The Role of Other Regional Agents in the Analysis of the Labour Market: New Methodology, Research-Action, to Detect the Professional Profiles Demanded by Biscayan Clusters in a Short/Medium Period

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Bizkaia:talent\textsuperscript{1} is a liaison organisation between industry and academy to research and improve the labour market in Bizkaia (the Basque Country, Spain). To do that, Bizkaia:talent maintains close ties with both labour market observatories in the Basque Country, Lanbide (Basque Government) & SEPE (Spanish Government) since 2006, obtaining a mutual benefit.

In 2010, it was observed that most of the SMEs and big companies in Bizkaia (the Basque Country) faced the situation of qualified labour shortage in a short/medium period, especially in scientific and technological areas. Considering this problem, Bizkaia:talent and Orkestra- Basque Institute of Competitiveness are carrying out a research project. The aim of it is to elaborate a more detailed diagnosis of the professional profiles demanded by five of the main Basque clusters, and what the Basque University education system can offer in that time. Apart from that, it seeks to identify the talent recruiting sources and the strategies to be followed in order to establish networking with relevant agents; and to analyse the attractiveness of the region as a whole, as well as its clusters and companies, in order to recruit the demanded professional profiles.

In terms of methodology, this project has been elaborated from the Research-Action perspective. This implies that the research team, together with the Human Resources director of the participant organisations, has being adapted to the different stages of the study with the aim of responding real problems, as well as contributing to the progress of the academic knowledge, is spite of the firstly defined general diagnosis, as hypothesis.

1. Introduction

Talent is a strategic factor for competitiveness in territories in advanced stages of development as is the case of the Basque Country and the territory of Bizkaia\textsuperscript{2}, in particular. According to Michael E. Porter (1998), the competitiveness of a territory (as reflected in its per capita GNP) depends in the last analysis on its productivity, which at the regional level and in territories with advanced development will be determined especially by a series of factors of microeconomic nature. Among these, Porter distinguishes three spheres of influence: the internal context of the companies (that is, the level of sophistication of their operations and strategies), the context of the specific environment where the company carries out its activity (that is, the existence of their own or private clusters, or environments that external economies offer) and the general micro-environment (or micro-environment, for

\textsuperscript{1} The non-profit association, Bizkaia:xede, constituted in 2004 changes its name by Bizkaia:talent on 3 July 2013.

\textsuperscript{2} The Basque Country is a region, which has three territories (Araba, Bizkaia, Gipuzkoa). Bizkaia:talent focuses its work on Bizkaia Territory, although sometimes, it has to refer to the whole region, the Basque Country as a global, especially when it refers to the Basque clusters. \url{http://en.wikipedia.org/wiki/Biscay}. 
example, good roads, that provide advantages to the company for all the activities located in the territory).

In order to analyse both the specific (cluster) and general micro-environment, Porter developed an instrument called the competitive diamond. This provides a scheme for organising all the factors in the micro-environment that affect competitiveness and that, in consequence, help to explain competitiveness or economic performance. The diamond comprises four great sets of factors.

In the first set a series of factors or inputs can be found, such as the availability of a qualified work force, financing, physical, information, and technological infrastructures. Their presence is necessary for company’s economic activity. This study focuses specifically on the analysis of the first of these factors, that is, the availability of a qualified work force, which is the key to competitiveness inside a territory.

In the second set, all factors constituting the context for company strategy and rivalry can be found. That is to say, factors such as the existence or lack of real competition among companies, opening externally that affect the degree of rivalry and a series of incentives and rules (for example, tax allowances for R&D, intellectual property regulation, strict environmental standards) that favour advanced company strategies.

In third place, the existence of related and supporting industries that allow access to competent, qualified local suppliers and service providers, and of clusters, which due to the externalities they generate (especially through interaction and as a source of innovative ideas) improve the competitiveness of the involved companies. Finally, the existence of sophisticated and demanding local needs that anticipate those elsewhere and which are particularly unusual in determined segments.

