HIGH-SKILLED MIGRATION - A CHALLENGE FOR POLAND'S POLICY ON THE DIASPORA

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Abstract

In the knowledge-based economy, a high level of human capital is often perceived as one of the important factors conditioning economic development and social well-being. Poland, however, is one of the countries that experience a huge problem both in retaining highly qualified people in the country and obtaining them from abroad. In such a situation, the possible solution may lie in the involvement of the Polish diaspora and its inclusion in the socio-economic life of Poland. The paper demonstrates that in shaping Polish policy towards the diaspora in the field of human capital transfer, priority should be given to solutions functioning under the diaspora option model, not the return option model. In activities directed at diaspora members well-equipped with human capital, the Polish state should focus on their networking within industry and professional groups as well as building infrastructure fostering the establishment and development of relations. This is confirmed by the results of the project "E-migration - Polish Technological Diaspora", implemented by the Emigration Museum in Gdynia and the PLUGin Foundation in 2018-2019.

Key words: *Diaspora Policy, Diaspora Option, High-skilled Migration, Transfer of Human Capital*

INTRODUCTION

In the knowledge-based economy, a high level of human capital[1] is often perceived as one of the important factors conditioning economic development and social well-being. This capital can significantly affect the level of innovation, efficiency and competitiveness of national economies. At the same time, people with economically desirable competencies and skills also have great potential for mobility. As the American writer and economic journalist, writing for the American edition of "Forbes" magazine, Rich Karlgaard [2003] noted, "The most valuable natural resource in the twenty-first century is brains. Smart people tend to be mobile. Watch where they go! Because where they go, robust economic activity will follow."

We are, therefore, currently witnessing a global competition for the recruitment of high-skilled employees. Naturally, rich and developed countries that can offer employees not only higher wages and better career prospects but also a positive atmosphere for conducting research and development work, raising qualifications, gaining professional experience or achieving life aspirations, are in a privileged situation. According to the "Global Talent Competitiveness Index", an annual comparative report that measures the ability of countries to compete for talents, in 2019 the countries with the greatest potential in this respect were respectively: Switzerland, Singapore, the USA, Norway, Denmark, Finland, Sweden, the Netherlands, the United Kingdom and Luxembourg [Lanvin and Monteiro 2019: 11]. Developing countries, even those belonging to the group of countries with an upper-middle income, are not as attractive. They usually "export" qualified labour and experience the negative consequences of the brain drain phenomenon.

Poland, despite being included in the group of developed high-income countries, does not display a high ability to compete for talent and ranked forty-second place in the above-mentioned index. Poland ranked particularly low in the category "brain gain"[2] - position 103, and "brain retention"[3] - position 84 [Lanvin and Monteiro 2019: 182].

As it is often pointed out, today the neutralisation (at least to some extent) of the negative effects of emigration of high-skilled people is achievable through the development of contacts and co-operation with the diaspora. The involvement of diaspora members in the economic affairs of the country of origin may be an important factor in supporting economic development and technological progress.

Issues relating to the possibility of using the human capital of the so-called Polish technological diaspora for the economic development of Poland was one of the research areas of the project "E-Migration - Polish Technological Diaspora" implemented by the Emigration Museum in Gdynia and the PLUGin Foundation in 2018-2019. One of the research hypotheses formulated in this study was that when shaping

1 Human capital is defined by the OECD as "the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being." [Kelley 2007: 29].

2 Answering the question: "To what extent does your country attract talented people from abroad?".

3 Answering the question: "To what extent does your country retain talented people?".

Polish policy on diaspora in the field of human capital transfer, priority should be given to solutions functioning under the diaspora option model, not the return option model. It should be noted that Polish state policy on its own diaspora has so far been based largely on symbolic and identity activities. This policy, however, lacks pragmatic solutions aimed at including diaspora members in socio-economic life in Poland. In this area, the diaspora remains untapped potential for Poland. It is worth noting that in Poland this study is unique and carries great cognitive value, especially for policymakers.

This paper has the following structure: The second section is a synthetic presentation of the growing importance of diasporas and two general types of policies through which countries try to access the human capital of diaspora communities, i.e., return-oriented policies and co-operation with the diaspora. The third section includes a general description of the project and its methodology, as well as key results related to the hypothesis. The final section presents conclusions regarding the actions of the Polish state towards members of the Polish diaspora with human capital.

1. THE RETURN OPTION VERSUS/AND THE DIASPORA OPTION

In recent years, diasporas have been perceived as a resource with significant economic, socio-cultural or political capital. In a broader sense, the initial focus was on the economic potential of diasporas, seeing them as an important pro-development factor, especially in relation to economically lagging countries. Lively discussions about the role of emigrants in the economic development of countries of origin have taken place since the middle of the twentieth century, but since the turn of the millennium the relationship between migration and development has become one of the most important issues of development policy [Sinatti and Horst 2015: 134-135], which has been reflected in the strategies and programmes of many countries, as well as international organisations and institutions such as the World Bank, the European Commission, the International Organisation for Migration (IOM) and the African Union [Raczyński 2016].

However, not only developing countries are seeking support in the diaspora. Rich and developed countries, such as Australia, New Zealand, Ireland, Israel and South Korea, are increasingly reaching for the potential of diaspora communities.

In the frequently cited passage from the introduction to the textbook "Global Diaspora. Strategies Toolkit", Kingsley Aikins and Nicola White [2011: 1] ask rhetorically: "What made China the world's factory? What made India the world's technology hub? What made Israel a leading innovation centre? Connecting with their diasporas in the United States." Although this statement should be treated as too optimistic simplification, it well reflects the belief in the business and technological potential of diasporas formed in recent years, as well as their possibilities for influencing the economies of their countries of origin.

