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**Grand Coalition  
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## **WP4 - Certification**

# **DELIVERABLE 4.3 - Present national and European-level uptake of e-CF powered tool** **Country report: SPAIN**

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# 1 Introduction to the Deliverable and Scope

The outputs described in this deliverable outline the uptake of the European e-Competence Framework (e-CF) powered tool at national and European level. This deliverable is part of Work Package (WP4)– Certification. The main objective of WP4 – Certification is to strengthen the ICT professionalism, by promoting the e-CF in Europe.

This deliverable relates to task4.3 which aims to:

- Accelerate the adoption of the e-CF through the CEPIS e-Competence Benchmark Tool,
- Allow ICT professionals/aspiring professionalism to identify the competences they need/lack for various ICT roles (using the e-CF) enabling them to adapt to market demand and communicate competences across borders,
- Work with partners to generate an update of the e-CF at national and EU level,
- Raise awareness of the e-CF,
- Promote and share the resulting data on usage to demonstrate the value of the e-CF.

This deliverable will be widely disseminated once approved among national and European stakeholders to show the real-world, practical application of the e-CF in action. It shows how ICT practitioners can identify the competences they need/lack for various ICT roles, enabling them to adapt to market labour demand and communicate their competences in a comparable manner across the EU.

## 2 Context

The increasing demand for ICT practitioners is hampered not only by the lack of new entrants into the profession, but also by the mismatches in the competences that practitioners have today. While ICT provides crisis-resistant employment, Europe currently is not producing the talent with the right skills to boost competitiveness. The ICT professional bodies and informatics societies that are the members of CEPIS recognise the need to reduce the gap between supply and demand and commit to taking action to redress the balance and promote ICT professionalism.

Under the Grand Coalition for Digital Jobs, the European Commission has launched a series of practical initiatives to help fill the growing number of vacant ICT-related jobs across Europe, and to ensure that more people get the training needed to work in the digital economy. To support the roll-out of the Grand Coalition for Digital Jobs, DIGITALEUROPE has collaborated with partners such as ECDL Foundation, CEPIS and others to establish the Secretariat of the Grand Coalition. This deliverable is part of the WP4 within the strategy of the Secretariat of the Grand Coalition.

The purpose of this deliverable is to present the national and European-level uptake of an e-CF powered tool, which is a free, online interactive tool for current and future ICT professionals to identify the competences they need for various ICT roles, enabling them to adapt to labour market demand. It will enable individuals and recruiters to map their competences against a range of profiles and better equip themselves for future roles and employment. It will allow companies to benchmark entire departments, identify workforce gaps and plan accordingly.

It is powered by the European e-Competence Framework the common language for ICT competences created by the CEN workshop on ICT skills and therefore provides a standard upon which Europeans can better understand what is needed for their current and future IT roles based on the ICT Professional Profiles developed by CEN.

Several national reports have been produced for each participating country which aggregate the information for that country and produce a snapshot of the ICT professional landscape. This report will provide information to support policy making, as well as update information for the training industry on market needs.

The European level report brings together all of the data from throughout Europe and provide a basis for policy recommendations on future actions to support the ongoing development of the ICT profession.

### 3 Executive Summary

This report provides the Spanish results of a European initiative designed to identify the digital competences held by ICT professionals across 31 countries in Europe and beyond. This report is based on the CEPIS e-Competence Benchmark an online, interactive tool that enables individuals and organisations to assess their competences against the European e-Competence Framework (e-CF)<sup>1</sup>. Using the results of the CEPIS e-Competence Benchmark, this report offers a unique view of the status of professional e-competence in Europe and shows the practical application and real-world usage of the e-CF.

As experts predict that the demand for skilled ICT professionals will far outstrip supply, it is more important than ever to provide current and future professionals with the ability to compare their competences against those needed for typical ICT job profiles throughout Europe. This helps identify training and professional development opportunities to transition to new roles and even to start an ICT career. This work was carried out as part of the Grand Coalition for Digital Jobs, an EU-wide initiative to address the competence mismatches and fill vacancies of ICT practitioners to boost employment.

The results gathered through this pan-European initiative provide an insight into the level of professional competences and a snapshot of the types of ICT professions in each country. It also is a means to implement the e-CF, demonstrating to individuals and organisations how it can be of immediate and practical benefit. The ability to determine which competencies are underdeveloped on a national and European scale can assist policy makers as well as training providers with timely information for decision making. This, in turn, can facilitate the development of focused training courses to further educate the workforce so as to meet the needs of the labour market.

The research has been conducted via an interactive, free, web-based tool that is powered solely by the European e-Competence Framework ([e-CF](#)) and the accompanying professional profiles. The e-CF has been developed by the CEN (European Committee for Standardization) Workshop on ICT Skills and is supported by the European Commission. This framework identifies 36 ICT competences which are all used in this tool along with the professional job profiles developed by CEN.

This project has been led by the Council of European Professional Informatics Societies (CEPIS) and implemented in conjunction with CEPIS members. Special thanks to [Asociación de Técnicos de Informática \(ATI\)](#) who led the project in Spain and provided perspectives on the national ICT landscape.

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<sup>1</sup> For more information about the European e-Competence Framework see: <http://www.ecompetences.eu/>

## 4 Methodology

This initiative has been conducted in 31 countries in Europe and beyond using an interactive, web-based tool: the [CEPIS e-Competence Benchmark](#). The European results are compiled based on over 2,000 responses provided by participants from these countries.

It is important to note that the results presented here reflect the constituency of those who participated in the CEPIS e-Competence Benchmark. In some countries that may have implications for the general statistical significance of the data. The CEPIS e-Competence Benchmark has been completed by individual respondents who consider themselves to be ICT practitioners, or who will soon become one, and is divided into three sections as described below. It is fully compatible with and is based on the e-CF and associated professional profiles.

### 4.1 Personal Information

In the online tool, each respondent is invited to register and then enter personal information including education background, employment status, organisation size, and industry. They then select the ICT profile that matches their current role from the following 23 professional profiles, grouped into 6 families:<sup>2</sup>

BUSINESS MANAGEMENT	Chief Information Officer Business Information Manager ICT Operations Manager
SUPPORT	Account Manager ICT Trainer ICT Security Specialist ICT Consultant
SERVICE & OPERATIONS	Database Administrator Systems Administrator Network Specialist Technical Specialist Service Desk Agent <sup>3</sup>
DESIGN	Business Analyst Systems Analyst Enterprise Architect Systems Architect
DEVELOPMENT	Developer Digital Media Specialist Test Specialist
TECHNICAL MANAGEMENT	Quality Assurance Manager ICT Security Manager Project Manager Service Manager

Figure 1 ICT Professional Profiles

### 4.2 Competence Questionnaire

In this section of the assessment, the respondent completes the competence questionnaire, which consists of 36 competences. The questionnaire is divided in five areas of competences - Plan, Build, Run, Enable, Manage - that are derived from ICT business processes.

For each competence, the level options available are: None, Knowledge, Experience, or Knowledge and Experience. Upon selecting 'Experience' the respondent is asked

<sup>2</sup> For more information on the professional profiles : <ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016458.pdf>

<sup>3</sup> The profile of *Service Desk Agent* is excluded from the present analysis as the profile was sufficiently broad to encompass most respondents, thus skewing the results.



to indicate their corresponding level of experience. Additional information, such as examples of the knowledge and skills associated with that competence, is also available to assist the respondent in choosing an appropriate level.

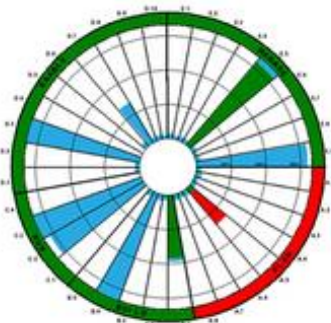
B-Build	None	Knowledge	Experience	Knowledge & Experience
<b>B.1. Design and Development</b> Designs and engineers software and/or hardware components to meet required specifications, including energy efficiency issues. Follows a systematic methodology to analyse and build the required components and interfaces. Performs unit and system testing to ensure requirements are met.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Please select all currently relevant experience levels (select one or more as required)				
<b>Level 2</b> Systematically develops small components.	<b>Level 3</b> Acts creatively to develop and integrate components into a larger product.	<b>Level 4</b> Handles complexity by developing standard procedures and architectures in support of cohesive product development.	<b>Level 5</b> Has ultimate responsibility for strategic direction of product, technical architecture or technology development.	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
OK				
<b>B.2. Systems Integration</b> Installs additional hardware, software or sub system components into an existing or proposed system. Complies with established processes and procedures (e.g. configuration management), taking into account the specification, capacity and compatibility of existing and new modules to ensure integrity and interoperability. Verifies system performance and...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 2 Example of Competence Level and Experience Level

### 4.3 Competence Questionnaire

Upon completion of the questionnaire, the respondent is presented with personal results. These results are displayed on a graphical radar, split into 36 segments (one for each competence) as illustrated in [Figure 3](#). The graphic will show which of the 23 ICT professional profiles best matches the respondent's e-competences, regardless of the profile the respondent selected.

The results are represented in a proximity index which gives an indication of how the respondent's competences match the requirements of the specific job profile (see [Figure 4](#)). A high proximity index indicates that the respondent has the necessary competences for this role.



**Figure 3 Personal Results: the 'Radar'**

View report	Your proximity to this profile	View e-CF profile
SYSTEMS ANALYST	84.75 %	
ICT TRAINER	76.47 %	
TECHNICAL SPECIALIST	59.09 %	
DIGITAL MEDIA SPECIALIST	51.43 %	

**Figure 4 Personal Results: Proximity Index**

Moreover, the results also indicate the competences that the individual should seek to improve, as well as the competences that exceed the level required for the given profile.

Each respondent can review their proximity to any other professional profile to assess their potential to move into a new role, and export the results into a report that may be printed.

#### 4.4 Proximity Profiles

The Proximity Profile is used to identify and classify respondents into homogeneous groups in terms of specific skills (professional profile).

The CEPIS e-Competence Benchmark uses the 23 professional profiles as defined by the CEN Workshop on ICT skills. Each profile is characterised by a specific set of competences (ranging from two to five competences) selected from the 36 competences identified and described in the e-CF.

An algorithm produces a score, based on the knowledge and experience reported, for each of the 23 profiles. These scores are then compared with what is required for each profile and expressed as a percentage match. The highest score shows the profile(s) that is closest to the expertise of the respondent. This is referred to as the Proximity Profile. The level of proximity is shown as a percentage: a 100% proximity index means that the competence declared by the respondent completely satisfies the requirements for that profile.