Figure 1  The Competitiveness Diamond

The importance of each of these vertices or the relevance of the factors in each of them varies according to the level of development in the territory. When analysing the development stages of a country or a region, Porter (1998) holds that a territory goes through three of them on the road towards competitiveness. Initially, an economy is based on traditional production factors (labour, capital and natural resources), which bring a competitive advantage. Normally, territories that are in this stage, like India\(^3\), for example, usually only have strengths on the first vertex; in addition, these strengths are more linked to costs than to the qualification or particularity of such assets. The second stage is that of an investment-based economy. Here, European countries in transition, such as Lithuania, Latvia and Estonia\(^4\) are situated. What provides competitive advantages in these cases is the capacity to produce high quality standard goods and services by using efficient methods, but with lower salaries than in advanced economies. At the third stage, an innovation-based economy, the competitive advantage lies in the capacity to produce innovating goods and services on the frontier of world technology. The territories that operate at this stage (for example, Finland\(^5\)) cannot permit great weaknesses on any of the four vertices, and they have a more complex, thicker and richer diamond than those territories operating at the previous stages.

Talent, which is the strategic factor being analysed in this project, becomes especially relevant at the final development stage (although it is also important at the second), which is where the Basque Country and, in particular, Bizkaia are at. Traditional productive factors at this level – the availability of natural resources, cheap labour or capital – do not offer lasting competitive advantages, since advances in deregulation, transport and information technologies mean that all these resources are available to everyone. Consequently, knowledge, and the innovation capacity derived from it (Porter 1998, Maskell and Malmberg 1999), which are not as mobile as the previous ones, become key competitive factors. This is due to the fact that knowledge is not like wholly codifiable and explicit information – a fact that will enable it to be transmitted anywhere in the world – but it also has an important tacit component. Tacit knowledge transmission depends on human capital, which is characterised by its low mobility and by a certain interaction and coexistence among those transmitting the knowledge (Lundvall 1992). All this means that proximity is central to the production, transmission and sharing of tacit knowledge.

In summary, it is knowledge that constitutes the key resource for competitiveness in the present development stage where both the Basque Country as a whole and Bizkaia are at present, and this knowledge is possessed mainly by people living in the geographic boundaries of this community. That is why the development of knowledge, carried out by forming people in the broadest sense – training in contents, competences and skills – enables the generation of strategic resources in the region, which is key to competitiveness and to welfare. It is important to underline three fundamental aspects that can help to boost and improve knowledge, the key to competitiveness in the region:

- It is essential to generate knowledge in the people in the region in such a way that their learning is knowledge responding to the specific needs of the economic, sectorial or key cluster activities there are in that region. Reinforcement in the inter-relation between the business and educational worlds (at all levels, but especially in vocational and university


training) can be of great help this adjustment. The cluster associations emerging in the region as a result of a cluster-based regional competitiveness policy at the beginning of the 1990s can play an important role in this adjustment. Michael E. Porter’s seminal work coined the term ‘cluster’ to denote geographic concentrations of specialised companies, whose interactive dynamics explain increases in productivity and in efficiency, reduction in transaction costs, acceleration of learning and transmission of knowledge. Nevertheless, this focus was not altogether original since an extensive research experience on industrial districts indicating similar externalities derived from the agglomeration effect already existed in Europe (and especially in Italy). In general terms, there is no argument with regard to the definition of production complex. This project aims to find the bases necessary at present to reinforce this inter-relation by making a diagnosis of the specific professional profiles needed by the Basque clusters, which Bizkaia is committed to.

- The key knowledge a region’s competitiveness counts on is not only that to be found in the people and in the organisations of the region. In a globalised world it is fundamental to increase the knowledge base through connections with other regions, either through working in networks or through people’s mobility (attraction and integration of outside talent or training people outside their own region). In order to establish policies along these lines it is important to have a diagnosis of the specific profiles demanded in the main clusters in the region, a work that is developed in this project.

- Finally, if innovation is no longer a linear process, but rather one of interactive learning among different people from both inside and outside of a company or organisation, it is essential that the fundamental bases for this interaction should exist in the region. On the one hand, infrastructures enabling these interactions at different strategic levels for competitiveness in the region, such as cluster associations to encourage inter-relations among companies and the other cluster agents are vital. However, on the other hand, if these interactions are to be achieved, an already existing social capital base, or one being generated, is essential in the region to enable such interactions. This is often generated by different types of cooperative relationships which organisms of this nature try to promote from within. Processes like this are long term, so they need to have long-term policies to develop them.

