cip competitiveness and innovation framework programme 2007–2013

e-Competence in Finland

Analysing Gaps and Mismatches for a Stronger ICT Profession

CEPIS
Council of European Professional Informatics Societies

CEPIS e-COMPETENCE BENCHMARK

Grand Coalition for Digital Jobs

About the Grand Coalition for Digital Jobs

The European Commission is leading a multi-stakeholder partnership to tackle the lack of digital skills in Europe and the thousands of unfilled ICT-related vacancies across all industry sectors.

The Secretariat of the Grand Coalition has been established to support the initiatives of the European Commission's Grand Coalition for Digital Jobs.

This report has been prepared by CEPIS in the framework of the European Commission funded DIGITALJOBS project, which established the Secretariat of the Grand Coalition, and received support from the Competitiveness and Innovation Programme (CIP).

Acknowledgements

This project was made possible by the participation of many hundreds of research respondents. We are particularly grateful for the support and expertise of the CEPIS Member Society in Finland, the Finnish Information Processing Association (TIVIA).

Disclaimer

The outputs described in this report outline the uptake of the European e-Competence Framework (e-CF) powered tool 'CEPIS e-Competence Benchmark' developed by CEPIS.

The CEPIS e-Competence Benchmark has identified the e-competences of over 2,000 ICT professionals from 31 countries across greater Europe. The sample of respondents per profile and per country cannot be considered statistically representative and therefore the survey results analysed in the European report are to be considered as qualitative.

Statement of Originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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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 WP4 – Certification. The main objective of WP4 – Certification is to strengthen ICT professionalism, by promoting the e-CF in Europe.

This deliverable relates to WP4.3 which aims to:

- Accelerate the adoption of the e-CF through the CEPIS e-Competence Benchmark Tool,
- Allow ICT professionals/aspiring professionals 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 uptake of the e-CF at the 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 basic for policy recommendations on future actions to support the ongoing development of the ICT profession.

3 Introduction

This report provides the Finnish 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)[1]. 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 profession 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 the Finnish Information Processing Association (TIVIA) who led the project in Finland and provided expert perspectives on the national ICT landscape.

[1] 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:[2]

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[3]

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 1.1 – 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 to indicate their corresponding level of experience. Additional information, such as

[2] For more information on the professional profiles : ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA%2016458.pdf
[3] 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.

examples of the knowledge and skills associated with that competence, is also available to assist the respondent in choosing an appropriate level.

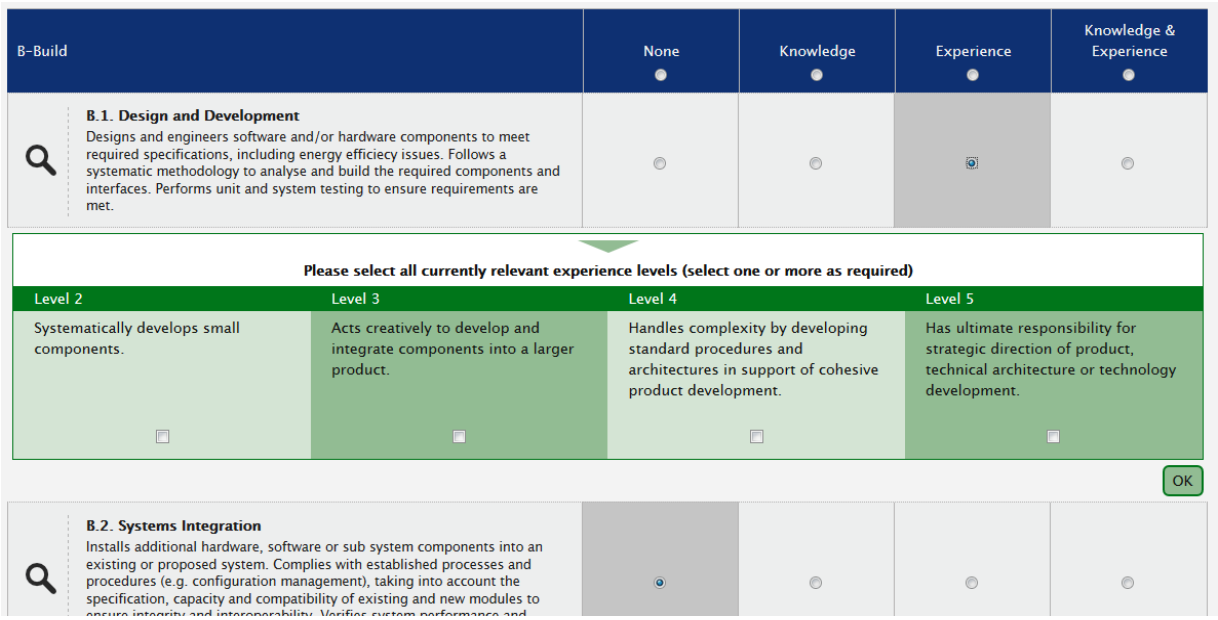


Figure 1.2 – Example of Competence Level and Experience Level

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 1.3. 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 1.4). A high proximity index indicates that the respondent has the necessary competences for this role.