Literature on the subject most often indicates six main areas of diasporas' involvement

having a positive impact on the economy of countries of origin. These are financial transfers, direct investment, capital investment, philanthropy, tourism and human capital transfers [Agunias and Newland 2012]. The latter are becoming increasingly important because they enable – at least to some extent – the transformation of the brain drain phenomenon into the phenomenon of brain gain.

According to the approach popularised since the late 1990s the emigration of high-skilled people should not be seen solely in view of negative consequences (i.e., as a "loss" for countries of origin). Specialists going abroad may contribute to the multiplication of their broadly understood human capital, which, if supported by appropriate policies, can be channelled and transferred to the country of origin in the future. This approach is variously described in literature as "knowledge transfer", "knowledge exchange", "knowledge circulation" or "brain circulation." The transfer of professional knowledge, skills, competences and experiences can take various forms and use various channels. Such activities include, but are not limited to, meetings, training, internships and apprenticeships, networking, mentoring, information exchange, advice, consultations, joint projects and undertakings, content-related support, study visits, partnerships, etc. Rodríguez, Dahlman and Salmi [2008: 6] distinguished three approaches to the creation and transfer of knowledge and innovation involving diasporas, which can be used separately or in combination. These are:

1. creation and commercialisation of new knowledge and technology (using a diaspora),
2. acquisition of knowledge and technology from abroad for local use and adaptation (for example, by networking local companies with a diaspora),
3. the dissemination and effective application of knowledge and technology (whether locally created or acquired from abroad) already available in the country though not broadly utilised.

In general, there are two main policy models that countries of origin can use to gain access to the human capital of the diaspora. The first model is return-oriented (or repatriation-oriented) policies of high-skilled people from abroad (the return option). The second model includes policies focused on developing co-operation with the diaspora (the diaspora option) [Meyer et al. 1997; Meyer and Brown 1999; Gamlen 2005; Siar 2014].

1.1. Return-oriented policies

Their goal is to encourage people knowledge, skills and competences, which are particularly important from the economic point of view, to return permanently or temporarily (for a longer stay) to their country of origin. Such policies have already been implemented in the early 1970s, but their intensive development took place in the 1980s and 1990s. [Meyer et al. 1997: 287; Meyer and Brown 1999: 11].

Johnson and Sedaca [2004: 58-59] indicate three particular advantages related to the direct return of qualified emigrants:

- the transfer of knowledge can occur at a higher speed since it requires less adjustment time,
- due to emigrants' connection and interest in their homeland, networks and other co-operation mechanisms are created faster,
- the voluntary return of specialists from abroad frees up considerable resources that can go towards other development objectives.

Effective implementation of the return option or repatriation of specialists is, however, difficult and for objective reasons is not always successful. In literature, it is often indicated that, in addition to appropriate incentives from the state, the success of this type of policy is largely dependent on the level of socio-economic development achieved in the country of origin. The idea is to guarantee returning members of diasporas not only adequate living comfort but also jobs compatible with their education and preferences, which would guarantee the use and development of their potential. Therefore, policies oriented towards re-emigration or repatriation have proved to be relatively effective in the case of the so-called newly industrialised countries such as Singapore, Taiwan or South Korea, or large developing countries such as China and India [Meyer and Brown 1999: 11]. It should be noted, however, that re-emigration or repatriation processes usually do not run smoothly, posing serious challenges in terms of social, economic and cultural integration or reintegration. Therefore, they require specific actions from the state and local authorities.

The transfer of knowledge and know-how based on the return option can be achieved by encouraging immigrants or their descendants to return permanently to their country of origin, but it can also be achieved through temporary returns for a longer time. The latter solution may be particularly attractive for developing countries, which do not have a large "power of attraction" and have considerable difficulties in encouraging diaspora members to permanently settle in their territory. An example of such an approach is the initiative of the United Nations Development Program (UNDP) called Transfer of Knowledge Through Expatriate Nationals (TOKTEN) [Kingsley and White 2011; Terrazas 2010; Kuschminder 2011; UNV.org 2016]. It should be noted, however, that developed countries or those with greater "attraction power" also use the mechanism of temporary returns to transfer diaspora community members' human capital (for example, in the form of study visits or classes conducted by diaspora experts at home universities).

1.2. Diaspora-oriented policies

This model is based on the assumption that the transfer of human capital does not require the physical or permanent return of diaspora members to their country of origin. In other words, highly qualified emigrants can contribute to the development of the home country without needing to physically relocate. Proponents of this approach emphasise that regardless of the efforts the countries of origin make, a significant proportion of emigrants will never decide to return. What's more, in the case of

high-skilled people, such a return does not always have to be beneficial, because it can mean "cutting oneself off" from technologies or knowledge which is rapidly evolving nowadays, which are developed primarily in global science, technology and business centres. Nowadays, despite their physical remoteness, members of diasporas not only show interest in the development of their country of origin (for example, due to cultural, family or business ties) but can also take an active part in it. However, for this to happen, it is necessary to create links through which the diaspora's potential could be effectively transferred to the country of origin and effectively used there.

Therefore, network structures have key importance to the diaspora-oriented approach. In this model, it is emphasised that both high-skilled emigrants and countries of origin can create professional networks enabling the transfer of scientific, technological or business knowledge with the use of advanced information and communication technologies. This model has been called scientific diasporas [Barré et al. 2003], technological and scientific diasporas [Turner et al. 2003], scientific, technological and economic diasporas [Connan 2004], but it is also sometimes referred to as intellectual diaspora networks [Brown 2002], knowledge networks abroad [Kuznetsov 2005], expatriate knowledge networks [Brown 2000] or finally – and what is probably the most popular name – diaspora knowledge networks [Turner 2005]. Sam Turner [2009] defines this last term as: "social structures that are capable of identifying, capturing and mobilising skills and knowledge produced in one context for application and use in another context."

