

**6000**  
international doctoral  
students in Sweden

**5 million SEK**  
- the average cost of  
education a doctoral  
student

**Only 38%**  
still in Sweden 3 years  
after dissertation

# Can Sweden afford to loose them?

Supporting international junior researchers' career  
opportunities outside academia



## Preface

One of the greatest challenges for many Swedish companies today is recruiting the right, highly talented skills. At the same time, Swedish universities graduate thousands of PhDs yearly, of which only a fraction will continue an academic career.

Among several actors, the Swedish Innovation Agency *Vinnova* has identified the group of international junior researchers as a possible part of the solution for the lack of skilled talent in Swedish companies. Therefore, EURAXESS Sweden was approached to investigate the role of Swedish universities in guiding international junior researchers to a possible career outside academia after finishing their time at a Swedish university. EURAXESS is a pan-European initiative to help support research mobility and career development of researchers in Europe.

This report was carried out by representatives from four Swedish universities, all of which are also EURAXESS Centres: Linköping University, Karolinska Institutet, University of Gothenburg, and Malmö University. Moreover, the project includes input from respondents representing half of the Swedish universities with the right to award doctoral degrees, collected through surveys and interviews.

Wishing you a pleasant and mind-opening reading!

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**Published April 2024**



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# Executive summary

## The current state

Swedish companies are facing an unprecedented skills shortage, which is expected to worsen in the coming years. Many companies now realise that international recruitment is needed to fill the skills gap. However, there is no need to necessarily look abroad, as the most low-hanging fruits to pick are international academic talents already in the country – meaning primarily students and researchers currently at Swedish universities. While the work of retaining international students has begun, the effort to include international researchers, especially junior ones, as a possible and valuable infusion into the Swedish industry has not yet been emphasised.

## The mission

With the above in mind, the Swedish Innovation Agency (*Vinnova*) appointed representatives from the EURAXESS Sweden network to investigate possible actions to be done at Swedish universities, as well as the role of industry and other organisations, to support international junior researchers to find a possible career also outside academia in Sweden.

The report is set up from four different perspectives:

- The researcher's view on a career outside academia
- The role of Swedish universities
- The role of industry
- External actors/organisations - hindrance or enablers

## The respondents' point of view

It is clear from the data collected that many international researchers would consider a career outside academia in Sweden but feel they lack the support and preparation to dare take the leap. Only a few doctoral students will continue towards a senior research career, as most junior researchers leave academia at some point. Swedish universities, as their employers, should collaborate with each other and work together with the industry to help them prepare for this next step.

A number of universities offer limited career support for employment outside of academia, but most don't. It's evident that universities must find a more structured and cohesive way to work with career support for junior researchers, whether they will continue within or outside academia. The reason to do so can stem from the role universities play in society to provide impact and utilisation of research results, but also as a means to be an attractive employer.





Supervisors play a vital role in helping doctoral students plan for the future and give information on different career options both within and outside academia. Our findings show, however, that most supervisors do not take on this role of supporting career planning. An essential tool to make this work structural is the Individual Study Plan (ISP), which all doctoral students must complete each year and go through with their supervisors. Today, only a handful of universities use this tool for career planning, but ideally, the ISP should include career planning at all universities in Sweden and target both careers within and outside academia.

It's not only the role of the universities to support their junior researchers - several other actors also play an important role in helping international junior researchers find their place in the non-academic job market. Industry, and especially the view by companies on international researchers, is today a challenge that needs to be addressed. How to best use the researcher's skills in the organisational structure might be challenging. Companies may find it a double obstacle if the researcher is also international. With this in mind, we see that universities and industry need to work closely together to help researchers and companies meet. Universities can help create awareness of a researcher's complementary skills and show the comprehensive role someone with a researcher background can have in a company - not only in an R&D department.

Furthermore, other actors can significantly impact researchers' possibility of remaining in Sweden and contributing to the Swedish workforce. For instance, the government has several means to better encourage universities to work more structurally with non-academic career support (for example, through the *regleringsbrev*). Several agencies, such as the Job Security Foundation (*Trygghetsstiftelsen*), the Swedish Public Employment Agency (*Arbetsförmedlingen*), and other municipal and regional actors, also have an essential role to play.

In **conclusion**, the following **recommendations** are made for the actors involved:







## FOR THE UNIVERSITIES

- Make it mandatory in the doctoral students' Individual Study Plan (ISP) to include a section on career guidance within and outside academia
- Offer training courses for the supervisors on the role of being a career guide
- Offer courses for doctoral students and postdoctoral researchers on alternative career paths, preferably compulsory or where credits are given
- Use the transition funds (*omställningsmedel*) provided by the Job Security Foundation (*Trygghetsstiftelsen*) to finance actions for career guidance outside academia
- Collaborate amongst several units of the university, as well as with support organisations such as the Junior Faculty, to create a network for sharing resources and insights
- Collaborate between universities in offering career support to researchers
- Offer courses in Swedish to all international students and employees; promote the courses and make them as accessible as possible
- Work with talent retention with companies in the region, with a focus on the university's strategic partners
- Work strategically with alumni of the university, for example, through sharing success stories or offering mentorship programmes



## FOR THE INDUSTRY

- Collaborate with universities to provide internships for junior researchers
- Create examples of how valuable it can be to hire someone with a PhD and find good ways to share them
- Make efforts to be more open to international recruitment, international junior researchers in particular, by, for example, revising the language requirements



## FOR THE GOVERNMENT

- Create a collaboration bonus for Swedish universities, making it profitable with a high level of collaboration in matching researchers' skills with companies' needs
- Use *regleringsbrev* (regulation letters) as a mission statement for all public Swedish universities to help them implement career support
- Learn from governments that already have established support for junior researchers, such as Denmark and Finland, to make a structure in doctoral education for time outside the university
- Change migration legislation regarding the possibility for job seeking permit to be extended to two years





## FOR OTHER ACTORS AND ORGANISATIONS

- For the Job Security Foundation (*Trygghetsstiftelsen*) help universities see what options there are to use transition funds (*omställningsmedel*) for activities to support a career outside academia
- For the Swedish Public Employment Agency (*Arbetsförmedlingen*), make a section on the website for jobs requiring only English and make it possible to search for someone with a PhD as a keyword
- On a municipal and regional level, offer Swedish for Academics, such as a special section of SFI only for people with an academic background



## FOR THE INTERNATIONAL JUNIOR RESEARCHERS

- Start learning Swedish early on if you intend to stay in Sweden; this is important both regarding a career inside and outside academia, as well as for integration purposes
- Ask your supervisor about career support outside academia, for example linked to the ISP
- It is important to take ownership of your career development and make sure you start in good time!

**The best effects will be seen if each actor takes responsibility and act for their part, with the overall goal of working together to ensure that the needed highly skilled competence stays in Sweden.**

# Background

In a report from the IT & Telecom companies of Sweden in 2020<sup>5</sup>, a prediction was made that there will be a lack of 70 000 tech talents this year (2024). This brutal reality is also confirmed in a report by TechSverige<sup>6</sup> that came out in 2024, stating that from 2024 until 2028, Swedish companies will lack 18 000 tech competences yearly. In addition, IKEM's (*Innovations- och kemiindustrierna i Sverige*) report *Kompetensjakten* (Competence hunt)<sup>13</sup> from 2023 states that if the growth continues in the same way, the chemistry and innovation industry will need to recruit up to 12 000 higher educated, of which 8 000 with research education, before 2030.

Sweden has, for a long time, been at the forefront of innovation. Still, indicators show that we are failing to keep up this role, which is connected to not finding the right competencies to empower Swedish organisations. "In order for Sweden to continue to be a country that competes with a high level of knowledge and innovation, top-class education is therefore required as well as continued opportunities to attract, recruit and retain talent globally."<sup>3</sup>

It's becoming increasingly evident that the problem of a lack of talents in Swedish companies won't be solved with purely a domestic workforce. As stated in The International Talent Map Report<sup>1</sup>, a study done by the Vinnova financed project Switch to Sweden: "National and regional talent attraction management is becoming a key driver for innovation and growth. As companies struggle to identify and recruit the talent they need locally, they increasingly need to look not just regionally, but internationally." The same report shows that many companies see recruitment becoming even more challenging in the next few years.

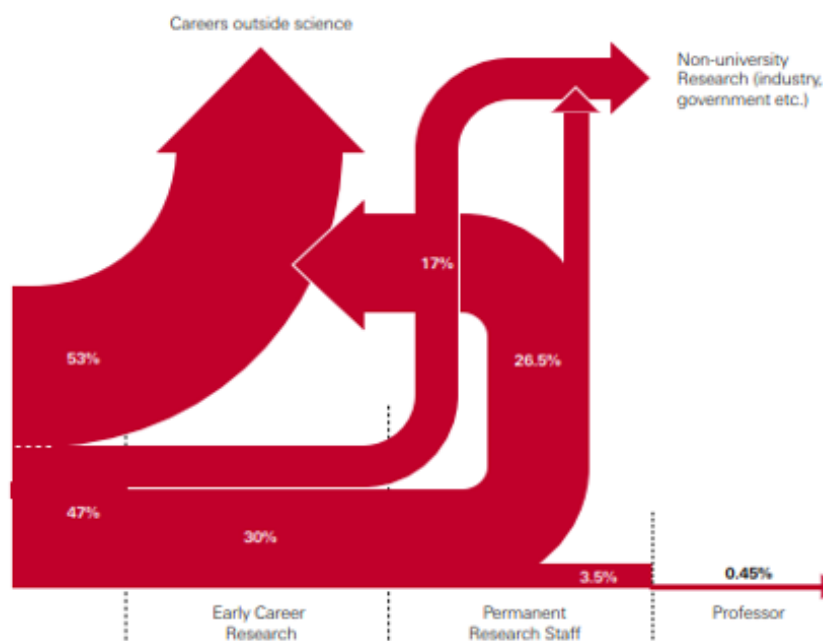
It's also a matter of Swedish finances and international talents' impact on the national finances. If we look south to our neighbor, Denmark, we can see that if Copenhagen could retain all international talents 6 months longer, it would create an economic benefit of 850 million euros<sup>1</sup>. This shows that efforts and money spent keeping these international talents in Sweden could significantly impact our financial situation. An example of how international talents can bring revenue for Sweden is seen in the IKEMs analysis report "Labour Immigration is Central to Swedish Economy and for the Industrial Transition"<sup>33</sup>. According to the report, work-related immigration contributed with 45 billion SEK to the national economy via value added and 15 billion SEK in tax revenue (2022). Recent numbers from the Confederation of Swedish Enterprise (Svenskt Näringsliv)<sup>38</sup> show that in 2023, work-related immigration contributed to 52 billion SEK in Swedish Gross National Product. In addition, work-related immigration contributed with 17 billion SEK in tax revenue.

However, rather than only looking beyond the Swedish border, the lowest-hanging fruits to pick are the international academic talents already in Sweden, primarily at the universities. As stated in the Talent Map Report<sup>8</sup>, also by Switch to Sweden: "Retention is the new attraction." Until now, a large focus has been put on what can be done to get more international programme students to find a job in Sweden after their finished studies, but not as much has been done to see how we can keep international junior researchers in Sweden. The vast majority of doctoral students in Sweden, whether national or international, will leave academia for one reason or another. It could be because they want to themselves - but it could just as likely be because they realise that there are few opportunities within academia and that it's a competitive world.



***“A PhD can be a gateway to a scientific career. But, the majority of people undertaking a PhD will end up in careers outside scientific research (see figure below). The journey from PhD student to professor is punctuated by key transition points. At each of these points, some scientists leave scientific careers, and only a tiny proportion of PhD students can expect to end up as a university professor”.***

*- The Royal Society*



**Figure 1.** Careers in and outside academia<sup>17</sup>



***“Educating a PhD student costs an average of SEK 5 million. It’s an extreme waste of resources that highly educated labor leaves Sweden. In addition, it has negative consequences for the image of Sweden, which in the long run worsens our competitiveness as a nation”.***

- Naturvetarna, 2023

The international junior researchers face a double challenge, both being international and being researchers, as they are often a group perceived as complex to understand by employers. Many companies don't initially see that someone with a PhD is needed or fits into their organisation – they need help from academia to make that clearer.

So far, there has been minimal discussion about the role of universities in helping international junior researchers discover all possible career paths, both within and outside academia. The level of career support given to this group varies significantly between Swedish universities, and the government has no clear mission statement towards the universities as public agencies. This report will tie the perspective of the role of the universities with three other perspectives when exploring how to best help international junior researchers find a possible career outside academia.

These perspectives are:

- The researcher's view on a career outside academia
- The role of Swedish universities
- The role of industry
- External actors/organisations – hindrance or enablers

At the end of the report, all the perspectives above will lead to several conclusions and recommendations that target different actors in society. This report aims to be a motor behind realising Sweden's potential. The authors, as well as the respondents of this report, firmly believe that close collaborations between relevant actors can deliver results that help develop Sweden's position as a world leader in innovation and technology.



## Scope

The report is aimed towards everyone interested in how the most skilled academics can help supply Swedish companies with competence. Most affected by the outcomes of this report, as seen by the authors, are representatives of Swedish universities, companies, as well as other relevant agencies, organisations and legislators.

This report focuses on the support given to junior researchers, rather than senior researchers, who are much more prone to staying in academia after establishing a stable career at a university. The other aspect we will investigate is the international research community. International researchers often need more support in establishing themselves in and understanding the Swedish job market than their domestic colleagues. Ultimately, the main focus of this report will be career support given to international junior researchers at Swedish universities. But as the support often isn't or doesn't need to be differentiated between international and domestic the general term junior researcher is used when applicable.

There are many descriptions of researcher positions that can be used to describe researchers in the early stages of their research careers. We will use the terminology "junior researcher" when referring to doctoral students undertaking their PhD or a person holding a postdoctoral position.

Another important term is "university". All Swedish higher education institutions (HEIs), both full universities (*universitet*) and university colleges (*högskolor*), are hereafter referred to as "Swedish universities". Swedish words used in the report will be italicised.

Data that serves as the basis for this report has been collected from primary sources (through surveys and interviews) and secondary sources (such as reports, websites, etc.). The aim of the data is to bring statistical relevance when discussing this matter, but it also consists of individual opinions on the subject - both from respondents, interviewees, and the authors themselves. Some primary and secondary data are in their original form in English, and some in Swedish. Since there are both a Swedish and an English version of the report, some sources have been translated when quoted or referred to.

To get some international benchmarking on how Sweden is doing compared to other countries, we will investigate two of our Nordic neighbours, Denmark and Finland, as they are at the forefront in many aspects of international talent attraction and retention and are similar to Sweden in many ways.



## PART 1

### **The researchers' view on a career outside academia**

The number of international doctoral students in Sweden has risen dramatically over the last 25 years and the share of internationals compared to nationals are much higher than the OECD average. Many of the state that they wish to continue a career in Sweden, both within and outside academia, but still the majority of them end up leaving the country.

How come?



The European Union describes four researcher profiles, R1-R4<sup>24</sup>. Each profile includes characteristics researchers may have throughout their careers. However, these profiles may not always be used uniformly across all countries. In particular, grant agencies could instead have rules based on the date of a researcher's dissertation defence or graduation as a PhD.

The first descriptor includes doctoral students (R1), and the second includes postdoctoral researchers (R2). These two groups are the focus groups of this report. Doctoral students in Sweden hold two roles - as students and (most often) employees. Postdoctoral researchers have only the role of employees. Nevertheless, in both cases, they can be granted for their research project by external agencies and receive their salaries through scholarships.