#### 4.5 Competence Proficiency Index

The Competence Proficiency Index (CPI) is used to measure the degree to which the competencies identified by the e-CF framework are represented in Europe today.

On the basis of the respondents' declaration of competence, a Competence Proficiency Index is computed for each of the 36 competence identified in the e-CF. This index, expressed as a percentage, represents the degree of proficiency for each competence with respect to the e-CF. So, a 100% Competence Proficiency Index

means that the respondent declared to have relevant experience at each one of proposed levels of competence.

The analysis of the Competence Proficiency Index of each competence can be useful to design detailed training paths to cover the competence gaps.

## 4.6 Criteria for Inclusion and Country Level Analysis

In order to ensure the integrity of the results, certain criteria for inclusion of the results were established at the level of the individual response as well as at the country level.

The criteria for individual responses were established so as to exclude responses that are incomplete, or completed in a manner that is implausible. Implausible responses include those that for example have the highest level of knowledge and experience in all competences. Responses that do not comply with the established criteria have been excluded from the results.

The data validation ensures that only results meeting the following criteria are included:

- knowledge of 5 or more competences,
- experience in no more than 31 competences,
- Proximity Profile score(s) of at least 40%,
- ex-aequo<sup>4</sup> top score in 5 profiles or less.

With the high number of participating countries, it was necessary to decide upon the baseline criteria to ensure that the volume and the quality of responses were suitable for country level analysis. The following criteria were adopted to ensure the integrity of the country reports:

- a competence profile is included when 10 or more valid questionnaires are completed. In other words a cluster of 10 respondents enables a professional profile to be analysed for that country,
- a country profile can be generated where there are more than 50 valid assessments completed, and at least one competence profile has 10 or more valid assessments.

## 4.7 The European Benchmark

All country results are compared to the European benchmark, sometimes also referred to as European average. In order to avoid distortions due to a higher number of contributions from certain countries, the European benchmark has been computed as a weighted mean, taking into account an equal number of contributions from those

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<sup>4</sup> Assessments which show the same proximity score for more than one profile are counted as many times as the same score appears.

countries which, although in varying degrees, have proved to be the major contributors.

## 5 Respondent Demographics

The research was launched across 31 countries in Europe and beyond. Over 2,000 current and future ICT practitioners participated in the research.

This chapter provides an overview of the demographics of Spanish respondents. Thanks to the Asociación de Técnicos de Informática (ATI) 87 respondents were assessed using the CEPIS e-Competence Benchmark, which resulted in 2 professional profiles qualifying for analysis.

### 5.1 Respondents by Age

The Spanish respondents represented a range of age groups as highlighted in [Figure 5](#)<sup>5</sup>. The average age of respondents in Spain is around 43 years, which is very close to the European average.

As shown in [Figure 5](#), the percentage of the under 30 segment is very low, close to 6% of all respondents, while almost half of Spanish ICT professionals are in the 40-50 segment. National experts points out that it could be caused due a dissemination which was not wide enough to target more young people or that young professionals did not see any interest in participating.

The ICT Trainer is 3 years older than Spanish average (45 years old), while the Technical Specialist (43 years old) is very similar to Spanish average age. The average for both profiles is in line with their European counterparts.

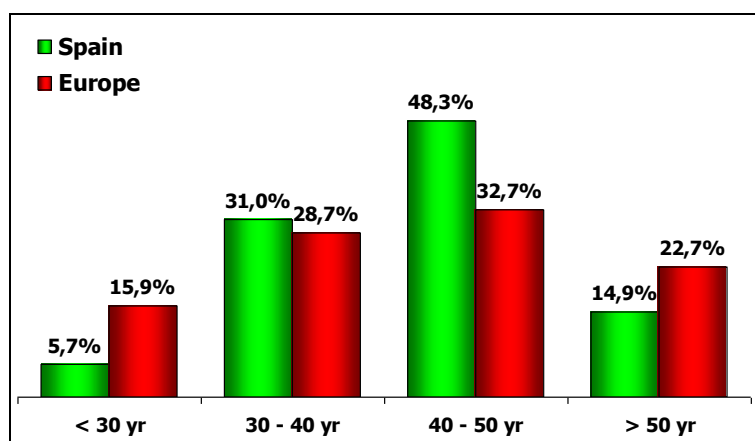


Figure 5 Respondents Distribution by Age

### 5.2 Respondents by Gender

The gender results confirm the well-established trend that there is still a large degree of gender imbalance in ICT in Spain as in the rest of Europe in the sample. The

<sup>5</sup> Note: as '<20 yr' and '>60 yr' classes count for a low % of total assessments (respectively <1% and about 5%), they have been grouped into the adjacent class. As a result, only four age classes are shown: '<30 yr', '31-40 yr', '41-50 yr', and '>50 yr'.

comparative analysis in [Figure 6](#) shows that Spain is lagging behind even the low European average in the sample. Women in Spain represent only 10% of ICT professionals, while the European average is a meagre 15%. Among all countries taking part in the research and eligible for analysis, Spain (along with Belgium and the Netherlands) shows the lowest rate of female presence.

A lower representation of female ICT professionals is found among Technical Specialist (8%), and there were no women at all among ICT Trainers in Spain.

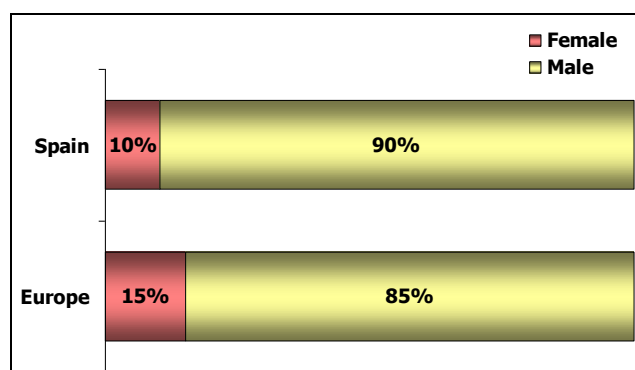


Figure 6 Respondents Distribution by Gender

### 5.3 Respondents by Education Level

The respondents were asked to select the highest level of education that they had achieved. The majority of the respondents in Spain (90%) have at least a degree level qualification, showing the importance of third level qualifications in gaining employment in this sector. Moreover, results of this sample also show that the Spanish rate of 90% is slightly higher than other European countries, which average at 86%. 43% of Spanish ICT professionals obtained a fourth level qualification (master's degree or PhD), which is slightly higher than European average (40%).

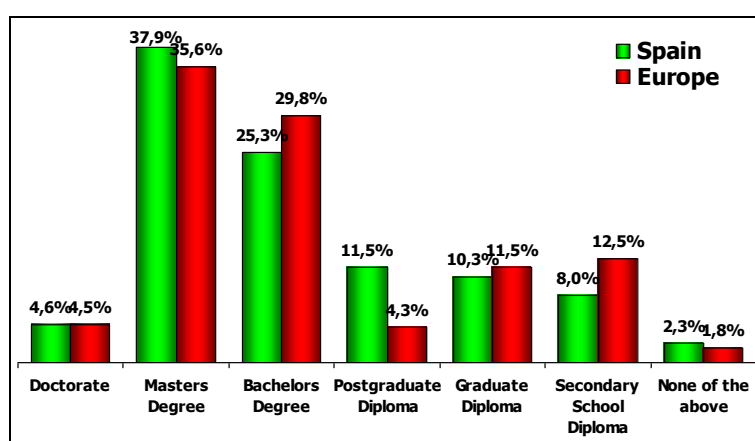


Figure 7 Respondents Distribution by Education Level

The graduate rate among Technical Specialists is similar to the national average for all Spanish respondents, while the ICT Trainer shows a lower rate of graduates (80%) than the national average. A different situation appears for fourth level qualification (master's degree or PhD) with both profiles having rates below the

average of Spanish ICT professionals (43%): 30% for ICT Trainer and 28% for Technical Specialist.

## 5.4 Respondents by Educational Field

The wide range of educational backgrounds of ICT practitioners points to the fact that the ICT profession is both attractive and accessible to graduates from different faculties. In Spain, most ICT professionals (85%) have an IT-focused background; this is the highest rate among the surveyed European countries.

As a result, a prevalence of IT-focused education appears in the two Spanish profiles analysed in the sample: 90% for ICT Trainer (European average: 58%), and 92% for Technical Specialist (European average: 67%). The findings can be explained by the fact that the Spanish informatics society has a high percentage of people with an IT-focused education.

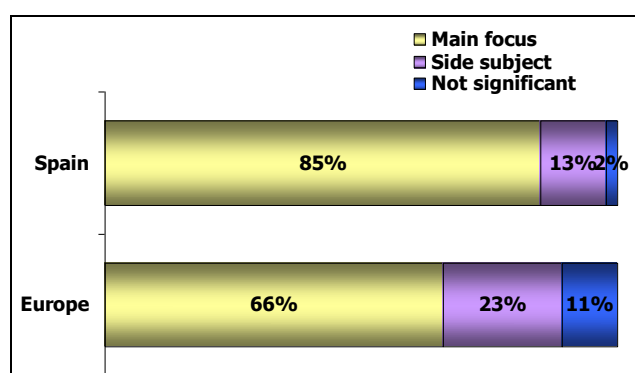


Figure 8 Respondents Distribution by Educational Field

## 5.5 Respondents by Industry Sector

About half of the Spanish respondents come from the IT demand side, as is the case across the whole of Europe: the average is 49% for respondents focused on IT demand side activities. Spanish data shows that both profiles are quite strongly focused on the IT supply side: Technical Specialist with a rate of 56%, while at European level the rate is 57%, and ICT Trainer with a rate of 60%, while at European level the rate is 47%.

