).

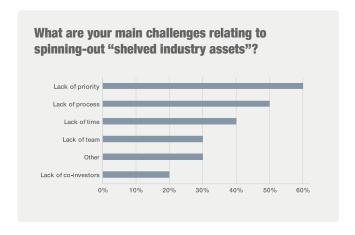
PREREQUISITES

- 1. Structured process and workflow
- 2. Capabilities for re-purposing value proposition, preferably utilizing a nearby open innovation environment
- 3. Co-investors, reputable professional investors with adequate funds and international VC network
- 4. Management pool of entrepreneurs



"Ought to be win-win, but where to start?"





Insourcing

- access to new ideas, technology and trends

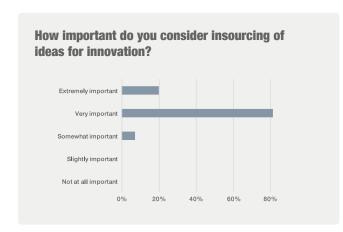
The survey indicates the importance for corporations of insourcing ideas for innovation.

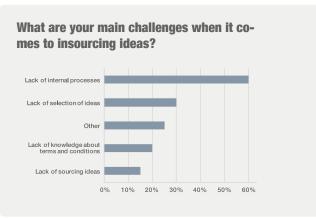
SIX LEARNING ITEMS

- 1. Top management support/commitment
- 2. Strategy, structure, internal processes and resources in place
- 3. Dedicated people and enough time
- 4. Secure business unit engagement
- 5. Use intermediary assistance, e.g. neutral bridge-makers
- 6. Benchmark with others

CORPORATE BARRIERS

- Culture "not invented here"
- Protect proprietary technologies
- Too high risk and cost, dependency on external resources
- Bureaucratic structure
- Different time and risk perspective





"You have to dare to break away from traditions"

"Set clear expectations and commitment. This is not a quick fix."



CAPITAL

Venture capital stimulates economic growth

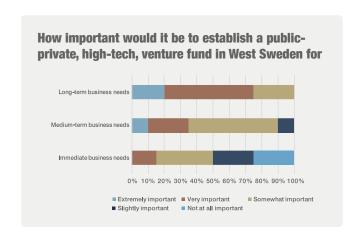
- utilizing the critical mass to attract leading investors

This report highlights the region's expertise and its unique capabilities. It also identifies the fact that very few venture capital investors are head-quartered or even have a presence in Gothenburg.

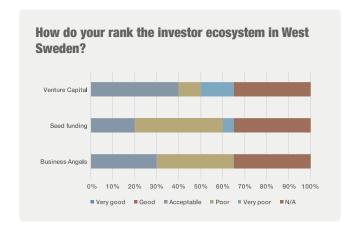
The market for growth capital has gone from being largely local, to being extremely competitive and global, where personal contacts are more difficult to establish. This means new prerequisites in the pursuit of capital, and more effort is required from entrepreneurs and corporations. It is of vital importance to utilize the critical mass of the ecosystem to attract leading venture capital investors to the region, to a much higher degree than has been done so far.

For an ecosystem to be effective in promoting innovation and sustaining viable startups and projects, it is imperative that there are a sufficient number of investors in each development stage, and that these investors have adequate funds to provide the capital necessary to finance the development and growth.

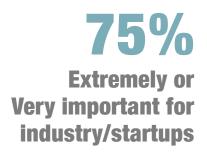
Today, the Nordic venture capital market represents one of the largest venture capital markets in Europe – a position that facilitates considerable international investor attention. To benefit from this, the region requires much more relationship building and specialist knowledge about how the venture capital business works.

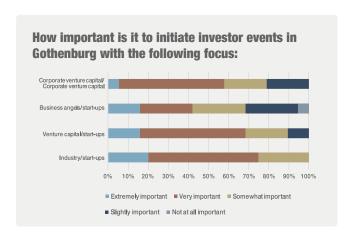


75% Extremely or Very important for long-term business need



25%
Poor or Very Poor
Venture Capital





Testimonials





KLEMENTINA ÖSTERBERG

CEO, GU Ventures

"We are in the middle of an exciting era of change. New technologies and cross-sector synergies are transforming our ways of working, producing, delivering healthcare, etc.

However, we have a shortage of certain capital and especially with the structures and skills that are required in areas like cleantech, pharma, etc. If we can attract and make more capital available, either for project development or direct growth investments, it could really make a huge difference and strengthen the competitive edge, as well as the attractiveness, of the industries in our region."



almi

SARA WALLIN

CEO, Almi Företagspartner Region Väst

"We are starting to see more collaborations between widely different sectors, creating new products and services and this is just the beginning. Our region is world class in many sectors within mobility/ICT and life science—skills essential when going towards future tech solutions."

