

Target group importance in the Barcelona Case Study

A preparatory analysis for surveying the creative and knowledge economy

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A preparatory analysis for surveying the creative and knowledge economy

ACRE report [4.2]

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Accommodating Creative Knowledge – Competitiveness of European Metropolitan
Regions within the Enlarged Union

Amsterdam 2007
AMIDSt, University of Amsterdam

ACRE

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0 INTRODUCTION

0.1 Objectives and general overview

The aim of this report is to collect different social and economic information regarding the creative and knowledge sectors to enable the choice of suitable candidates for four different surveys. The collectives surveyed will be native and foreign workers in creative and knowledge industries, managers and graduates. Statistical data used for this analysis is obtained from different sources and databases. The main ones considered are listed as follows:

- EPA: Encuesta de Población Activa (Active Population Survey) done by INE (National Institute of Statistics)
- Censo de población y vivienda : Census of population and housing done by INE (National Institute of Statistics)
- DIRCE (Directorio de Compañías Españolas (?): Directory of Spanish Business done by INE

Apart from that data, we have used different sources regarding the metropolitan area of Barcelona and the knowledge economy elaborated by different institutions municipal and regional institutions.

Chapter one describes the situation of the different collectives to be surveyed and proposes a specific selection following a geographical and (when relevant) sectorial criteria. Description of each collective includes both a methodological justification and a short description of statistical data used. Chapter two shows the general strategy for the selection of companies, universities and institutions to be surveyed. This chapter also includes a methodological approach to this process. Finally, Chapter three presents the general conclusions and the approach to the interviews.

Although the BMR is still one of the main industrial agglomerations in the EU, the tertiarization process is underway since the beginning of the nineties. It has gone hand in hand with a significant increase in knowledge intensive activities and with a relocation of manufacturing activities from Barcelona to the rest of the region. Nowadays, Barcelona and its metropolitan surroundings are competing with other European regions to attract certain activities where creativity, innovation and knowledge are the key elements of success. In the following chapters, besides the analysis of the targeted groups, we go in depth into the evolution of these sectors from 1995 to 2006 in the BMR context.

1 OVERVIEW OF CREATIVE AND KNOWLEDGE SECTORS IN THE BMR

1.1 Creative and knowledge employees in the BMR

1.1.1 Introduction and methodological aspects

In this section the distribution of employees of the creative and intensive knowledge sectors following branches of specialization is explored. This analysis is useful to determine which of the available branches must be selected for the survey in Barcelona. In order to do this, we will use data of the whole province of Barcelona obtained through the Central Directory of Companies of the National Statistical Institute. It is relevant to point out that the BMR represents slightly 85 per cent of the whole province both in social and economic terms. For that, we consider the data on province as the best approach to describe the employment situation in the BMR. For the elaboration of the creative and knowledge sectors, we have followed the aggregation of activities proposed for the ACRE project:

- Creative industries
 - Publishing
 - Architecture
 - Arts / antiques trade
 - Designer fashion
 - Video, film, music and photography
 - Music and the visual and performing arts
 - Advertising
 - Computer games, software, and electronic publishing
 - Radio and Television

- Knowledge based industries
 - Information and communication technology
 - Finance
 - Law and other business services
 - R&D and higher education

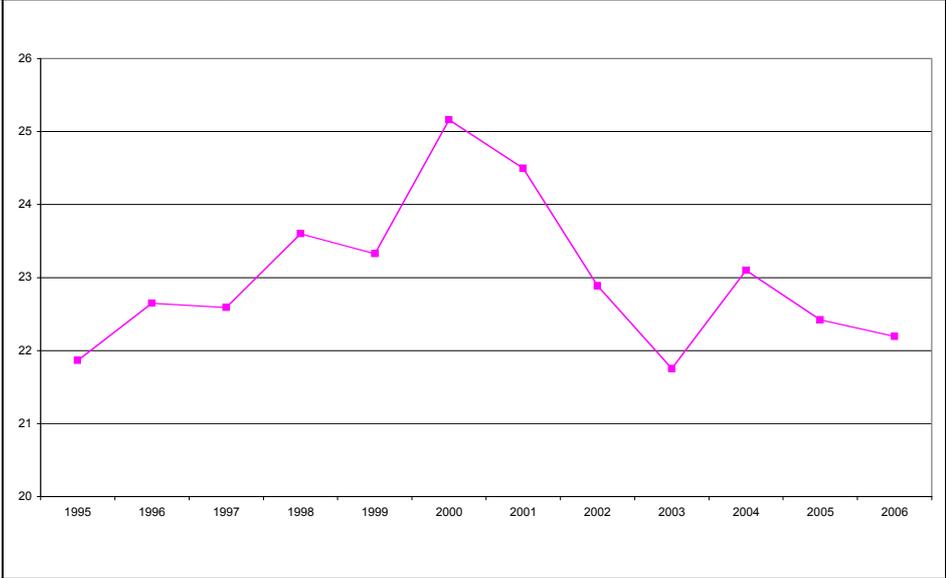
1.1.2 General situation of creative and knowledge sectors in the BMR