In 2022, Sweden had 40 692 people employed in a research position at Swedish universities<sup>4</sup>. Besides that, 17 450 doctoral students were also undergoing their studies<sup>35</sup>.

An OECD report shows that the proportion of foreign doctoral students is higher in Sweden than the average of the OECD countries, 35.5% compared to 22.4%. By 2020, the share of foreign registered doctoral students in Sweden had increased from 11% in 1997 to 37% in 2020, with the highest proportion within natural sciences and technology.<sup>3</sup>

In the Talent Map Report<sup>8</sup> we can see that the primary reasons for doctoral students to come to Sweden are "interesting universities" followed by the "opportunity to pursue a career in Sweden after education". There is a high interest from international doctoral students to continue an academic or non-academic career after their dissertation, but still, many of them end up leaving.

***"38% of foreign doctoral students remain in Sweden three years after graduation. Eight years after graduation, only 20% remained."***<sup>3</sup>



## Method

This report targets the view of junior researchers on pursuing a career outside academia in Sweden as well as how they perceive the career support given by the universities. To gather insights, we conducted a survey, which consisted of open-ended, ranking, and multiple-choice questions. The survey was sent out to the target group via the EURAXESS Sweden network, PhD Boards, and other relevant organisations and personal contacts.

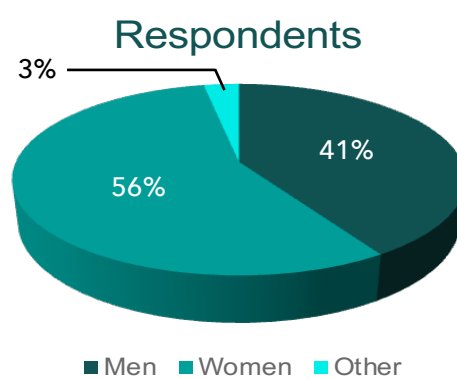
In the survey, respondents could mark their interest in being part of a semi-structured interview based on answers in the survey. With these interviews we could get a deeper understanding of the findings in the survey. Nearly half of the respondents showed interest in participating in such an interview. 13 respondents were chosen randomly to represent the researchers in more in-depth interviews.

## Findings

In total 167 individual researchers representing 16 different Swedish universities responded to the survey. The findings from the survey and the interviews give us a better understanding of why researchers would or would not choose to stay in Sweden and why or why not they are open to a career outside academia in Sweden. We also found out how they perceive the support they get from the universities regarding career planning and what they perceive as the biggest hurdles for a career outside academia in Sweden.

## Who are the respondents?

In the survey, a relatively balanced gender distribution is evident, where 56% identify as women, 41% as men, and 3% either identify differently or prefer not to disclose their gender. There is an even split between individuals from EU/EEA and non-EU/EEA countries; a range of those are born between 1972 and 2001, with the majority born between 1985 and 1998. Most respondents in Sweden live in single households (40%), with a partner (34%) or with a partner and children (22%).



Respondents are, or have been, engaged in research across various fields, including IT, technology, engineering, life sciences or biomedicine, arts and humanities. Notably, life sciences and biomedicine (28%), social sciences (24%), and engineering (23%) each account for more than a fifth of the responses. About half of the respondents have past work experience outside academia in a country other than Sweden, and 37% have work experience outside academia in Sweden. Most of the respondents (70%) are currently pursuing their doctoral studies in their second year or later.



## Researchers' attitude towards a non academic career

A large amount of the 167 respondents, over three-fifths, expressed a positive attitude towards pursuing a career outside academia in Sweden, with one-fifth potentially interested. A slightly larger percentage of women than men were positive (around 10% more).

For those *not* positive towards a non-academic career in Sweden, the major barriers appear to be:

- difficulty in finding jobs outside academia
- a lack of proficiency in Swedish
- limited opportunities in their field beyond the academic sphere.

Challenges in obtaining permanent residency and the view of closest kin in Swedish legislation were also mentioned. According to Swedish law, only spouses and children are counted as closest kin, while parents and siblings are not. This can be an issue if you are responsible for supporting other family members who can't immigrate in terms of close kin.

On the other hand, individuals who *are* positive towards a career beyond academia highlighted the scarcity of positions within academia and the potential for better work-life balance, stability, and higher salaries outside of academia. Many respondents believe that their skills are needed in the Swedish industry, seeing it as an opportunity for growth and to work on more direct applications that have an impact on society.

## The importance of the Individual Study Plan (ISP)

An important tool for a doctoral student during their studies is the Individual Study Plan (ISP). Its purpose is to serve as a follow-up tool between the doctoral student and the university, usually carried out by the supervisor(s). In the Higher Education Ordinance (1993:100)<sup>36</sup>, it's included that "An Individual Study Plan (ISP) must be drawn up for each third-cycle student. This plan must include the obligations of the third-cycle student and the higher education institution and a timetable for the third-cycle student's study programme. After consultation between the third-cycle student and their supervisors, the plan must be adopted. The Individual Study Plan must be reviewed regularly and amended by the higher education institution as necessary and after consultation with the third-cycle student and their supervisors." However, it's up to the doctoral student and supervisor to agree upon including career development in the ISP.

85% of respondents report that their ISP isn't used for career support or exploring careers outside academia. They view the ISP primarily as a tool for organising their doctoral studies, pointing out that their supervisors tend to emphasise academic careers. Some respondents suggested more precise communication about how the ISP could be utilised from the start might have enhanced their understanding of its potential uses for a career outside academia. Doctoral students who have used an ISP mention its usefulness in tracking their PhD progress, which is handy when applying for jobs outside academia. One respondent captured the common perspective: "The way I've been taught is that the ISP is supposed to help plan your PhD, not find you a career afterwards."



## Knowledge about the job market in Sweden

Many respondents, 64%, feel they have little or some knowledge about the Swedish job market. 12% say they have no knowledge, while 24% report having good or very good knowledge. Those who feel they have good knowledge explain it by having had prior contact with the industry in Sweden and having the right tools, such as coaching, websites, and networks. The respondents who report low knowledge either haven't investigated the job market or lack access to established platforms that gather information about the Swedish job market.

## Knowledge about where to get career support outside academia

75% of the respondents use social media platforms, such as LinkedIn, to find support and information about potential careers outside academia. Turning to colleagues (59%) and supervisors (43%) is also common. Women tend to turn to their supervisors for career support to a lesser degree than men (only 37% compared to 53%). About one-fifth mention using their university's career advisor or the Swedish Employment Office for guidance. Many also emphasise that friends, job fairs, and company websites are valuable resources. However, as many as 23% are unsure where to turn for assistance in their career search outside of academia.

## Support from academia

A large number (68%) of respondents indicate that they lack academic guidance in pursuing a career outside of academia in Sweden. Almost all mention a lack of practical guidance and general career advice from supervisors and other support departments at the university. A doctoral student summarises it as: "While the academic aspects of my program were well-covered, there was a noticeable lack of emphasis on practical guidance for navigating non-academic career paths."

**Respondents suggested support from academia in the form of:**

- connections to industry and alumni through mentorships or networking events
- assistance with internship opportunities
- workshops on Swedish job application processes
- competence courses that enhance skills sought after in industry.





There is quite a significant difference between men and women concerning the perceived lack of guidance from universities on transitioning to a career outside academia. Staggering 76% of women feel they lack guidance compared to 58% of men. A few respondents mentioned feeling discouraged from leaving an academic career and highlighted a knowledge gap.

### **Hindrances to pursuing a career outside academia in Sweden**

The two biggest obstacles, cited by over 70% of respondents, are a lack of knowledge on how to match academic skills to the non-academic job market, as well as language and cultural barriers. Additionally, a lack of understanding of the Swedish job market, a lack of professional and social networks, and administrative issues (such as migration) are also relevant, with over 50% of respondents agreeing on each.

Another suggested obstacle is the high level of specialisation within a single field in academia, which can result in a perceived lack of the broader range of skills that the industry typically seeks. Family issues and difficulties finding a well-paid job outside academia in Sweden appear to be lesser concerns. However, 20% more men than women feel that family issues matter, while women rank difficulties finding a well-paid job outside academia higher than men.

### **Reasons for not pursuing a career outside academia in Sweden**

The top three reasons identified as most critical for why the respondents think that international researchers, in general, don't pursue a career outside academia in Sweden are administrative issues (such as migration), hesitation from Swedish companies to hire international staff, and difficulties in translating academic skills to match the non-academic job market.

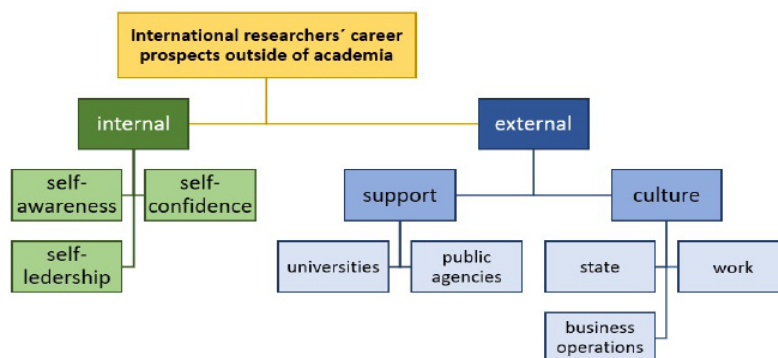
Additionally, when focusing on concerns ranked as 3/10 or more important, lack of language skills and knowledge of the Swedish job market also emerge as significant barriers, with 46% and 37% of respondents highlighting these issues. To some extent, men seem to place more importance on the lack of knowledge of the Swedish job market, family issues and cultural integration than women do.

### **Additional findings**

Respondents emphasise the necessity of improving the relationship between academia and industry. The primary obstacles mentioned are the Swedish language and administrative issues (such as migration). Additionally, some respondents point out that other countries appear more welcoming to international workers than Sweden, making those locations more appealing for careers outside academia.

## Findings from the semi-structured interviews

Results from the semi-structured interviews with 13 international junior researchers reveal two overarching themes, internal and external factors to the researcher, that can be divided into sub-themes: *self-awareness*, *self-confidence* and *self-leadership* as internal factors and *support* and *culture* as external factors. Support and culture are then themed into sub-categories: *universities*, *public agencies*, *state*, *work* and *business operations* (see Figure 2).



**Figure 2.** The two overarching themes with sub-themes are based on semi-structured interview data with international junior researchers.

### Essential Internal Factors

The overarching theme internal describes aspects related to identifying and fulfilling career-related goals and aspirations that researchers are in direct power of or can develop. It covers three sub-themes: *self-awareness*, *self-confidence*, and *self-leadership*.

#### *Self-awareness*

The theme self-awareness describes researchers' awareness of their own knowledge, skills, abilities and values. Concerns related to lack of self-awareness and how this may affect researchers' potential to attain a career outside of academia can be demonstrated through a quotation saying: ***“How do I bridge this gap between what employers might be looking for, and how do I prove on paper that I’ve got these skills that they’re after?”***

– EU female researcher in life science and biomedicine

This is consistent with the findings in the survey, where 72% of the respondents stated that the major hindrance to pursuing a career outside academia, together with a lack of language and culture, is the ability to match the researcher's academic skills with the needs of the industry.

#### *Self-confidence*

The theme self-confidence describes researchers' self-esteem in terms of identifying and fulfilling career-related goals. This includes researchers' interpretation of the easiness of finding employment outside of academia based on the field of study and ability to manage the Swedish language.

A female researcher in social sciences stated that those in the engineering field will more easily find a job outside of academia than she will. She also mentioned that the language skill requirement differs depending on the industry sector. “If you are in social sciences, the language requirements are higher since you will engage on issues related to society and the people in it, such as politicians.”



This theme also covers researchers' openness towards a career outside of academia. As declared by one researcher, researchers' unawareness of the potential to find a career outside of academia may rely heavily on the faculty or institution, including supervisors' view of having a career outside of academia.

Finally, researchers' self-confidence can also be associated with knowledge on how to identify and fulfil a career outside of academia, as demonstrated by a EU female researcher's statement on lacking relationships with individuals who are connected to organisations in the same field of interest and who can provide information on how to move around in a world outside of academia *"It feels like the only way to know something is if you have a person [in the same field outside of academia], and I don't happen to have people in the HR area, which I'm interested in, so it feels like I'm just in a dark room trying to find my way..."*

### *Self-leadership*

The theme self-leadership describes researchers' ability to take actions that help to identify and fulfil career-related goals and aspirations. This includes the ability to create a healthy work-life balance and the effect of family responsibilities on the capacity to pursue a career outside of academia. This theme also covers the willingness to take action and explore a career outside academia. The following quotations have been selected to demonstrate the findings:

***"I can't talk about Sweden as a whole, but where I'm working currently, the work environment isn't that good, so it's not that appealing. It might affect how I see other places as well, but another reason might also be that because my partner lives in Spain and has her job there, that could be another reason. But in terms of work opportunity, I would say that if they give me a good opportunity here, I would definitely stay."***

- EU male researcher in social science

***"...I think there are different skills to develop, and maybe you have more concrete results or output from your work rather than a paper that nobody reads, so I think it could be very positive and satisfying, and I imagine that you can, in some fields at least, get a more steady or reliable job and maybe even a better work-life balance. I'm quite positive about being outside of academia."***

- EU female researcher in life science and biomedicine

## Essential External Factors

The overarching theme external describes aspects related to identifying and fulfilling career-related goals and aspirations that researchers themselves can't develop or change and covers two sub-themes: *support* and *culture*.

### Support

The theme support describes researchers' view of career-related support and covers two sub-groups: *universities* and *public agencies*.

#### Universities

Universities describe researchers' view of career-related support that is or should be provided by universities. This includes non-academic related relationships that educational systems could support researchers with, aiming to increase researchers' capacity to identify and fulfil career-related goals or aspirations outside academia. Examples include introduction to individuals who have completed their doctoral studies and have experience working in private or public organisations. These individuals can be alumni (or researchers that have completed doctoral studies at another university, nationally or internationally) and non-researchers employed at public or private organisations. This was highlighted in the interviews as something that could help researchers understand the job market in Sweden.

***“One thing that I would like to see, but doesn't exist [at interviewee's university], is doctoral students who have completed their research studies within (related field of studies) and are working outside of academia to come and speak about what they do.”***

*– EU Female researcher in social science*

Furthermore, job fairs aimed at researchers with private and public organisations have also been mentioned to support researchers in identifying and fulfilling a potential career outside of academia. Another form of support universities could provide is researcher support in the form of workshops on how to market yourself on the internet and use the internet to find alumni operating outside of academia. It has also been suggested that universities should create newsletters to broadcast non-academic-related information and events. The survey findings also show that help finding networks, such as alumni, and using the internet or social media to market yourself or find networks are essential.

Another aspect included is the educational systems' approach to educating researchers in career reflection and planning. As revealed through the quotations below, researchers are here referring to a need to better understand how awareness of their knowledge, skills, abilities, and values positions outside academia. As a part of this, researchers mention a need for internships within private and public organisations within their research field of study. Findings from the interviews show that researchers would like to see questions within the Individual Study Plan (ISP) about what you can do with a doctoral degree both within and outside of academia and data from the educational system regarding where doctoral students end up post-examination.



In the survey, it was also evident that the ISP isn't used or seen by the researchers as a tool for career talks or planning. There was a joint understanding that it was not a tool to be used for this purpose. 85% of the respondents stated that they hadn't used the ISP, and 5% didn't know. Thus, a significant part of the researchers don't know that there is a section in the ISP that can be used for career-related purposes. Finally, researchers would like to receive additional support to learn the Swedish language and how to combine research with entrepreneurship.

