



INNOVATION INDICATORS 2016

A report from Innovationskraft Sthlm



Länsstyrelsen
Stockholm

PREFACE

The County of Stockholm is currently one of the world's most innovative regions, in one of the world's most dynamic countries. Sweden holds the ninth place in the World Economic Forum's Global Competitiveness ranking (2015–2016). Sweden is ranked eighth in the World Bank's Doing business ranking (2016). In the European Commission's Regional Innovation Scoreboard of 2016, the County of Stockholm is described as a leader within innovations. We have a lot to be proud of.

However, the current position of strength is no guarantee of future success – we would not be so successful if we did not continuously strive for improvement. The world is changing and competition is increasing. The County of Stockholm must continuously develop.

Why is that? Well, becoming the world's most innovation-driven economy is not about keeping up, it is about driving the development and being at the forefront.

The report which you are holding, the Innovation Indicator 2016, is the first in a series of recurrent reports which rank the County of Stockholm's innovation thresholds and propose measures to overcome these. The Innovation Indicator is an initiative within Innovation STHLM in which the County's actors are invited to express their views and participate in order to improve the County of Stockholm's innovation atmosphere.

The vision for Innovation Sthlm is for the County of Stockholm to be the world's most innovation-driven economy by 2025. The Innovation Indicator is a tool to guide us towards the vision. The Innovation Indicator provides us with a view of which areas we can improve to attain the greatest possible effect.

Naturally much more than one report is needed. Becoming the world's most innovation-driven economy necessitates that all relevant actors play their part. Only then, when we understand the region's conditions and cooperate to improve them can we create a strong innovation atmosphere and the world's most innovation-driven economy. The Innovation Indicator is a step on the path towards this.



Chris Heister

County Governor of Stockholm
and President of Innovation Sthlm

ABOUT THE INNOVATION INDICATOR 2016

The Innovation Indicator 2016 is a study conducted by the County Administrative Board of Stockholm in collaboration with the analysis firm United Minds. The report, which is based on a survey and interviews with key individuals in the County of Stockholm’s innovation system, aims to comprise support for further strengthening the County’s innovation atmosphere.

How do innovations arise? That is difficult to pinpoint, but there are probably many different factors which can strengthen the innovation capacity in a region. The aim of this report is to provide an understanding of which of these factors are the most important, and to use this knowledge to strengthen the County of Stockholm’s regional innovation systems. In the report we define a number of innovation thresholds, a concept which should be understood as obstacles which can be overcome to improve the innovation atmosphere in the region. We then formulate measures based on these thresholds.

In the study we allow people with links to the County of Stockholm’s innovation system to assess which thresholds are the most critical to manage in order to create even better conditions for innovation in the County. The study was conducted between

April and June 2016 and is based on a survey among selected individuals within the County of Stockholm and 10 interviews with key actors* within the County’s innovation system. The survey was conducted between 27 May and 9 June and was distributed by e-mail to approximately 600 respondents. The survey’s response rate was approximately 20 per cent. The interviews were used to build hypotheses and to interpret the quantitative responses, and to vary the challenges and opportunities for the region’s innovation actors.

In order to identify thresholds, we were inspired by innovation research on the importance of geographical proximity and regional innovation systems in order to stimulate the development of new innovations. As a model for the report, we have obtained inspiration from the Innovation Union Scoreboard and what they describe as enablers of innovation, within which they categorise human resources, research systems and supply of capital. We have also used the Global Entrepreneurship Monitor as a basis. This considers contextual, social, economic, political and cultural factors, as well as more direct factors such as physical infrastructure and market dynamics. By drawing inspiration from these reports, we have developed seven areas which impact the innovation atmosphere, within which we assess the County of Stockholm’s innovation thresholds. These seven areas are illustrated below.

AREAS FOR INNOVATION THRESHOLDS 2016

In the quantitative survey, respondents assessed each threshold on a scale with the steps “small threshold,” “quite small threshold,” “quite large threshold,” “large threshold” and “do not know.” In the report we have merged the response options to “small/quite small threshold,” “large/quite large threshold” as well as “do not know.”

1 ATTRACTIVENESS



2 CULTURE AND VALUES



3 SUPPLY OF CAPITAL



4 INFRASTRUCTURE



5 SKILLS AND KNOWLEDGE TRANSFER



6 REGULATIONS AND POLICIES



7 MARKET CONDITIONS



* The following individuals were interviewed in the report:

Jessica Stark, CEO and co-founder, SUP46 | Esma Dautovic, Platform Engineer, Lifesum | Hans Enocson, President and CEO of GE for the Nordic countries | Siavash Ghorbani, CTO and co-founder, Tictail | Erik Engellau-Nilsson, Head of Communications and Marketing, Klarna | Daniel Forslund, Commissioner

for Innovation and eHealth at Stockholm County Council | Gunilla Ekström, consultant and adviser within Life Science | Andreas Hatzigeorgiou, Chief Economist, Stockholm Chamber of Commerce | Sebastiaan Meijer, Professor in Health Care Logistics, KTH Royal Institute of Technology | Nicole Kringos, Associate professor, KTH Royal Institute of Technology.