As it has been said above, the BMR is improving its creative and knowledge profile. In terms of number of companies, the creative and intensive knowledge sectors are growing in the whole Autonomous Community¹. Nevertheless, in the BMR the increase hides a shift in the

leading subsectors of this kind of activities. This fact explains the instable growth of employment in creative and knowledge sectors. Hence, employment in these sectors, measured taking into account the percentage of the total employment it represents, experienced a slight increase in the 1995-2000 period. It is significant that the increase occurred at a time when around 900,000 new jobs were created in Barcelona. Moreover, employment in creative and knowledge intensive sectors rose relatively, in spite of the fact that jobs were lost in some of the manufacturing activities under study, above all in those related to the textile industry. For instance, the designer fashion sector lost 16,000 jobs between 1995 and 2006.

However, the relevance for economic activity and employment in the province of the total of activities under study increased. Figure 2.1 shows the evolution of the employment in creative and knowledge sectors over total population. During the last decades of the twentieth century, creative and knowledge intensive activities that employed a higher proportion of people were on one hand, “designer fashion”, an activity connected to the traditional textile industry of the region, and on the other, “other trading activities and business services activities”, such as arts/antiques, law and other business services and finance.

Figure 1.1 -Employment in creative and knowledge sectors over total employment (in %). Barcelona province (1995-2006)



Source: INE

However, looking at the EPA data on branches of activities, the trend in recent years reveals a relative loss in the significance of designer fashion, arts/antiques, and, to a lesser extent in finance. A rather new trend emerges, instead, for there is a relative rise in activities such as computer, architecture, and R&D and higher education. These sectors are becoming key for the development of new technologies, creativity, and knowledge in Barcelona. Law and other business services, activities intrinsically related to the development of business activity, also experience a significant rise. This change of pattern in the creative and intensive knowledge industries in Barcelona is essential to determine what sectors will be analysed in the survey. For the Barcelona case study “architecture” is a relevant creative activity whereas advertising plays a minor role. For that, the relevant sectors for the survey are the following:

Creative sectors

- 722 Computer games, software, electronic publishing, software consultancy and supply
- 921 and 922 motion pictures and video activities and radio and TV activities
- 742 Architecture

Knowledge intensive sectors

- Law and other business services
- Finances
- R+D and higher education

Table 1.1 shows the evolution of jobs in the selected creative and knowledge sectors. As it can be seen, in general terms, all sectors grew rapidly in the last decade, despite the recession of “computer games, software, and electronic publishing” which suffered an important decrease after 2001 and 2003. Between 1995 and 2006 the creative selected sectors have grown in number of employees between three and four per cent. The knowledge selected sectors denote a minor increase, between two and three per cent.