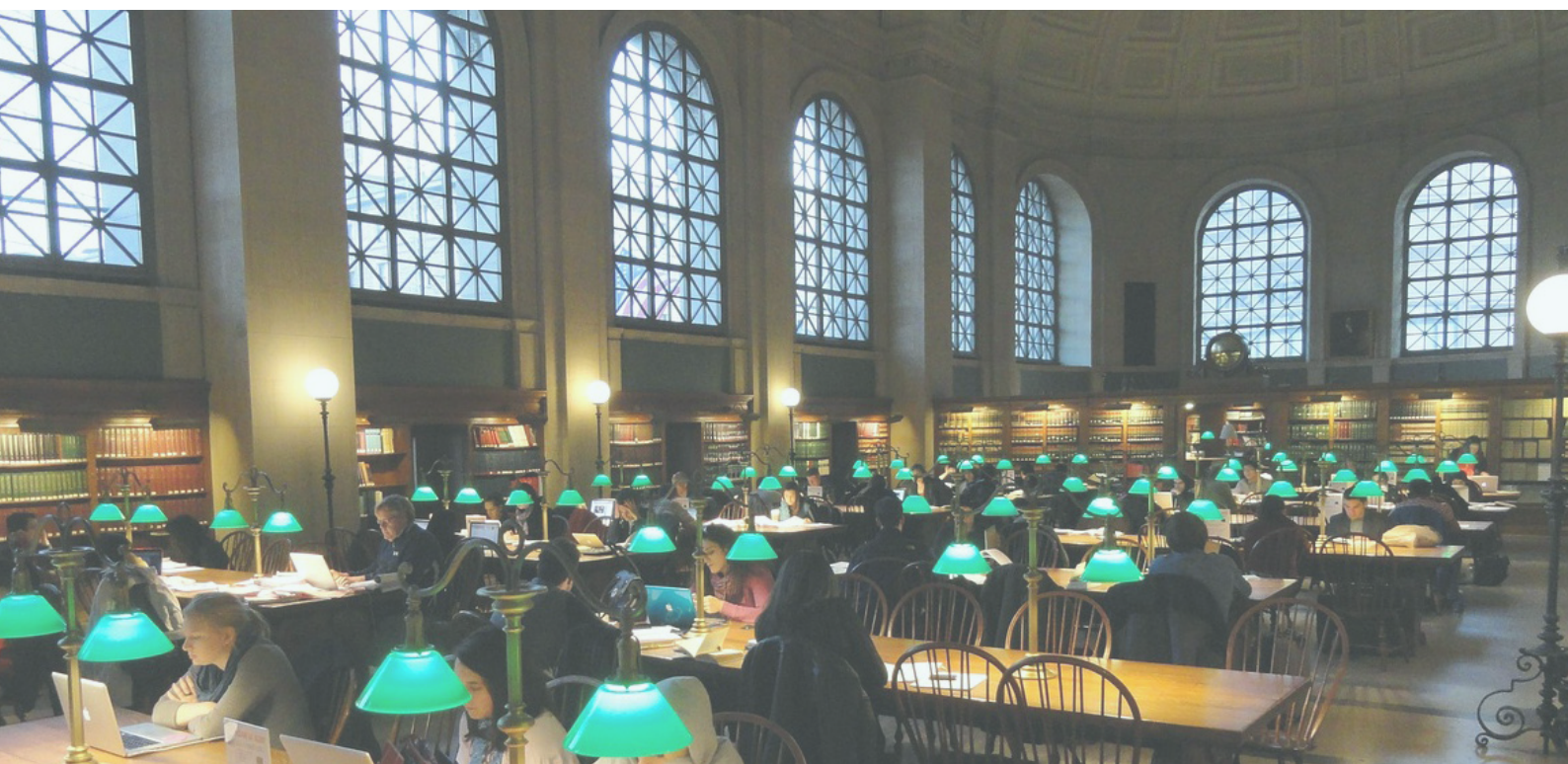
Here are some thoughts from interviewees on what the universities could do to increase the support:

*“...create doctoral courses or university courses of some sort together with industry partners...”*

*“...you need to have an internship or some period of work at a specific company of your choice because research is like 80% at a university, right, so what you could do is to make it 60%, and then 40% to work at a company, so you get hands-on experience as well...”*

*“...I guess language is definitely one thing that could be offered, and that's actually a reoccurring theme...”*

*“...I think that the ISP idea is quite good actually because I felt like, why does my supervisor not care about the rest of my life.”*



## Public Agencies

In contrast, *public agencies* describe researchers' view of career-related support related to other public agencies. This includes challenges mentioned by researchers that involve contractual issues when moving from academia into a non-academic position and residence permit issues for non-EU researchers when going from being a doctoral student to entering the job search hunt.

Moreover, several interviewees have expressed frustration related to the time and resources required to understand Sweden and its culture, which could have been spent on career-related activities if other processes had been simplified, such as the way and need to have a Swedish personal identity number and bank ID to manage on a daily basis.

## Culture

The theme *culture* describes cultural aspects that impact researchers' potential to identify and fulfil career-related goals and covers three sub-themes: *state*, *work* and *business operations*.

### State

*State* describes international researchers' view of Sweden and how this impacts career-related aspirations. This includes the political atmosphere and the promotion of a healthy work-life balance. As one male engineering researcher said "It's a very open society, among the Scandinavians particularly; I find Swedish society particularly... more open, more welcoming, and again, it has a very nice work-life balance, which attracts me... and motivates me to stay."

### Work

In contrast, *work* describes researchers' view of how the academic work environment promotes career-related opportunities within and outside academia. Researchers express supervisors' lack of communication and knowledge regarding career-related prospects outside academia, something that was also clear from the survey we have conducted among international junior researchers. One female researcher mentioned that she has many career-related conversations with her supervisors. Still, since they are also academics, they don't know anything about a career outside of academia, only within academia.

Similarly, researchers describe challenges with finding the time to attend career-related initiatives provided by, for example, a career counsellor or career team. Lack of time has often been related to a feeling of having a workload that needs to be prioritised, despite managers' and supervisors' formal acknowledgement of the importance of attending career-related events that are "non-research" based. As a non-EU female researcher in social science said: "I was actually once told that my department has a concern about giving us the idea about future career prospects too early in the doctoral program because they were concerned about our mental health in terms of the pressure... so instead of having an open conversation about it, or giving us the tools, or giving us the necessary knowledge, they're avoiding the conversation, avoiding the topic, which I personally don't think is the right attitude to tackle this problem."



Interviewees also mentioned a lack of transparency influencing one's potential to reach career-related goals. They state that they have experienced non-transparency, resulting in unequal opportunities to apply for career-related opportunities, such as postdoctoral positions or industry-related projects. As such, and as described by one researcher, non-transparency has often been related to experiences of discrimination.

Finally, through the interviews, it has become apparent that researchers find academia uninterested in promoting career-related opportunities outside of academia as it's not in the interest of the faculty or institution, despite the knowledge that there are not as many postdoctoral positions as doctoral students and that this mismatch in number causes stress reactions amongst students. As such, researchers perceive career-related opportunities as highly dependent on universities' view on a non-academic career, which seems to fluctuate between fields of study. When you look at job opportunities within academia after doctoral studies, it's not hard to see that they are scarce and don't match up with the needs.

***“...there are not as many positions as there are PhD students being admitted to universities, so not everyone can get a job, and not everyone will be happy with a job within academia either.”***

- EU Female international relations in social science

### *Business operations*

Lastly, *business operations* describe researchers' view of how organisations, including universities, promote career-related opportunities to academics. As also found in the survey, researchers acknowledge a shallow understanding of how private and public organisations operate. They would therefore like to have, for example, more information on recruitment processes. A lack of knowledge on how one's skills and abilities connect with available positions could explain researchers' feelings of being discriminated against based on age, gender or language. One researcher mentioned that he felt some discrimination in networking since, in his mind, it's much easier if you are outgoing, speak the native language, and have a Swedish name.



## PART 2

### **The Role of Swedish Universities**

In Sweden, universities have a high level of autonomy despite most of them being public agencies. Some guidance is given by the government on what activities need to be undertaken (such as budget posts). Still, universities, to a large extent, have the mandate to decide what to focus on and therefore, the support given to a researcher's career development differs significantly. Several functions at Swedish universities are vital for a junior researcher's professional development. We will look into the most critical parts in this section of the report.



## Method

When looking into the university's role in providing career support outside academia for international junior researchers, there isn't a lot of secondary data available. We, therefore, found it useful to do a quantitative study in the form of a survey and a more qualitative study in the form of semi-structured interviews to understand the role of the universities.

The main target groups for the survey were university management, PhD supervisors and career support functions at Swedish universities. The survey was mainly spread through the EURAXESS network, which has a presence at most Swedish higher education institutions, and the survey had 70 respondents. Representatives from 16 out of 31 universities with doctoral studies answered the survey. To complement the survey, 12 semi-structured interviews were conducted. The interviewees have the roles of university management, supervisors, and career support staff. In the result section below, the answers from the survey have been merged with the answers from the interviews.

## Findings

### What is offered today

In Sweden, only a handful of universities provide comprehensive centralised career services tailored for junior researchers. These services typically include career-related courses and workshops, job portals, internship programs, mentoring initiatives, and career coaching.

Career-related support is rarely incorporated into the mandatory curriculum for doctoral students. Our assessment of doctoral student support across Swedish universities indicates a predominant focus on academic careers and doctoral life, with limited attention given to courses and activities dedicated to careers outside academia and the development of transferable skills. These skill-focused components tend to be neither credit-bearing nor mandatory, often perceived as secondary to doctoral education but valued as tools for enhancing one's CV. Various initiatives and projects exist across many universities for those seeking career support outside academia. However, a dedicated and ongoing career services centre accessible to all junior researchers, regardless of their faculty affiliation, is rare. Examples of such initiatives include:

- Lund University and the Swedish University of Agricultural Sciences have used the Australian-based platform Career Control for Researchers<sup>25</sup>
- The KI Career Service works with Chaperone, an online marketplace of personalised career development services for scientists<sup>26</sup>
- Karlstad University is a member of the UK-based Vitae, a leading organisation in supporting the professional development of researchers<sup>27</sup>
- Chalmers University of Technology hires the services of Sweden-based Deborah Rupert for a course on Career planning and leadership<sup>28</sup>
- Junior researchers at Umeå University have access to the US-based myIDP, a resource for individual development planning<sup>29</sup>
- Lastly, all universities have access to the EURAXESS Job Portal, where they can explore job opportunities and career resources<sup>22</sup>

## Example of best practice

Below are some examples of successful collaboration that stand out:

Additionally, there are programs within University Alliances (European collaboration alliances within education and research). Specialised courses and training programs prepare junior researchers for careers outside academia. These programs are established through collaborations among multiple universities. An example is Chalmers' participation in the ENHANCE alliance, where they provide transferrable skills courses tailored for junior researchers across all partner universities in the alliance<sup>3</sup>.

There are also EU-funded projects. Some universities participate in EU-funded projects, often with time-limited availability, focusing on career opportunities outside academia. For instance, a few years ago, Karlstad University led the TRANSPEER project, a transnational skills program to enhance the employability of researchers<sup>32</sup>.

Many universities house business incubators and investment companies, fostering innovative ventures and entrepreneurial endeavours. Karolinska Institutet (KI) is a great example of this by assigning equal importance to careers beyond academia and those within it. One standout program is KI's Internship Program for PhD students<sup>30</sup>, a unique initiative in Sweden. This program enables participants to work at companies or organisations in the private and public sectors. KI covers their salary throughout the internship period. Furthermore, KI Career Service offers up to 20 internship positions per term (1 month with a financed salary) at a company or organisation within both the private and public sectors. This program is financially supported by the Committee of Doctoral Education (KFU) at KI.



The Postdoctoral and Early Career Researchers Program is open to post-doctoral and early career researchers with employment at KI or on a KI stipend before and during the internship. Career Service offers about 30 internship positions/year distributed in 2 calls (spring and autumn) with a financed salary at a company or organisation within the private or public sectors every year. This program is financially supported by transition funds (*omställningsmedel*) from the Job Security Foundation (*Trygghetsstiftelsen*), the Committee for Research (KF) at KI, and participating organisations and companies. By participating in the internship programme, the company or organisation get the chance to recruit highly skilled candidates for short-term projects and the possibility to establish contacts within the many research fields at Karolinska Institutet. They see participation not only from classic life science companies with a high rate of R&D, like AstraZeneca but also institutions like banks, who see the need for highly skilled competence to help them evaluate their application for funding for life science projects.

Uppsala University is another excellent example of how a university can work structured with career support to researchers of all stages to help them stay in academia and how to best leave when wanted or needed. Rabbe Hedengren, Career Officer at Uppsala University, explains that the support has been developed over time and was started around 20 years ago, with financial support from the transition fund (*omställningsmedel*) from the Job Security Foundation (*Trygghetsstiftelsen*). At Uppsala University, the Division of Quality Enhancement - Career and Leadership in Academia offers everything from courses and seminars in career development and leadership to coaching and peer tutoring. The strong focus on coaching is a specific strength that Uppsala can offer its researchers at all levels.

## What functions offers career support at the universities?

Different functions at the universities (or outside) can play a part in shaping the career support offer at the universities and here are some examples:

**Combining in-house and external experts:** By combining in-house experts (e.g. HR or other centrally operating units) and external professionals, universities can cater to different career development needs. In fact, internal experts, including academic and non-academic staff, provide specialised insights into academic realms. External lecturers and career coaches complement this by sharing non-academic experiences, offering perspectives from various industries and valuable insights into transferable skills. They equip researchers with practical tools for navigating the broader job market and building a professional network. Overall, this inclusive approach considers researchers' personal interests, skills, and career goals, whether they aspire to a future within academia or in other professional fields.

**Supervisors:** Supervisors play a pivotal role in a doctoral student's journey, serving as the primary source of support. However, it's important to recognise that career guidance isn't inherently embedded in the supervisor-supervisee relationship. Some supervisors actively contribute to career support, offering advice, sharing contacts, and facilitating networking opportunities for postdoctoral and doctoral students. Others concentrate solely on supporting the academic success of their supervisees, influenced by two key factors: time constraints and limited awareness of career opportunities beyond academia, as supervisors often possess exclusively academic career experiences.

**Grants and Innovation Offices:** Grants and Innovation Offices at Swedish universities are crucial in facilitating the transition from academic research to industry. They guide the innovation process, assist with patenting commercialisation, and foster connections with industry partners. Collaborating with government agencies like Vinnova, VR, Forte, or Formas, as well as public foundations and private funders, they specialise in intellectual property management, entrepreneurship, and securing funding for applied research projects. Through tailored workshops, one-on-one consultancy, and networking events, these offices bridge the gap between academic research and its practical application in society.





Per Lundgren, Professor and Director of Studies at Chalmers University of Technology, underscores the importance of fostering independence and responsibility among doctoral students for their future paths. He believes encouraging self-reliance and skill development for diverse career trajectories beyond academia is crucial. In essence, doctoral students should perceive themselves as capable project leaders for their careers. Per suggests that doctoral students should be encouraged to independently organise activities fostering industry connections as part of their mandatory institutional duties and competence development. This perspective should be incorporated into the recruitment process of doctoral students, making them aware of expectations regarding their ability to navigate future careers – a responsibility ideally shared by those involved in the doctoral process, including main supervisors. While doctoral programs often prioritise academic careers, Per advocates for measuring success in doctoral education by the student's overall career progression, regardless of its academic or non-academic nature.