Given the strategic importance of talent, this article analyses the attraction, retention and integration challenges facing the strategic Basque clusters in Bizkaia. Thus, the document is divided into four sections. In the first of these, after starting from recent studies, the paper goes on to make a diagnosis of the shortage of talent in the Basque Country in general, and Bizkaia in particular. In part two, after introducing the problems of the shortage of qualified manual labour, the imbalance between existing supply and demand, and the mobility of human resources, the objectives and methodology of the study are stated. Section three presents the diagnosis of the demand for professional profiles developed within the framework of this paper. Finally, the conclusions about the talent-attraction processes in the clusters under study are set out.

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6 According to Robert Putnam (1993), social capital is ‘the whole of intangible factors there are in a community (values, norms, attitudes, trust, networks and similar) which facilitate coordination and collaboration for the common good’. 
2. General Diagnosis

**Structural aspects: demographic changes and labour shortage**

The decline in the birth rate and the increase in life expectancy have brought about an ageing population which is beginning to have important economic and social repercussions. It is anticipated that over the next ten years ‘exits’ from the working population due to retirement will exceed labour market ‘entries’. According to some estimates, low birth rates together with the progressive ageing of the labour market in the Basque Country by 2018 may mean that for each ten people who retire, and considering technically full employment, only six will be incorporated into the labour market (Prospektiker, 2008).

Furthermore, two other factors must be added to the fall in birth rate which adds to making the working population in the Basque Country less than in other regions. First of all, while the number of working males (64.6%) is comparable to that of other European countries, the rate of women employed in the Basque Country is lower than that in EU-25 (51.4% against 55.1%). Secondly, total employment rate of the population between the ages of 55 and 64 stands at around 40% (Prospektiker, 2008).

Thus, the different estimates indicate a shortage of professionals in the short run, and generational change problems in some activity sectors, especially in industry and in services for companies and consumers. According to Confedask (2008) – the Association of Basque Entrepreneurs – some posts will not be filled due to a lack of adaptation to the required profiles or to insufficient numbers for profiles requiring low qualifications. In the case of industry, the main reason for the lack of workers is the imbalance between the profiles required by the organisations and the profiles available. With regard to services, the lack of qualifications to cover qualified profiles is combined with an insufficient number of people to cover low qualification profiles.

**Adaptation between offer and educational demand**

**Supply and demand of the population with university degrees**

The Basque Country has a percentage of young people between the ages of 20 and 24 who have completed secondary education and people between 25 and 64 with a higher level than those in countries like Sweden and Finland. These generic indicators show the availability of highly qualified people. One especially relevant indicator for competitiveness in industry is that of people with higher qualifications in science and technology. In this sense, the Basque Country is at the head of Europe, in front of countries such as the Republic of Ireland and far above the European average.

In addition, the weight of the active population with university degrees over the potentially active population has increased in recent years. That is, in this time, not only has the number of active people with university degrees increased, but their occupation ratio has also grown within the active population as a whole. In 2007, the weight of the active population holding university degrees over the total active population was approximately 31%, with an 8% increase in the previous eight years. While there was a 19% increase in job occupation rate during this period, the occupied population with university graduates increased by 50% between 2001 and 2007 (Prospektiker, 2008).

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7 We are referring to people who hold a university degree (university graduates).
However, in absolute terms, and due mainly to the recent demographic evolution, the number of students from university and from higher level vocational training is seen to have evolved negatively. According to Prospektiker’s work, (2008), between academic years 2000/2001 and 2006/2007, the number of students at university went down by 20.7% and those in vocational training by 15%, which means 19.2% in all. A breakdown of the fall in the university population reveals there were 6.1% fewer students in technical degree courses and 26.2% in others. Moreover, it is forecast that the number of graduates will continue to fall in the coming years (Prospektiker, 2008).

According to a recent CEDEFOP study, Future Skill Needs in Europe – Focus on 2020, the majority of new jobs during the 2006-2020 period will require high level qualifications, thus producing a general increase in qualification levels for all work posts and in all work categories. It has been calculated that in 2020, 31.5% of jobs will require high and 50% intermediate qualifications respectively. On the other hand, demand for lowly qualified posts will decrease from one third registered in 1996 to 18.5% in 2020. Likewise, the demand for highly qualified professionals will become more and more patent in relation to the more technical and scientific subjects (Prospektiker, 2008).