THE COUNTY OF STOCKHOLM'S INNOVATION ATMOSPHERE

In most surveys, Stockholm's innovation atmosphere is ranked highly. A majority of the respondents in our survey recognise themselves in the view, but at the same time can see thresholds for an even stronger innovation atmosphere.

The County of Stockholm is currently the region driving the Swedish economy. Ten of the 25 municipalities within the County are among the 'Fokus Bäst Att Bo' (Focus Best Places to Live) ranking for 2016. The region is stronger than ever. Internationally Stockholm is recognised as the 'Unicorn Factory.' The European Commission's Regional Innovation Scoreboard of 2016 describes the region as an 'Innovation Leader' within the EU. The region attracts investors and talent. In 2015 approximately 50 per cent of the total of all investments conducted in the Nordic region were in the County of Stockholm.

According to Andreas Hatzigeorgiou, Chief Economist at the Stockholm Chamber of Commerce, Stockholm is currently very attractive, especially in terms of investments: "The supply of capital works very well – right now Stockholm is attracting investments from many directions. We're punching above our weight."

The successes are noticeable among the innovation actors of the County of Stockholm. Among the respondents in our survey, 71 per cent assess that the innovation atmosphere in the County of Stockholm is strong or very strong at present. 67 per cent of the respondents answered that the innovation atmosphere in the County of Stockholm has developed in a positive direction over the past five years. Furthermore, 63 per cent are of the opinion that the County's innovation atmosphere will develop in a positive direction over the upcoming five years. The region is strong and there is belief in the future, but the competition is tough among the world's most innovative regions. Jessica Stark, CEO and co-founder of SUP46, agrees that Stockholm currently has a strong position, but this is not enough; "Right now we're very strong, but it's essential that the work goes on continuously. There's tough competition for our position. There isn't any time to sit back, but we need to employ what we've built and continue to create good relationships with international investors and politically to make ourselves more attractive."

The region is growing further within several focus areas. Life science, cleantech and information and communications technology are areas where organisations and companies in the region are world leaders and attract both talent, companies and capital. Due to this Hans Enocson, President and CEO of GE for the Nordic countries views Stockholm as an interesting place to be in. "It's interesting to work where new knowledge is created. Right now a lot of new knowledge is being created in Stockholm and in Sweden generally in the health area."

Even though the region is described as one of the world's strongest, there are significant obstacles for the region's actors. In the following chapters innovation thresholds in the region are identified, such as the housing issue, procurement rules which do not promote innovation and a difficult to navigate system for the supply of capital.

The media debates of 2016 have highlighted the problem of attracting talent for stimulating companies to grow and stay in Sweden. InnovatioN Sthlm's survey partially confirms this view as 56 per cent state that problems of finding housing have affected the recruitment opportunities of organisations or companies to a high or very high degree. Half of the respondents state that they have found it difficult to attract talent due to Swedish tax rules. The educational system is identified as being an even greater problem where 68 per cent state that it is adapted to the needs required for strengthening the innovation atmosphere in the County of Stockholm to a low or very low degree.

THE INNOVATION ATMOSPHERE IN BRIEF

71 %

state that the innovation atmosphere in the County of Stockholm is currently strong or very strong.

67 %

state that the innovation atmosphere in the County of Stockholm has developed in a positive direction over the past five years.

63 %

state that they believe the innovation atmosphere in the County of Stockholm will develop in a positive direction over the upcoming five years.

68 %

state that the educational system is adapted to the needs required for strengthening the innovation atmosphere to a low or very low degree.

56 %

state that problems of finding housing have affected the recruitment opportunities to a high or very high degree.

50 %

state that Swedish tax rules are an obstacle for the organisation to attract talent to a high or very high degree.

AREA 1

ATTRACTIVENESS

An innovation-promoting region must offer opportunities for everyone. Then it is necessary for the housing market to function.