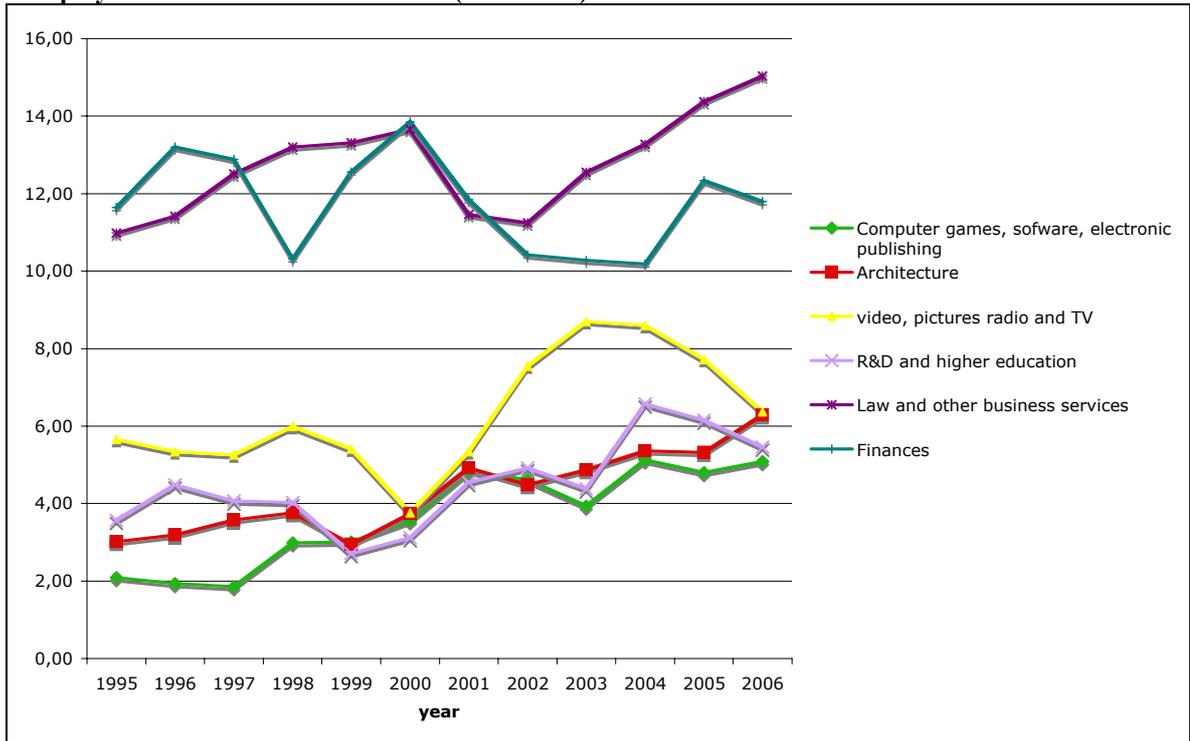
Table 1.1 – Employees in the creative industries (selected sectors) 1995-2006

	Creative selected sectors workers			Knowledge selected sectors' workers		
	Computer games, software, electronic publishing	Video activities and radio and TV activities	Architecture	Law and other business services	Finances	R&D and Higher education
1995	7,500	20,099	10,800	39,375	41,725	12,775
1996	7,500	20,488	12,375	44,325	51,250	17,400
1997	7,450	20,974	14,375	50,350	51,875	16,350
1998	13,175	26,235	16,600	58,250	45,525	17,750
1999	13,850	24,651	13,550	61,325	57,825	12,500
2000	18,600	18,941	19,575	71,550	72,525	16,300
2001	24,925	26,895	25,400	59,200	61,225	23,475
2002	22,375	35,643	21,725	54,500	50,475	23,825
2003	19,050	41,513	23,625	60,875	49,850	21,250
2004	27,125	44,900	28,375	70,300	53,950	34,800
2005	26,300	41,686	29,125	78,775	67,600	33,725
2006	28,575	35,120	35,325	84,450	66,275	30,650
Increase 2006/1991	3.81	1.75	3.27	2.14	1.59	2.4

Source: EPA

Figure 1.2 shows the importance of each selected sector in relation to the total creative and knowledge industries employment: “finances” and “law and other business services” are the main contributors in employment, whereas “computer games” represents the less significant sector in number of employees. “Video and motion pictures and radio and TV” are activities with a decrease between 2003 and 2006, although they remain relatively important.

Figure 1.2 - Employment in selected branches in relation over total creative and knowledge employment. Province of Barcelona. (1995-2006)



Source: EPA (INE)

1.1.3 Territorial distribution of the selected sectors

As has been said above, there is no available data on territorial distribution of companies following NACE codes. Nevertheless, elaborated studies of the state of knowledge society in Barcelona uses the definition ‘intense knowledge industries’ which include all the selected sectors except for video, pictures, radio and TV. This study shows the territorial distribution of intense knowledge industries, which can be a good approach to the territorial distribution of the selected sectors. Following this data, 42.2 of the intensive knowledge industries concentrate in the city of Barcelona, the other industries are concentrated in the first ring of the metropolitan region and the cities of Sabadell and Terrassa which are between the five most important knowledge cities of Catalonia (Boix, 2004)