The development of co-operation based on networks connecting people and entities in the country of origin with diaspora members has undoubtedly influenced the perception of high-skilled migration. The perception of this phenomenon in terms of a one-way flow of human capital has been substituted by showing it as a dynamic process enabling the multidirectional transfer of information and know-how that can be used for various purposes. Robert Lucas [2004] described transnational social networks as probably the most powerful mechanism of diasporas' activity, which largely determines their ability to generate knowledge transfer and business opportunities.

The development of networks involving diasporas, as well as the emergence of scientific interest in this topic dates back to the 1990s. In 1997, Jean Baptiste Meyer and his colleagues published the first text entirely devoted to this issue, which analysed the case of the Colombian network called the Colombian Network of Scientists and Engineers Abroad [Meyer et al. 1997]. In 1999, the same author together with Mercy Brown identified over forty structures of this type that had links to thirty countries [Meyer and Brown 1999].[4] Today, however, networking is in many cases the most im-

4 Initially, Meyer and Brown identified four basic categories of networks engaging diasporas and contributing to the knowledge transfer. These were: student/scholarly networks, local associations of skilled expatriates, expert pool assistance through the Transfer of Knowledge Through Expatriate Nationals (TOKTEN) programme of the UNDP and intellectual/scientific diaspora networks [Meyer and Brown 1999: 12-13]. In many cases, however, an unambiguous qualification of a network to one category can be very problematic, because today many of these structures simultaneously perform several functions and serve various purposes.

portant element of strategies focused on co-operation with the diaspora [Aikins and White 2011: 47].

The development of information and telecommunication technologies was of key importance for the spread of the network approach. However, appropriate policy action is also needed for the proper functioning of the network. Technology allows quick access to entities operating within the network and transfer of information between them. However, for these activities to bring positive results, network participants must be aware of the existing possibilities, properly motivated, mobilised and interested in developing co-operation. This entails the necessity to involve various entities, especially from the country of origin, whose activity will contribute to the multiplication of potential interactions with diaspora members [Meyer 2007: 15]. Above all, however, network participants must derive some benefit from participating in these structures.

Literature on the subject often emphasises the advantage of diaspora-oriented policies compared to return-oriented policies, namely that their implementation does not require previous, huge infrastructure investments or massive financial outlays. They rely heavily on the use of existing resources. However, while creating a network is a relatively simple task, ensuring its effective operation, especially maintaining the involvement of diaspora members in the long term, can pose a number of problems. The use of network structures also has certain limitations [Lowell and Gerova 2004]. Some researchers, such as Sami Mahroum, Cynthia Eldridge and Abdallah S. Daar [2006: 29], note that "digital networks might serve as a useful complementary rather than a substitute tool for local knowledge development." Indeed, some of these types of structures did not live up to their expectations. However, examples such as The Indus Entrepreneurs (TiE), GlobalScot, Advance (Australia) or Kea (New Zealand) demonstrate that networks can play a very important role in the transfer of human capital from the diaspora.

2. PROJECT DESCRIPTION, METHODOLOGY AND KEY RESULTS

2.1. Project objective

The aim of the "E-migration – Polish Technological Diaspora" project was to obtain information on Poles and people with Polish roots employed abroad in broadly understood modern sectors of the economy. The idea was to collect basic data about their life and professional situation in order to formulate some general characteristics of this group. The study included detailed research regarding the prospect of high-skilled emigrants returning to Poland and their attitude towards co-operation with individuals, institutions and organisations from Poland.

2.2. Target group and methodology

The study was directed to high-skilled employees, members of the Polish diaspora, employed in modern sectors of the economy. A high-skilled person is usually de-

fined in literature in terms of education or occupational status. The Organisation for Economic Co-operation and Development (OECD) definition, in which high-skilled employees are defined as "those who have successfully completed education at the tertiary level (...) and/or those not formally qualified in this way but employed in an (...) occupation where such qualifications are normally required" [OECD 2002: 13] is an example of such an approach.

Referring to this approach, the study included representatives of a group that, for this study's purposes, was identified as the Polish technological diaspora. This term requires further clarification and specification.

For the purposes of this study, the term technology diaspora in terms of respondents included:

- Polish emigrants,
- people with Polish roots and
- Polish transmigrants, expats or modern nomads working abroad in modern sectors of the economy.

The subject scope of the concept of technological diaspora, i.e., the requirement for employment in positions involving qualifications in modern sectors of the economy, is also relatively broad. In this case, it concerns modern technology and innovation sectors and creative industries, i.e., those areas of the economy in which human capital understood as knowledge, skills and competences play a key role. Therefore, we invited people who use specialised knowledge and technological skills (e.g. programmers, UX designers, engineers, scientists), as well as people who work within the technological environment, performing managerial, consultancy or creative work (start-up owners, businesspeople, project managers, lobbyists or influencers) to participate in the study. This resulted from the belief that modern sectors of the economy should not be identified only with what Sheila Siar [2014] calls "hard knowledge" (scientific, technological or economic), but also with "soft knowledge" (involving business, commercial, managerial, and even cultural or creative skills).

This way of defining the technological diaspora was to ensure the inclusive nature of the study. The final decision about belonging to the target group of the project in the quantitative stage was left to the respondents themselves, relying on their sense of self-identification with the group described above. The analysis of the answers given by those who decided to complete the survey, carried out through the prism of education and profession, confirms that this was the right decision.

The project was implemented in two stages. The first stage consisted of a quantitative study in the form of an online survey available on the dedicated project website at www.e-migracja.eu. The official presentation of the project and the beginning of data collection took place on 20 June 2018, during the Polish Tech Day 2018 conference in London. The completion of the survey data collection took place at the end of November 2018.