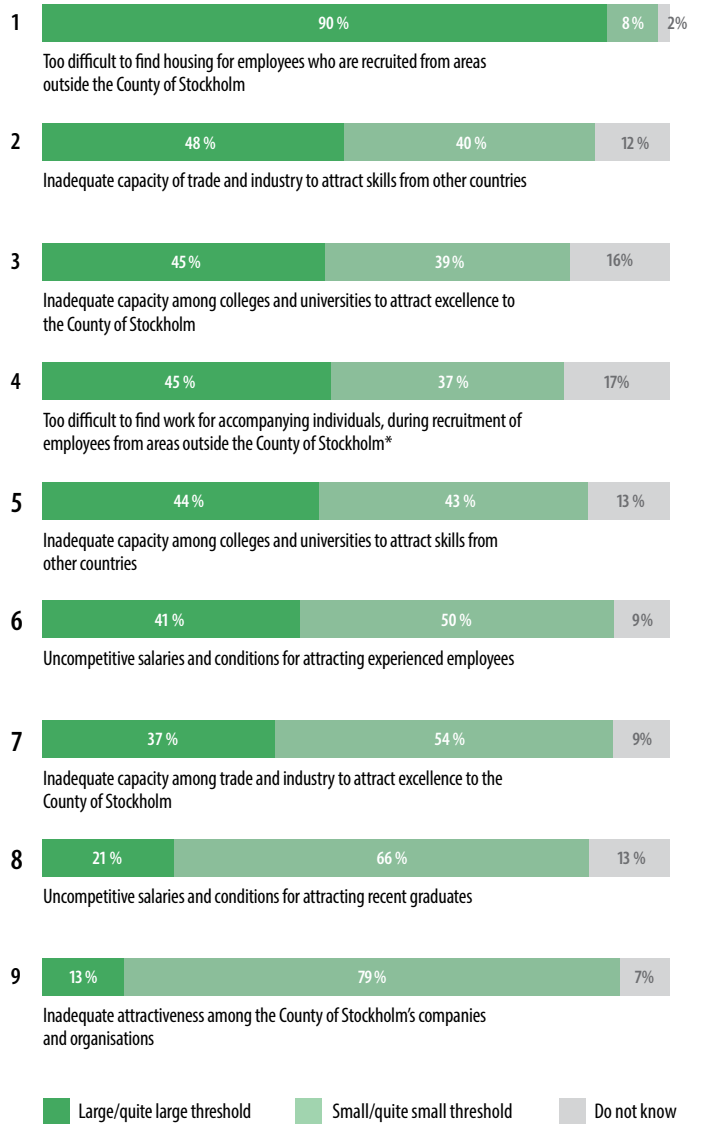
According to the survey respondents, the County of Stockholm's innovation atmosphere is weakening due to the difficulty of attracting skills to the region. The single most important factor here is the difficulty of finding housing for employees of the County's companies and organisations.

Esma Dautovic, Platform Engineer at the start-up Lifesum, would prefer to continue residing in Stockholm in the long-term, but envisages challenges in terms of planning her life here and believes that the problem of finding housing can prevent people from moving here. "Lifesum supports diversity and does many things to make everyone coming from abroad feel very comfortable. Stockholm, as a city, makes it hard for an expat family or people not able, due to life circumstances, to take risks and one of these risks is as simple as having a place to live. Asking for a whole family to move here when it is so difficult to find an apartment, is hard."

It can be seen as a paradox that the life balance which so many people are attracted to in Sweden is impossible for some to attain.

"Stockholm as a city makes it hard for an expat family or people not able, due to life circumstances, to take risks."

THRESHOLDS ATTRACTIVENESS



* Due to rounding off to the nearest integer, the totals do not always amount to 100%.

AREA 2

CULTURE AND VALUES

Strengthening the innovation atmosphere in Stockholm is a joint concern. Innovation actors in the County of Stockholm need to work together to a greater extent to strengthen the innovation atmosphere.

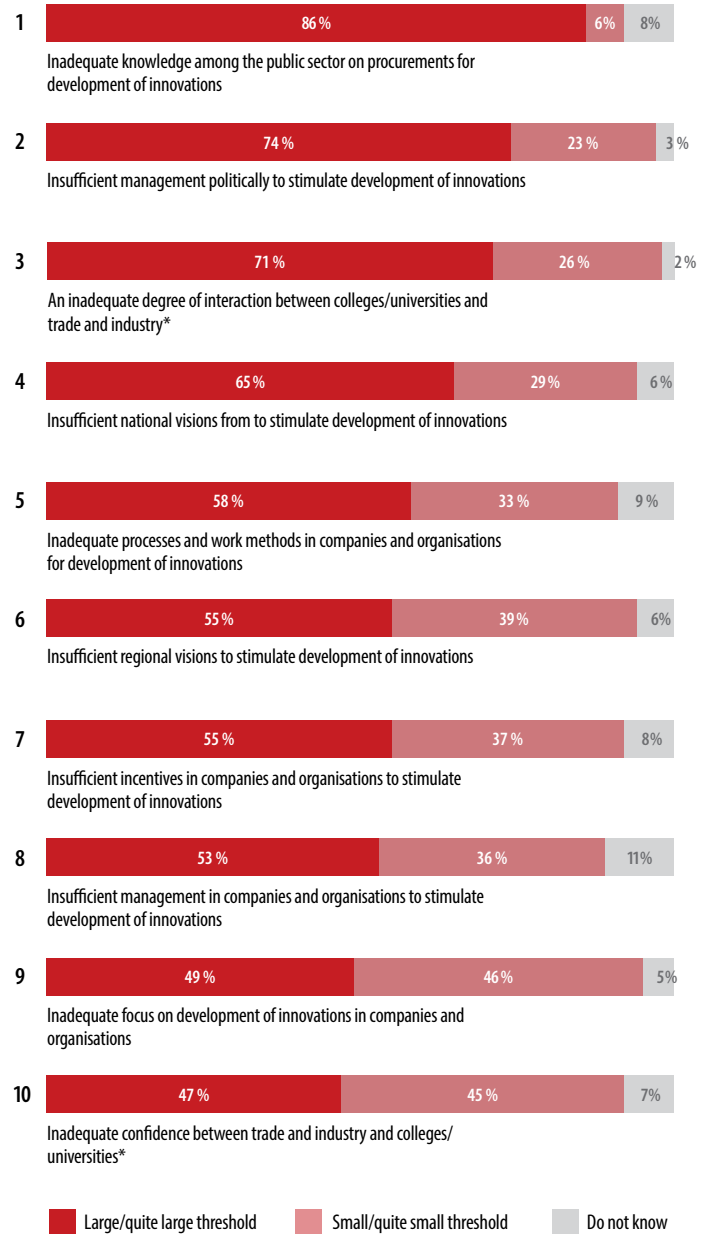
Culture and values impact key areas of the County of Stockholm’s innovation atmosphere. The structure of procurements can be identified as an important challenge for the region. Almost nine out of ten identify the public sector’s inadequate knowledge of procurements for development of innovations as a large or quite large threshold. In addition, seven out of ten state that insufficient management from politics to stimulate the development of innovations comprises a large or quite large threshold.