1.2 Academic education: Graduates in the BMR

1.2.1 Introduction and methodological aspects

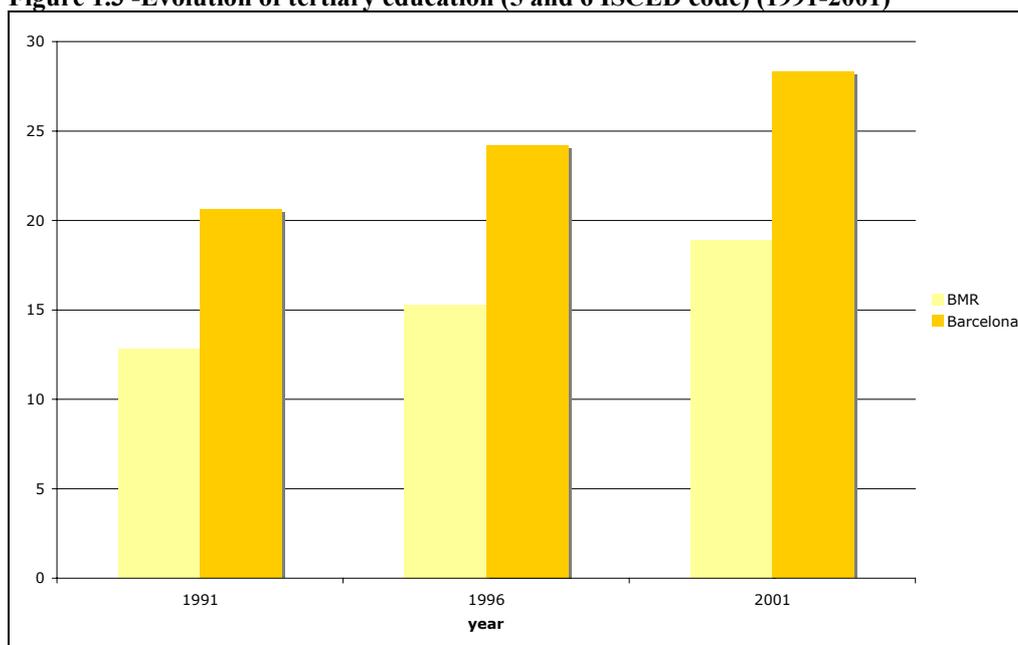
In this section we will analyze the situation of the academic education in the BMR to build up a sample of 50 graduates. As a first step we will analyse the general situation of graduates of all disciplines. Afterwards, the graduates of artistic and design careers will be studied. In order to do this, we will use data from the Census regarding education levels of population. Concerning the analysis of graduates, we will deal with different problems: on the one hand, the Spanish statistical system does not use OCDE indicators. Therefore, we need to build up *ad hoc* indicators based on the available data or even use secondary sources. On the other, we do not have disaggregated data on education. Finally, 2001 data on education is the most

recent one available. Despite these problems, we can show major trends on superior education.

1.2.2 Situation of academic education in the BMR

Due to the historical context, the education levels of the population in Barcelona have been low until the last two decades, when the population with tertiary education started to increase. Such an increase is noticeable looking at the data of the past decade. Figure 1.3 shows the evolution of tertiary education in the BMR and Barcelona city. In 1991 population with tertiary education in the BMR was roughly 12 per cent of total population increasing in 2001 until 18 per cent. Such an increase was similar in Barcelona, although the city concentrates a major proportion of tertiary education population. Hence, there are two remarkable phenomena: there is a positive evolution of tertiary education in the last decade and tertiary education remains stronger in the city itself (where there is a major shift towards the knowledge economy) in comparison with the whole region. Thus, the difference between Barcelona and the rest of the region is still important. Graduates in the Metropolitan region represent roughly 19 per cent of the total population While in the city of Barcelona this percentage grows until 28 per cent.