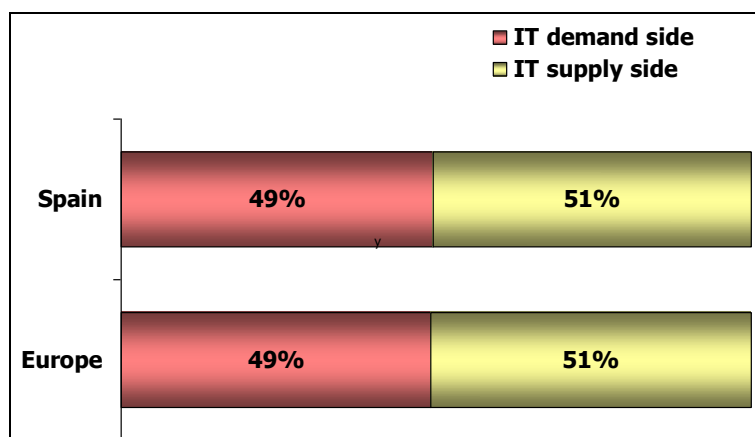


Figure 9 Respondents Distribution by Industry Sector

## 5.6 Respondents by Enterprise Size

The distribution of respondents by organization size shows a clear preference for larger enterprises. The rate of respondents in micro or small enterprises is 17% in the sample, while 42% work in larger companies. The European average shows a slightly different situation: 24% of respondents work in micro/small enterprises and 36% work in large organisations with more than 1,000 employees.

The Technical Specialist profile is more prevalent in large organisations (55%), while the European average for this profile is 33%.

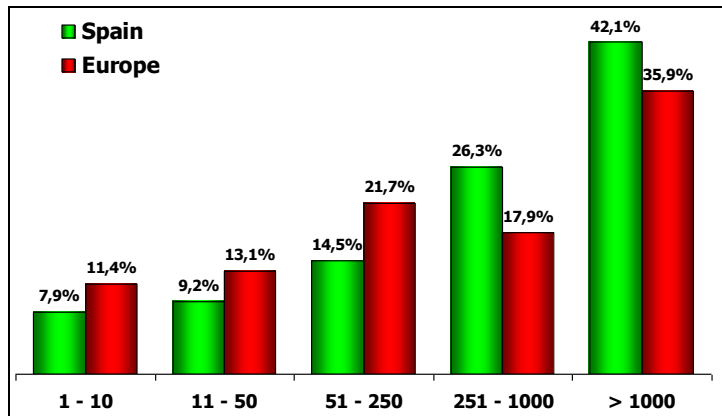


Figure 10 Respondents Distribution by Enterprise Size

## 5.7 Respondents by Professional Status

The majority of Spanish respondents hold full-time positions<sup>6</sup> (78%), which is substantially the same of the European average, as shown in [Figure 11](#). The ICT Trainer profile shows a noticeable difference compared to the European average: about 90% of Spanish ICT Trainers declared to be full-time employees, while the European average for the profile is 75%.

<sup>6</sup> Note: as 'Full time employee' choice counts 80% of total assessments, the other items were grouped as follow: 'Part time employee / Self-employed' and 'Student / Unemployed / Retired'



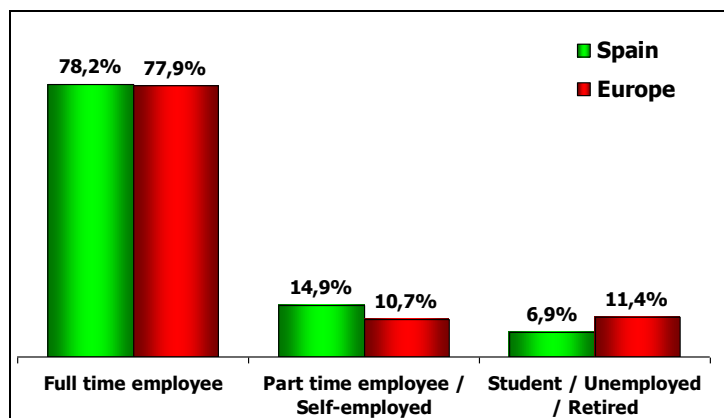


Figure 11 Respondents Distribution by Professional Status

## 5.8 Respondents by Declared ICT Profile

[Figure 12](#) shows the distribution of ICT profiles chosen by the respondents during registration (before starting the assessment). This subjective point of view is based on their experience and the actual role they hold. It differs from the Proximity Profile as explained in chapter 1.4.

All 23 ICT profiles were selected to a certain extent, but 12 profiles were chosen by 3% or less: Systems Analyst, Enterprise Architect, Systems Architect, Digital Media Specialist, Test Specialist, ICT Trainer, Database Administrator, Technical Specialist, Service Desk Agent, Quality Assurance Manager, ICT Security Manager, and Service Manager.

Only three of the Spanish self-declared profiles had a noticeable variance (which is  $\pm 5\%$ ) compared to the respondent rate of their European colleagues: the ICT Consultant profile was chosen by 5.7% of Spanish respondents, while the European average was 10.8%; the Technical Specialist profile was chosen by 13.8% of Spanish respondents, while across Europe the rate was 7.0%; and the Project Manager profile was chosen by 19.5% of Spanish respondents, but only by 14% of European ICT professionals.

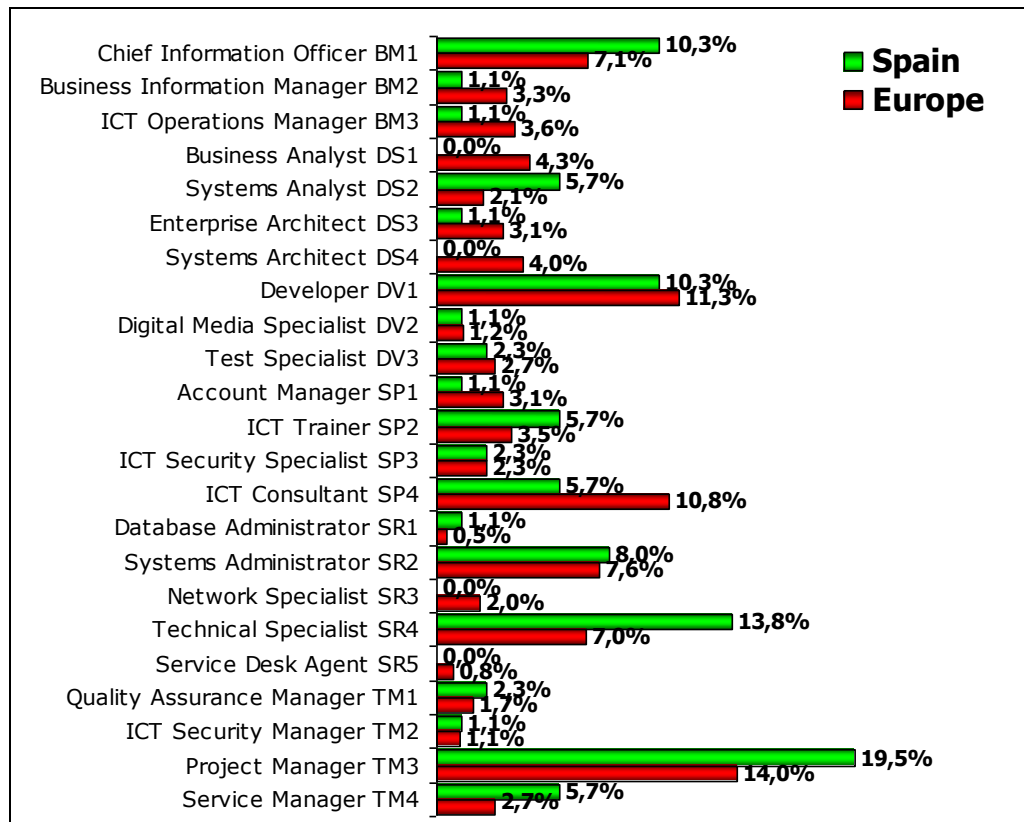


Figure 12 Respondents Distribution by ICT Profile

## 6 Proximity Profiles and Competences

### 6.1 Respondents by Proximity Profile

Based on the outcome of the calculated Proximity Profiles, we can see a picture emerge of ICT profiles from the competences declared by the Spanish respondents.

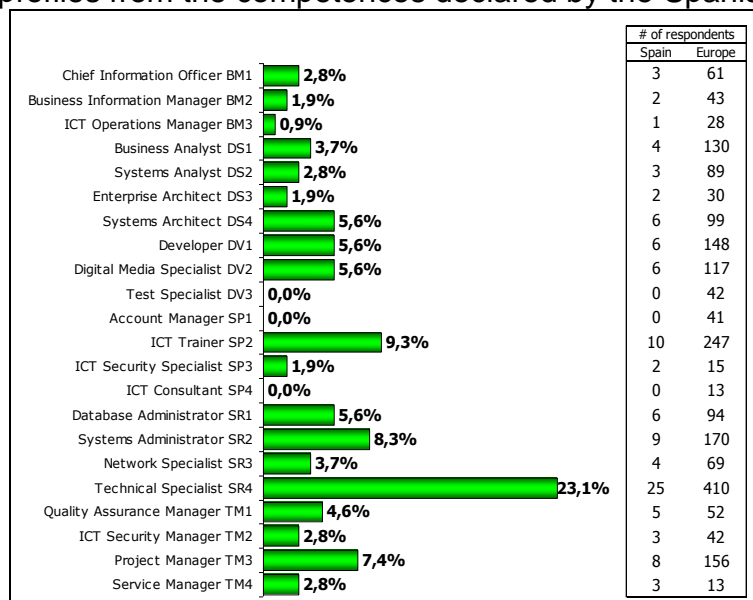


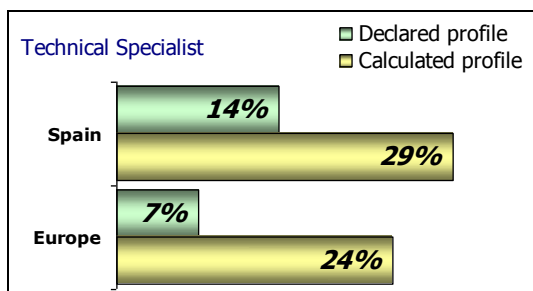
Figure 13 Respondents Distribution by Proximity Profile

A very high rate of respondents fit the roles of Technical Specialist, and there also high rates for ICT Trainer, Systems Administrator and Project Manager. However, due to the smaller pool of respondents in Spain, results are only relevant for the ICT Trainer and Technical Specialist profiles, as the eligibility criteria for the analysis of these profiles needed to have 10 or more cases for each profile and only those two profiles met the criteria.

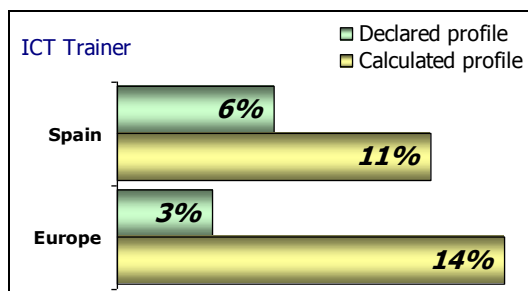
### 6.2 Comparison between Professional Profile and Proximity Profile

An analysis of the profile selected by ICT practitioners and the Proximity Profile, i.e. the profile that fits best with the competences that were declared, shows a large variance for many of the profiles in the case of Spain in this sample.