Adaptation between supply and demand of university qualifications

Besides analysing the evolution of the number of vocational and university students, both in absolute terms and in terms of branches of activity, another fundamental aspect to consider is the degree of adaptation between the supply of qualified people and the needs of the work market. According to Eustat8 (the Basque Public Statistics Office), in the academic year 2006/2007, 38% of undergraduates were studying for degrees with a high or very high insertion level, while 39% were doing so with low or very low levels. In general, the data showed that men studied for degrees at higher insertion levels than women. Thus 44% of men studied for degrees at low or very low insertion levels compared to 47% of women. Egailan’s9 2010 study – ‘Estudio de Incorporación a la Vida Activa’ (A Study of Incorporation into Working Life) – analyses university graduates from 2006 and their integration into working life by the end of the following three years and finds that employment and activity rates stood at 80.4% and 92.5% respectively. The adaptation rate, or education-job match – that is the balance between the qualification obtained and the activity carried out at work – is also the highest registered until now, standing at 89%, three points above graduates from 2005 and 17 points above 2001, when data was first obtained. However, this data varies according to knowledge areas.

The highest employment rates, less unemployment and greatest proportion of education-job match at university level or Human Resources in Science and Technology (HRST) are to be found among graduates in health sciences and in technical education. Thus, the highest employment rates are in health sciences (92%) followed by technical education (83%). Health science and technical education graduates not only have the best employment occupancy level, but in addition, the great majority find work in posts in accordance with what they have studied. The greatest adjustments are in health sciences, which reach 100%, followed by technical education with 97%. It is specifically among professionals in Physics, Mathematics and Engineering (especially in longer cycle studies) and in branches of health studies (degrees and diplomas) where the highest employment levels as well as education-job match are found (Prospektiker, 2008).

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9 Egailan S.A. is the Office for the Promotion of Training and Employment attached to the Basque Government’s Department of Employment and Social Affairs.
In the Economic-Legal field (78%), Experimental Sciences (75%) and Humanities (72%), employment rates are below average. Besides, the education-job match rates in these fields of knowledge are lower, with 86% in Humanities and 73% in Economic-Legal Sciences. Nonetheless, education-job match rates in these fields of knowledge present a favourable evolution with respect to the previous survey with an increase of six and five percentage points respectively. The greatest degree and diploma surpluses in the yearly offer of new graduates in relation with the work generated in a year is to be found in the professions associated with diplomas in company management and labour relations and in diplomas and degrees related to Social Sciences and Humanities (Prospektiker, 2008).

The data indicates that the internal redistribution of university graduates by fields of knowledge is more and more in accordance with work market labour force demand. In spite of this, as already mentioned in the previous paragraph, the imbalances have not disappeared, especially with regard to, on the one hand, the shortage in supply of professional groups associated with technical education and health, and on the other, the excessive supply of groups linked to social and managerial sciences (Lanbide – Official Basque Employment Agency, 2007). Moreover, it appears that this imbalance will last throughout the coming years.

**Human resources mobility**

Among other measures, the shortage of professionals makes it compulsory for companies to attract outside talent, since the profiles they are seeking are very often to be found throughout the world. In the following paragraphs, the theme of human resources mobility and attracting outside talent will be introduced. The first section will analyse human resources mobility in terms of the mobility of human resources in the Basque Country, pointing out what makes them leave and what makes them return. The second part reviews the main problems facing companies in attracting outside talent.

The study of mobility in highly qualified people is something relatively new. Little research has been carried out on this phenomenon in our environment, the most notable being what has been done by Bizkaia: talent since 2006.

In fact in 2007, Bizkaia:talent sponsored the analysis carried out in *La Emigración de las Personas de Bizkaia tituladas por la UD y la UPV/EHU (Campus Bizkaia)* (The Emigration of Graduates in Bizkaia from the Universities of Deusto and of the Basque Country at its Biscay Campus) with a view to knowing and identifying the work and mobility situation of Biscayan graduates from the Universities of Deusto and of the Basque Country between 1996 and 2006.

This study especially insists on the geographic identification of the employment activity of this group, the characteristics of their work, the entity where they carried it out, together with their motivation both for leaving and potentially returning to Bizkaia.