The empirical material collected in the database included 243 completed database

records, which corresponded to a sample of 243 respondents. In quantitative data analysis, statistical methods were used, which in addition to basic frequency analyses allowed us to determine the significance of relationships between variables and determine the strength of correlation relationships. The analysis focused on qualitative and quantitative variables (nominal and ordinal). Statistical inference was conducted (depending on the type of analysed variables) using χ^2, F-tests, Spearman's correlation coefficient and Cronbach's alpha. The selection of the above coefficients resulted from the nature of the analysed variables, i.e., from the adopted measurement level. Statistical calculations were carried out in the statistical programming language R [Brosz 2019: 9].

In 2019, in order to deepen and verify the data obtained in the quantitative study, the second stage of the project was carried out, i.e., a qualitative study in the form of 30 in-depth interviews, in which 14 women and 16 men participated.

The composition of the examined group not only corresponded to the assumptions of the project but also reflected the nature of the research sample in surveys). The majority of respondents lived in Europe (22 people). Significant groups also included respondents from North America (three people), Asia (three people), as well as Australia and Oceania: Australia and New Zealand (two people).

Regarding the age of the respondents, the largest group were young people up to 35 years old. In terms of the duration of emigration, 17 people had a fairly long emigration experience of over five years, while 13 respondents had lived abroad for less than five years.

The professional cross-section of people participating in the study was quite wide. Most respondents (21 people) were directly related to technology industries - working as programmers, UX designers, IT team project managers or data management engineers. This group also included technology start-up founders. The remaining nine people participating in the study are: scientists, an architect and emigrants associated with creative industries – a Youtuber and stage designer. One respondent works in the medical industry. One respondent heads the Polish office of the government's agenda. One respondent works as a Research Innovation Funding Manager.

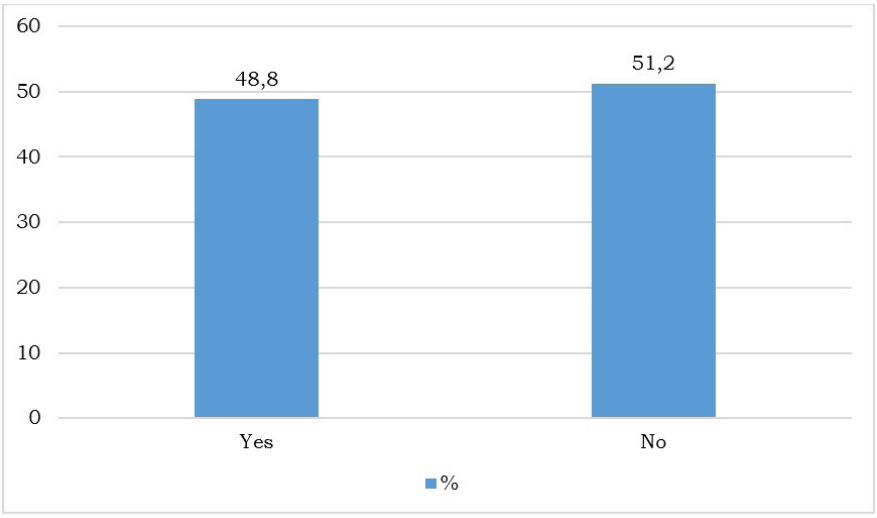
2.3. Key results

The study research topics have been relatively broadly covered and included such areas as: socio-demographic, professional and family situation; migration experiences; social and professional relations in exile; the sense of identity and bond with the country of origin; the prospect of returning to Poland and co-operation with individuals, institutions and organisations from Poland. Only the results related to the last two categories were within the scope of this article and they are presented below.

2.4. Return to the country

As part of our project, we asked respondents about their plans to return to Poland. The results are shown in Figure 1.

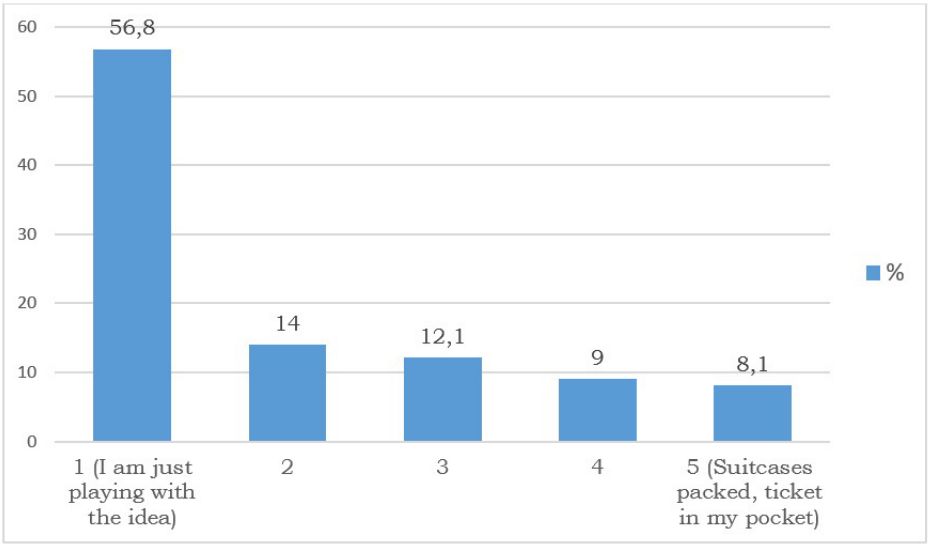
Figure 1. Do you consider returning or moving to Poland?



Source: Brosz 2018: 35.

These results seemed promising. However, we asked the follow-up question about how specific these plans were (see Figure 2).

Figure 2. How real are your plans for relocation?



Source: Brosz 2018: 36.

In this case, the results are clear. They show that the vast majority of respondents only declaratively considered returning to Poland and did not have specific plans in this regard.