As can be seen from [Figure 14](#), the Technical Specialist profile is a declared profile for only 14% of the respondents in Spain, but an analysis of their competences leads to 29% of all practitioners having the necessary competences for that role. This trend, although with a slightly smaller gap, is replicated across Europe, as seen in [Figure 14](#), where only 7% of European respondents declared to be Technical Specialist, but 23% of practitioners had the required competences for this role.

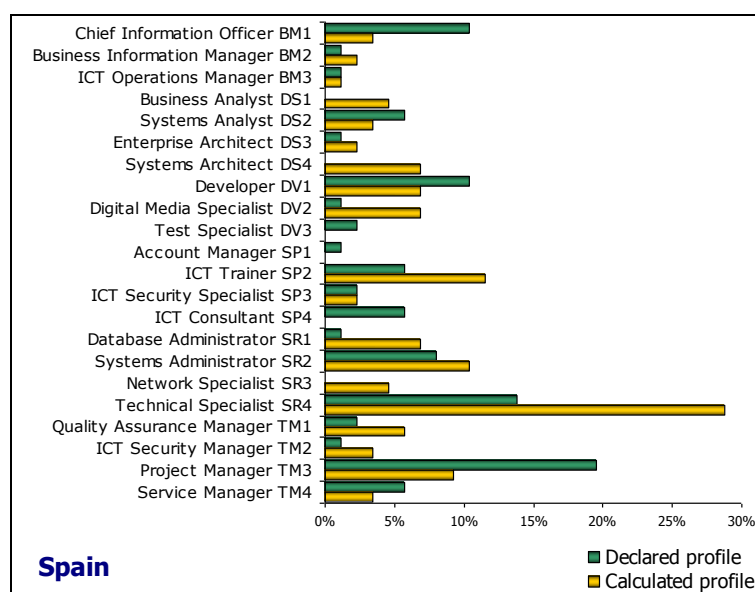


**Figure 14 Technical Specialist: Declared and Calculated Profile**



**Figure 15 ICT Trainer: Declared and Calculated Profile**

In Spain, this case is also noticeable with ICT Trainers. Only 6% of Spanish respondents in the sample declared this profile, but 11% of all respondents in Spain actually hold the necessary competences for this role. This trend is replicated across Europe, as seen in [Figure 15](#), where 3% of European respondents declared they were ICT Trainers, but 14% of all practitioners held the required competences.



**Figure 16 Comparison of Declared Profile and Proximity Profile**

In general, the difference between the declared and the calculated professional profile highlights the importance of the level of competence granularity for each profile. The Proximity Profiles are created only on the basis of the competences (and their proficiency levels) as self-assessed by respondents, and combined with an appropriate algorithm that calculates the Proximity Profile. In contrast, the declared profiles are simply selected by the respondent according to the job title they hold. The declared profiles can differ greatly from the calculated profile as a result.

Only 19% of the declared profiles of Spanish respondents match the calculated profile (23% is the European average).

For this reason, only the data from the calculated profiles is used for analysis: the calculated profile is a more precise profile.

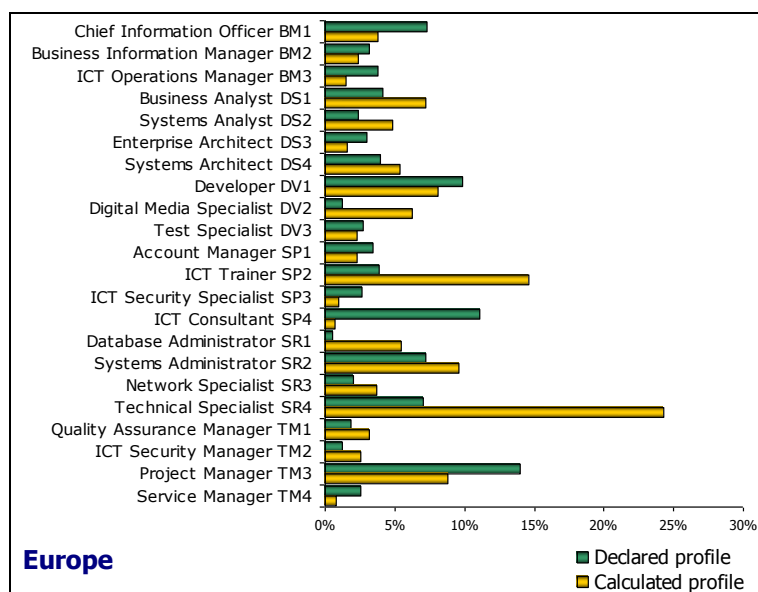


Figure 17 Comparison of Declared Profile and Proximity Profile

### 6.3 Analysis of Competence Proficiency Index

Figure 18 provides a comparison of the Spanish and European averages of the Competence Proficiency Index (CPI) for the five competence areas: Plan, Build, Run, Enable, and Manage.

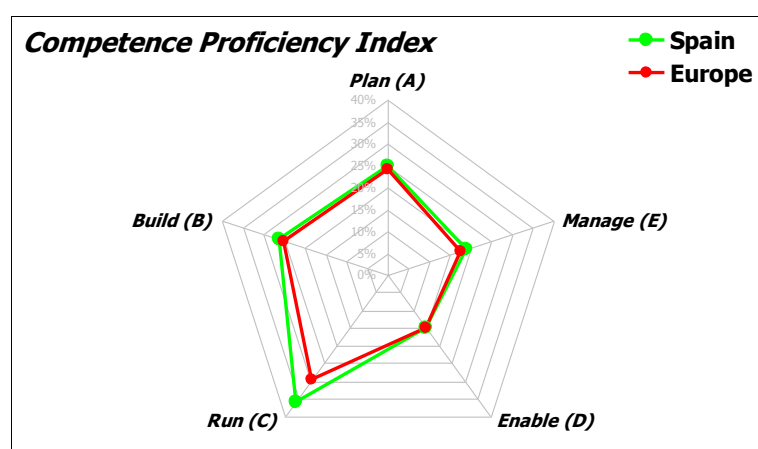


Figure 18 Competence Proficiency Index by Competence Areas

In Spain, it appears that the Competence Proficiency Index is slightly higher in this sample than the equivalent for Europe in all the five areas. The full value of each CPI is 100%. More relevant differences, compared with the European average, appear to be in the Run area (35.8% vs. 29.4%) and in the Manage area (18.9% vs. 17.5%).

However, it appears that the Enable and Manage areas are the weakest, both for Spain and Europe. The ICT Trainer gains its best CPI in the Plan area, while in the Run area the leading profile is the Technical Specialist.

A deeper analysis of the Competence Proficiency Indexes of each competence area is fundamental in order to design detailed training paths to cover the competence gaps for each Proximity Profile of each respondent.

The following chart ([Figure 19](#)) shows the average CPI for all Spanish respondents.

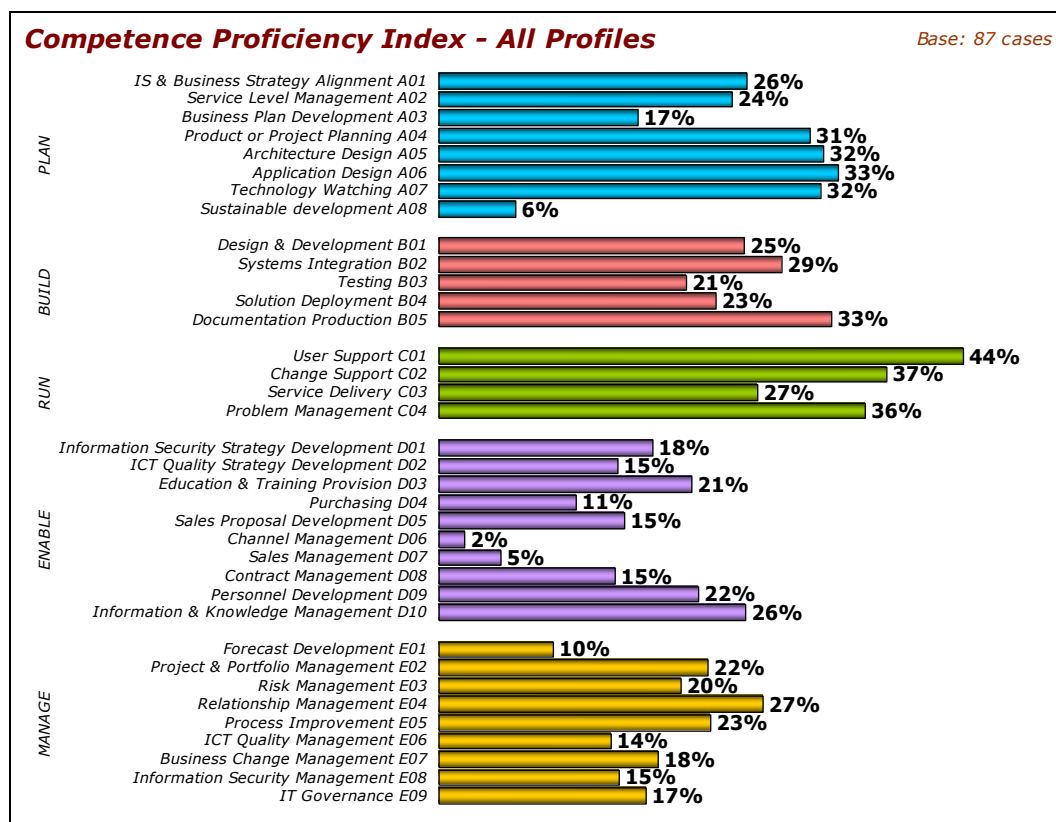


Figure 19 Competence Proficiency Index

## 7 Profiles Analysis

The answers collected generated 108 Proximity Profiles in relation to 22 ICT professional profiles ([Figure 13](#)). The eligibility criteria for the analysis of these profiles were the following:

- 10 or more cases per country for each profile,
- a Proximity Profile score higher than 40%.

Following this criteria, the following 2 profiles for Spain were selected and analysed:

1. ICT Trainer
2. Technical Specialist

A deeper analysis of the data for each of these 2 profiles is presented in this chapter.