Figure 1.3 -Evolution of tertiary education (5 and 6 ISCED code) (1991-2001)



Source: *Barcelona Ciutat del Coneixement*

Table 1.2 - Tertiary education in population between 25-64 years (2001)

ISCED code	Barcelona		Metropolitan region	
	Population	Percentage over total	Population	Percentage over total
0 (Illiterates and without studies)	6,066	0.7	32,731	1.3
1 (primary education)	166,541	20.1	660,280	26.6
2-3 (secondary education)	421,339	50.8	1,317,176	53.1
5-6 (tertiary education)	234,557	28.3	468,440	18,9
Total	828,503	100.0	2,478,627	100.0

Source: *Barcelona, ciutat del coneixement*

After analysing the situation of higher education in the Barcelona Metropolitan Region, we explore the system of universities in the Barcelona Metropolitan region because we consider it offers complementary information on the already explained data. Barcelona and its Metropolitan Region concentrate the most important public and private universities of Catalonia (See Table 1.3). The most important university in the BMR is Universitat de Barcelona with more than the half of the total students in the region. The private sector plays a secondary role in the higher education system in number of students, with only 60,840 students, which represents 17.2 per cent of the total students.

Table 1.3 Relation of universities in BMR

University	Number of students	Public / private
Universitat de Barcelona	204,746	Public
Universitat Autònoma de Barcelona	56,111	Public
Universitat Oberta de Catalunya	33,996	Public
Universitat Politècnica de Catalunya	33,242	Public
Ramon Llull	13,140	Private
Universitat Pompeu Fabra	10,213	Public
Universitat Internacional de Catalunya	2,406	Private
Universitat Abat Oliva CEU	564	Private
Total students	354,418	--

Table 1.4 shows the distribution of students per branches in the Metropolitan Region. Social sciences are the disciplines with a higher number of students. In this field, we find Economy, Law and other similar careers with the highest amount of students. Technical careers form the second most important group with 51,000 students in 2004-2005.

Table 1.4 – Students in 2004-2005 per branches in the BMR

Branch	Students (BMR)	%
Social sciences	88,625	47.2
Technical careers	51,570	27.5
Arts & humanities	19,673	10.5
Health sciences	15,711	8.4
Science	10,984	5.8
Sport	1,226	0.65
Total	187,789	100.0

Source: Own calculations from Anuari Estadístic de Catalunya

1.2.3 The artistic, design and media students

The number of students of artistic careers and design is low compared to the common careers. Nevertheless the number of institutions in the city region has grown in the past decade. Table 1.5 shows the students of different artistic disciplines including dramatic arts (direction, performing and scene direction) and Dance (which includes dancing but also dance teaching at basic level). Design and arts refers to formative cycles of two years, whereas “design” refers to a degree of four years. Both careers have specialized disciplines like sculpture or textile design. Hence, these two careers are the most important in these sectors.

Table 1.5 - Arts and design students in BMR (2005-2006)

Studies	Number of students
Design (four years)	516
Design and arts (two years)	637
Dramatic arts	298
Dance	72
Total	1,523

Source: Own calculations from data of departament d'educació, Generalitat de Catalunya

Regarding studies related to media, most of the careers are included in the common university system. The main career is audiovisual communication. Apart from that formative cycles related to media also exist.

1.3 Managers

Unfortunately, there is an important lack of data regarding managers in the BMR. For this reason this section shows the general situation of Managers in the metropolitan region instead of detailed territorial analysis. The industrial profile of the region, based on small and medium firms and a wide scope of autonomous professionals, determines the structure of managers. Although the lack of relevant data, we assume that most of the companies of the creative and knowledge sectors follow the general pattern of the industrial sector in the BMR and are medium or small sized. That means a higher number of managers and autonomous professionals. Table 1.6 illustrates this trend, comparing the BMR with Catalonia and Spain.

Table 1.6 - Managers in the BMR (per 100 hab. Employees) (2001)

	BMR	Catalonia	Spain
Directives and administration	8,7	7,8	7,0
Technicians and scientific and intellectual professionals	12,7	10,6	11,1
Support technicians and professionals	14,2	10,4	9,5
Total	35.8	28.8	27.6

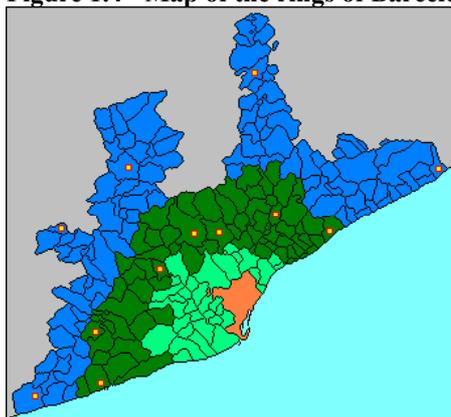
Source: IDESCAT, INE

The table includes the three highest professional categories between all the socioprofessional categories in the ISCO-88 code. As can be seen, the BMR includes a major number of managers than the rest of Catalonia or Spain.