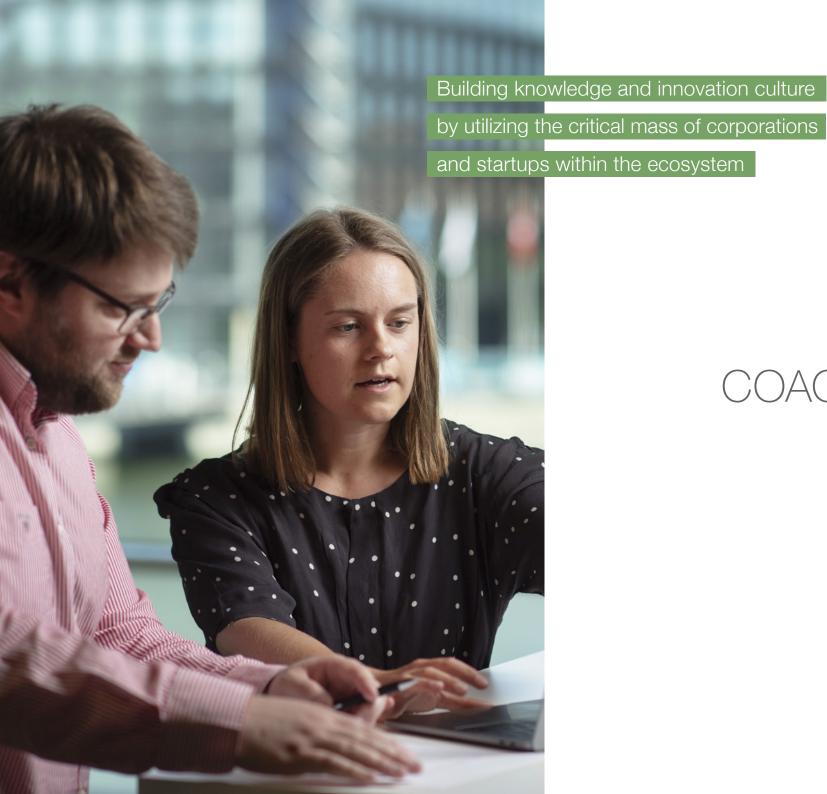




LINNÉA LINDAU

CEO, Chalmers Ventures

"We are a knowledge intensive region. We are global leaders in several tech segments and venture creation and entrepreneurship is growing strongly. If we had an even stronger, locally based growth capital market, more startups and industrial projects could be initiated, developed and internationalized faster and more effectively."



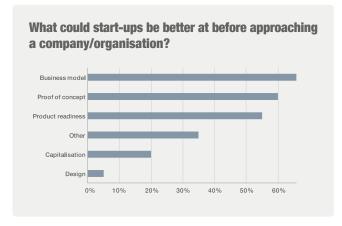
COACHING

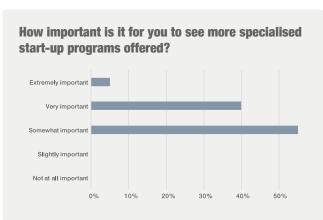
Coaching

- utilizing the critical mass of corporations and startups within the ecosystem

The initial response from the industry has been positive. They welcome such initiatives and see that it could be a supplement to their own coaching activities and a chance to professionalize and develop the growing ecosystem with knowledge in an organized and efficient manner.

Increased corporate collaboration leads to a higher critical mass and tighter networks which are vital for innovation-based educational programmes. Furthermore, much is to be gained by benchmarking and sharing best practices among corporates and financers.





70%Business model

45% Extremely or Very important for specialized program



RECOMMENDATIONS

Recommendations

For corporations lacking a crystal-clear strategy for how to approach radical innovation, it is advisable to start approaching cocreation and begin accumulating experiences. You should be ready to commit some resources even without having a clear picture of what the precise gains will be.

The idea of open innovation is that innovative solutions and platform components will appear only by the force of cocreation. These would never have appeared within the boundaries of a single corporation and its limited access to highly specialized (non-core) skill sets. Having taken an active part in the cocreation, it becomes more natural that innovative solution components can now be used to strengthen the value offering of your business. The more active you have been, the greater the likelihood that you have gained an ability to go to market quickly.