### 7.1 ICT Trainer

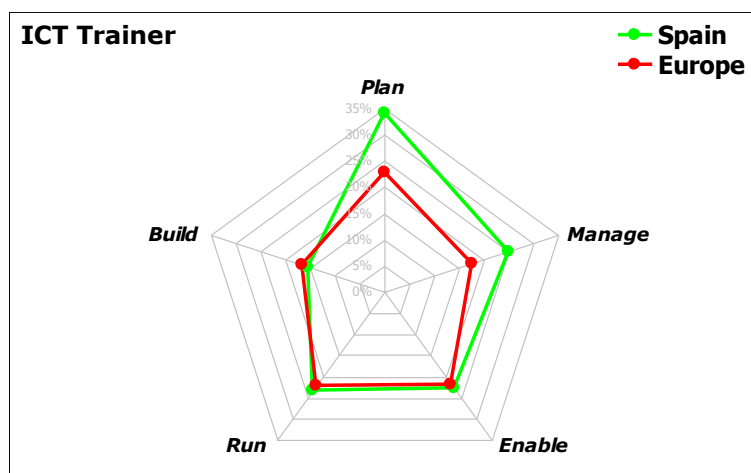


Figure 20 Competence Proficiency Index – ICT Trainer

80% of Spanish ICT Trainers in the sample have obtained a university degree or higher, which is lower than the 91% rate of ICT Trainers in Europe. When it comes to fourth level education, the difference is more noticeable: only 30% of Spanish ICT Trainers have obtained a master's degree or PhD, while the European average is 53%. In Spain, 90% of ICT Trainers have an IT-focused education, which is slightly higher than the domestic rate of 85% and significantly higher than the average for ICT Trainers in Europe (59%).

The average age of Spanish ICT Trainers is 45 years which is older than the other profiles of ICT professionals in Spain. Spanish ICT Trainers are 3 years older than the domestic average but are similar to the average European ICT Trainers which are 45 years old as well.

All Spanish ICT Trainers who responded were male, and the overall rate of female representation among all Spanish ICT profiles is very low in this sample (10%).

Spanish ICT Trainers have a higher Competence Proficiency Index than the European average for the profile in four of the five areas: Plan: 34% vs. 23%, Run: 23% vs. 22%, Enable: 22.5% vs. 21.5%, and Manage 25% vs. 17%. As regards to the Build area, Spanish ICT Trainers have a lower CPI compared to their European colleagues (15% vs. 17%).

Spanish ICT Trainers reach their highest CPIs for Education & Training Provision (62%), Personnel Development (49%), Technology Watching (46%), and IS & Business Strategy Alignment (44%).

In comparison with the European average, the CPI for the Spanish ICT Trainer profile shows a higher score for IS & Business Strategy Alignment (+21%), Business Change Management (+20%), Service Level Management (+15%), and Technology Watching (+15%). The biggest negative gaps are observed for Change Support (-11%) and ICT Quality Strategy Development (-11%).

## 7.2 Technical Specialist

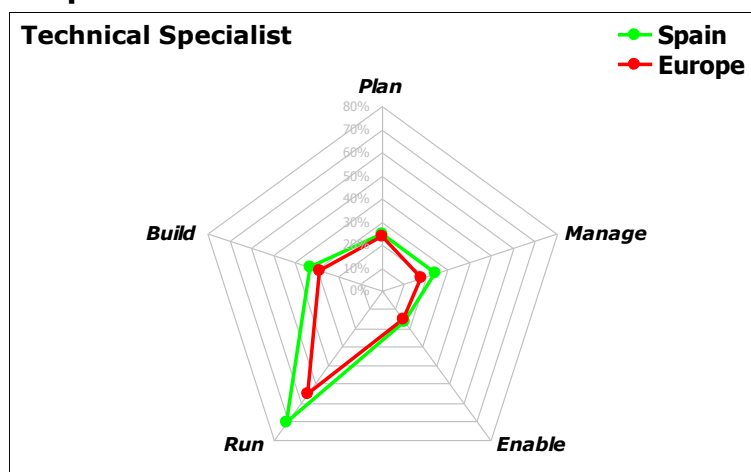


Figure 21 Competence Proficiency Index – Technical Specialist

88% of Spanish Technical Specialists in the sample have obtained a university degree or higher; this is above the European average (79%), but quite close to the national average (90%). Only 28% of Spanish Technical Specialists have obtained a fourth level qualification (master's degree or PhD), which is lower than the European average (26%) and even lower compared to the Spanish average for all ICT professionals (43%). In Spain, 92% of Technical Specialists have an IT-focused education: this rate is clearly higher than the average of their European colleagues (68%), and also higher than the national average (85%).

Technical Specialists in Spain are quite young compared to the other ICT professionals in Europe. They are 43 years old on average; this is around 1 year younger than their European colleagues but in line with the average of all Spanish ICT professionals (43 years on average as well).



The majority of Technical Specialists who responded in this sample were male (92%), which is a slightly higher percentage than the proportion of respondents from all over Europe (89%) and the Spanish average (90%).

Spanish Technical Specialists show Competence Proficiency Indexes that are always better than the European average: slightly higher in Plan area (25% vs. 23%), in the Enable area (17% vs. 16%), and in the Build area (33% vs. 29%); with wider differences in the Manage (24% vs. 18%) and in the Run (70% vs. 55%) areas.

Regarding the Competence Proficiency Index, Spanish Technical Specialists gain their best results in all competences of the Run area: Change Support (78%), Problem Management (69%), Service Delivery (69%), and User Support (65%). Compared to the European CPIs, there are noticeable negative differences for Information Security Strategy Development (-9%), ICT Quality Strategy Development (-8%), Purchasing (-8%), and Sustainable Development (-8%). On the positive side, the Spanish CPIs for this role are higher for Service Delivery (+22%), Problem Management (+16%), and Project & Portfolio Management (+15%).

## 8 Conclusions

The following section draws conclusions based on the analysis of the segmentation of 2 profiles that arose from the 87 respondents in Spain.

The data gathered in this round of the CEPIS e-Competence Benchmark research shows a high degree of interest from professionals in reflecting on their own competences and shows how the e-CF provides an effective basis for this. However, from a statistical point of view, the results need to be tackled with care, as the sample of voluntary respondents who accepted the invitation from the computer society could prove to be biased and not fully representative of the total community of local ICT professionals in Spain.

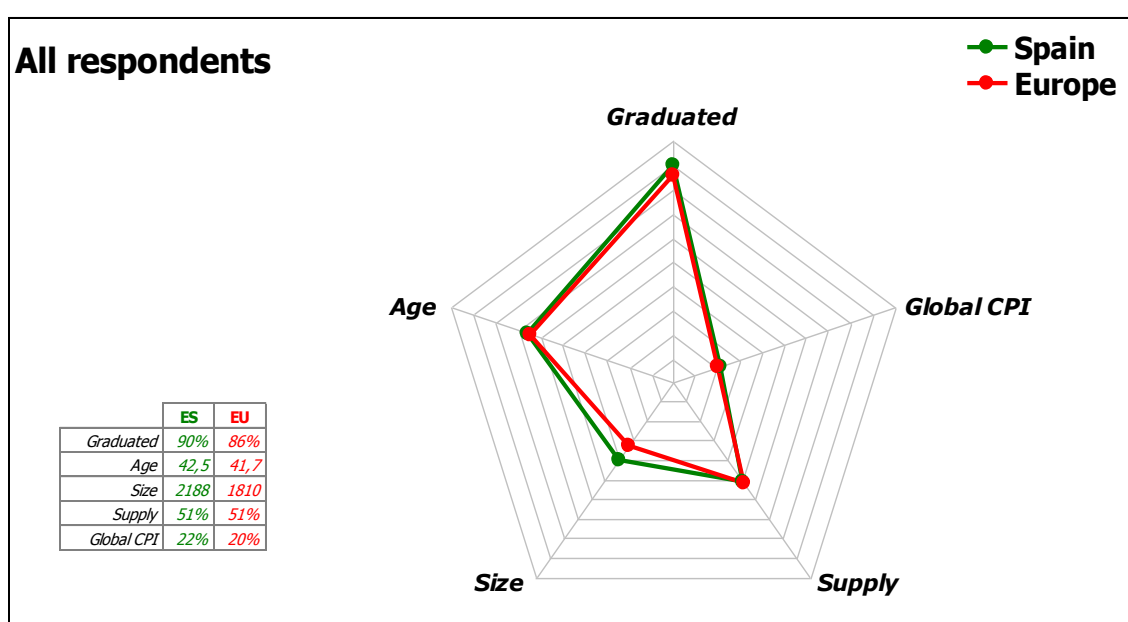
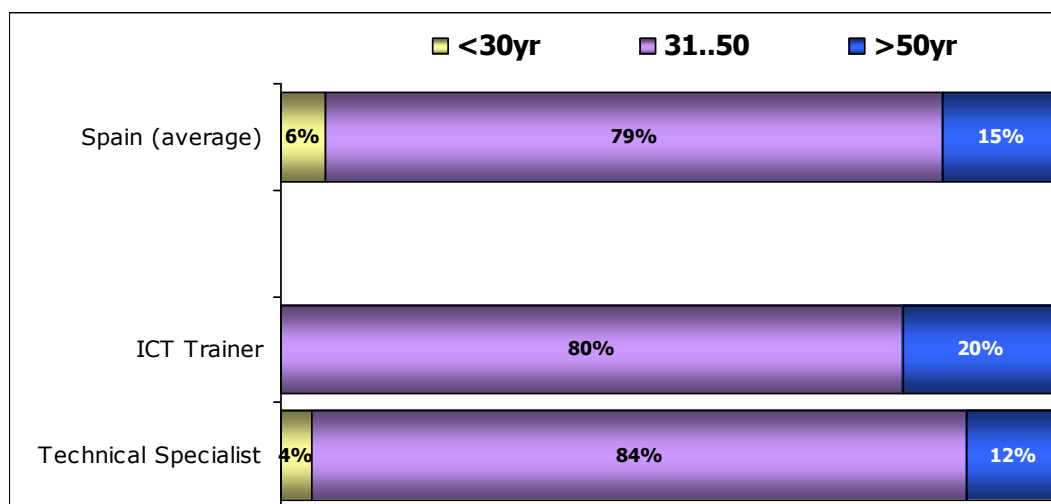


Figure 22 The Spanish Respondents Profile

The average profile of the Spanish respondent ([Figure 22](#)) differs from the European average profile essentially by working more frequently for larger organisations.