The information obtained during the interviews was consistent with the results of the survey. Only a small proportion of qualitative research participants were determined to return to Poland. Additionally, few people seriously considered returning to the country in the near future. This attitude was well reflected in the words of one of the respondents:

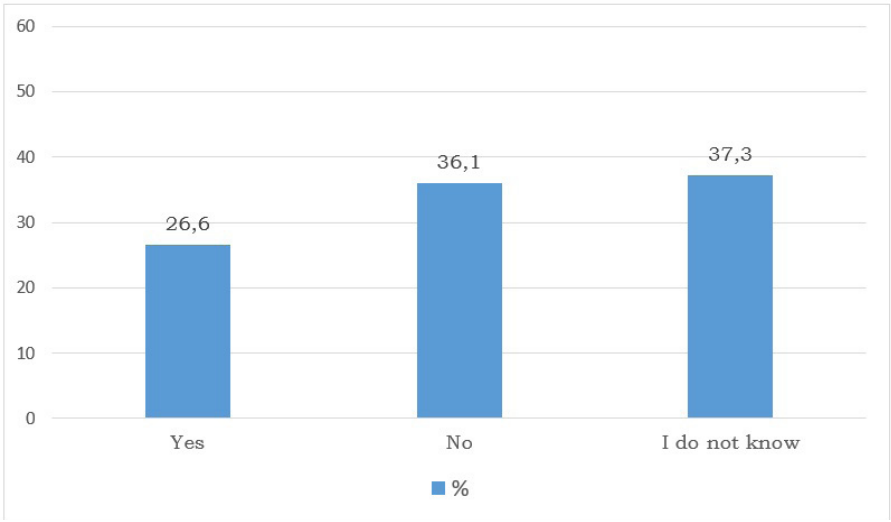
> It may turn out in a few years that one day we will decide to return or move to another place. It all depends on the possibilities. I still receive many different offers of work and return, but for now, I feel good here, I am not considering it yet, but I would like to return to Poland someday. (Male, 34 years old, Norway)

In general, most respondents did not want to return or hadn't even considered this option. In their case, the most likely scenario would be further emigration, while the most important factor influencing the decision on a possible change of country of residence would be a proposal for a better-paying, more interesting job. As emphasised by a young Polish immigrant living in Denmark:

> Working for the digital industry, I have become resistant to macroeconomics. I will be in demand until I die as long as I update my skills. My plan is to live where I like. I don't like Poland very much. I like Copenhagen because it is clean and quiet. I am also a materialist. A good job offer will attract me anywhere. (Male, 25 years old, Denmark)

During the study, we also wanted to find out whether the introduction of return programmes by the Polish state could be an important factor encouraging members of the Polish technological diaspora to return. We asked the participants of the survey the question: Would the introduction of specific solutions and mechanisms facilitating return[5] prompt you to return to Poland? (see Figure 3).

Figure 3. Would the introduction of specific solutions and mechanisms facilitating return prompt you to return to Poland



Source: Brosz 2018: 39.

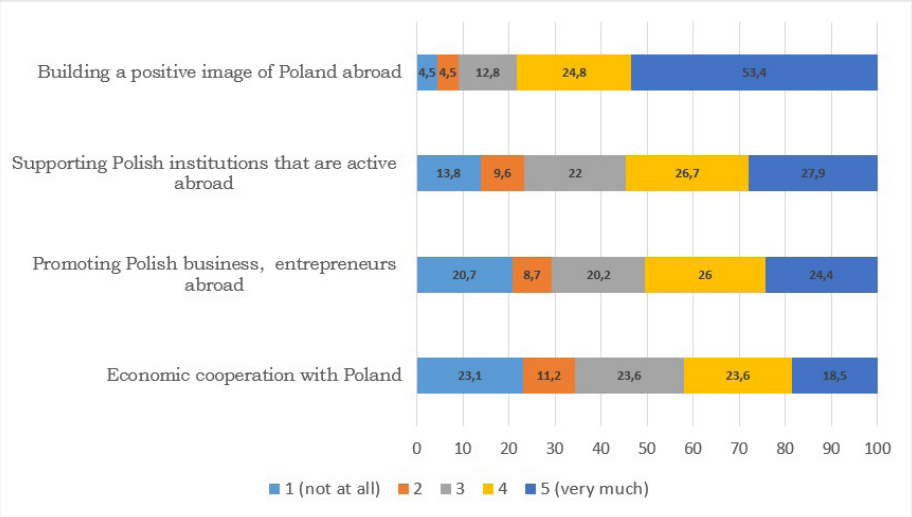
5 Such as facilitation in obtaining accommodation, tax benefits, assistance in finding work for family members, specialised vocational training, language education offer, facilities for people running a business, appropriate educational offer for children, help in adaptation.

In the case of interviews, the vast majority of representatives of technological emigrants, when considering the question of return, did not attach much importance to any return programmes – either at the state or company level. Few pointed out that it would be a good idea to introduce certain financial concessions for returnees who would like to open a company in Poland.