Interaction and collaboration between different organisations also need to be promoted. Inadequate interaction between academia and trade and industry is a distinctive threshold. Daniel Forslund, Commissioner for Innovation and eHealth at Stockholm County Council, perceives cooperation between innovation-promoting actors as halting. “Now collaboration between different social sectors and actors takes place on an ad hoc basis. Having a joint platform for different actors to get together would make things easier. Nothing like that exists right now, which makes it difficult to survey the landscape.”

On the other hand, according to Andreas Hatzigeorgiou, Chief Economist at the Stockholm Chamber of Commerce, a new entrepreneurial culture is starting to emerge which is strengthening Stockholm’s innovation atmosphere. “[Stockholm is] a mix of stable and efficient innovation factories, something which we’ve had for more than 100 years. For example, I’m thinking of ICT and Ericsson who account for a large share of the total applied patents. But despite and partially due to this, we also have such an exciting and fast growing start-up scene. Synergies have been created between the old companies and the new start-up scene.”

“Now collaboration between different sectors takes place on an ad hoc basis, having a joint platform for different actors to get together would make things easier.”

THRESHOLDS CULTURE AND VALUES



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AREA 3

SUPPLY OF CAPITAL

The difficulty of being able to survey support for innovations and lack of courage for early investment hampers the innovation atmosphere.

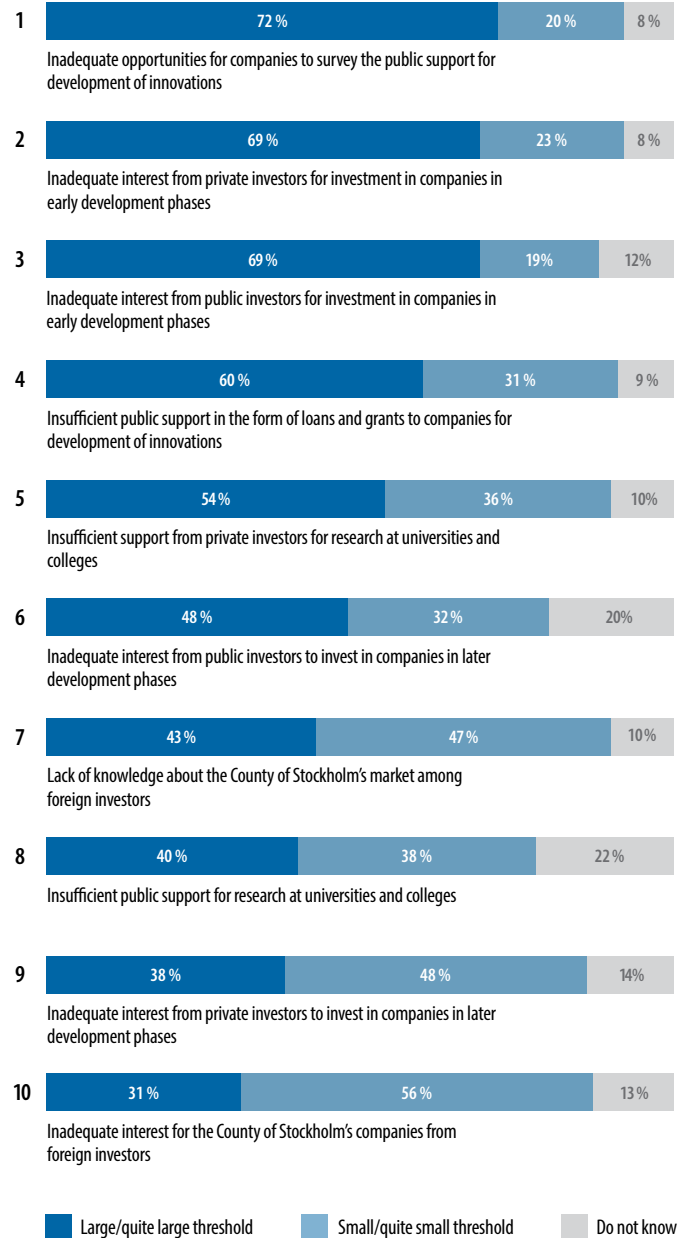
With clearer information it should be possible to overcome the thresholds.