The analysis of profile segmentation per profile and by age (see section 6.1.1) shows that the general average age is around 43 years in Spain, while the European average age is 42 years. As in other countries, for Spain there is a need to attract younger people to the ICT profession without losing the experience of the older age group. The two profiles analysed show low rates of ICT professionals under 30 in the sample (6% in total). [Figure 23](#) shows the distribution for each profile of Spanish ICT professionals by age range.



**Figure 23 Profile Distribution by Age Range**

The segmentation of profiles by gender (section 6.1.2) provides evidence that the female representation in Spain is very limited, as indeed it is across Europe. Spain shows the lowest rate (10%) of women across Europe along with Belgium and the Netherlands in this sample. Only 8% of the surveyed Belgian Technical Specialists are women, which is lower than the Europe average (12%). There were no female respondents at all for the ICT Trainer profile in Spain, while at European level the female representation for this profile has the highest rate (25%).

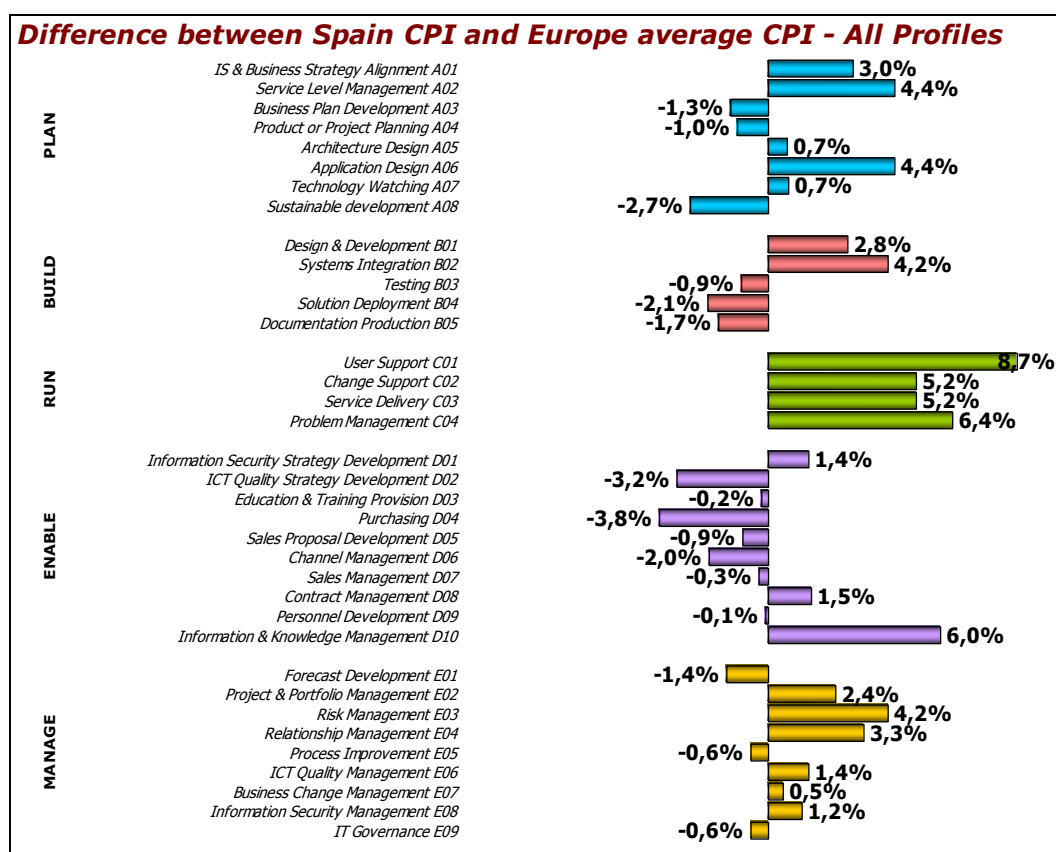
The results of the educational level questions (section 6.1.3 and 6.1.4) suggest that the level of attainment of degrees is slightly better than the European average. With regards to the profile distribution by IT-focused education, there is evidence to suggest a very high level of IT-focused education. In fact, 90% of ICT Trainers and 92% of Technical Specialist have an IT-focused education; this is significantly higher than the European average for these profiles which is respectively 58% and 67%.

Results show that profiles do not show a relevant predominance of the IT supply side (range of distribution between 56% - 60%, section 6.1.5).

For the level of Competence Proficiency Index (section 3.3) of Spanish respondents, it appears that the results compare favourably in four out the five areas at European level: Plan area (25%, +0.8% than the European average), Build area (26%, +1.1%), Manage area (19%, +1.3%), and Run area (36%, +6.4%). As regard the Enable area, Spanish ICT professionals have the same CPI as the rest of Europe (15%).

The following chart ([Figure 24](#)) reveals the difference between the CPI in Spain and the corresponding European average CPI.

In general, Spanish CPIs in this research are higher than the European average, but they do not present significant gaps. The largest variance, lower than the European CPI, appears for Purchasing (-3.8%), ICT Quality Strategy Development (-3.2%), Sustainable Development (-2.7%), and Solution Deployment (-2.1%). On the other hand, Spanish CPIs are higher than the European average for Change Support (+5.2%), Service Delivery (+5.2%), Information & Knowledge Management (+6.0%), Problem Management (+6.4%), and User Support (+8.7%).



**Figure 24 Competence Proficiency Index – Differences to European Average**

Some interesting results arise from the comparison between competences of ICT professionals working in micro/small organisations (1-50 employees) and those working in medium/large organisations (more than 50 employees). [Figure 25](#) shows that ICT professionals working in a micro/small organisations have a general better competence in the Plan, Enable and Manage areas; even if there are some noticeable gaps for Application Design (-18%) and Education & Training Provision (-6%). On the other hand, ICT professionals in micro/small organisations show the worst competences in the Run area.

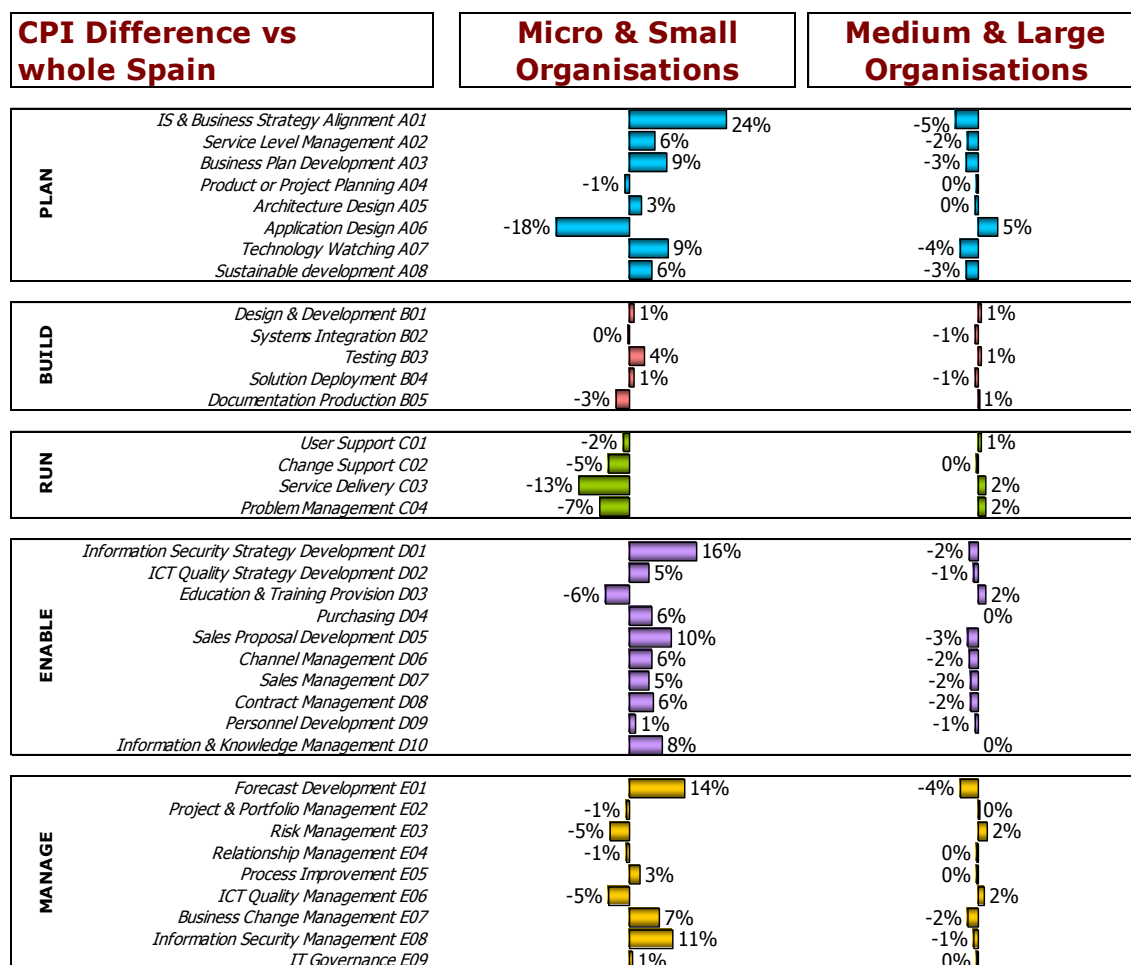


Figure 25 CPI Difference versus whole Spain

A deeper analysis of the Competence Proficiency Indexes compared to each profile requirement is fundamental in order to design detailed training paths to cover the competence gaps for each Proximity Profile of each respondent.

For example, the analysis of the three main competences of the Technical Specialist profile reveals that Spanish Technical Specialists always show a positive competence gap compared to their European colleagues: +7% in Change Support, +16% in Problem Management, and +22% in Service Delivery.