An interesting fact to emerge from this study was that about one third of the graduates consulted from the University of Deusto and from the University of the Basque Country and who worked outside Bizkaia did not even try to find work in the companies in the area once they had completed their studies.

Moreover, the following results were obtained within the reasons for working outside Bizkaia, and those for returning to work there.

**Reasons for leaving:**
• The feeling that there would be no offer of an ‘interesting job’ in Bizkaia in relation to their work perspectives and professional future.
• The ‘lack of experience’ and the chance of a work offer enabling them ‘to learn and gain some professional experience’.
• Personal motives
• Moving of main office

Reasons for returning:
• A job offer with ‘the same or better working conditions’, ‘an interesting offer’. A good offer, an interesting, quality post.
• Better economic conditions.
• Personal motives: family or roots in Bizkaia.

Bearing in mind the problem of the shortage of highly qualified professionals, attracting talent from other geographic areas is a measure that could help to alleviate the situation. Bearing in mind the conclusions of a recent research study sponsored by Bizkaia: talent in 2009 – Personas de Alta Cualificación (P.A.C) no residente en Euskadi contratadas en el periodo 2007-2009 (Non-Resident Highly Qualified Personnel (HQP) in the Basque Country contracted between 2007 and 2009), the growing introduction of foreign talent into Basque companies or organisations has brought about new demands and needs. Nevertheless, on numerous occasions, there has been a lack of information on the more determining factors as to the best way to receive these professionals and integrate them into both work and social environments.

The main difficulties faced by both Basque organisations in the process of integrating highly qualified personnel from outside the Basque Country into an organisation and those wishing to join Basque organisations are, among others, as follows:
• Visas (work/residence permits)
• Accommodation
• Socio-cultural integration – language, customs, social habits, social relations, education
• Working conditions and especially salaries
• Recognition of academic qualifications
• Recognition of Social Security
• Others – lack of companies’ resources to be able to contract certain profiles or professionals
• Little information outside about what the Basque Country is investing and doing in R&D+i

3. Aims and Methodology of the Project

As set out in the previous section, a first approach to analysing professional profiles shows that the companies in the Basque Country, and those in Bizkaia in particular, are facing the problem of a qualified labour shortage in the short and long terms in some knowledge areas, especially in health

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10 Euskadi is the same as Basque Country, i.e. (Araba, Bizkaia & Gipuzkoa).
and science-technology as well as problems regarding the attraction and retention of talent. In view of this problem, Bizkaia: talent and Orkestra – the Basque Institute for Competitiveness – proposed carrying out a research project with the following objectives:

- To make a detailed analysis of the professional profiles which the main clusters will be demanding over the following three-five years and which the Basque educational system will not be able to offer during this period.
- To analyse how appealing Bizkaia, and their clusters and members and other entities are for attracting the professional profiles required and which the Basque educational system will not have available in the medium term.
- To identify the sources of talent attraction and the strategies to follow in order to establish networks with the relevant agents.
- To draw up a document from the previous analysis to identify which measures to take in order to alleviate the problem in question.

As regards methodology, this study has been approached from the Action Research perspective. This implies that although the research team has carried out a general diagnosis, and defined a priori what the hypothesis underlying the research is, in the different stages of the study this has been adjusted together with the human resources managers from the participating entities with a view to the project responding to real problems, while at the same time contributing to advances in academic knowledge. Thus, people with different profiles have taken part in the study. On the one hand, there were participants from different organisations – cluster associations, companies and other entities – whose work responsibilities, among others, are related to attracting talent. On the other, representatives of both Bizkaia:talent and Orkestra, the Basque Institute for Competitiveness also took part in the process.

The research project was carried out in three stages. In the first of these, a meeting of the directors of the five clusters being analysed was held – the Automotive Industry, Aeronautics, Computer Science, Electronics and Telecommunications and Energy – which represent an important part of the added value in Bizkaia. The aim of this meeting was, on the one hand, to carry out a diagnosis of the professional profiles that the most strategic Basque clusters in Bizkaia will be demanding in the next three to five years and which the Basque educational system will not be able to provide. On the other, the intention was to analyse the appeal of the Bizkaia, its sectors/clusters and companies as a source of attracting talent. Finally, it was an attempt to identify the sources of attracting talent and the strategies to follow to achieve it.