The respondents representing university staff and management generally think that there is a great mental shift that needs to be done when transitioning from academia into industry. Who am I in this new context outside my academic research? The view differs slightly in regard to whether researchers going from academia to industry see it as a failure or not. Some already have their mind set on industry when starting their academic journey, whereas others make a slower transition during their time as doctoral students or postdoctoral researchers.

## Within or outside academia?

The challenge that most Swedish universities face today is that the focus during the time as a junior researcher is usually only on an academic career. The causes vary – an academic tradition approach, lack of knowledge of alternative career paths, how the doctoral student and supervisor view a non-academic career, etc. 64% of the respondents in our survey answered that their university offers career support, but only 38% offer career support aimed at a career outside academia. Efforts for career support in general are mostly scattered around the university at different functions (HR, Grants Office, Innovation Office, etc.) and not very often in a structured and centralised way. The most common career support service, as seen in the survey, is a mix of university staff and external participants (66% of the respondents) contributing with their knowledge.

Additionally, our interviewees underscored the challenge for supervisors or departments in considering support for doctoral students' careers beyond academia, primarily due to a predominant focus on the urgent needs of ongoing research projects. The saying "publish or perish" is usually a harsh reality for most researchers. Supervisors often prioritise immediate contributions to current research, potentially neglecting the long-term career development of doctoral students. Addressing this requires a shift in the prevailing mindset and incentive structures within academia.

However, as most doctoral students won't continue their careers in academia, they will also need input and support on alternative career paths during their time at the university. Some interviewees have emphasised the importance of starting to talk about future career plans early on.



In Sweden, the most common way companies find their employees is through informal contacts or their network<sup>14</sup>. However, a network isn't created overnight, so as a junior researcher, you can't start working on building your network a few months before your dissertation or your postdoctoral contract ends. This needs to be considered and worked on little by little over a more extended period of time. Therefore, planting a seed of awareness early on is one success factor for a better chance at finding your next career move.

Anna Westin, Skill Development Officer at Uppsala University, says: "You have to keep two thoughts in your head at the same time, because it gets difficult if you start thinking about the next step at the dissertation party." She also explains why getting career guidance from an objective third party is important: "A supervisor can have his own agenda, a manager can have his own agenda, while we are impartial."

Mette Fog Skriver, Career Consultant at the University of Copenhagen, explains that their career guidance mainly focuses on a career outside academia, as there are already more ways to get support on a career within academia, but that most doctoral students need more input on what needs to be done to be ready for a non-academic career. That usually includes helping them broaden their view on their skill set, which is so much more than just the research area they are in. Iben Treebak, Senior Career Counsellor at the University of Copenhagen, agrees with Mette in her view: "They know about the career opportunities inside academia, but the career opportunities outside of academia, that's a bit of a black box to many of them."

Iben gives an interesting example from their university, which has a mandatory course for all doctoral students of science called "PhD Fundamentals" that focuses on transferable skills for doctoral students.

## Who needs the support?

Anders Ihrfors, HR Officer at Stockholm University, gives his opinion on who needs career support the most: "I think it's natural that more junior people need more guidance because basically, you have less work-life experience and know less about what the world can offer."

Robert Harris, Academic Vice president at Karolinska Institutet, means that international researchers most likely have a more significant challenge in finding their way outside academia. He states: "In Sweden, the challenge is the language and the fact that in certain parts of society, there is a glass ceiling when it comes to the advancement of foreigners. And this is sort of a hidden thing. I think it's the same in most countries, probably." He continues: "The university says that it's international, and then needs to live up to that and have better integration."

## Role of Swedish universities in providing support for alternative career paths

Jan-Ingvar Jönsson, Vice Chancellor at Linköping University, mentions the role of Swedish universities in helping Swedish companies with their lack of finding the right competences: "I personally think that universities have an important role because we have a form of social responsibility. I also think it's good for our cooperation that we show that we supply the nation with competence and that we make sure that many of those who are with us, whom we perhaps primarily want to stay in academia after all, move on in their careers - it's a responsibility that we have. We also can't keep everyone. There is a funnel to get on and stay at the university." He also expresses that in the strategic plan for Linköping University, mobility (such as intersectoral mobility) and collaboration across borders are strongly emphasised.

## Why some universities lack support for researchers' careers outside academia

This means, for instance, collaboration with the surrounding society but also for researchers to go in and out of academia, and how it enriches the university to have academia coming into companies and other organisations and vice versa.

Patrick Blomquist, Business Coach at KI Innovations, states that universities are committed to caring for their employees, including those coming from abroad to do their doctoral or postdoctoral studies in Sweden. The responsibility to help these students and researchers get a job if they want to stay in Sweden should be a priority because "there is an investment in their research and education, and in addition, it can bring jobs to the market", so there would be a loss if this talent left Sweden.

Jan-Ingvar further mentions the role of management at Swedish universities in showing ownership and, with certain guiding documents, showing the direction on how this career support should be provided. Anna Westin complements this by saying that at Uppsala University, it's visible in strategies and budgets that this is prioritised and that it's part of the success of Uppsala University. That's not always the case today; Swedish universities should work on this. Stina Johansson, Collaboration Strategist at Luleå University of Technology, clarifies that the universities assignment is to deliver research and education with a high quality and to collaborate with the surrounding society, to spread knowledge. With collaboration comes a shared interest; the dialogues and close cooperation with companies bring new insights to both education and research but also opens up for employers to interact with talents at the universities – a way to meet and get to know new employees. From this perspective, it is a win-win situation.

The absence or limited availability of support for researchers exploring careers beyond academia can be attributed to a perceived lack of necessity from both university management and supervisors. Anna Näsborn, Education Coordinator at Chalmers University of Technology, means that some individuals believe a degree from Chalmers is sufficient for a successful career. This perspective may suggest that extra career support isn't seen as crucial, leaving individuals to take the initiative in seeking opportunities beyond academia.

Furthermore, within the competitive academic landscape characterised by researchers vying for limited resources, such as funding and publication opportunities, universities often tend to prioritise support for successful academic careers. As described by a former academic, now Career Coach, Déborah Rupert, this 'shark tank' environment often prioritises publication over holistic personal and professional development, hindering comprehensive guidance crucial for exploring alternative career paths. Additionally, Malin Broberg, Vice-Chancellor of the University of Gothenburg, highlights universities' strategic focus on "attracting and retaining the best researchers and teachers" rather than ensuring their future success beyond academia. In other words, providing career guidance consists of many, first and foremost, offering career development opportunities within the organisation.

## The role of the supervisors

All doctoral students have at least one main supervisor and one assisting supervisor. The supervisors are assigned by the prefect at the department where the doctoral student is admitted. Iryna Yakymenko, professor and director of studies for postgraduate studies at the department of physics, chemistry and biology at Linköping University, believes that the supervisors have a decisive role for a doctoral student's progress, that it is to them that the doctoral student usually turn first. All the interviews with university representatives clearly show supervisors have a pivotal role in helping doctoral students find their future career paths. However, supervisors often don't have the relevant background to provide support in guiding their doctoral students to a possible career path outside academia. Jan-Ingvar agrees with this and has an idea of a potential solution; to make it mandatory for all doctoral students to be part of a doctoral school where career planning is compulsory: "It's very good to gather it in one place so that it's not dependent only on the supervisor team you have as a doctoral student." He further mentions that it's often a process, as a supervisor, to understand that not everyone can or should stay in academia and what supervisors should do to support a possible transition out of academia.

Several respondents also state that the support a supervisor can give for a career outside academia is usually determined by how much experience they themselves have from outside academia. The general opinion seems to be that supervisors shouldn't expect this to be a general condition. Still, it's a bonus for the supervisor to give this view whenever possible. Anna Westin gives another angle to the supervisor-student relationship: "There is a gap between the doctoral student's expectations of the supervisor and the supervisor's expectations of the task it has towards the doctoral student."

She elaborates by stating that supervisors have no real incentive to work with a doctoral student's career options, as a supervisor's primary goal is to ensure the student produces a qualitative thesis. However, to support supervisors' ability to guide their doctoral students in alternative career paths, they have a program aimed at supervisors on how they can prepare for these types of questions. It's not reasonable to think that alternative career guidance comes easily to all supervisors, but Uppsala has identified the need for supervisors to help provide this perspective.

Robert Harris expresses a concern for a possible obstacle: "I think many supervisors are not aware of the Career Office and the support that's actually available. The important issue is that if you're in academic research yourself, for most people, that's the only world that they know. They can only offer career advice based on what they know and what they've experienced. So, I happen to have worked as a consultant in the industry and have an idea about industrial science and clinical trials and things, but most people don't. So, career advice from a supervisor is rather one-sided."



## The Individual Study Plan (ISP) for career support

The content of an Individual Study Plan (ISP) is, to a high degree, decided by each university or department. Even though career guidance is mentioned in the Higher Education Ordinance (1993:100), it's not always considered mandatory, only recommended. In the interviews, we see that some universities and departments have included this as a follow-up point in the ISP. In contrast, others see it only as a tool to help finish doctoral studies correctly and on time. But even some interviewees who don't have career planning structurally in the ISP today see positively towards including it in there. Another similar tool is the ASP (*Allmän studieplan*), which is a more common plan for a department or research area to work after. One interviewee mentioned that they include career planning in the ASP but not in the ISP.

Robert Harris gives his view on how the ISP could be used for career guidance outside academia: "Statistically, if you look at Europe, 50% of them (doctoral students) will be lost from the academic world directly following thesis defence, and within five years, 50% of the 50% left, will also be gone. And if you look 10 years out, less than 5% of people are still in the academic university world. That means that 95% of people will do something outside academia. So, it's an absolute necessity to understand those options. And even if you're doing a PhD because you're not sure what you want to do or you think that it's good merit to go on to the next level, then it's possible to include learning opportunities within your Individual Study Plan that are geared towards that, such as courses we offer in entrepreneurship, industrial placements, and other things."



## Different support for different research areas

It's important to bear in mind that the career opportunities outside academia look somewhat different, depending on what field of research you're in. For instance, life and computer science are closely connected to the job market's needs. In contrast, humanities and pedagogics have a weaker connection to the needs of the industry. This should also be reflected in the support given at universities. As Jan-Ingvar puts it: "I think that's the charm of a larger university, that you can handle it differently. And, of course, you have to make alternative career planning differently if you are in some technical area or if you are in political science."

Iben Treebak highlights that the PhD researchers who do basic research, which may not have immediate applications, often find it harder to explain the relevance of their skills to prospective employers outside academia than the PhD holders in fields with high industry integration, for example, food science.

## Collaboration with the surrounding society

In Denmark, there is an obligation to make a change in the scientific environment during your time as a doctoral student. That can mean a period of time (3-6 months recommended) at another research institution of some sort, but also, for instance, doing R&D in a company in the private sector. Finland also gives examples of mandatory time outside of the university during doctoral studies.

Stina Johansson mentions in her interview their close collaboration with the municipal business offices (*näringslivskontor*) and how important that collaboration is; "they know their companies and their needs best". She further mentions that they often get requests from companies in the region that wants to connect with their students. "You have a lot of people who are very interesting to us, how can we do this together?". Iben also underscores the importance of collaboration between stakeholders to attract international researchers:

***"Identifying and nurturing this talent pool requires joint efforts from universities, employers, and government institutions. Without any one of these stakeholders, it's difficult to attract the right talent to our country and ensure that companies have access to a highly qualified international workforce."***

It's important to note that the extent of industry engagement varies significantly across departments, even within a single university. In some departments, industry interactions are proactively integrated, considering corporate connections inherent to their research culture. Research outcomes are strategically aligned with potential corporate interests, such as product development. On the other side, not all departments exhibit the same level of commitment to industry engagement.





Some thrive in highly academic environments, primarily interacting within and between research groups rather than beyond academia.

Consequently, junior researchers in such settings have limited exposure to industry, with a predominant focus on academic pursuits. This reduced industry exposure translates to lower awareness regarding career opportunities outside academia. Essentially, a junior researcher's guidance for a non-academic career connects to their respective department's research focus and environment.

### Innovations as a career path

Another possibility for international researchers, besides staying in academia or finding a job outside academia, is the entrepreneurial route. Most Swedish universities have good support for researchers wanting to commercialise their research. 82% of the respondents in our survey say that their university offers support for researchers interested in entrepreneurship and innovation. Karin Ackerholm, innovation adviser at Linköping University, talks about innovation culture in certain research groups: "You talk over coffee about things like this, and you encourage and open doors for each other, and it also becomes common to hear that others have made this kind of effort. "But at the same time, she mentions that this isn't the case for all research groups or even research areas. Efforts should be made to bring forward good examples to a broader audience of researchers at Swedish universities. Furthermore, she points out that the road to entrepreneurial success isn't always a straight path. Sometimes, an idea must be returned to the drawing table for further processing.

The role of the Innovation Office at Linköping University is to help researchers in the early stages of an entrepreneurial idea or researchers with questions about how their research can have an impact on the surrounding society. The Innovation Office then collaborates closely with the incubator (LEAD at Linköping University). This helps in the following stages when the idea is shaped and ready to be introduced to the market. Karin also adds that it's not necessarily that the researcher who came up with the idea must have the leader position in later stages, such as a CEO, in the newly formed company. It's not uncommon to take in another researcher or someone from outside academia for that role. The idea creator can have a more minor role in the company.

Patrick Blomquist from KI Innovations states that there "is a growing investment and interest from the researchers to turn their ideas into commercial and impactful businesses. Many researchers report that experiences from the dissemination process, whether successful or not, provide new perspectives and valuable insights that help them become better researchers. Since 1996, KI Innovations has evaluated over 1 500 research-based ideas."

Moreover, Karin claims that many international researchers come to Sweden because of our innovative profile and entrepreneurial history. It could also have to do with *lärarundantaget* (the teacher exemption), meaning that according to Swedish law (LAU 1949:345), all teachers, researchers and doctoral students at Swedish universities own the right to their own patentable innovations, even if they are produced during working hours.



## PART 3

### **The Role of the Industry**

In the report, we investigate what universities can do to support international junior researchers at their institutions. However, prepared and trained researchers are not enough if industry isn't ready to welcome them into their organisations. In this section, we will study the role of industry and what it can do to be better prepared to hire international junior researchers.

## Method

To understand the view and role of the industry, there is quite a lot of relevant secondary data to draw from, which we have done for reference. However, we also wanted to conduct interviews with relevant actors from the industry, focusing on the view of and openness to recruiting international researchers. 13 interviews were conducted in total for this section of the report, representing different parts of Swedish industry.

## Findings

As mentioned earlier in the report, most companies in Sweden struggle with a lack of qualified talent and need to do all they can to find new and better ways of attracting talent. In this section, we have seen some crucial over-arching themes when discussing the industry's role.

### Openness to recruiting researchers

Lena Miranda, CEO of Linköping Science Park, views the researcher population as part of the skills shortage solution: "It's definitely a slightly marginalised group, but still fairly low-hanging fruit. Given that we talk continuously and constantly about the great skills shortage, we don't take advantage of the most highly educated group we have in industry. So, it's a highly relevant group to shine a light on." Especially, as she mentions, with the background that:

***“many companies say that finding the right talents is the number 1, 2 and 3 of the obstacles standing in the way of accelerating their company growth”.***

Stina Johansson, Collaboration Strategist at Luleå University of Technology, gives input on the large need for talents up north, for the green transition: "While public and private sector is searching for people that would like to move here there are different groups that are already here that could play an important role but often become neglected, for example international students and sometimes even PhDs at the university". She then continues to give her view on why companies might struggle or hesitate to hire people with a PhD: "I think firstly it's a matter of knowledge, knowing what this group can contribute with, but for many companies it might also be a matter of courage, to challenge their traditional recruitment base. A stronger collaboration during studies or research has a potential to create that understanding, to remove some of the barriers". She further adds that it could also have to do with a lack of good examples from other companies.