Seven out of ten describe an inadequate survey of the public support for development of innovations as a large or quite large threshold. Gunilla Ekström, consultant and adviser within Life Science describes the complicated environment for the County's innovation actors. "Fragmentation in financing opportunities is problematic, especially in terms of all the different kinds of support you can apply for. It's particularly complicated if you've got a small company and are trying to get financing from both the State and other sources of finance."

Another threshold which is almost equally important for companies and organisations is the inadequate interest for financing in early development phases, primarily from private investors. On the other hand, in terms of research funding Nicole Kringos, Associate professor at KTH Royal Institute of Technology describes the situation within universities and colleges: "You need to create your own opportunities in the research sphere. I sometimes think that you hear people expecting to be granted funds, but you need to be passionate and have driving force to get the funds you deserve. Being lazy won't have good results. It shouldn't be too easy."

"Fragmentation in financing opportunities is problematic, especially in terms of all the different kinds of support you can apply for."

THRESHOLDS SUPPLY OF CAPITAL



AREA 4

INFRASTRUCTURE

Well-developed infrastructure is a strength for the County of Stockholm’s innovation atmosphere.

Now infrastructure entails more than roads and electricity supply networks. In an era when open data is available everywhere, and when processor power and storage space can be rented through cloud solutions, the digital infrastructure is at least equally important for the region’s entrepreneurs. And the County of Stockholm’s infrastructure can be a trump card for the region. None of the mentioned thresholds are perceived as particularly large for the innovation atmosphere in the County of Stockholm. The largest threshold is the lack of office premises, but only roughly one fourth identify this as large or very large.

Siavash Ghorbani, CTO and co-founder of Tictail, claims that if infrastructure is at the forefront this stimulates innovation. “If you’re at the forefront in terms of infrastructure and in fact if the entire social system is at the forefront and if you’re part of such an environment, then you can also identify new consumption patterns. It provides a preview of the future, and then perhaps someone will get an idea of how to solve the challenges associated with it.”

AREA 5

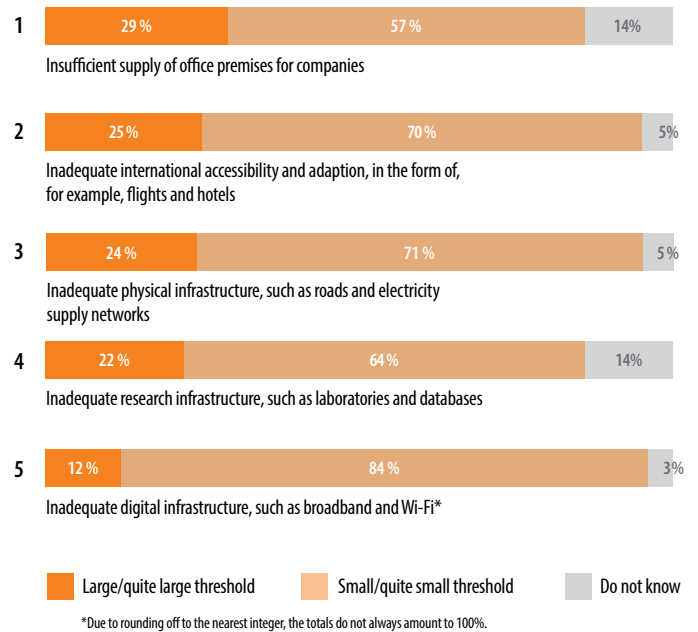
SKILLS AND KNOWLEDGE TRANSFER

Knowledge transfer and commercialisation of research results need to be strengthened.