Based on these insights, and the findings in this report, the following recommendations are made by the authors:

- If you haven't already done so, start using the facilitators and advisors of the cocreation/innovation arenas to determine where to commit your resources. Where can your resources contribute the most? Where is it most likely that solutions will appear which could benefit your line of business? Try to be active and proactive in how you approach this. This is not a one-time decision, but a line of work where opportunities continuously arise and a capacity for thinking on your feet can be highly useful.
- Consider partaking in the formation of a high-tech fund based in Gothenburg, which can channel investments into solution ideas that are viable and have a potential to change business propositions within your domain. Disruptive ideas will appear sooner or later and have an impact on your market and, of course, it's preferable to have the originators of these ideas within reach and as part of local networks when the time comes to make use of their insights.

Based on the findings in this report, the authors further recommend Lindholmen Science Park and Sahlgrenska Science Park to:

- catalyze, encourage and facilitate crosssector cooperation with industry
- take the necessary next steps to create a shared capital service function
- explore the possibility, feasibility and forms for a public-private high-tech fund (similar setup as the German High-Tech Gründerfonds)

A public-private high-tech fund with its head office in Gothenburg and broad early stage high-tech innovation focus would have a strategic role in developing the ecosystem and attracting international capital, as well as gathering sector information and catalyzing knowledge transfers. The fund could also function as an important complement to existing Nordic investors, as well as to the local seed and early stage investors.

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Dentsply Sirona, Daniel Magnusson,

Senior Manager, Product & Technology Developmentt

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VP Strategy Office & New Business Development

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Wellspect, Henrik Claesson, VP Business Development

Zenuity, Dennis Nobelius, CEO

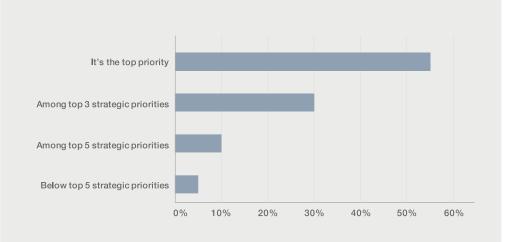
Zenuity, Jonas Ekmark, Product Area Owner, New Technology



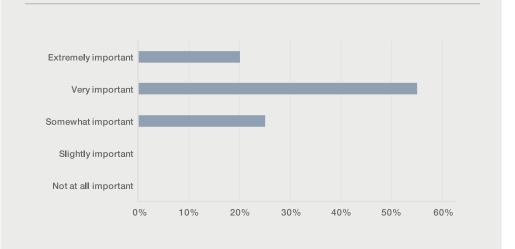
SURVEY RESULTS

decision makers at large life science, mobility and ICT

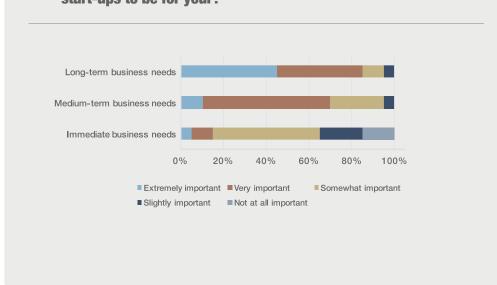
1 When you think about collaborations with start-ups, do you think science parks can play a role in catalysing these processes?



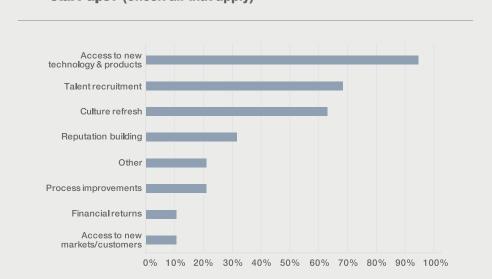
2 How important do you consider cross-sector collaboration to be for product development?



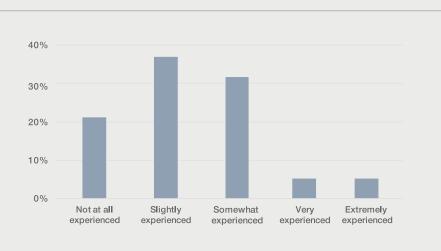
3 How important do you consider collaboration with start-ups to be for your?



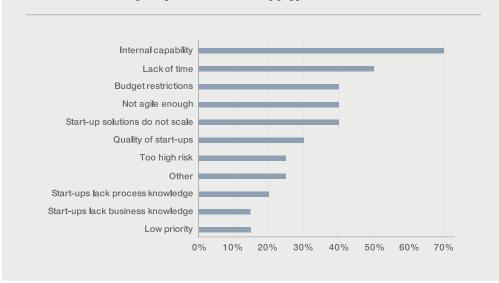
4 What are the most important reasons to collaborate with start-ups? (Check all that apply)



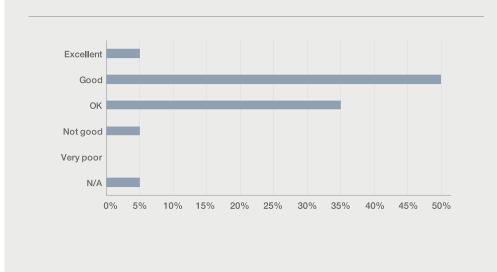
5 How experienced do you consider your company/organisation to be in dealing with start-ups?