Alicia Parvin, project manager Talent Attraction at Stockholm Business Region, states: "For example, linked to talent attraction, we need to make it visible that this target group exists". She continues by saying, about hiring research professionals: "Some employers who are good at it continue to do it and others who don't dare to test really lag behind and may not have recruited any people with a research background at all".

On the contrary, when interviewing representatives from the life science industry, we see a much higher maturity in hiring people with a research background. Patrick Blomquist, Business Coach at KI Innovations, shared his experience of transitioning from academia into industry, highlighting the valuable skills PhD holders can offer, such as scientific expertise, project management, and the ability to communicate complex information.

Guillaume Desachy from AstraZeneca points out that having a PhD is a marker that you've dedicated at least three years of your life to one specific topic. It means a sign of dedication, engagement, patience, and motivation - highly desirable skills in the life science industry.

Richard Cowburn, Head of External Engagement Office at KI, emphasises that large companies such as AstraZeneca "employ PhDs for lab work and higher positions. However, non-PhD employees can also be very competent and professional in their field. It's a real benefit to have a PhD in the branch of science, but not essential. Companies employ based on talent and experience, and it doesn't matter which country the employee comes from".

Alicia gives her view on this, as she has the perception that employers in her network often feel that people with a researcher background are over-qualified and that they do not know what to do with their competence. Further, she explains that it could be as simple as the misperception that researchers would demand a much higher salary than other people, even though that's most likely not true. She says,

***“Let the person in question decide themselves if the salary is up to par, rather than deciding that for them”.***

Also, Lena agrees that many companies see this group as over-qualified: "I think there is a built-in fear in many managers and leaders to recruit someone who has an edge and who you don't really know, will I be able to match the need for the challenge for such a highly qualified person? You put in so much without actually knowing."

Moreover, she elaborates on this by stating that universities and other actors, like Science Parks, must collaborate to share knowledge about the researcher population and create platforms to better meet the population's needs.

Malin Almgren, CEO at Schain Research, found that it would be necessary for the company's employees to have a PhD in some work circumstances. The problem-solving skills, "being a hustler", and seeing the "big picture" are pretty unique to PhDs, and that's what we look for in new hires. In her team, Malin mentions, that only a couple (out of 12 people) doesn't have a PhD. Jessica Martinson, CEO of Sweden Bio, reinforces that "with a PhD or not, it's important to have an analytical mind, being able to tackle new problems and discover new solutions, but also do this in a very systematic way, performing very high-quality work with attention to detail setting. Over the years, basically everywhere that I worked, we have had like a 50-50 between non-PhDs and PhDs".

Mette Fog Skriver gives insight into how industry usually thinks in Denmark regarding people with a PhD: "To just say that they've done a PhD is not enough, for job seeking in the industry you need to be able to present a wider range of competences and you need to be able to set it into the context where you work. So, I think that's really one of the points that we need to support them in that they need to explain a bit more about what they did and what they learned from their PhD". She continues by saying that PhDs must not forget that they have so much more to offer than only their research output. They also have many transferable soft skills, such as communication, teamwork, project management, etc.



Further on, she mentions, regarding the national talent attraction and retention efforts in Denmark: “The Danish industry as a business employers’ organisation is the biggest one in Denmark, and they are taking part in these discussions as well and trying to push the political landscape also because it’s really an ongoing discussion.”

*“The lack of research graduates affects the business sector’s supply of skills.*

*Attracting, recruiting and retaining doctoral students with ground-breaking competences is crucial for the business sector’s supply of skills and changes in the labour market, including climate change. Sweden needs to use the competence that has been built up during several years of study at our universities. Therefore, the government’s goal is for more foreign doctoral students to remain in Sweden after graduation.”<sup>3</sup>*

## Openness to hire international talents

Regarding openness to hiring international talent, Lena Miranda shares her experience that companies with an international owner or that are Sweden-based but have a tremendous global presence are more open to hiring internationals. People with a research background are naturally more common in companies with a higher level of R&D (like we could see in the life science sector). She points out that it’s also good to be aware of geopolitical tensions today, which might affect the ability to hire internationals.

Guillaume Desachy, Statistical Science Director at AstraZeneca, states that pharma companies are very open and invest a lot of resources in finding the international talent with their desirable and unique skills: “AstraZeneca is interested in recruiting the best and will support with relocation packages, family support, to hire the best person possible.” He emphasises “the need to have unique perspectives, from multicultural origins and multidisciplinary fields, which makes a better team”. Jessica Martinson highlights how common it is to recruit international talent into the life sciences sector in Sweden: “I would say that recruiting inside the European Union is fairly doable. But if you are stepping outside of Europe, then it gets too complicated for smaller companies. So, it’s not happening. I’ve personally experienced a lot of these recruitments when people have already come to Europe via studies and then got the possibility to stay. The universities are somewhat kind of a stepping stone in recruiting people outside the EU because otherwise it’s basically impossible, I would say if you’re a small company and you have a timeline of when you need to have someone on board.”

Peter Nordström, Programme Director at SWELife, also discussed the challenges and incentives for international researchers pursuing careers outside of academia in Sweden, highlighting “the need for Sweden to better market itself as an attractive country for international researchers and to integrate international talent into the Swedish community”.

Ying Chen, CEO and Co-Founder at Arkus AI says that among five long-term employees, they have four different nationalities, confirming they are very likely to hire internationals. However, she adds that what is needed is for the government to create an infrastructure for immigration job opportunities. She admits;

***“Arkus AI had a problem actually, very early on trying to recruit someone, graduated here (in Sweden), that needed a visa, and it was just impossible to do it as a start-up, so we gave up!”***

The emphasis is that support from the government would make a much easier job for a start-up to be able to recruit talent and that, at the moment, “it’s just prohibitively expensive, long, and time-consuming”. She said, “We don’t differentiate between international and not international. We just really focus on the quality of the candidate”. These needs are equally emphasised by Banushree Kumar, CTO of Epigenica, who expresses concerns that “when employing international talent, we face many immigration laws barriers and when it’s already difficult to make our start-up more attractive than bigger companies, we have additional legal issues that don’t make this recruitment easy”.

Jessica reinforces the importance of tax relief on international and talent recruitment: “We should have a broader definition of this expert tax reductions because as it is now, it applies to a company that would like to recruit someone on professor’s level.

However, for smaller companies, it could be a very specific competence lacking. It might not be a person of that high level in his career, but getting these competencies on board could be crucial. There is no real mechanism to identify and bring these competences to Sweden. So when it comes to tax reliefs, shorter lines at the Swedish Migration Agency (*Migrationsverket*) and, in general, a more open attitude in bringing foreigners to Sweden are needed because we really need this reinforcement.”

According to Forskarskattenämnden<sup>34</sup>, “Foreign citizens carrying out particularly qualified tasks or receiving a monthly remuneration above a certain level may enjoy tax relief on their Swedish earned income. Tax relief means that 25 percent of the income is exempt from tax.” This opportunity could make Swedish companies very attractive compared to other countries.

In the International Talent Map report<sup>1</sup> by Switch to Sweden, one can see that the main barriers companies face when hiring international talents are long processing times for work permits, language barriers, and cultural challenges. Many companies responding to the survey claim to be open to people of different backgrounds and cultures and be positive about recruiting international employees. Yet, some barriers stop them. Furthermore, 47% of all companies confirm they need more knowledge about recruiting international skills.

A person who is both international and a researcher can experience, as Lena Miranda puts it, a “double obstacle”: “I imagine, not for everyone but for many, that there is partly that you are a little afraid of someone who has more competence than you, both as a manager and as an organisation to bring in someone with a higher degree. It might create a fear. And in the next step also the international. There, we have a lot of knowledge about language deficiencies, bureaucratic processes, cultural issues, etc.”

### Language barriers

Several of the industry’s actors state that language could be a significant barrier in some companies, that is, not knowing Swedish well enough. At the same time, they agree that language shouldn’t be a barrier, especially in companies with a global profile. Niklas Delersjö, Head of Move to Gothenburg, gives his view: “In general we recommend employers to not require Swedish if it is not crucial for the job. Opening up for English speaking professionals will increase the group of potential talents and also add extra value creating diverse teams and gain knowledge about other countries and cultures. However, in contact with talents we always recommend them to learn Swedish.”

Patrik Blomquist and Peter Nordström corroborate that knowing Swedish isn’t only crucial for personal and social life but can open doors to job positions in the public and private sector. Malin Almgren exemplifies how their company works: “We have English as a working language. Given the prevalence of international employees who may not speak Swedish, which is quite common to be honest, it’s crucial for practical reasons and we mostly have international clients too.”

The respondents from Denmark, Mette and Iben, also agree that learning the local language is essential, both for integration and career advancements. They even find it so important that they have language courses for free, and the International Staff Mobility Services at the University of Copenhagen has a person dedicated solely to working with language support. Mette points out that learning the local language sends an important message to employers that you are invested in staying, even if the level isn’t perfect yet, something that Iben also agrees with.

The International Talent Map Report<sup>1</sup> concludes that: “Companies need to increase their focus on integration, inclusive language practice, and career development. Many companies are still not knowledgeable enough about how to work with international skills. In theory, many of the responding companies state that it was not deemed as important if the candidates had a solid understanding of the local language. Yet, in practice, the international talents often must speak the local language, or the companies don’t feel strong enough in English as a common language.”





## Intersectoral collaboration

Alicia Parvin gives her view on how we need to work together in different sectors: “We can’t demand everything from the universities either to solve everything, but we need to come together more and work together on these issues. The universities need to understand that they are a cog in the wheel.” Richard Cowburn adds, “Universities need to invest in career development services, take commitment to help researchers find jobs in other fields seriously, and make people aware of their skill sets and opportunities outside academia.”

Lena Miranda points out:

***“I don’t think the university will have either the time or the ability to have the same ear to the ground in the business world that we have because that’s our main mission. But we can create the right meeting places and forums where the university can contribute knowledge and reinforce the image of what this competence can contribute with.”***

She continues: “And then I think, linked to that as well, that the universities together with, for instance, the Confederation of Swedish Enterprise (*Svenskt Näringsliv*) or Vinnova should perhaps clarify the importance of bringing in research competence and international research competence into the industry so that Sweden will be competitive in the future. And preferably in collaboration with representatives from business who today can testify to what it has meant for their businesses.”

Most of the interviewees representing industry mean that academia and industry need to work closer together, and one effort that could have a lot of impact is to showcase good examples of researchers transitioning from academia to industry. What was their background, and where are they now? How was the process for the individual and the company hiring them?

In the report *Rekryteringsenkäten 2024* (the Recruitment Survey) by the Confederation of Swedish Enterprise<sup>14</sup>, one can read that 45% of Swedish companies collaborate with an education provider of some sort. Looking more specifically at those who collaborate within research education, only 35% answered that the collaboration works well or rather well.





## The value of internships outside academia

One great example of collaboration between academia and industry is internships. Richard Cowburn emphasises that “universities need to invest in career development services, take commitment to help researchers find jobs in other fields seriously, and make people aware of their skill sets and opportunities outside academia” since academic positions become scarce. Internship programs and collaborations with academia and the private sector can also be beneficial. Companies can test potential employees, build a workforce with desired competences, and collaborate with universities. Interns can benefit from understanding the private sector and gaining practical experience.

In addition, Jessica Martinson thinks that “being part of an internship program should be mandatory for all doctoral students because it’s very rewarding for them and the hosting companies and organisations.” She adds, “the opportunity to get that edge that otherwise isn’t obvious and getting inspiration that can lead to other opportunities” by establishing new contacts and a valuable network. Most researchers may realise that they want to transition to industry, and gaining these broader collaborations and understanding can be very beneficial.

Guillaume Desachy believes that: “Academia does teach skills but doesn’t give exposure to what work is like in real life. That’s why internships are crucial. You get to learn from experts, pick their brains on how they got to where they are, and learn from their lessons to help you get ahead. Internships give you a foot in the door - take it!”

Banushree Kumar mentions the internship programs as “important initiatives to pursue among other Swedish universities to establish or reinforce a bridge between industry and academia”. She has been part of the KI Career Program Internship Program for some years now and has had great experiences with interns.





## Example of best practice

Below are some examples of successful collaboration that stand out:

The project *North Sweden Green Deal*, owned and run by Region Norrbotten and Region Västerbotten, was an attempt to respond to the possibilities and challenges connected to the green transition, building capacity to manage the social transformation that takes place in connection with new investments and establishments. The project had several focus areas, one of them was skills supply. In this matter regions, municipalities, educational providers, and other key actors worked together to find new solutions to solve the large needs. One new concept that came out of this project was "the Green Deal Buses", an attempt to bring the students, both Swedish and international, out of their comfort zone at the universities to the municipalities in the region. Performed in strong collaboration between the municipalities and the university, with the aim to give them a full picture of how a new life could be created in the region. The students met interesting employers, both in public and private sector, and met people that moved there. They were also shown how the life puzzle could be solved, and what they could do out of office - in short, they were shown the best out of each municipality. The concept was highly appreciated both by students and municipalities and is now under further development.

Another great example of academia-industry collaboration is the *Stockholm Academic Forum*, a collaboration between Stockholm Municipality and the 18 universities in the region. They have a close dialogue and work with career matters for accompanying spouses. They have recently started the *Stockholm Dual Career Network Academy*, a 4-week boot camp for accompanying spouses, where they talk about career, well-being, language and much more. Studies show that most international talents will also leave Sweden if spouses don't find something to do in a reasonable time.



The Gothenburg region shows another excellent example of working together to attract and integrate international talent. They have Move to Gothenburg, a collaboration between companies, universities, cities and regions. They work to attract international talent and lead them to potential employers through their Job Portal and Talent Pool, which matches talents with English-speaking jobs. Policy work also creates better conditions for recruiting employers and talents. In addition to that, they have International House Gothenburg, a physical spot available for international talent and their accompanying partners to get support on matters like career, integration, and more.

One best practice that Linköping Science Park can offer is the *Tap the Talent Program*, run through their project *Switch to Sweden*. *Tap the Talent* is a reversed onboarding program for companies, where they learn more about different aspects of international recruitment. The plan is to do a specific version about recruiting researchers for your organisation. Linköping Science Park has also been running an exciting initiative for a few years called the *Science Pop-Up Expo*, focusing on doctoral students getting the chance to pitch their research to companies for the possibility of finding collaboration partners, a future job opportunity and more.

## PART 4

### **External Actors/Organisations - Hindrances or Enablers**

This report has, as a fourth perspective, examined if and what different external actors, organisations and authorities in Sweden do or could do to help or even hinder researchers pursuing a career outside academia in Sweden. As seen in the findings of the research survey and the semi-structured interviews, administrative issues, such as migration, a lack of understanding of the Swedish job market, and a lack of information on career-related matters during their doctoral studies or postdoctoral positions can influence how they perceive a career in Sweden.