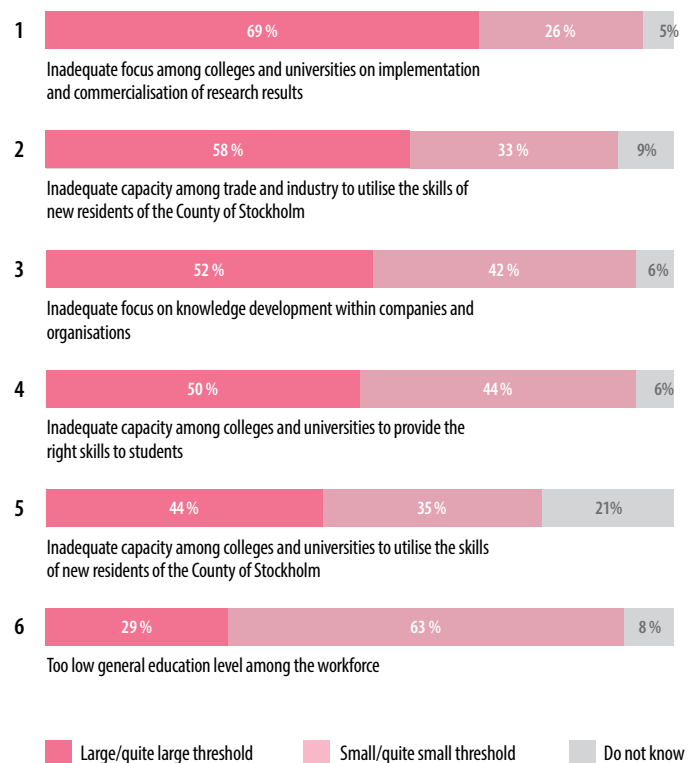
Commercialisation of knowledge, knowledge transfer and knowledge acquisition are key activities in an innovation ecosystem. Seven out of ten responded that inadequate focus among colleges and universities on implementation and commercialisation of research results comprises a large or quite large threshold. And approximately six out of ten see deficiencies in the knowledge development within companies and organisations as a threshold. Sebastiaan Meijer, Professor in Health Care Logistics at KTH Royal Institute of Technology is of the opinion that the problems are particularly clear within the public sector. “It takes a really long time to commercialise in Sweden, especially in terms of the public sector. Accelerating processes would necessitate cultural changes, but where should you start in order to change it?”

However, the level of skills is generally high in Stockholm. Erik Engellau-Nilsson, Head of Communications and Marketing at Klarna, sees the high level of skills in Stockholm as a reason for the difficulties of attracting people from outside not having greater negative consequences so far. “We’ve managed to recruit skills from other countries to a relatively large degree, but it’s very difficult to get them to come here, mainly because of the weather, housing and compensation structures. But on the other hand we’ve got a lot of competent people in Stockholm, so it has not been a huge problem so far.”

THRESHOLDS INFRASTRUCTURE



THRESHOLDS SKILLS AND KNOWLEDGE TRANSFER



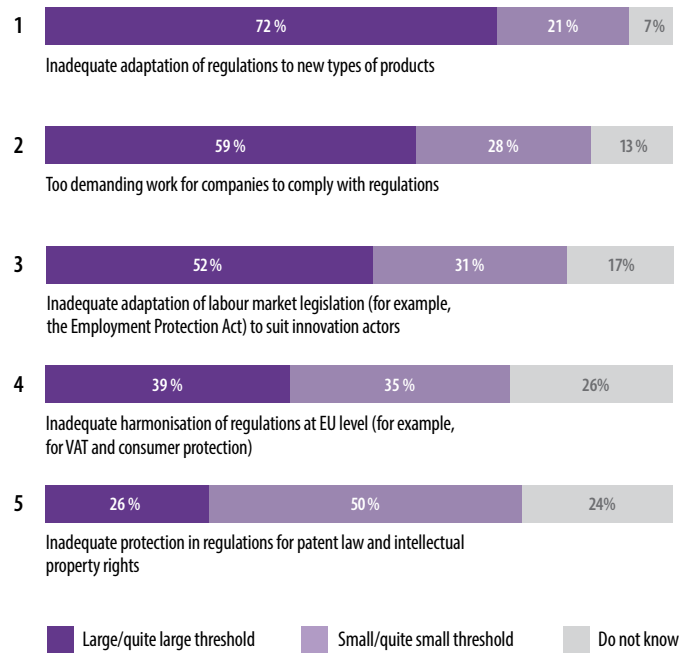
AREA 6

REGULATIONS AND POLICIES

Rigid regulations are seen as a large threshold for innovation. Innovation requires more flexible regulations.

Innovation is multifaceted. Technology, business models, design and advertising are all areas which change the fundamentals of products and services. Seven out of ten respondents see inadequate adaptation of regulations to new types of products and services as a large or quite large threshold. Hans Enocson, President and CEO of GE for the Nordic countries, sees both opportunities and challenges for making the County of Stockholm more attractive. “Everything which hampers the adoption of new technology is actually an obstacle. For example, procurement rules where you procure on the basis of price and not outcome, and the legal problems on safety and the individual’s right need to be solved.” He also emphasises the need of continuous development of legislation and policies to provide innovations and technology the scope for development and testing.