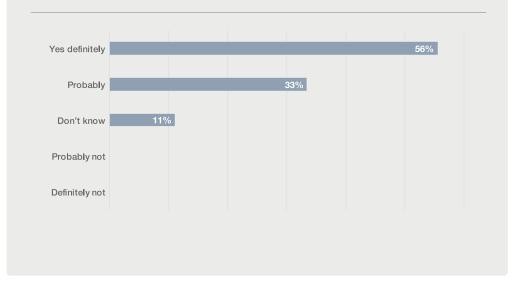
6 What are your main challenges when it comes to collaborating with start-ups? (Check all that apply)

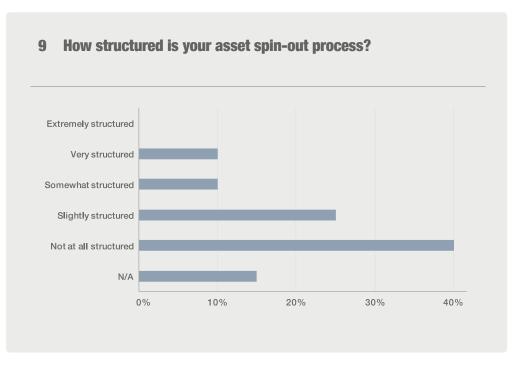


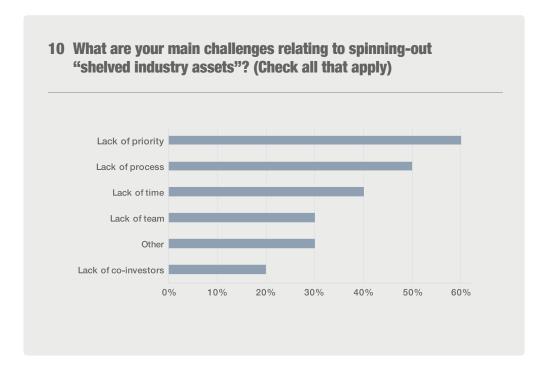
7 How would you rank the Swedish start-up community in general?

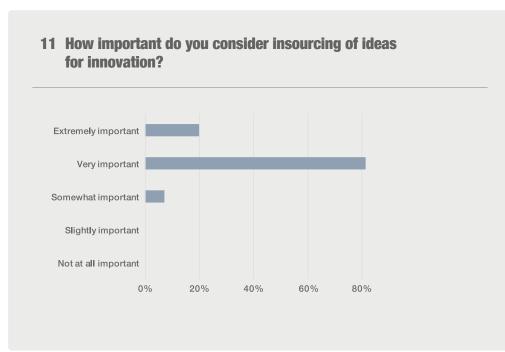


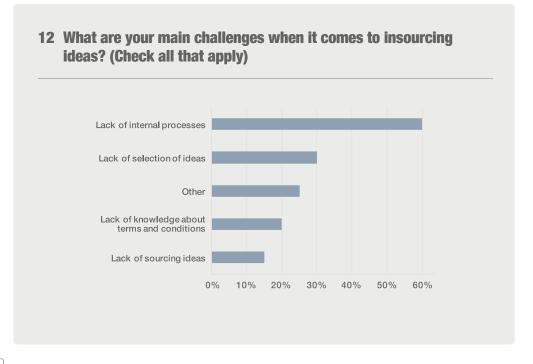
8 When you think about collaborations with start-ups, do you think science parks can play a role in catalysing these processes?