## 9 Annex

### 9.1 Proximity Profiles – Overview

#### 9.1.1 Profile Distribution by Age

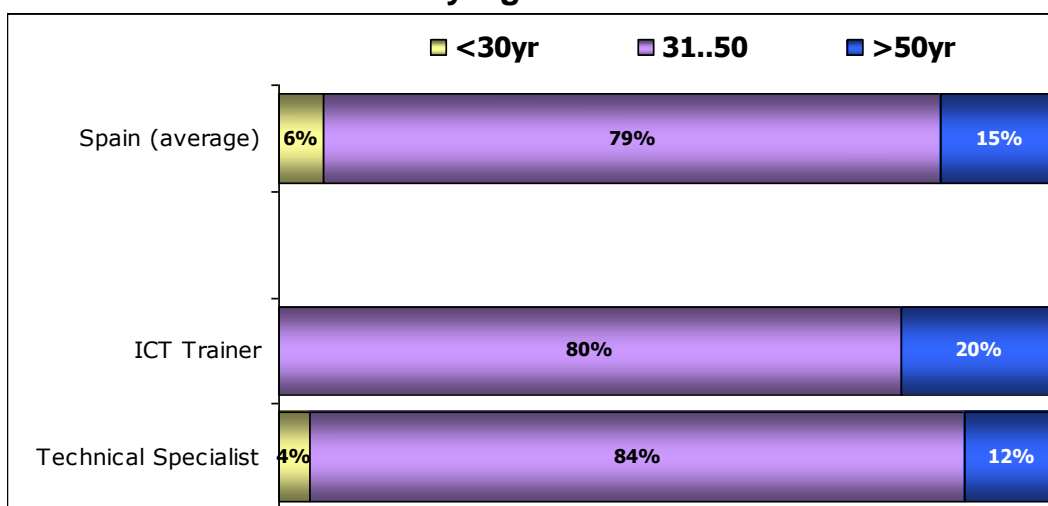


Figure 26 Proximity profile – profile distribution by age

#### 9.1.2 Profile Distribution by Gender

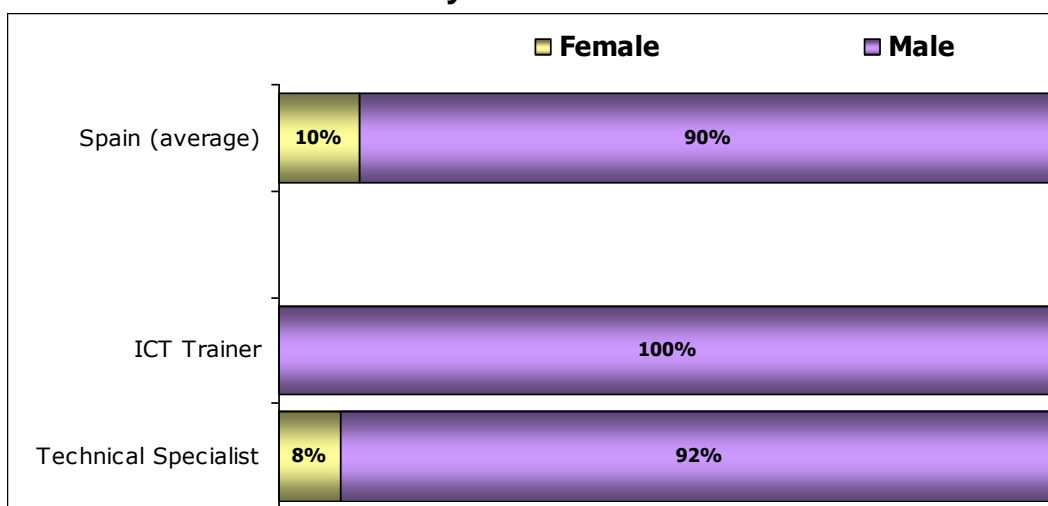


Figure 27 Proximity profile – profile distribution by gender

### 9.1.3 Profile Distribution by Education Level

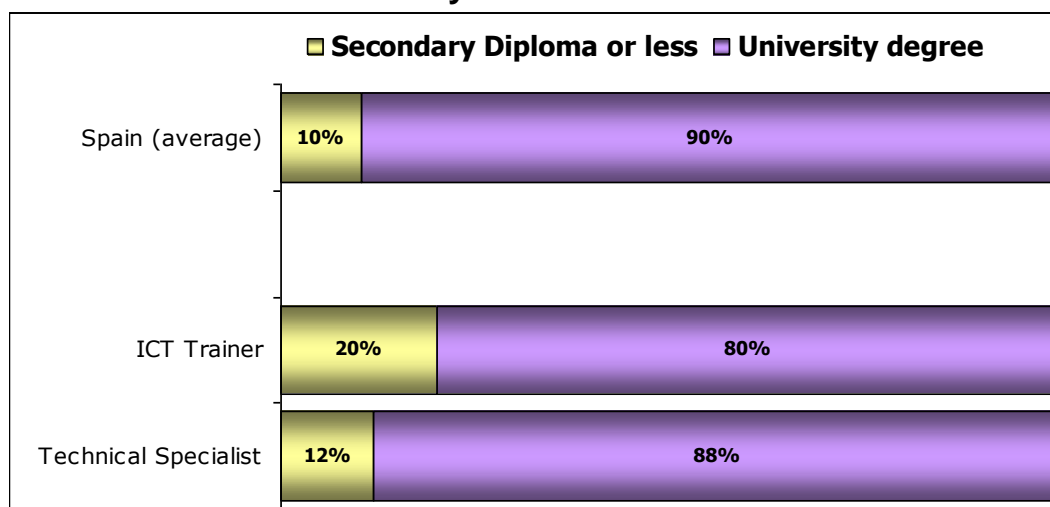


Figure 28 Proximity profile – profile distribution by education level

### 9.1.4 Profile Distribution by IT Education

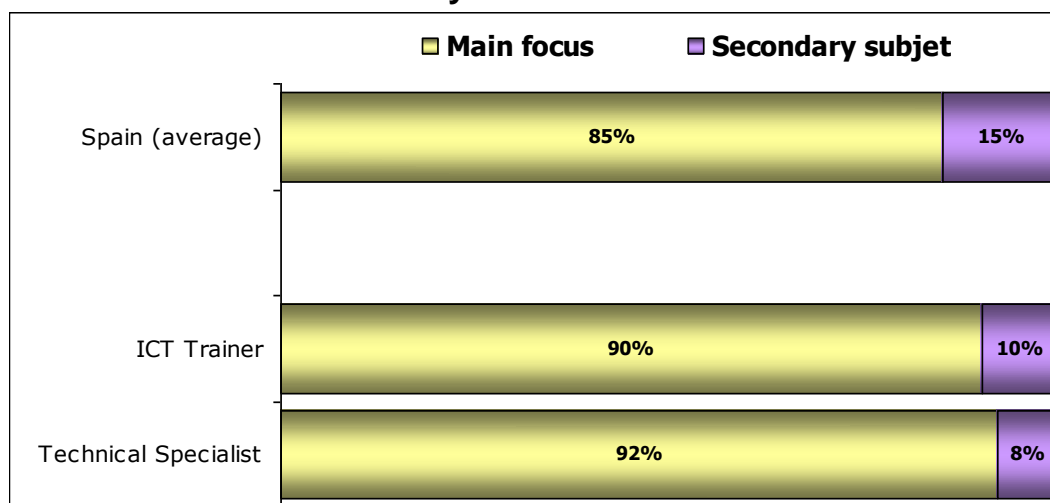


Figure 29 Proximity profile – profile distribution by IT education

### 9.1.5 Profile Distribution by Industry

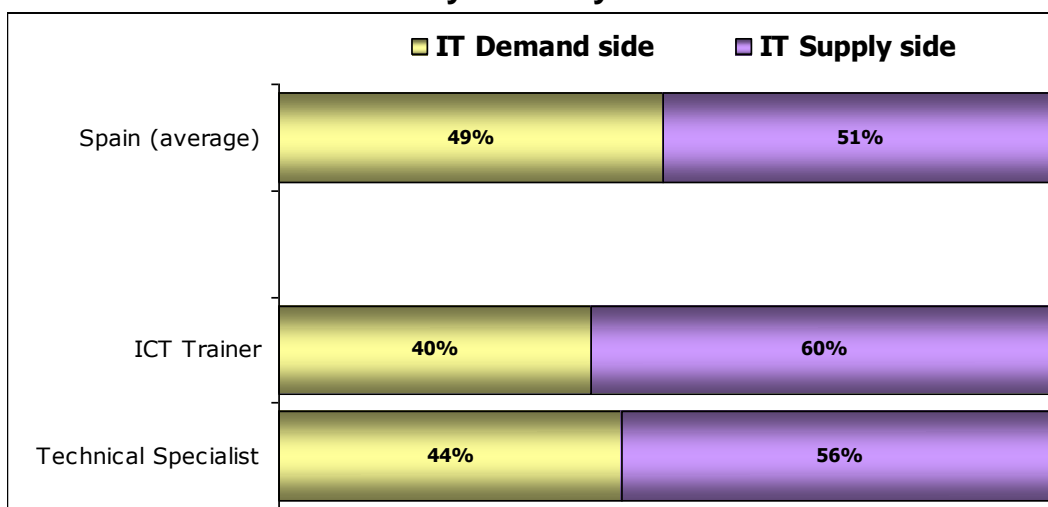


Figure 30 Proximity profile – profile distribution by industry

### 9.1.6 Profile Distribution by Enterprise Size

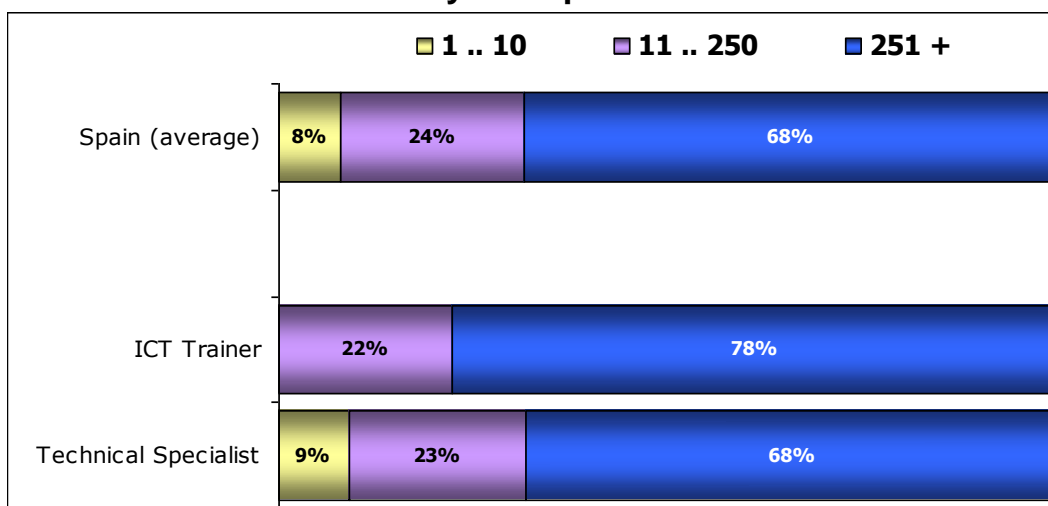


Figure 31 Proximity profile – profile distribution by enterprise size



## 9.1.7 Profile Summary Table

	Europe	Spain	SP2	SR4
			ICT Trainer	Technical Specialist
<b>Cases</b>	<b>1745</b>	<b>87</b>	<b>10</b>	<b>25</b>
<b>Age</b>				
<i>Mean</i>	<b>41,7</b>	<b>42,5</b>	<b>45,0</b>	<b>42,6</b>
<30 yr	16%	6%	4%	4%
30 - 40	29%	31%	20%	28%
40 - 50	33%	48%	60%	56%
50 - 60	18%	13%	20%	12%
61 - ..	5%	2%	-	-
<b>Gender</b>				
Female	15%	10%	-	8%
Male	85%	90%	100%	92%
<b>Education</b>				
Secondary or less	14%	10%	20%	12%
University (Graduate or more)	86%	90%	80%	88%
4th Level (Masters/Phd)	40%	43%	30%	28%
<b>IT Educational</b>				
IT was the main focus of my education	66%	85%	90%	92%
IT was a side subject	23%	13%	0%	8%
IT was not significant in my curriculum	11%	2%	10%	0%
<b>Current professional status</b>				
Full time employee	78%	78%	90%	76%
Part time employee	2%	3%	0%	8%
Self-employed	8%	11%	10%	12%
Student / Unemployed / Retired	11%	7%	0%	4%
<b>Number of employees</b>				
1 - 10	11%	8%	0%	9%
11 - 50	13%	9%	22%	0%
51 - 250	22%	14%	0%	23%
251 - 1000	18%	26%	44%	14%
> 1000	36%	42%	33%	55%
<b>Industry</b>				
Mainly on IT demand side	49%	49%	40%	44%
Mainly on IT supply side	51%	51%	60%	56%
<b>Proximity index</b>	<b>87,0</b>	<b>88,1</b>	<b>88,5</b>	<b>95,0</b>
Min	40	41	75	41
Max	100	100	100	100