THRESHOLDS REGULATIONS AND POLICIES



AREA 7

MARKET CONDITIONS

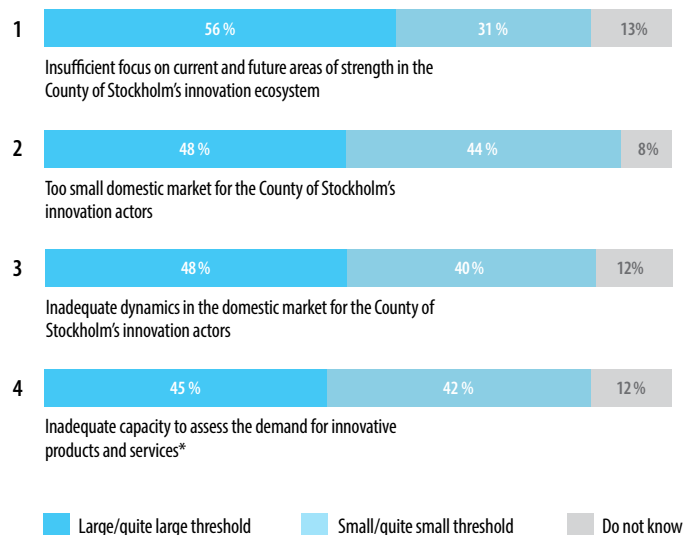
A challenge for the County of Stockholm is to identify and support present and future areas of strength.

At what point does “bleeding edge” – expensive and resource-demanding experimentation with new technology – become “cutting edge” – a new trend? This is a question which the County’s innovation-promoting actors need to ask themselves in order to be able to help, identify and strengthen the future areas of strength. Approximately half of the survey respondents believe that inadequate focus on current and future areas of strength is a threshold.

Jessica Stark, CEO and co-founder of SUP46, describes the market conditions in the County of Stockholm as being generally good.

Previous success stories like Klarna and Spotify have created an environment of success and attract investments and interest from outside. However, she also describes a number of challenges including inadequate interest among large companies to cooperate with start-ups. “There is a lack of interest among large companies to get involved and approach innovative and newly-started companies, so that we can find more cooperation opportunities. This is needed as many start-ups offer B2B solutions which require test customers and early customers to continue scaling up.”

THRESHOLDS MARKET CONDITIONS



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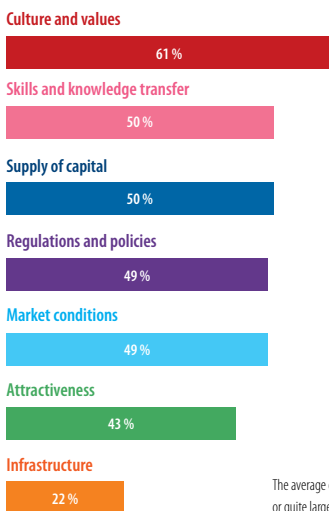
SUMMARY AND ANALYSIS OF THE RESULTS

After reviewing the seven areas which describe the County of Stockholm’s innovation system, it is time to summarise the survey. In this section we provide a brief summary of the results as a whole and can see, among other things, that culture is the area where most respondents identify significant thresholds for the innovation atmosphere.

The quantitative data does not only allow us to identify important thresholds within the framework of an area, but also to compare the areas themselves (Figure 1). By comparing the share who stated that thresholds within one area are “large” or “quite large,” we can see that culture is the area where the majority have identified thresholds as being large or quite large, while attractiveness and infrastructure are areas which are not deemed as containing equally large thresholds. The average of respondents who stated that the claims comprise a large or quite large threshold, divided by area. However, the differences are relatively small.

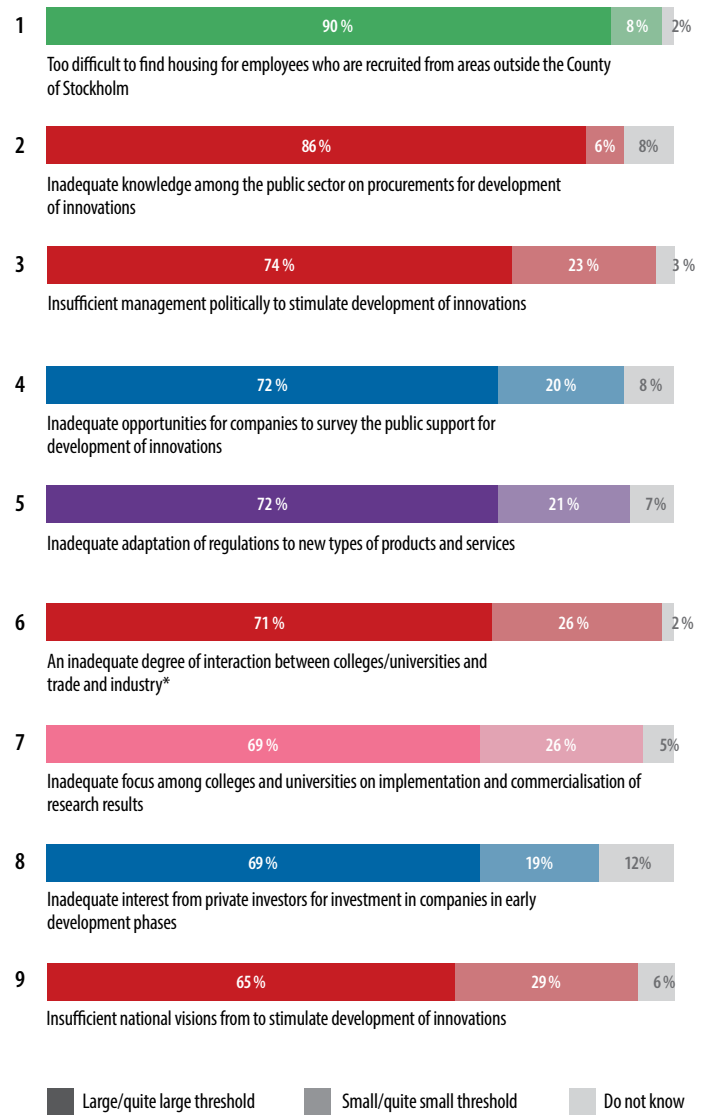
It may often be useful to compare groups of respondents. We can see that the most important background factor which affects how respondents assess thresholds for a stronger innovation atmosphere is their own need of foreign workforce. Respondents who require foreign workforce in their business see, for example, demanding work for companies in terms of compliance with regulations and a too small domestic market as significant thresholds. The need of foreign workforce is more important in order to distinguish respondents than the domicile in the public sector, private sector or colleges/universities.