## Method

We have conducted interviews with chosen organisations that we believe, or know, have knowledge about and can impact issues in this area. In addition, we include secondary sources of information such as websites, legislation, and reports. We conducted interviews with the Swedish Migration Agency (*Migrationsverket*), the Job Security Foundation (*Trygghetsstiftelsen*), European Employment Service Sweden (EURES), *Naturvetarna* (The Union for Sweden's Professional Scientists) and The Swedish Association of University Teachers and Researchers (SULF).

## Findings

### The Swedish Migration Agency

To continue with a career outside academia, one also needs to be able to apply for a suitable residence permit. According to the research survey conducted in this project, administrative issues such as the complexity surrounding the Swedish migration legislation, as well as long processing time, seem to be two of the most significant hurdles for researchers when they need to decide whether to stay in Sweden, in academia or outside, or leave the country. In addition, the Swedish legislation's view on who is closest kin might also cause a problem for researchers supporting family members other than spouses and children.

To find out the possibilities for foreign researchers who wish to stay in Sweden and work outside academia, we talked to Anna Bartosiewicz, an expert on work permits at the Swedish Migration Agency (*Migrationsverket*). Anna says that she understands that long processing times have caused problems for both the applicants and the employers, but also states that since the new process for work permits entered into force on 29 January 2024,



they already see shorter processing times. The new process aims to make it easier for employers to recruit highly skilled individuals,.

Four types of permits are specifically relevant for an international researcher looking for a career outside academia in Sweden:

- residence permit for highly qualified persons looking for work or to start a business
- work permit
- residence permit for people who have their own business
- permanent residence permit

We will further develop these permits below, and for more information regarding residence permits and work permits, we refer to *Utlänningslagen* (2005:716)<sup>40</sup>, Sections 5 and 6.



## Residence permit to look for a job or explore the possibility to start a business after research or doctoral studies

After finishing doctoral studies or research in Sweden, one can, through Swedish legislation, apply for a permit to seek employment or explore the possibility of starting a business in Sweden. If granted, the permit is valid for 12 months. At that time, one must have found an employment or registered a business. It's crucial to apply for this permit before the previous permit for research or doctoral studies expires. Upon obtaining this permit, one can get a part-time or full-time temporary job. Anna Bartosiewicz points out that this permit is aimed at students, doctoral students and researchers, i.e. highly qualified persons, which will give them a possibility to take a less qualified job while looking for the "dream job", network and develop knowledge of the Swedish job market.

Besides having a valid passport and a full-coverage health insurance, the applicants must be able to support themselves throughout the whole permit period, which could be through savings or temporary jobs.

Compared with other Nordic countries, Swedish legislation is less generous in terms of permits to retain talent. Denmark, for example, can approve job-seeking permits for up to three years after one has finished doctoral studies. Finland can approve such a permit for up to two years. This could indicate that Denmark and Finland are more flexible and willing to let international talents stay and contribute to the skills supply in their respective countries.

## Work permit

This permit applies when the doctoral student or researcher get employed in Sweden, and where a work permit is necessary. It is important to apply for a work permit before the permit for doctoral studies or research expires in order to be able to stay in Sweden during the processing time.

From 1 November 2023, the minimum income requirement for a work permit increased from 13 000 SEK per month to 80% of the mean salary in Sweden. The report *New rules for labour immigration etc. (Betänkandet Nya regler för arbetskraftsinvandring m.m.) SOU 2014:15*<sup>18</sup> suggested a salary floor for work permits to be equivalent to 100% of the mean salary in Sweden. The date for introducing the new salary floor is 1 June 2025.

Despite being highly skilled, many of the young researchers do not reach the proposed salary floor the first working years, which will make it harder for this group to establish themselves on the Swedish job market, something that has already been highlighted in reports and articles by other actors.

The inquiry report also proposes that certain categories of applicants could be exempted from the new salary requirement, and for these foreigners, instead of the salary requirement, the salary should be at least equal to the minimum monthly salary that follows from Swedish collective agreements or practice in the profession or industry during the first years of work permit. The suggested exemptions will include foreigners who have the following:

- a permit for research
- a permit for studies (including doctoral students)
- a permit for job seeking or exploring the possibilities to start a business after they have finished research or doctoral studies

If the suggestions are adopted in Swedish legislation, it could be some relief for researchers who earlier have had a permit for research or higher education studies and who want to advance outside academia.

We should also mention that the Government's clear objective is to improve the conditions for foreign doctoral students and researchers to establish themselves in Sweden and to strengthen Sweden's competitiveness as a research nation. For this reason, an investigator has now been commissioned to submit proposals for measures to improve the chances of attracting and retaining foreign doctoral students and researchers in Sweden.<sup>39</sup>

### Residence permit for people who have their own business

Starting a business in Sweden might be a bigger hurdle than landing employment. But perhaps there has been guidance from the university's Innovation Office, or if you have had a permit to explore the possibilities and are ready for this step, then this is a relevant permit. This permit is always given for 2 years at a time, and applicants must show they can support themselves and their families during this period. Legislation states that one needs 200 000 SEK for oneself, 100 000 SEK for spouse and 50 000 SEK/child for two years ahead (2023). This could, for example, be revenue from a business or one's savings.

### Permanent residence permit for doctoral students

After at least 4 years in Sweden, without extensive periods outside Sweden, it's possible to apply for a permanent resident permit. The applicants must have an intention to stay in Sweden and be able to support themselves, through an employment or a business. The Migration Agency's practice has been that to apply for a permanent residence permit applicants must show that they have an employment contract of at least 18 months to fulfil the requirement of 'sustainable livelihood.' However, after a recent ruling in the Migration Court of Appeal (*Migrationsöverdomstolen*), it is enough to have an employment contract of 12 months.

On the topic of permanent residence permit, we must take into consideration the report Competence requirement for permanent residency (*betänkandet Kunskapskrav för permanent uppehållstillstånd*) SOU 2023:25<sup>21</sup>, regarding the possible implementation of requirements of knowledge of the Swedish language and the Swedish society to obtain a permanent residence permit. The Inquiry report is now on referral.

On the topic of language skills, Universitetsläraren's article *Doctoral students' limited Swedish skills as a social problem*<sup>20</sup> highlights the issue with international doctoral students' lack of Swedish language according to the latest doctoral candidate survey at Gothenburg University, conducted in 2023. The article mentions Susanna Karlsson, Docent of Swedish at Gothenburg University, who reminds us about the government's plans to introduce Swedish language requirements for people to obtain a permanent residence permit and that a rule change could affect how universities will or need to act regarding Swedish training for doctoral students:

***“If they want to retain the competence of international doctoral students in Sweden, we can envisage that some universities will invest in doctoral students' Swedish skills, for example, by making Swedish studies a requirement for granting extensions.”***

## The Job Security Foundation

The Job Security Foundation (*Trygghetsstiftelsen*) supports governmental employees on the way to a new job or studies. They offer two types of support; local transition funds (*omställningsmedel*) that can be used by the employer to proactively invest in activities to support those who are risking, for example, unemployment. The other part is support for individuals who have been given notice due to, for example, illness or those who end a fixed-term employment of at least two years, which is the case of doctoral students and postdoctoral positions.

Employers together with the unions decide how to use the transition funds. The funds could for example be used for career-related support to doctoral students, like Karolinska Institutet and Uppsala University has done.

The employer nominates employees to the Job Security Foundation. For those nominated, there are plenty of services, both individual and in groups, to take part in. Still, it's the employer's role to inform the employee about the Job Security Foundation. Eva-Lotta Krook, advisor at the Job Security Foundation, says it's part of the "Swedish model", and to think that international doctoral students and researchers would automatically know about it may be unrealistic.

Among the services available are:

- individual job coaching with coaches who have branch-specific knowledge
- seminar series
- possibility of taking Swedish courses
- feedback on CVs and personal letters
- help with funding for competence development.

We need to keep in mind that it is important to find out about the opportunities given by the Job Security Foundation as early as possible. Today many international researchers have no idea what the Job Security Foundation is and what they can do for them.

Eva-Lotta mentions that they see a notable difference between those who have had the chance to learn the language and those doing a part of their research outside academia, such as an internship, in terms of being better prepared for a career outside academia.

## European Employment Service Sweden (EURES)

EURES is a network of the EU Commission, the European Labour Authority (ELA), EU member states, Norway, Iceland, Lichtenstein, and Switzerland. The network aims to help individual workers who are eligible to move freely within the EU find work in another country. The member organisations offer comprehensive services to all European jobseekers - before, during, and after their job search.

EURES Sweden is coordinated by the Swedish Public Employment Agency (*Arbetsförmedlingen*) and consists of them and 14 other member organisations. These members offer support to job seekers who will relocate for work in another EU/EES country. There are approximately 30 Swedish EURES advisors around the country.

Jon Stråth, the National Coordinator at EURES Sweden summons the aim of EURES "...it is to facilitate the free movement of workers. This is done by helping workers find employment and employers find candidates in other member states and informing them about their rights and obligations."



Jon also highlights what we also have heard from several others as well as readings in reports, that there are two aspects of international doctoral students and talent attraction. First, we want and need the international talents to stay, from a Swedish growth and competence aspect. We have spent money to educate them so there is an economic aspect as well. These international talents are the lowest-hanging fruits to recruit rather than to look outside Sweden. They are already here; they are familiar with life in Sweden and therefore much easier to integrate. **Therefore, we should ask ourselves, can we afford not to keep these talents in Sweden?**

Jon talked about one dream scenario being that the career functions at Swedish universities also were a part of EURES, so that they could enhance the support services and encouragement for international talents making the transition from academia to employment to stay in Sweden.

Jon also mentions an instruction book *Tackling staff shortages – 34 solutions for employers*<sup>23</sup>, that the Employment Insurance Agency (UWV) in the Netherlands has produced for businesses and organisations that recruit internationally. The information in the booklet can be divided into three categories: explore new talent, organise work differently, and bind and fascinate. These have been produced for businesses and organisations that recruit international talent. Something similar could be created for industries and companies in Sweden.

## The Union for Sweden’s Professional Scientists

Many of the members of the Union of Sweden’s Professional Scientists (*Naturvetarna*) are researchers. They can support their members with career support, such as CV and personal letter writing, interview training, etc.

Catherine Johnsson, Advocacy Officer, and Lydia Musaefendić, Policy Analyst at the Union of Sweden’s Professional Scientists and co-author of the report *Sweden Needs Foreign Researchers*<sup>11</sup>, highlight that it’s difficult to understand how Sweden prioritises when it comes to international talent:

***“We spend money on educating doctoral students, but Swedish legislation makes it hard for them to stay and make use of their much-needed skills.”***

They continue “We hear from many branches in our field that there is a major need for talents with a research background, both in the digital transition, tech industry and to manage the green transition.”

However, as they also mention, Swedish legislation and infrastructure concerning information about accommodation, banking, school system, and spouse support must be working to keep the talents. Catherine and Lydia also mention IKEM’s (*Innovations- och kemiindustrierna i Sverige*) report *Kompetensjakten 2022 (The Competence Hunt)*<sup>13</sup> in which we can read that only in the field of Innovation and chemistry (needed in the green transition) Sweden will need to recruit up to 4000–8000 research talents in the next few years. At the same time, Swedish students are, to a lesser degree, interested in these fields. Several companies within this branch state that they have already recruited 70% from abroad to fill this competence gap.

The Union for Sweden's Professional Scientists' report Sweden Needs Foreign Researchers<sup>11</sup>, clarifies that to fill Sweden's competence gap, we must make it easier for international researchers to get established in Sweden and be more welcoming. One researcher in the report claims:

***“As a researcher getting my PhD in Sweden, I don't feel Sweden wants to keep me here. In fact, I feel that immigration policies in Sweden are trending towards getting outsiders to leave rather than stay in Sweden.”***

The report mentions that representatives from the business community highlight the importance of giving international researchers the opportunity to stay in Sweden. As a small country, we don't have the competences necessary to support industry growth, so international researchers are much needed.

### **The Swedish Association of University Teachers and Researchers (SULF)**

The Swedish Association of University Teachers and Researchers (Sveriges universitetslärare och forskare), SULF, has been very active in the debate regarding the situation of international researchers at Swedish universities, with immigration legislation that's difficult to understand, and sometimes inconsistent regulations.

SULF's Chief Negotiator, Robert Andersson, mentions that The Confederation of Swedish Enterprise (*Svenskt Näringsliv*) has contacted them, which is quite unusual, according to Robert. SULF usually doesn't have contact with the Confederation of Swedish Enterprise since SULF's role is to support teachers and researchers within academia.

Robert believes that due to the lack of competences in the industry and business sectors, the Confederation of Swedish Enterprise must consider national and international researchers to fill the gap, especially in areas where companies have difficulty recruiting.

David Rule, chairman of the SULF board at Linköping University, believes that the recent changes in law have made it harder for doctoral students to obtain permanent residency and such changes may discourage some from applying at all. In addition to this the Swedish Migration Agency's interpretation of the term "degree of permanence" as requiring applicants to have an employment contract of at least 18 months has made that process even harder [A recent ruling from the Migration Court of Appeal had now led to the Migration Agency's guidelines being changed to 12 months.]

David also refers to the Saco-S working group for doctoral students' issues at Linköping University who has worked hard to push for the issue of building up career support in the Individual Study Plan (ISP). David states that even though ISP should include career planning, it's just a box to tick to state that it's done. It's up to the supervisor to decide what to do with it. According to our survey answered by researchers, most doctoral students are not aware that career support can be part of the ISP. Hence, much can be done regarding developing the section for career support in the ISP and methods for following up.



## The Saco-S working group for Doctoral Students' Issues

Niki Matinrad, the Convener of the Saco-S working group for Doctoral Students' Issues at Linköping University explains how the group has worked on these types of issues for a long time. They have observed that some doctoral students never have career talks, or at least not in good time. Having the talk only a few months before the defence isn't helping the doctoral student. For the doctoral students who do have the career talk in good time, it many times deals with academic careers only. Niki also confirms there is confusion around ISP.

Saco-S Working Group for Doctoral Students' Issues identified these questions that should be clarified regarding the ISP:

- How many times should this talk be held over a PhD study time?
- When should this talk be held at the latest?
- With whom should this talk be held?
- What should the talk include?

As we can see from the results of the researchers' survey, many feel that lack of time or incentives to learn the language creates a barrier when looking for alternative careers in Sweden. SULF also argues for the necessity of learning Swedish in the article in *Universitetstidningen Doctoral students' limited Swedish skills as a social problem*<sup>20</sup>.



## PART 5

### **Conclusions**

So far, we have shown various perspectives regarding providing guidance for a possible career outside academia for international junior researchers. It's clear from people and data representing the different perspectives that several common denominators and conclusions can be drawn from the findings.

## The international junior research community in Sweden

Many international junior researchers in our survey and interviews are **positive about a career outside academia** in Sweden and mention the lack of opportunities within academia and work-life balance as factors for changing careers. Many researchers believe their skills are needed in the Swedish industry or business landscape and would like to impact society. Despite the positive attitude towards using skills gained from academia in an industry setting, many believe that several factors make them hesitant to pursue a career in Sweden.

So why do doctoral students **leave** Sweden? According to a report by the Confederation of Swedish Enterprise (*Svenskt Näringsliv*)<sup>3</sup>, it's the following:

1. Complicated regulations, difficulty in understanding the rules, long processing times, and unpredictable decisions
2. Low wage levels
3. Lack of contacts and Swedish cultural competence
4. Lack of knowledge and recruitment processes in the Swedish labour market
5. Insufficient support from the universities

These findings are also supported by our survey respondents and interviewees and further complimented by the Talent Map Report<sup>8</sup>, which states: "Reasons to leave are clearly specified around companies as either not being open enough to internationals, not having sufficient knowledge of regulations or simply not wanting to hire internationals." In the same report, the need to better understand the Swedish labour market is also expressed, and there is a general impression that the Swedish labour market isn't accessible to internationals.