2.5. Co-Operation with the country

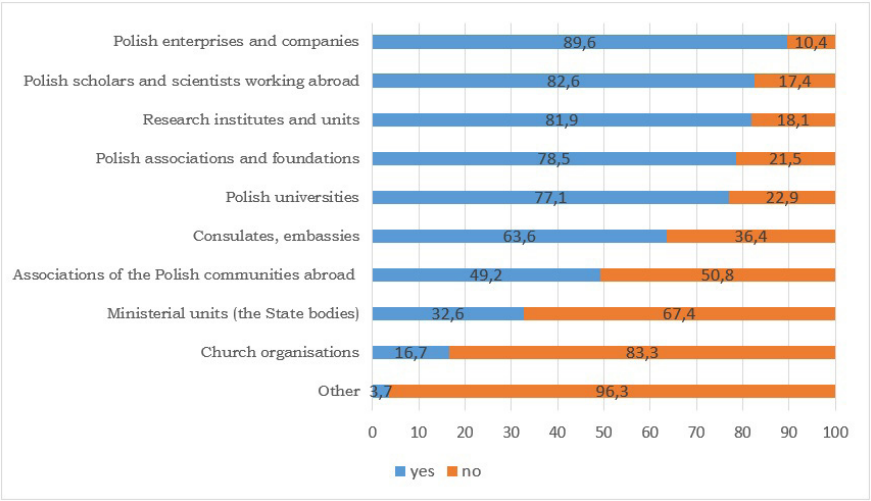
As part of our project, we also asked respondents about their attitude towards co-operation with people, institutions or organisations from Poland. The results show that a significant proportion of the study participants are open to co-operation with people or entities from Poland. Figure 4, 5, 6 and 7 present how the survey participants responded to individual questions about areas and forms of co-operation.

Figure 4. To what extent are you interested in (%)



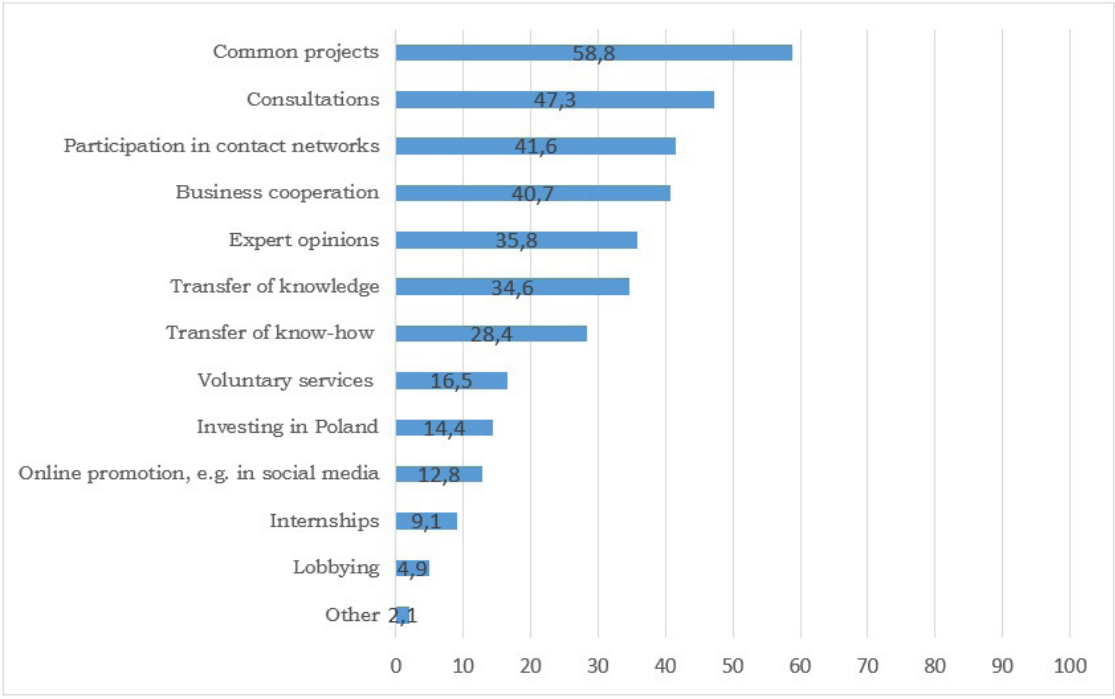
Source: Brosz 2018: 42.

Figure 5. Assuming that such cooperation is possible, what would be the entities with polish affiliations that you would like to work with? (%)



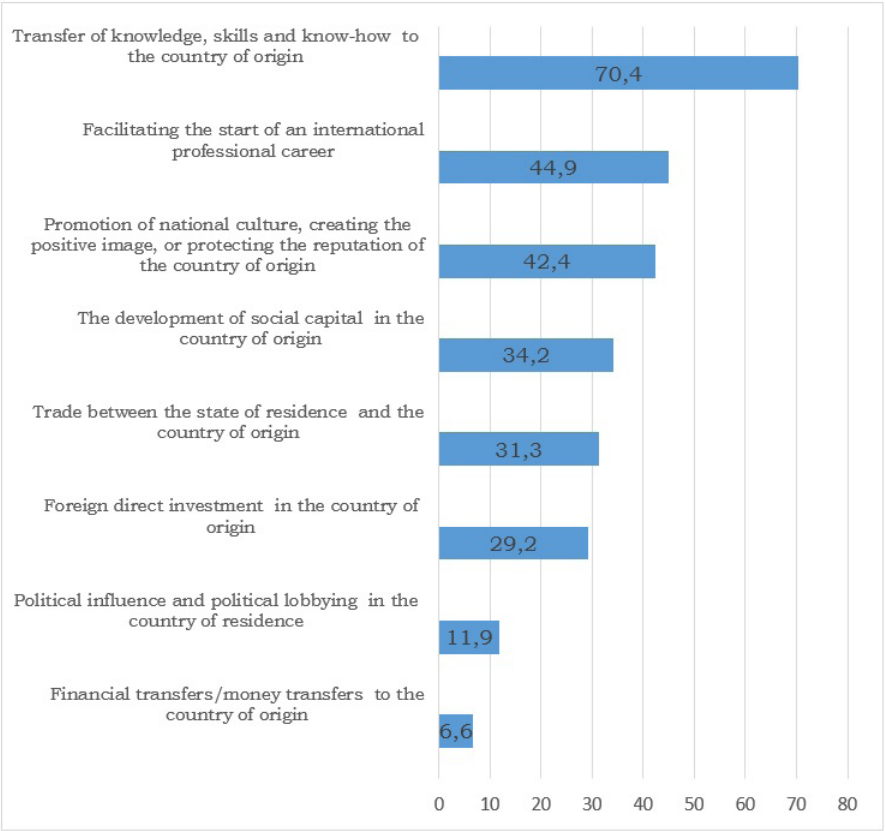
Source: Brosz 2018: 43.