After the first meeting, the need was detected to approach companies and other entities, such as technological centres, whose experience could contribute added value to the project. In the second stage, entities from the different sectors, both public and private participated. The aim of this stage was to go into in greater depth the process of identifying, negotiating, contracting and integrating personnel in/from the different entities. The second meeting took place nearer to the entities in the different sectors, already separated by sector, which will be called the third stage.

Once the three stages were concluded, another meeting of the representatives of the cluster associations was held with a view to presenting and debating the main conclusions reached from the different research stages with regard to the knowledge and the competences required and talent attraction strategies.
4. Professional Profiles Required by the Strategic Clusters in Bizkaia

As mentioned above, the first objective of the project was to make a more detailed diagnosis of the professional profiles that the most strategic Basque clusters in Bizkaia are demanding at present and those that will be demanded in three to five years time and which the Basque educational system will not be able to provide during this period. Both in the meeting with the cluster association representatives in the first stage, and in those held in the third stage with representatives from the different entities within each cluster, the following question was asked: Which highly qualified professional profiles prove most difficult to find to cover the offer existing in the Basque Country? On the one hand, a list of the most demanded profiles in each of the clusters was drawn up from the answers obtained. On the other, common problems concerning professional profiles facing the companies from the different clusters were identified.

5. Company Attraction Processes

As already specified in different sections above, meetings were held in the first stage with the representatives from the Basque Cluster Associations that Bizkaia is committed to – that is Aeronautics, the Automotive Industry, Bio-Sciences, Computer Science, Electronics and Telecommunications and Energy. The aim was to carry out a professional profiles analysis which they themselves are demanding now, and will still be demanding in the medium term, and which the present Basque educational system cannot provide at present.

Once the first stage had been concluded together with the first diagnosis, it was considered necessary to go into the specification of these professional profiles in greater depth. Consequently, a second stage was designed relating to company talent attraction processes, which was materialised through a round of meetings with company representatives. Meetings were held with one company from each sector, with the exception of Biosciences, and one representative from a public company.

What appears below is a brief analysis of the results obtained from this stage. Such an analysis does not aim to be an exhaustive summary of the answers obtained from the companies with regard to their talent attraction process, but rather to emphasise the key points detected by the team that help to make up the talent attraction strategies section and the resulting actions. The analysis is drawn up based on the talent attraction process, that is, identification, negotiation, contracting and integration.

Identification Process

In this section, three main talent identification sources are described.

- Networks: the company is inter-connected to different types of local or international entities (in research or business) which can be related to each other on a commercial basis as clients or suppliers, for example, through training – universities, training centres or trade fairs among others – or as a result of scientific-technological connections through joint research and development projects, for instance.

- Attracting endogenous talent: the company resorts to internal resources in order to attract talent. This can be done through internal promotion, personal contacts, advertising on Internet portals, in house training and so on.
• Attracting talent through external services: the company resorts to third parties to attract talent. This is usually done through consultancy firms or collaborators and head-hunters.

With regards to talent attraction and the three main sources as stated by the companies, the following conclusions were obtained:

• The main identification process used by the companies is endogenous independent of its size or international profile.

• All the companies resort to attracting talent through external services, although to a lesser extent than relying on endogenous attraction.

As far as disadvantages are concerned, in some cases the difficulties of transferring company policy to outside agents was pointed out.

The source least developed by the companies as a whole is the use of networks, although this norm was not applicable to the research entity participating in the session. The companies resort to networks at a very operative and less strategic level to attract talent. That is, companies take advantage of trade fairs to recruit, transmit or use Erasmus student networks to attract or contract. Nonetheless, there are few companies which establish or have access to stable networks which are the fruit of developed research projects, or strategic collaboration with universities at national or international level, or international collaboration projects among students and lecturers.

Negotiation Process

It can be deduced from the answers provided by the companies that the main negotiation factor is related to salary or perquisites – either cash benefits like payments, financial help to pay rents, or paid trips to places of origin, or non-cash benefits like pension plans or medical insurance (cash or non-cash). Perquisites are not usual for companies.

Contracting/Integrating Process

Companies direct their greatest efforts towards drawing up plans to welcome and establish the person who has been attracted as a mentor, and not in all cases. Similarly, companies devote little effort in integrating the family into society, and yet it is recognised by all companies that social integration is key to the success of the attraction programme.

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