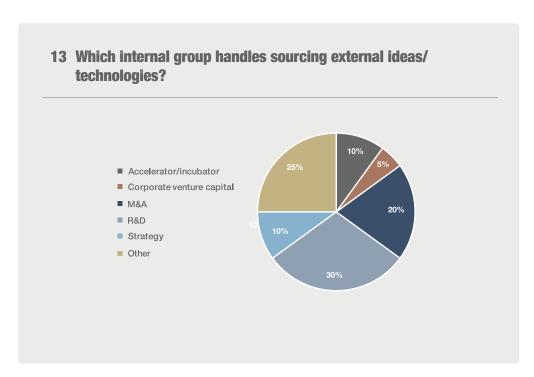


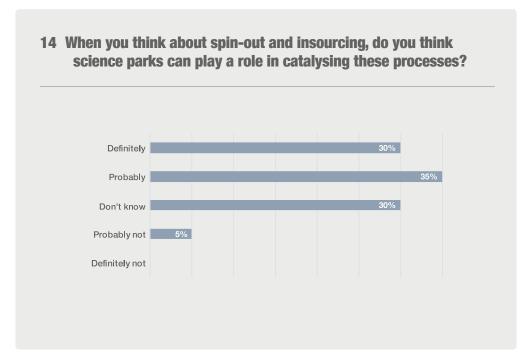


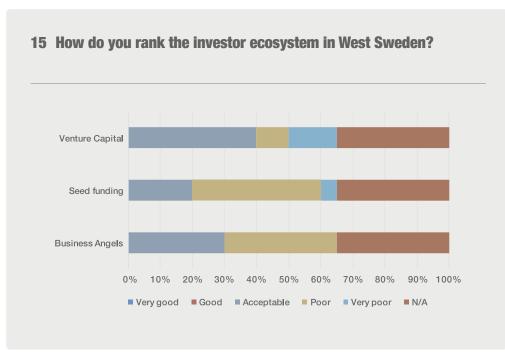


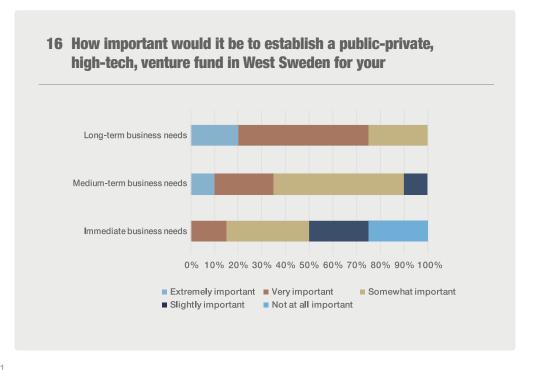


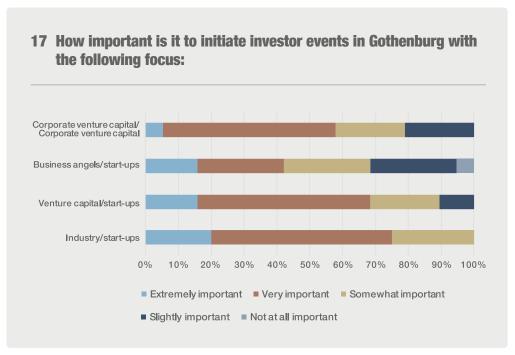


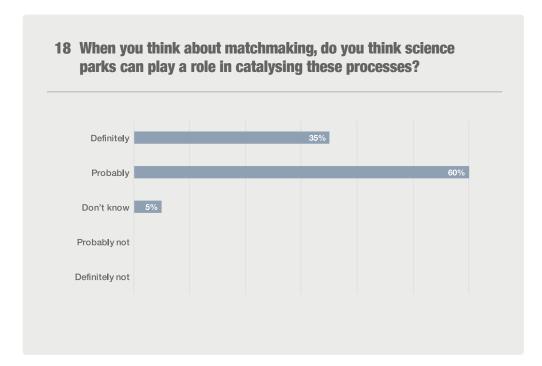


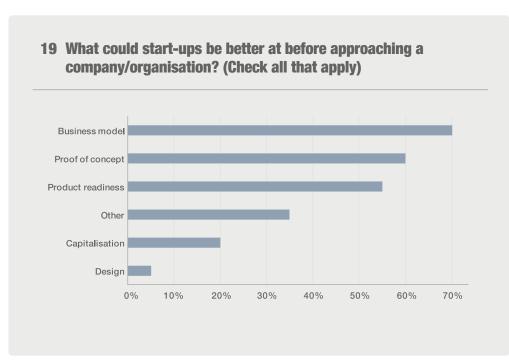


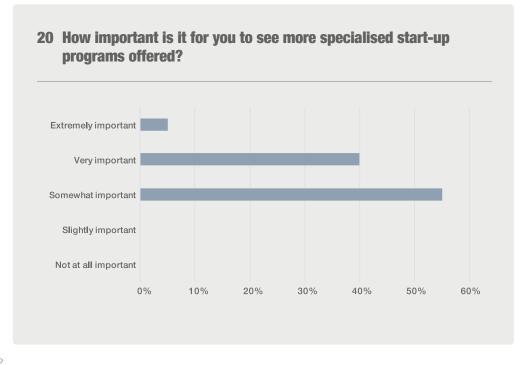












21 When you think about coaching, do you think science parks can play a role in catalysing these procesesses? Definitely Probably Don't know Probably not Definitely not

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