Figure 6. Assuming that such cooperation is possible, what form of cooperation would you be interested in? (%, multiple answers that do not add up to 100)



Source: Brosz 2018: 44.

Figure 7. From the perspective of a person who is a member of the polish diaspora of professionals in the new technologies and innovation sector, in which areas could this diaspora play an important role for Poland? (%, multiple answers that do not add up to 100)



Source: Brosz 2018: 45.

In addition, the vast majority of respondents emphasised that co-operation between the diaspora and Poland is possible, relevant and necessary. Firstly, due to the construction of technological and economic value added in the country, as well as the opportunity to build and strengthen Poland's image (brand) as a country of high-class specialists in innovative, technological industries. The following statements illustrate this attitude:

> Polish programmers are some of the best in the world, they are definitely better than those in France. But we don't have such a reputation and this is something that needs to be worked on. And I think that people who are here and the Polish government could shake hands on this. (Female, 32 years old, France)

> They could, definitely. First of all, if someone is a liaison and builds bridges between countries, then there is a flow of knowledge and inspiration. This can end in a business partnership between companies or between academia. These information flows are important. Some do not know that Poland lies by the sea. The perspective of looking at Poland from Singapore is close to none. They associate Poland with apples. If people inside these technologies talk about these technologies, they have the knowledge, they write on forums. Poland is increasingly associated as a technological brand because it is starting to change. The fact that the programmers are great is somehow getting through. (Female, 34 years old, Singapore)

It is worth emphasising that there is a certain group of technological emigrants who, along with their involvement in initiatives networking Poles abroad, also co-operate with Poland. Based on the conducted interviews, two groups of respondents can be distinguished here. The first group includes people who co-operate with Poland at the institutional level. They participate in initiatives of Polish government agencies (School of Pioneers of the Polish Development Fund), co-organise international events as part of the Economic Forum and the London School of Economics or the Polonium Foundation (the Science: Polish Perspective conference) or co-operate in scientific (grant) projects with Polish universities. The second group consists of representatives of the technological diaspora who co-operate with individuals in Poland. Usually, it takes the form of a joint business venture (company, investment), project implementation, co-operation with Polish companies-subcontractors under ICT projects, and support in research projects of Polish scientists.

CONCLUSIONS

Today, an important role in the mobility of Poles is attributed to the emigration of people equipped with high-quality human capital [Okólski and Kaczmarczyk 2005; Kaczmarczyk and Okólski 2008; Grabowska-Lusińska and Okólski 2009; Kaczmarczyk 2011; Kaczmarczyk and Tyrowicz 2015; Praszałowicz 2018]. At the same time, as shown by the results of the "Global Talent Competitiveness Index" report cited in the introduction to this paper, Poland has considerable problems attracting foreign tal-

ent. In this situation, an opportunity to mitigate the possible negative consequences associated with high-skilled Poles leaving the country, as well as a factor supporting economic development, could be the development of co-operation with the diaspora, especially in the area of human capital transfer.

The emigrant nature of Poland and Polish lands, which has persisted for decades, resulted in the current number of Polish diaspora in the world, in the absence of precise data, estimated at even 20 million. This group includes many people who have a high level of knowledge, competence, skills and experience, as well as contacts that have enabled them to achieve significant professional success abroad. This group includes scientists, doctors, artists, engineers, innovators, entrepreneurs, etc.[6] In recent years, ambitious and professionally prepared Polish emigrants have gained a particularly good reputation by taking employment abroad in modern sectors of the economy (in such areas as programming, e-commerce, big data, FinTech, digital marketing, venture capital, web development, machine learning, project management, etc.) Despite the sometimes great geographical distance, a significant number of these people show interest in Polish affairs, see the possibilities of developing various types of co-operation, and declare their openness to sharing knowledge and experience.

The question arises as to how to use this potential? How to involve the diaspora in the development of the Polish economy? The results of our pilot project suggest some general solutions.

First, our research confirms that getting highly qualified emigrants to return to Poland will be a difficult task. Almost half of the respondents in quantitative research think about returning or moving to Poland, but only every twelfth[7] respondent has very specific plans in this respect. This is also confirmed by the results of qualitative research. Generally, the majority of participants rather didn't want to come back and did not even consider returning to the country. Even the possible introduction by the Polish state of various types of programmes targeted at this group of emigrants and encouraging them to return would have quite a limited impact. This does not mean, however, that Poland should not apply a system of incentives and facilitations for the return of emigrants (especially high-skilled). However, one should be aware that in Poland the introduction of such solutions, with a high degree of probability, will not cause a significant increase in re-emigration. Therefore, return-oriented activities should not be a priority for Polish professionals working abroad.