1.4 Development of international migrants

The data on qualified migrants in the BMR has been built up with municipal data regarding foreign population and education levels. It provides information on legal migrants with residence or work permit. Data from the municipality offers territorial information on their distribution. We have aggregated information about Barcelona city and the two suburban rings which conform the BMR. We consider the metropolitan region as a concentric circle where Barcelona is in the centre and there are two levels of periphery: the first and the second ring (in green in figure 1.3). We have used this distribution in order to simplify the data.

Figure 1.4 - Map of the rings of Barcelona Metropolitan Region



Source: Generalitat de Catalunya

Table 1.6 shows the distribution of migrants in the BMR. The “third ring” is not being used for this study as a part of the BMR. Nevertheless, we have included the data to show the concentration of migrants in Barcelona and the first ring, where roughly 80 per cent of qualified migrants live. It is important to note that the proportion of qualified migrants in Barcelona is 15 per cent higher than the total amount of migrants.

Table 1.7 - Distribution of migrants and qualified migrants in the BMR (2006)

	Barcelona	1 st ring	2 nd ring	3 rd ring	Total
Total migrants	83491	50583	44873	8176	187123
Qualified migrants	21068	7770	5604	1117	35559
Percentage of qualified migrants (over total migrants)	25.2	15.4	12.5	21.7	19.0
Distribution of migrants (percentage)	44.6	27.03	24.9	4.4	100.0
Distribution of qualified migrants (percentage)	59.2	21.8	15.8	3.1	100

Source: own calculations from IDESCAT data

Table 1.8 shows the origin from foreigners of Barcelona province in 2005. The origin of foreigners in the Barcelona province is mainly African (specially from Morocco) and American (Ecuador is the main country of Origin). Unfortunately we have not data on the BMR.

Table 1.8 - Origin from foreigners of Barcelona province (2005)

Origin	Foreign population	Percentage over total population
Europe	72,548	1.4
Africa	120,282	2.3
Asia	56,031	1.1
America	161,490	3.1
Oceania	233	0.0
Not given	155	0.0
Total	410,739	7.9

Source: Anuari Estadístic de Catalunya (2005)

2 SELECTION OF CASES AND COMPANIES

2.1 Introduction

The analysis shown in the previous chapter is useful to select companies and institutions to do the survey. This chapter exposes the main criteria for the selection of the following groups to be surveyed:

- 200 surveys
 - 75 creative employees
 - 75 intensive knowledge employees
 - 25 university/ politech graduates
 - 25 arts and media school graduates
- 30 interviews
 - 20 managers
 - 10 qualified migrants
- 50 surveys to qualified migrants

The criteria followed to choose each group had followed common main lines. When possible different locations have been included, taking into account the city, first and second rings of the metropolitan region. Although there is no relevant information on companies' size we will use companies size as a selection criteria. For the university and arts and media school graduates we have selected the most important centres of the BMR. We have distributed the sample following disciplinary branches. The selection of managers will follow the criteria of companies' size and taking into account the different levels of management. Lastly the qualified migrants selection is based on territorial criteria of their living place distribution.

2.2 Distribution of interviewees of creative and knowledge industries

Tables 2.1 and 2.2 show the distribution of 75 creative interviewees and 75 knowledge interviewees following branches and spatial distribution into the Barcelona Metropolitan Region. There are no available data on spatial distribution of industries in the Barcelona Metropolitan Region. This lack of data on metropolitan region spatial structure forces us to construct indicators on the distribution of creative industries through the territory. We have used data of total population corrected by data on cities.