Not having the time or incentive to learn the **language** is a huge barrier to many, which could impact their success in finding a job outside academia. Especially in specific fields, knowledge of Swedish is critical. Not only will learning the language and culture help researchers find a job outside academia, but there is also a suggestion from the Swedish Government that knowledge of Swedish language and Swedish society will become a requirement for obtaining permanent residence. For most researchers, there is no time set aside to learn the language.

A general knowledge of the Swedish job market also seems to be lacking for most junior researchers. It's clear that those who do have **knowledge of the job market** very much believe that the reason for this is prior contact with the industry in Sweden. The possibility of getting connections to industry and alumni (previous doctoral students and researchers) through mentorship during their doctoral studies or postdoctoral period is something several researchers have brought up as a request.

An interesting finding is that a significant obstacle for a junior researcher to pursue a career outside academia is knowing how to **match the skills** gained within academia to the non-academic job market, which could make them insecure about the non-academic world. Society and universities must help them understand their skill set and how they translate to a non-academic career.

Many junior researchers **lack support from universities** in terms of career guidance. They state that there should have been a window during their doctoral studies or postdoctoral period where they could have learned about Sweden, the job market, and the language. Many feel that their supervisors don't want to talk about career paths unless it's within academia. Almost one-fourth of our researchers surveyed don't know where to turn for career advice support. Most turn to social media, like LinkedIn, for networks and job searches. About half of the interviewees said they turn to their supervisors for support. Still, there is quite a difference between women and men, where women, to a lesser degree than men, turn to their supervisors. We also see in our researcher survey that more female researchers request more support for a career outside academia than men. This could indicate that more females wish, or feel the need, to leave academia, likely due to the uncertainty of employment within the sphere. A report from the United States shows that female researchers are more likely to leave academia than male researchers throughout all career stages<sup>19</sup>.

Furthermore, some international researchers believe they are not welcome outside academia in Sweden and, therefore, look for careers in other countries. This is explicitly shown in Swedish **migration legislation**, where it's quite tricky to change from a permit within academia to one in industry. There is much to gain if we look and learn from other Nordic countries, such as Denmark and Finland, whose legislation is more generous, for example, regarding job-seeking permits.



For a **Nordic comparison** between Sweden, Denmark, and Finland we can see in the International Talent Map Report<sup>1</sup> that when it comes to settling in Sweden, it is the lowest of the three, with a satisfaction rate of 5.30/10. Finland has 5.72/10, and Denmark has the best settling-in experience of the three at 6.05/10. Sweden is also worse regarding bureaucratic matters: in Sweden, around 35% of the respondents say that registering my address, social security, opening a bank account, insurance, etc., have been the biggest challenges for integration. In Finland, that number is around 28%, and in Denmark as low as approximately 18%. Sweden seems to have a rather welcoming atmosphere, but bureaucracy hinders our attractiveness.



## What's in it for the universities?

Providing career support outside academia doesn't only hold an altruistic take for the better good of the researchers or the role of universities in society. It can also stem from a need to be an **attractive employer** and attract the very best researchers, already at a doctoral student level. An attractive package of career support alternatives could strongly attract researchers to the university.

Organisations are responsible for their **employees' mental well-being and welfare**, including development and a feeling of a prosperous future. However, this responsibility seems to clash with an aspiration within universities: to groom doctoral students into a career within academia. When this form of talent management becomes the sole purpose, universities tend to overlook or bluntly neglect the need to explore several career opportunities. Due to the limited number of positions within academia, compared to the number of doctoral students, universities that seriously wish to take responsibility towards employee mental well-being and welfare must support doctoral students in broadening their view of a potential career both within and outside academia. By informing about the complex realities of academic life and the competitive academic job market, universities can better equip researchers to make informed career decisions.

Jan-Ingvar Jönsson, Vice-Chancellor at Linköping University, states: "We must not keep training people who simply disappear from the country or disappear from our academy. Not everyone can stay, but they have to end up somewhere in a context. In the long term, can we afford to train young researchers who then leave Sweden and never come back?"

"It's clear from both the interviews and reports that the common view is that it's a **huge waste to spend money** to educate international researchers and, at the same time, not helping or guiding them to stay and get established in Sweden.

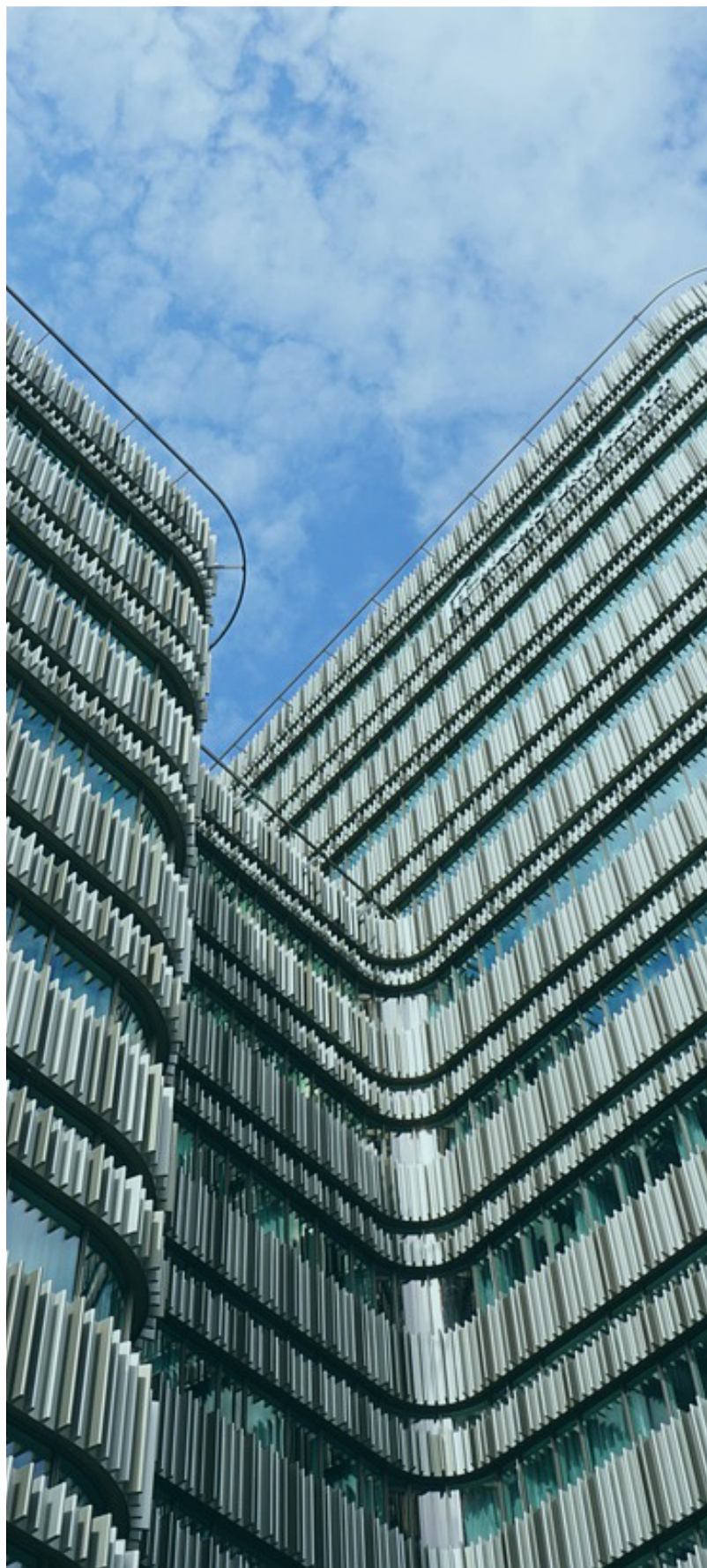
Few Swedish universities have a **structured way of working with career support** for alternative research careers. A few universities have some excellent initiatives, but efforts must be made at a central level to ensure that all junior researchers have the same opportunity to participate in this support. Hence, it does not depend on whether your department is good at providing this. The most structured and inclusive way to work with alternative career support is to make courses and other efforts compulsory. It will be hard for the junior researcher to find time if it's completely voluntary, especially if no credits are given.

Almost everyone we have talked to agrees that **time is crucial** when it comes to information on paths to take after doctoral studies or postdoctoral positions, meaning that these aspects need to be presented and discussed early on in a junior researcher's career. It concerns information about residence permits, the importance of learning the language and culture, how the 'Swedish model' works regarding support from the unions and the Job Security Foundation (*Trygghetsstiftelsen*), and, of course, getting career guidance.

Universities should actively work to set straight **common misconceptions** surrounding career paths beyond academia. This involves addressing beliefs such as the idea that academic success is the only determinant of career success, dispelling the myth that research skills lack applicability outside of academia, and challenging the misconception that non-academic careers are inherently less prestigious or impactful. regarding job-seeking permits.

It's evident, from both junior researchers and managerial staff at the universities, that **supervisors** are important parts of a doctoral student's success but not always the right people to help guide them for a career path outside academia. However, training doctoral supervisors on career-related topics can help them discuss and support their students in their future careers.

A high majority of the respondents in both surveys and interviews conducted see the **Individual Study Plan** (ISP) for doctoral students as an important possible tool for more structured career support for doctoral students. The Higher Education Ordinance (1993:100)<sup>36</sup> mentions career guidance for students in Chapter 6. However, it's up to the university to decide how to offer the work with career guidance. Taking advantage of the ISP can provide an excellent opportunity to include career guidance as one topic discussed during the meetings between supervisors and doctoral students. According to the SA-CO-S group for PhD issues, the ISP section on career support should be clarified and answer questions on what, when, and who? Most surveyed and interviewed researchers haven't used the Individual Study Plan (ISP) for career support. Those who have talked with their supervisors only did career planning within academia. There seems to be an understanding that the ISP isn't at all for career planning, and we see a highly underused potential of this important tool in a doctoral student's education.



## Collaboration is key!

As seen in interviews with representatives from academia and industry, they all need a **deepened collaboration** to better match international junior researchers with the job market's needs. As seen in *Rekryteringsenkäten 2024*<sup>14</sup> (the Recruitment Survey), the industry-academia collaboration today on a research-level has just a 35% satisfaction rate among the companies.

It's visible from the junior researcher's view that they want a **better connection to the Swedish job market** during their time at the university. Some universities in Sweden have a good connection to the companies in their surroundings regarding career options for their students and researchers, but most don't. This can also be read in a report by the Federation of Swedish Enterprise (*Svenskt Näringsliv*)<sup>3</sup>: "Since Swedish universities are generally low in terms of cooperation and support to help international students enter the labour market, Swedish business wants the following: Universities and colleges should take greater responsibility to especially support international master's and doctoral students with contact with the business world to facilitate their establishment in the Swedish labour market. The efforts should include cooperation with the business world and other actors, various forms of career support or courses in Swedish and arranging labour market days."

Another good effort could be to work with **alumni** to demonstrate good examples of careers outside academia. Our university staff survey shows that 71% actively work with alumni to tie junior researchers to a possible career outside academia.

It's clear, especially from interviews we conducted with representatives from industry, **that companies need help from universities** in understanding how to best fit a person with a PhD into their organisation.

Universities know best how to explain a researcher's broad profile and how many abilities they can enrich any company with. However, as reality shows today, many companies don't see the need for a researcher profile in their company - and it's up to the universities to help companies better understand the researcher group's potential. When, in addition, the researcher also has an international background, the threshold can, unfortunately, often be even higher.

At the same time, companies also need to take part in the responsibility. As the International Talent Map Report<sup>1</sup> states, when it comes to how companies have to improve their ways to be **more welcoming to international talents**: "the need for an increased focus on integration, inclusive language practices, streamlined bureaucratic processes, career development, and a culturally attuned work-life balance, which, if improved, companies can more effectively meet the nuanced needs of their international workforce. These key areas highlight opportunities for both private and public sectors to collaborate in creating a more favourable environment for international talents, enriching the dialogue on global mobility and talent management." In the survey and interviews with junior researchers, we see them express a desire from industry to help explain recruitment processes and how to promote themselves to be attractive to employers.

Regarding collaboration, universities must also **collaborate** in organising careers-related activities for their common target groups of international researchers. Networks in their regions should support national, regional, and local activities to ensure the success of such programs. Here, EURAXESS can play an important role as an over-arching organisation.



## Impact of the government, agencies and regional actors

*“To be competitive in the global arena, governments have realised the need to actively create an attractive environment by reducing bureaucratic hurdles, offering tax incentives, and ensuring access to a skilled and adaptable workforce.”<sup>1</sup>*

It’s hard to talk about the role of Swedish universities in providing alternative career support without mentioning **the role of the Swedish Government**. Most Swedish universities are public, meaning that the Swedish Government has the highest responsibility for how they are governed.

Swedish universities have great autonomy, but they are all governed by the Ministry of Education (except *Sveriges Lantbruksuniversitet*, which is governed by the Ministry of Climate and Enterprise)<sup>15</sup>. The ministries give guidelines to all public universities each year in something called **regleringsbrev** (regulation letters, a general one for all universities and a specific one per university)<sup>16</sup>.

In the Talent Map Report<sup>8</sup>, the authors recommend that universities should be measured on the level of company partnership and job support for international students and researchers, a sort of **collaboration bonus**. Collaboration is often mentioned in the **regleringsbrev** (regulation letters). Still, it could be further deepened by specifically mentioning working with companies and other organisations to help researchers and companies find each other.

In March 2024, the Ministry of Climate and Enterprise presented a **new effort they will make to attract and retain highly skilled international talent**. The Government will allocate 85 million SEK over 3 years (2024–2026) for 10 governmental agencies to work together for stakes that will help attract and retain this talent, amongst other researchers at Swedish universities. The Swedish Agency for Economic and Regional Growth (*Tillväxtverket*) will coordinate this mission. This can be a start to collectively working as a nation and attracting and retaining highly skilled international talents. Still, it requires that all agencies involved (and also other parties of interest) make a joint effort to go further in this area and at least be as good as, if not better than, our Nordic neighbours. In addition, in April 2024, the Swedish Government presented an assignment to investigate measures to improve the ability to attract and retain foreign doctoral students and researchers in Sweden. The investigation will be presented latest 9 December 2024.<sup>39</sup>

As we can see, both in the surveys and the interviews, as well as secondary data, the need for knowledge of the **Swedish language** is highly important. The possibility of international researchers learning Swedish at universities today varies a lot. Some offer it in a very structured way, and some barely offer it at all. Researchers at all levels should be given time to learn Swedish, partly during office hours, for integration purposes and career possibilities – both within and outside academia. Other actors that could take a role in educating researchers in the Swedish language are the municipalities.

We can see an excellent example from Örebro, where the university influenced the municipality to create a specific course within SFI (Swedish for Immigrants), especially for academics and their partners.

**Transition funds** (*omställningsmedel*) from the Job Security Foundation (*Trygghetsstiftelsen*), given to all public Swedish universities for proactive work for those who risk unemployment, have been mentioned earlier in the report as good examples of financing efforts for career support (e.g. Uppsala University and Karolinska Institute). An easy fix for other universities to come further in their career support efforts could be allocating money from these funds to proactively work with career support outside academia.