Secondly, the transfer of human capital from the Polish diaspora should be implemented primarily through the development of networks enabling co-operation, both within the diaspora and between the diaspora and people, institutions and organisations in Poland. Most of the respondents feel strong ties with Poland, although they are largely of a private/family nature. Importantly, the majority of respondents

6 The number of Poles in Silicon Valley is estimated at 30 to 100 thousand (Gacyk 2019).

7 If we take into consideration an optimistic version and sum up answers four and five on the scale, this amounts to every sixth person.

believe that content-oriented and professional co-operation between Poland and the diaspora is important, possible and necessary. It may concern both shaping a positive image of Poland abroad and building economic and technological added value. It should be noted that the participants of quantitative research most often indicated the transfer of knowledge, skills and know-how as an area in which the Polish technology diaspora could play an important role for Poland. This answer was chosen by over 70 per cent of respondents, while subsequent indications were much less popular (see Figure 7). Regarding the entities with which representatives of the Polish technological diaspora participating in the survey would like to co-operate, the most frequently chosen answers were: Polish companies (89.6 per cent), Polish scientists working abroad (82.6 per cent) as well as institutes and research units (81.9 per cent) (see Figure 5), while the most preferred forms of co-operation included: joint projects (58.8 per cent), consultations (47.3 per cent), participation in networks (41.6 per cent) and business co-operation (40.7 per cent) (see Figure 6). Considering the subjective and objective scopes of co-operation between Poland and the Polish technological diaspora identified in the research, it should be noted that in the development of this co-operation network, structures operating on the basis of virtual space and regular meetings are the optimal solution that can be widely used in shaping Polish policy towards the whole diaspora (not only the technological one). Thus, the priority in the activities of the Polish state towards members of the Polish diaspora well-equipped with human capital should be networking within industry and professional groups as well as building infrastructure that enables establishing and developing contacts and relationships. An important element of this type of activity should be constant support for Polish professional groups and organisations operating abroad.

As has been said before, since the beginning of the twenty-first century, the development of networks for establishing contacts and relationships constitutes an important direction in shaping the policies of many countries towards their diasporas. It should be noted, however, that the development and implementation of a comprehensive policy towards the diaspora involves the need to overcome certain barriers. Firstly, to be effective, this policy requires significant financial resources. Secondly, it must be varied, i.e., adapted to the needs and expectations of different groups (for example, some actions should be taken in relation to emigrants and other in relation to diaspora members in the second or third generation).

As was already mentioned, the qualitative research demonstrated that some high-skilled Polish emigrants co-operate with Poland at the institutional or personnel level. There are also various bottom-up initiatives that aim at networking Polish professionals working in the country and abroad, as well as promoting co-operation and human capital transfer between them. In this context, initiatives such as the PLUGin Foundation [2019] (as they describe themselves: focusing on attracting Polish migrants, transmigrants, expats, digital nomads or generally global minds operating mainly in the sector of modern technologies), the Polonium Foundation [2019] (associating

Polish scientists and researchers working abroad) or the recently established Group for the Co-operation of Polish Diaspora Doctors [Kongres Polonii Medycznej, 2019] (seeking to develop a model of scientific and educational co-operation of Polish and Polish diaspora doctors). Events such as the "60 million Congress – Global Polonia Congress"[8], or "Polonia Economic Forums" that have been taking place in Tarnów since 2016, also create an opportunity to establish contacts and develop scientific, cultural or business relations. In Poland, however, there is still a lack of coordinated and comprehensive policy aimed at engaging and networking the diaspora, especially in the area of technological, scientific or business co-operation.

In recent years, the development and dissemination of new digital technologies have enabled the intensification of the state-diaspora relationship. The contemporary digitisation of the functioning of states opens up new possibilities in this respect. Estonia provides a good example, but it should be noted that the solutions introduced in this country are not strictly focused on the diaspora, although they can be used in this context (for example by people with Estonian roots who do not have Estonian citizenship).

Estonia is currently considered a global leader in the use of modern technologies in the management and administration of the state. Estonians themselves define themselves as "the most digitally advanced society in the world." Already in 2000, an electronic tax settlement system was launched there; in 2002, modern identity cards (enabling access to a wide range of e-services) were introduced; in the same year an electronic signature also began to operate, and already in 2005 e-voting (i-Voting) was introduced. According to official data, currently in Estonia 98 per cent of companies are set up electronically (the average time to complete the related formalities has been reduced from five days to 18 minutes), 99 per cent of banking transactions are carried out online, 95 per cent of tax returns are submitted electronically, over 30 per cent of Estonian citizens participating in the elections (residing in 116 countries) cast their vote electronically, while 99 per cent of public services, thanks to digital solutions, are available 24 hours a day, seven days a week [e-Estonia guide 2019].

At the end of 2014, Estonia was the first country in the world to launch an e-residency system [e-Residency 2019], offering people from abroad not living in Estonia or having Estonian citizenship a transnational digital identity, i.e., a virtual e-residence residence. It is a strictly economic initiative. Obtaining the status of an e-resident[9] does not entitle you to enter or stay on the territory of Estonia, but allows you to

8 In 2018, three editions of the Congress took place (the first on 9-10 February in Miami Beach, the second on 21 July in Buffalo, and the third on August 30-31 in Jasionka, near Rzeszów). In 2019, six more meetings are planned, in six different cities, in four countries and on two continents (7-10 February - Miami, 30 May-1 June - London, 13-15 June - Berlin, 18-21 July - Buffalo, 28-30 August - Rzeszów, 3-6 October - New York).

9 In official documents, e-residents are defined as "persons residing in the e-state", a "permanent virtual inhabitant of the e-state." E-residents receive smart ID cards which provide them with: a) digital identification and authentication for secure services; b) digital signing of documents; c) digital verification of document authenticity; and d) document encryption. [Poleshchuk 2016: 1, 4].

establish a business there and conduct business via the Internet. The criteria for e-residences are formulated in an inclusive way: a digi-ID may be issued to any person who "has a relationship with the Estonian state or legitimate interest in the use of the e-services of the Estonian state" [Poleshchuk 2016: 5]. This system allows the promotion and support of the Estonian economy, science, education and culture at a distance. The e-residence can be seen as a significant step forward in the realisation of the concept of the e-society not bounded by national borders [Poleshchuk 2016; Sullivan and Burger 2017; Kotka et al. 2015].

The implementation of this type of programme combined with co-operation and networking oriented policies will raise the state's relationship with the diaspora to a whole new level in the future.

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