The BMR has a tradition of polycentric region with different specialized cores. Our starting point is that this pattern is being followed at less or greater extent by the creative industries. We have corrected the distribution following population patterns and taking into account those cities with relevant creative and knowledge industries. For that reason, the selection of different companies for the first and second ring will give importance to the cities with a more

service-oriented economy. In the case of second ring we will concentrate the surveys in Sabadell and Terrassa as cities that concentrate intensive knowledge and creative industries

The distribution according to branches of activity is based on the importance of each branch in the total creative or knowledge selected sectors. This distribution reflects the importance of radio, television and motion pictures, as well as architecture in the creative sectors. In the selected intensive knowledge sectors “Law” has an important role in relation to the total selected knowledge sectors employment, whereas “R+D and higher education” is the less relevant.

Table 2.1 Selection of interviewees by branch and spatial distribution (creative sectors)

	Employees	Representation	Spatial distribution		
			Barcelona	First Ring	Second ring
Software	28575	21	7	7	7
TV and radio, video and motion pictures	35750	27	9	9	8
Architecture	35325	27	9	9	8
Total	99650	75	26	26	23

Source: Own calculations on EPA data

Table 2.2 - Selection of interviewees by branch and spatial distribution (intensive knowledge sectors)

	Employees	Representation	Spatial distribution		
			Barcelona	First Ring	Second ring
Law	84450	35	12	12	11
Finances	66275	27	9	9	8
R+D	30650	13	5	4	4
Total	181375	75	27	25	23

Source: Own calculations based on EPA data

The selection of companies and institutions to be surveyed will follow two different criteria. On the one hand we will use the database *España 30000* which provides addresses of companies following NACE codes. The database provides addresses and telephones of the companies, as well as their main activities and contact persons. This database is provided by the economic magazine *Fomento de la produccion*

On the other hand, for the thirteen surveys of the R+D and higher education branch, we must contact R+D and higher education workers related to the other selected sectors (Law, Finances, Architecture, Software and TV, radio and motion pictures). For that reason, we will base on the distribution of private and public research institutions related with these creative and knowledge sectors. The institutions to be surveyed are the following:

- Universities
 - Universitat Politècnica de Catalunya (Catalonia Polytechnic University)
 - Facultat d’Informàtica de Barcelona (Software)
 - ETSAB (Architecture)
 - Universitat de Barcelona
 - Law
 - Finance

- Universitat Autònoma de Barcelona (Television and motion pictures).
- Other training institutions
 - ESCAC- *Escola Superior de Cinema i Audiovisual de Catalunya* (TV and radio, and motion pictures)
- Private companies
 - Big software companies located in BMR (Software)
 - Private motion pictures and television companies (Televisió de Catalunya, Sagrera TV, Barcelona Televisió).

2.3 Managers

The selection of managers for the in depth interviews will be done following two main proceedings. We will address Barcelona Activa through our Local Partnership in order to contact creative and intensive companies in the city. We are interested in contacting young managers of new enterprises created under the umbrella of Barcelona Activa. On the other hand we will use the España 30000 database provided by the economic magazine *Fomento de la producción* this database allows to contact directly with managers of companies selecting them through CNAE codes. The objective is to obtain a sample of ‘new’ and ‘old’ managers as well as different levels of hierarchy.

2.4 Graduates

The selection of 50 graduates will follow two different and compatible criteria. On the one hand, we have distributed the sample into two groups, first, polytechnic and university graduates and second, graduates on media and arts. To select graduates, we will contact university institutions and professional associations. For the knowledge sectors we will address to banks and other financial institutions, selecting employees with tertiary education on finance.

As we have seen in the previous chapter, the most important universities in number of students the BMR is University of Barcelona (UB), followed by Autonomous University of Barcelona (UAB). The Polytechnic University of Barcelona (UPC) is the fourth university but is relevant because it concentrates all technical careers of the region. For that reason, we will concentrate in these three universities. Apart from taking into account the different universities, we have distributed the graduates as shows table 2.3.

Table 2.3 - Sample of graduates

Branches	Distribution	Main institutions
Social science	12	UB, UAB
Technical careers	7	UPC
Humanities	4	UB, UAB
Health sciences	2	UB
Total	25	--

Regarding the 25 media and arts graduates, we will contact different academies and private institutions which provide training to students in audiovisual, motion pictures and video skills.

These institutions can provide information about their former students. The main institutions we will have contact to are the following:

- Escola Superior de Cinema i Audiovisuals de Catalunya (ESCAC)
- Escola Superior de Disseny
- Escola Massana
- Escola Elisava

Apart from these three education centres, we will contact with other audiovisual private schools and academies to obtain at least 25 valid answers. As we have seen in the previous chapter design plays a key role in the artistic sector in Barcelona. For that reason the sample of 25 will be based mainly on design graduates.