12 months for a **permit** to look for a job or explore the possibility of starting a business is quite a short time, especially if the international researcher hasn't had time, knowledge or a chance to get to know the Swedish job market or learn Swedish during their previous permit. Exploring, applying, and getting a job offer for an international researcher in only 12 months can seem a bit stressful. Not to mention starting a business that will make revenue to live off in only 12 months. In comparison, other Nordic countries are more generous with these permits. The suggestion from the Swedish Government that knowledge of Swedish and Swedish society will become a requirement for obtaining permanent residence put even more pressure on researchers who wish to establish themselves in Sweden.



## PART 6

### **Recommendations**

The report identifies several critical actors in helping international junior researchers into the Swedish job market outside academia. Below are several recommendations we want to give these actors so that together, we can supply Sweden with the right highly skilled competence.





## FOR THE UNIVERSITIES

- Make it mandatory in the doctoral students' Individual Study Plan (ISP) to include a section on career guidance within and outside academia
- Offer training courses for the supervisors on the role of being a career guide
- Offer courses for doctoral students and postdoctoral researchers on alternative career paths, preferably compulsory or where credits are given
- Use the transition funds (*omställningsmedel*) provided by the Job Security Foundation (*Trygghetsstiftelsen*) to finance actions for career guidance outside academia
- Collaborate amongst several units of the university, as well as with support organisations such as the Junior Faculty, to create a network for sharing resources and insights
- Collaborate between universities in offering career support to researchers
- Offer courses in Swedish to all international students and employees; promote the courses and make them as accessible as possible
- Work with talent retention with companies in the region, with a focus on the university's strategic partners
- Work strategically with alumni of the university, for example, through sharing success stories or offering mentorship programmes



## FOR THE INDUSTRY

- Collaborate with universities to provide internships for junior researchers
- Create examples of how valuable it can be to hire someone with a PhD and find good ways to share them
- Make efforts to be more open to international recruitment, international junior researchers in particular, by, for example, revising the language requirements



## FOR THE GOVERNMENT

- Create a collaboration bonus for Swedish universities, making it profitable with a high level of collaboration in matching researchers' skills with companies' needs
- Use *regleringsbrev* (regulation letters) as a mission statement for all public Swedish universities to help them implement career support
- Learn from governments that already have established support for junior researchers, such as Denmark and Finland, to make a structure in doctoral education for time outside the university
- Change migration legislation regarding the possibility for job seeking permit to be extended to two years



## FOR OTHER ACTORS AND ORGANISATIONS

- For the Job Security Foundation (*Trygghetsstiftelsen*) help universities see what options there are to use transition funds (*omställningsmedel*) for activities to support a career outside academia
- For the Swedish Public Employment Agency (*Arbetsförmedlingen*), make a section on the website for jobs requiring only English and make it possible to search for someone with a PhD as a keyword
- On a municipal and regional level, offer Swedish for Academics, such as a special section of SFI only for people with an academic background



## FOR THE INTERNATIONAL JUNIOR RESEARCHERS

- Start learning Swedish early on if you intend to stay in Sweden; this is important both regarding a career inside and outside academia, as well as for integration purposes
- Ask your supervisor about career support outside academia, for example linked to the ISP
- It is important to take ownership of your career development and make sure you start in good time!

**The best effects will be seen if each actor takes responsibility and act for their part, with the overall goal of working together to ensure that the needed highly skilled competence stays in Sweden.**



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## Further reading

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# Appendix

1. Survey - young researchers
2. Demographics of researcher interviewees
3. Survey - Swedish universities



This is an invitation to early stage international researchers currently in Sweden (second-year doctoral students up to doctoral graduates with their PhD awarded within the last two years), to participate in a Vinnova-funded project on career-related support for a possible career outside of academia.

The aim of the project is to map the ability of Swedish universities to guide international researchers to a possible career outside academia after completing research/doctoral studies, as well as researcher needs and competences required by the Swedish business and industry sector.

We are therefore interested in getting your thoughts on the likelihood to stay in Sweden and your current view and needs of career-related support provided by your university in terms of reaching a career outside of academia. For more information about the research project, please contact our project manager Therese Lindkvist ([therese.lindkvist@liu.se](mailto:therese.lindkvist@liu.se)).

Feel free to forward this survey to any early stage international researcher that fits the criteria, that you think would be willing to help us to get a better understanding of career-related support for international researchers in order to achieve a career outside of academia.

All answers provided by you will be anonymised and pooled with other participants' responses before published in a report.

Your participation is really appreciated!

Kind regards,  
The project team



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### How to fill in the paper survey

Below you can see how you mark an answer option in the check boxes, and how you change a selection.



The answer option has been marked correctly

The answer option has been marked incorrectly, the cross must be in the middle of the box

The answer option has been marked incorrectly, the cross is too strong

Changed selection, the answer option will not be counted as being marked



I am aware that the information/answers provided by me in this survey will be anonymised and used in the final project report.

Yes, I am aware and give my consent

**Please read the questions carefully before answering.**

**Are you positive to a career outside academia in Sweden?**

Yes

No

Don't know

**Please state the reason(s) for your reply on question 2. Be as specific as possible.**

**Are you using or have you used the Individual study plan (ISP) during your doctoral studies to help you find a possible career outside of academia?**

Yes

No

Don't know

**Please describe how you have used the ISP to help you find a career outside academia or the reasons to why you have not used it?**

**How do you rate your knowledge about the job market in Sweden?**

No knowledge

Little or some knowledge

Good knowledge

Very good knowlegde

Comment



**Where do you go for support in regards to finding information about a possible career outside of academia? Mark all that apply.**

- The career advisor at my university
- My supervisor(s)
- My colleagues
- The Swedish Employment office (Arbetsförmedlingen)
- Social media, such as LinkedIn
- I don't know where to turn
- Other, please state below

Other places and comments to the question above.

**Is there anything that you feel that you lack or did lack, from your university, in terms of guidance on how to reach a career outside of academia in Sweden?**

- Yes, please comment below
- No

Comment





Please rank how the educational system/university best can support you, in terms of identifying and/or finding a career outside of academia in Sweden? (1= most important 7= least important)

	1	2	3	4	5	6	7
Guidance to understand the Swedish job market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guidance to Swedish networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CV-writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job interview workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Help finding an internship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guidance to finding job options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other; please state below (If no other, just mark as 7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment

**What can be a hindrance to pursuing a career outside academia in Sweden? Mark all that apply.**

- Lack of knowledge of the Swedish job market
- Lack of knowledge on how to match academic skills to the non-academic job market
- It is difficult to find a well-paid job outside academia in Sweden
- Language and/or cultural barriers
- Family issues
- Administrative issues (such as migration)
- Lack of professional and/or social networks
- Other, please comment below

Other hindrance or comments



Please rank the reasons to why, in your mind, international researchers do not pursue a career outside academia in Sweden? 1= most important 10 = least important.

	1	2	3	4	5	6	7	8	9	10
Swedish companies hesitate to hire international staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is difficult to find a well-paid job outside academia in Sweden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of knowledge of the Swedish job market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not knowing how to translate one's academic skills to match the job market outside academia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Administrative issues (such as migration)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of cultural integration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of language skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweden is an expensive country to live in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, please state below (If no other, just mark as 10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment

Is there anything you wish to add regarding finding a career outside academia in Sweden?

**Questions about you.**

We wish to find out some more information about you and your current work/study situation in order to get a better understanding of who you are. Please reply to the questions below.



**Gender**

- Woman
- Man
- Other
- Prefer note to state

**Year of birth (YYYY)**

**Which origin do you closely identify yourself with?**

- EU/EES
- Non-EU/EES

**Family and/or dependants**

- Single
- Living with partner only
- Living with partner and children or dependants under 18 year of age
- Living with partner and children or dependants over 18 year of age
- Living with children or dependants under 18 year of age, no partner
- Living with children or dependants over 18 year of age, no partner
- Other, please state below

Comment

**In what area(s) are you currently performing or have completed your PhD studies?**

- IT Technolgy
- Engineering
- Life Science or biomedicine
- Social sciences
- Arts and humanities
- Other, state below

Comment





**At what university have you or are you conducting your PhD studies?**

**Was or is your doctoral degree supported by the industry (i.e., you are or were an industrial doctoral student)?**

- Yes
- No
- Don't know

Comment

**What best describes your current situation?**

- I am pursuing my PhD studies, and I am currently on my second year or later
- I have completed my PhD Degree within the last two years (please fill in year and month of completion under Comments)
- I am currently a paid employee outside academia in Sweden
- I am currently a non-paid employee outside academia in Sweden
- I am currently a business owner or shared business owner in Sweden
- I am employed in academia in Sweden
- I am unemployed
- Other, please state below

Comment

**What best describes your past work experience? Mark all that apply.**

- I have had non-paid work experience outside academia in Sweden
- I have had paid work experience outside academia in Sweden
- I have previous been a business or shared business owner in Sweden
- None of the above

Comment



**Thank you for completing this survey! Would you mind if we contact you if we have further questions in regard to the topic of international researchers' career outside of academia? The reason would be to gain a deeper understanding of the topic.**

Yes, I would not mind to answer further questions

No thank you, I prefer not to be contacted

If yes, please share your e-mail address where you can be reached.

## Appendix 2

Interviewee demographics (Based on 12 out of 13 interviews) <sup>1</sup> The percentages are rounded up or down.	Females <sup>2</sup>		Males <sup>2</sup>		Full sample <sup>2</sup>	
	n <sup>f</sup> =9	75%	n <sup>m</sup> =3	25%	N=n <sup>f</sup> + n <sup>m</sup> =12	100%
<i>Civil status</i>						
Alone	9	75 %	3	25 %	12	100 %
Partner	0		0		0	
Partner and children < 18 years old	0		0		0	
Unknown	0		0		0	
<i>Research area</i>						
Social science	4	33 %	2	17 %	6	50 %
Arts and humanities	1	8 %	0		1	8 %
Life science or biomedicine	1	8 %	0		1	8 %
Natural science	2	17 %	0		2	17 %
IT Technology / Engineering	1	8,5 %	1	8,5 %	2	17 %
<i>Type of PhD</i>						
Industrial	1	8,5 %	1	8,5 %	2	17 %
Non-industrial	8	67 %	2	16 %	10	83 %
<i>Nationality</i>						
Europe	9	75 %	0		9	75 %
Non-Europe	0		3	25 %	3	125 %
<i>Degree stage</i>						
Doctoral student	7	58 %	3	25%	10	83 %
PhD completed	2	17 %	0		2	17 %
<i>Work-experience outside of academia (Paid or non-paid)</i>						
Yes	5	42 %	2	17 %	7	59 %
No	4	33 %	1	8 %	5	41 %

<sup>1</sup> Of 18 invited junior researchers 13 were interviewed whereof one outside the survey. Therefore, the above table is based on 12 interviews.

<sup>2</sup> n<sup>f</sup>= females, n<sup>m</sup>=men, N=interviewees based on survey



# VINNOVA

## Sweden's Innovation Agency



### KARRIÄRSTÖD VID LÄROSÄTEN

#### Enkät - höst 2023

Välkommen till vår enkät om karriärstöd vid lärosäten i Sverige! Ditt deltagande är viktigt för oss.

Observera att ditt svar är helt anonymt men om du önskar kan du lämna kontaktuppgifter i slutet för eventuell uppföljning.

Sista dagen att fylla i enkäten är den 15 december. Enkäten tar upp till 15 minuter att besvara.

Har du några frågor angående enkäten eller vårt projekt? Kontakta oss gärna på [internationalstaffsupport@liu.se](mailto:internationalstaffsupport@liu.se).

1.

Ditt lärosäte

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Din avdelning (ej obligatoriskt att ange)

---

Din roll (ej obligatoriskt att ange)

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ALLMÄNNA FRÅGOR OM KARRIÄRSTÖD:

2. Berätta kort vad “karriärstöd för forskare” betyder för dig.

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3. Erbjuder ditt lärosäte karriärstöd för forskare?

Ja

Nej

4. Vem får ta del av k arriärstödet? (Möjligt att ange flera svar)

Doktorander

Postdoktor och juniora forskare

Seniora forskare

5. Vem riktas k arriärstödet till?

Bara internationella forskare

Både nationella och internationella forskare

6. Vilken eller vilka avdelning(ar) ansvar för karriärstöd?

---

7. När etablerades karriärstödet?

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8. Om ni har någon hemsida för karriärstöd, ange gärna länken nedan:

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STÖD FÖR AKADEMISK KARRIÄR:

9. Erbjuds det stöd för att utveckla och förbättra undervisningsfärdigheter?

Ja (vänligen ange exempel på stöd eller relevant hemsida)

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Nej

10. Erbjuds det stöd för att skriva forskningsansökningar och publikationer?

Ja (vänligen ange exempel på stöd eller relevant hemsida)

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Nej

11. Finns det mentorprogram för akademisk karriär?

Ja (vänligen ange relevant hemsida eller ansvarig person)

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Nej

12. Erbjuds det övrigt stöd för akademisk karriär?



Ja (vänligen ange exempel på stöd eller relevant hemsida)

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Nej

#### STÖD FÖR KARRIÄR ANFÖR AKADEMIN:

13. Erbjuds det tjänster som stödjer forskare som söker karriärer utanför akademien?

Ja

Nej

14. Ange ungefär hur många forskare per år som tar del av följande tjänster:

	Upp till 10	Mellan 11 och 50	Fler än 50	Erbjuds inte	Vet inte
CV-granskning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intervjuförberedelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Individuell coaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utbildning/ workshops om att söka jobb utanför akademien	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utbildning/ workshops för att förbättra anställningsbarhet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Vem håller i ovanstående tjänster?

Lärosätespersonal

Externa medverkande och föreläsare

Både lärosätespersonal och externa medverkande

#### Anslutning till näringslivet och samhället

16. Erbjuds det stöd för att underlätta övergången för forskare till industrin?

Ja (vänligen ange detaljer eller relevant hemsida)

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Nej

17. Finns det program eller initiativ för att främja samverkan mellan forskare och samhället?

- Ja (vänligen ange detaljer eller relevant hemsida) \_\_\_\_\_
- Nej

18. Erbjuds det nätverksmöjligheter för forskare som vill få kontakt med yrkesverksamma utanför akademin?

- Ja (vänligen ange detaljer eller relevant hemsida) \_\_\_\_\_
- Nej

19. Har lärosätet ett aktivt alumn nätverk för att knyta doktorander och unga forskare till alumner inom olika karriärsområden?

- Ja (vänligen ange detaljer eller relevant hemsida) \_\_\_\_\_
- Nej

20. Har lärosätet en jobbportal där företag kan få tillgång till forskarens CV?

- Ja (vänligen ange detaljer eller relevant hemsida) \_\_\_\_\_
- Nej

Entreprenörskap och startupverksamhet

21. Erbjuds det stöd för forskare som är intresserade av entreprenörskap och startups?

- Ja (vänligen ange detaljer eller relevant hemsida) \_\_\_\_\_
- Nej

22. Finns det några specifika insatser som du tycker har varit särskilt framgångsrika för att främja forskarens karriärmöjligheter utanför

akademin?

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#### FRAMTIDA PLANER

23. Har ni några kommande planer eller initiativ för att förbättra forskares karriärmöjligheter utanför akademien?

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24. Finns det något du skulle vilja att ditt lärosäte skulle lägga till i utbudet av karriärtjänster?

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#### KONTAKT FÖR UPPFÖLJNING

25. Om vi har ytterligare frågor eller behöver förtydliganden, vem ska vi kontakta? Ange namn och epostadress .

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