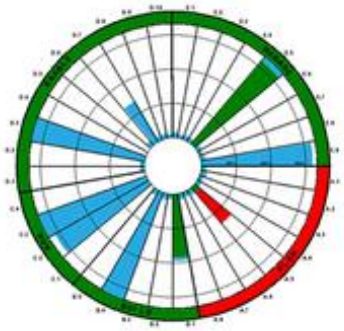


Figure 1.2 – Personal Results: the 'Radar'

Figure 1.3 – 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[4] 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 countries which, although in varying degrees, have proved to be the major contributors.

[4] Assessments which show the same proximity score for more than one profile are counted as many times as the same score appears.

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.

The following section provides an overview of the demographic of Finnish respondents. Thanks to the Finnish Information Processing Association (TIVIA) 356 respondents were assessed using the CEPIS e-Competence Benchmark, which resulted in 12 professional profiles qualifying for analysis.

5.1 Respondents by Age

The Finnish respondents represented a range of age groups as highlighted in Figure 2.1[5]. The average age of respondents in Finland is around 41 years, which is one year younger than the European average. While the percentages of the under 30 and over 50 segments are lower than the European average, and the 40-50 segment is equal to the European average; the 30-40 segment clearly shows a higher percentage than the European average. Regarding the average age of analysed profiles, the Business Analyst profile is the oldest (44 years old), while the Systems Administrator is the youngest profile (37 years old).

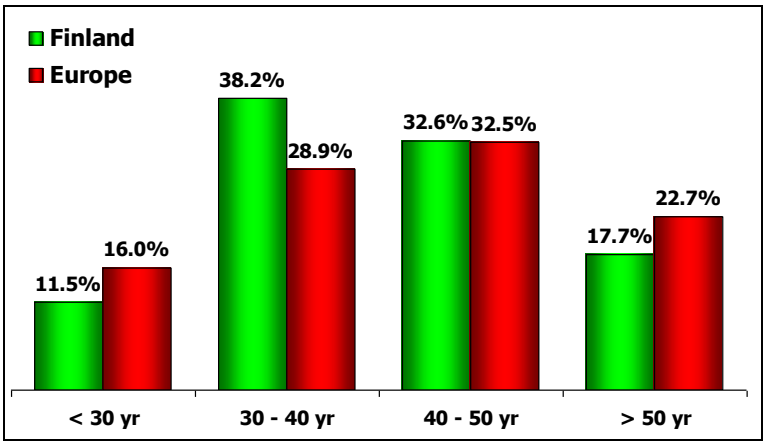


Figure 2.1 – Respondents Distribution by Age

5.2 Respondents by Gender

The gender results show that there is still a large degree of gender imbalance in ICT. Figure 2.2 shows that Finland is currently in line with the rest of Europe in this regard in the sample: women in Finland represent 16% of ICT professionals, while the European average is 15%. However, the share of women in the Finnish ICT

[5] 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', '41-40 yr', and '>50 yr'.

profession has decreased compared with the 24% rate found in the CEPIS research carried out in 2011[6].

A higher representation of female ICT professionals is found among ICT Trainers (28%), Project Managers (27%), and Digital Media Specialists (20%). Only a few female ICT professionals were found among Systems Architects (7%), Systems Analysts (6%), and Network Specialists (6%), and none among Test Specialists.

In spite of this, the Finnish Information Processing Association reports that recent years have seen an increase in the percentage of women joining the profession, and currently women represent 25% of membership the professional body. An upcoming event on software testing boasts almost 50/50 split in male and female participants, providing positive indicating of interest and inflow into the profile.

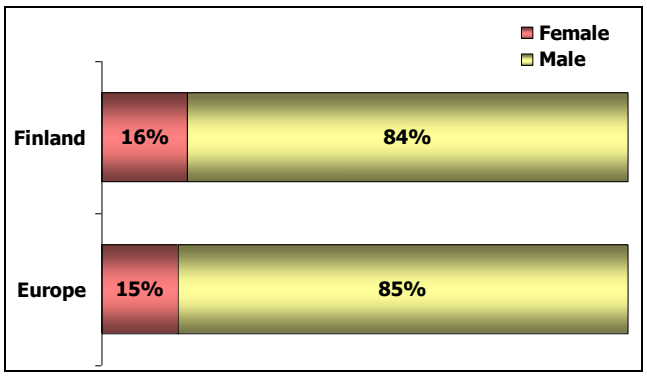


Figure 2.2 – Respondents Distribution by Gender

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 Finland (78%) have at least a degree level qualification, showing the importance of third level qualifications in gaining employment in this sector. However, the Finnish average of 78% is quite low comparing with European countries which average at 86% in this sample. Over a third of Finnish ICT professionals (35%) obtained a fourth level qualification (master's degree or PhD), which is close to the European average rate of 40%.