2.5 Qualified migrants

As we have seen in the previous chapter, qualified migrants tend to concentrate in the city of Barcelona. For that reason the sample of 50 surveys is distributed, as can be seen in table 2.4, giving more weight to the city of Barcelona (31 surveys).

Table 2.4 - Distribution of the sample of qualified migrants

Total of qualified migrants	Representation	Spatial distribution		
		Barcelona	First Ring	Second Ring
34442	50	31	11	8

The selection of qualified migrants will be done through different ways in order to obtain at least 50 positive answers for the survey and to obtain 10 in depth interviews.

- International offices of universities local universities: Most of the qualified migrants have links with the universities, so this might be a good system to contact them. Nevertheless, this may create a deviation with an overrepresentation of young student foreigners with low skilled jobs. To avoid that we will combine this system with other ways of contacting foreigners
- Foreigners' cultural and language associations: associations of settled foreigners allow us to contact qualified migrants through their social engagement into cultural associations. That could be a good system to contact qualified migrants taking into account their different origins.

3 CONCLUSIONS

This report aimed to explore and elaborate a sample of creative and knowledge employees and managers. In the first part of the report we have exposed the main characteristics of the creative sectors, the graduates and the qualified migrants to allow the selection of the sample. With the obtained data we have elaborated a sample taking into account different aspects as territorial distribution or sectorial importance in terms of employees. Nevertheless, we have found some difficulties inherent to the elaboration of the sample. Firstly, the size of metropolitan regions must be taken in consideration. Barcelona is a metropolitan region with 4.4 million inhabitants. Given that the sample is the same for all the cities, in the case of Barcelona the sample can be less representative than in other cities. Apart from that, the distribution of the sample through the territory as has been presented in this report entails a problem. The survey questions are related with the place of living of creative knowledge employees. Nevertheless, a typical pattern of the BMR is that people lives in the periphery and works in the core city. That pattern is especially strong in the creative and knowledge sectors (see WP2 Barcelona case study for further information). That means that territorial distribution of surveys might present a deviation in relation to the place of living of creative and knowledge workers.

Concerning methodological aspects, the fieldwork of the survey will be based on personal interviews. As a first step we will contact the company or institution to explain the project, to establish a contact person and to propose a visit. Then, a surveyor will visit the company to collect data. We will work with a group of five surveyors, which will be trained on the procedures and the structure of the survey. The fieldwork will be done during June in order to avoid deviation in the answers caused for the summer holydays. We want to avoid also difficulties in contacting persons during the months of July and August.

4 ANNEX: ADDRESSES OF MAIN INSTITUTIONS

Selected arts, design and media academies

ELISAVA Escola Superior en disseny

c/ Ample, 11-13

08002 Barcelona

Tel.: + 34 93 317 47 15

Fax: + 34 93 317 83 53

Correu electrònic: elisava@elisava.net

Escola Massana

Hospital, 56

08001 Barcelona

Tel. 93 442 20 00

Fax. 93 441 78 44

ESCAC Escola Superior de Cinema i

Audiovisuals de Catalunya

Carrer Colom 84-90. Terrassa

Telèfon: 93 736 15 55

ESDI Escola Superior de Disseny

Marquès de Comillas, 79-83

08202 Sabadell

Tel. 93 727 48 19

Fax. 93 727 42 49

Universities (only one address for university is suggested as a reference)

Universitat de Barcelona- Facultat de ciències econòmiques i empresarials

Av. Diagonal, 690

08034 Barcelona

Tel. 934 024 301

Universitat Autònoma de Barcelona-Facultat de ciències de la comunicació

Edifici I

Campus de la UAB

08193 Bellaterra (Cerdanyola del Vallès)

Tel. 93 581 19 94

Fax. 93 581 20 05

Universitat politecnica de Catalunya-Facultat d'Informàtica

Campus Nord - Edifici B6

C/Jordi Girona Salgado,1-3

08034 BARCELONA

Tel. 93 401 70 00

Fax. 93 401 71 13

5 REFERENCES

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- IDESCAT (2006). *Anuari estadístic de Catalunya 2005*. Barcelona: Generalitat de Catalunya.