FIGURE 1: COMPARISON BETWEEN THE INNOVATION INDICATOR’S SEVEN AREAS



The average of respondents who stated that the claims comprise a large or quite large threshold, divided by area.

FIGURE 2: THRESHOLDS WHICH THE MAJORITY HAVE ASSESSED AS BEING LARGE OR QUITE LARGE



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We can also consider the thresholds (Figure 2) which have been assessed as large by most respondents. A recurrent factor is the political management: insufficient political initiatives to stimulate innovative work, inadequate adaptation of regulations to new types of products, and insufficient political visions, are all related to policies. The public sector also recurs among the highly ranked claims: inadequate knowledge among the public sector to structure procurements for development of innovations, and public support to companies which is difficult to survey for development of innovations are linked to this factor.

However, the largest threshold among all the thresholds relates to finding housing for new employees.

MEASURES FOR A STRENGTHENED

Invitations to the Stockholm County actors for a stronger innovation climate in the region

1 Dare to be visionaries!

Many respondents see a lack of more concrete visions and initiatives for stimulating innovations – both in the County of Stockholm and on a national level. Daniel Forslund, Commissioner for Innovation and eHealth at Stockholm County Council, comments on the situation earlier in the report, “now collaboration between different social sectors and actors takes place on an ad hoc basis. Having a joint platform for different actors to get together would make things easier.” Public support which is difficult to survey for development of innovations is also described as a large threshold in the Innovation Indicator. Define a coherent regional and national vision more clearly, and create concrete tools for attaining it.

3 Solve the housing issue!

It is difficult to say with certainty what influence Daniel Ek and Martin Lorentzon have had on the Innovation Indicator 2016, but it is certain that the threshold which the majority have identified as being large or quite large, is the difficulty of finding housing for new recruitments. In organisations for which the opportunity to recruit from other places outside the County of Stockholm is important, 68 per cent responded that problems of finding housing have had a negative impact on recruitment opportunities.

5 Make it easier for companies to hire workforce from outside!

Many challenges are associated with the need of workforce from places outside the County of Stockholm. The housing shortage is one such challenge, but there are also other challenges. For example, the work on compliance with regulations is perceived as a large or quite large threshold by 65 per cent of the respondents from organisations with a need of workforce from other places. 57 per cent of the respondents who need workforce from outside claim that Swedish tax rules are a significant obstacle for attracting talent. Investigate how the thresholds in the County of Stockholm’s labour market can be reduced.

2 Colleges, universities, the public sector and trade and industry – talk to each other!

Colleges and universities are perceived as having a too low degree of interaction with trade and industry and the public sector. Innovation and knowledge generation are closely linked. Therefore this is a key issue, together with a greater focus on commercialisation and utilisation of research results, an area which is also highlighted as a significant threshold in the survey. However, trade and industry and the public sector also have an obligation to develop contacts. All innovation-promotion actors of the County also need to support the work. Develop platforms for inspiration and knowledge transfer.

4 Public sector – encourage innovation in your procurements!

86 per cent of the respondents see a large or quite large threshold in the procurement documents which fail to stimulate innovation. Several open responses in the survey highlight this: “[...] procure innovation, primarily in early phases” and “test innovation-driven procurement for facilitating the commercialisation of innovations in the domestic market,” include some of the proposals. Ensure that guidelines for innovation procurements are really implemented and disseminated. This will encourage innovation.

INNOVATIONSKRAFT STHLM

Innovationskraft Sthlm is a broad cooperation on the Stockholm region's innovativeness. The purpose is to collect and coordinate initiatives which impact the region's innovativeness and to gather the region's key actors behind a joint innovation strategy.

The founders are the Stockholm County Administrative Board, in cooperation with Karolinska Institutet, the Stockholm County Association of Local Authorities, KTH Royal Institute of Technology, Stockholm Business Region, Stockholm Chamber of Commerce, Stockholm County Council, City of Stockholm and Stockholm University.

Find out more at www.innovationskraftsthlm.se