<b>Competence index</b>				
<b>A- Plan</b>	<b>24%</b>	<b>25%</b>	<b>34%</b>	<b>25%</b>
<b>B- Build</b>	<b>25%</b>	<b>26%</b>	<b>15%</b>	<b>33%</b>
<b>C- Run</b>	<b>29%</b>	<b>36%</b>	<b>23%</b>	<b>70%</b>
<b>D- Enable</b>	<b>15%</b>	<b>15%</b>	<b>22%</b>	<b>17%</b>
<b>E- Manage</b>	<b>18%</b>	<b>19%</b>	<b>25%</b>	<b>24%</b>
<b>Competence index</b>				
A01 % IS & Business Strategy Alignment	23%	26%	44%	28%
A02 % Service Level Management	20%	24%	34%	27%
A03 % Business Plan Development	18%	17%	30%	9%
A04 % Product or Project Planning	32%	31%	37%	32%
A05 % Architecture Design	31%	32%	39%	37%
A06 % Application Design	29%	33%	33%	40%
A07 % Technology Watching	31%	32%	46%	29%
A08 % Sustainable development	9%	6%	9%	0%
B01 % Design & Development	23%	25%	15%	27%
B02 % Systems Integration	24%	29%	12%	38%
B03 % Testing	22%	21%	8%	27%
B04 % Solution Deployment	25%	23%	15%	35%
B05 % Documentation Production	34%	33%	27%	39%
C01 % User Support	35%	44%	37%	65%
C02 % Change Support	32%	37%	12%	78%
C03 % Service Delivery	21%	27%	10%	69%
C04 % Problem Management	29%	36%	29%	69%
D01 % Information Security Strategy Development	16%	18%	25%	10%
D02 % ICT Quality Strategy Development	18%	15%	9%	14%
D03 % Education & Training Provision	21%	21%	62%	16%
D04 % Purchasing	15%	11%	10%	10%
D05 % Sales Proposal Development	16%	15%	32%	20%
D06 % Channel Management	4%	2%	0%	2%
D07 % Sales Management	5%	5%	6%	12%
D08 % Contract Management	13%	15%	21%	20%
D09 % Personnel Development	22%	22%	49%	20%
D10 % Information & Knowledge Management	20%	26%	23%	33%
E01 % Forecast Development	11%	10%	24%	11%
E02 % Project & Portfolio Management	20%	22%	22%	34%
E03 % Risk Management	16%	20%	19%	28%
E04 % Relationship Management	24%	27%	37%	33%
E05 % Process Improvement	23%	23%	36%	27%
E06 % ICT Quality Management	13%	14%	11%	21%
E07 % Business Change Management	18%	18%	37%	22%
E08 % Information Security Management	14%	15%	7%	18%
E09 % IT Governance	18%	17%	34%	16%

## 9.2 Proximity Profiles – Details

### 9.2.1 ICT Trainer

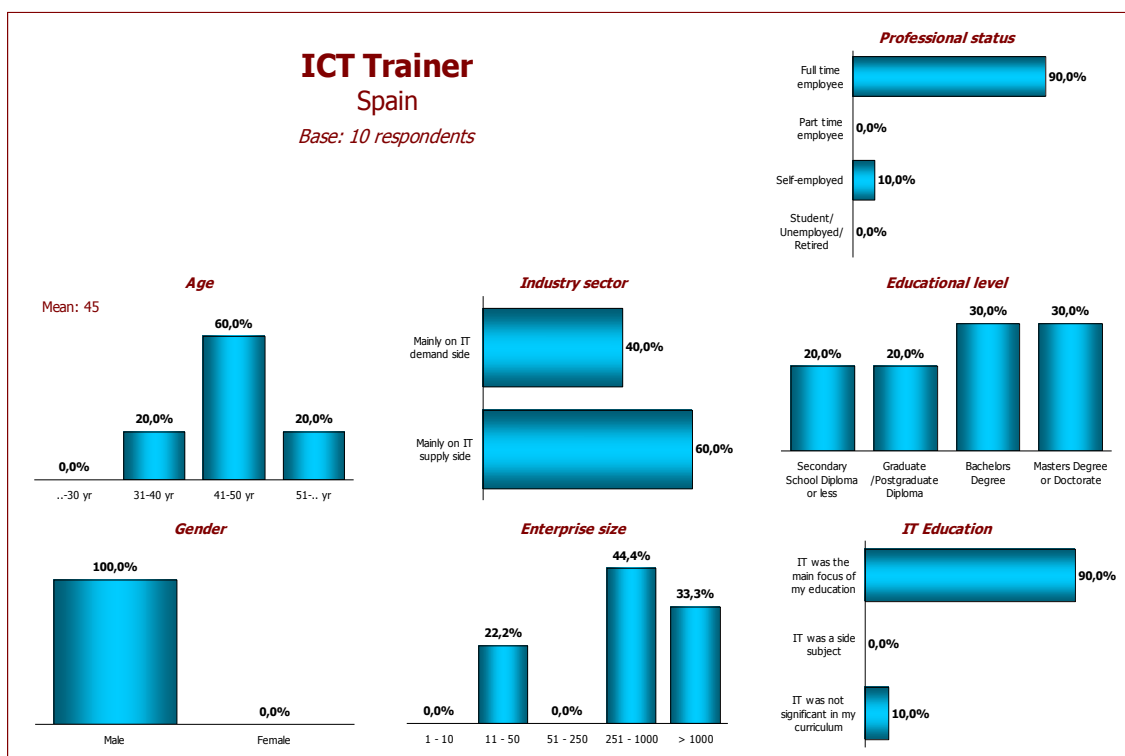


Figure 32 Proximity profile – ICT trainer

### 9.2.2 Technical Specialist

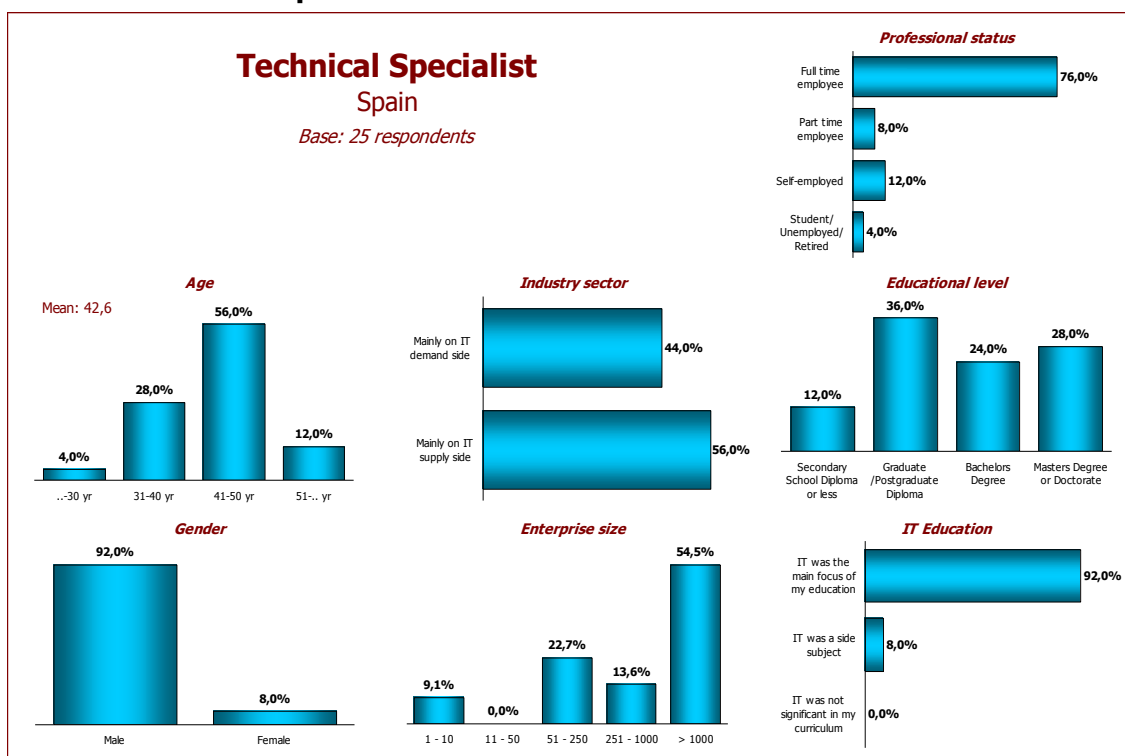


Figure 33 Proximity profile – Technical specialist