[6] See 'CEPIS Survey of Professional e-Competence in Europe - Finland Report', available at: http://www.cepis.org/media/CEPISProfessionaleCompetenceSurvey_FinlandReport1.pdf

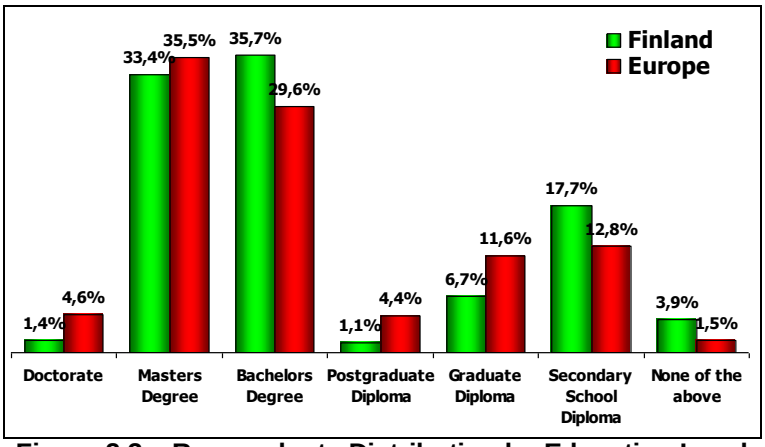


Figure 2.3 – Respondents Distribution by Education Level

There are three ICT profiles for which the level of education is substantially higher than the general Finnish average: Business Analyst (85% graduated), ICT Trainer (85%), and Project Manager (83%). This rate is lower among Developers (69%), Test Specialists (64%), Systems Analysts, Network Specialists and Technical Specialists (71% each). It is worth mentioning that Business Analyst (54%) and Project Manager (53%) show a high rate of master's/PhD degrees, while Network Specialist and Technical Specialist show a rate almost half the average of Finnish ICT professionals (35%).

5.4 Respondents by Educational Field

The wide spread of educational backgrounds of ICT practitioners points to the fact that the ICT profession is both attractive and accessible to graduates from different faculties. However, two out of three respondents have an IT-focused background. This means that one third of Finnish and European professionals have an education in which IT was only a side subject or not significant in their studies.

All Finnish profiles show a predominance of IT-focused education in the sample, in particular Systems Architect (86%), Digital Media Specialist (85%), Database Administrator (79%), and Systems Administrator (79%). There are also other profiles with a lower rate of IT-focused education. For instance, only 62% Business Analysts and ICT Trainers, and only 53% Project Managers have an IT-focused education.

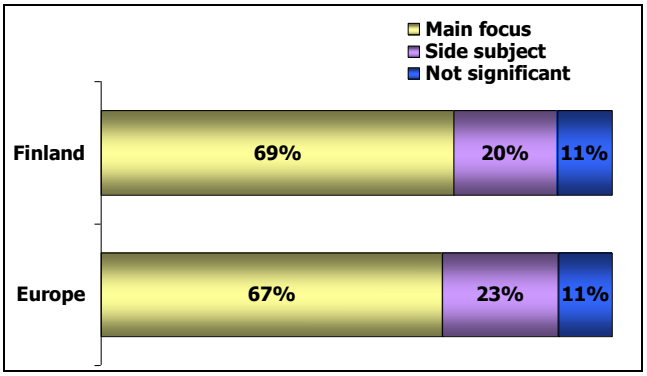


Figure 2.4 – Respondents Distribution by Educational Field

5.5 Respondents by Industry Sector

Finland has a lower number of respondents coming from the IT demand side (44%) compared to the European average (49%). Test Specialist is the only profile that focuses mainly on the IT demand side (64% demand and 36% supply side).

In particular, Finnish data shows that there are four profiles that are strongly focused on the IT supply side with a higher rate than the European average: Network Specialist (with a 94% rate, while at European level it stands at 63%), Systems Analysts (82% vs. an European average of 55%), Digital Media Specialists (80%, higher than the European average for this profile with 61%), and Developers (67% while at European level it is 57%).

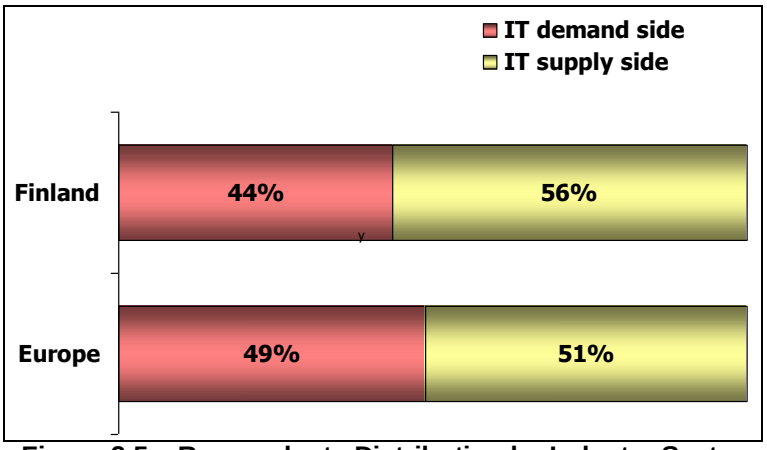


Figure 2.5 – Respondents Distribution by Industry Sector

5.6 Respondents by Enterprise Size

The distribution of respondents by organization size shows a preference for larger enterprises in the sample. The rate of respondents in micro or small enterprises is 23% while 41% work in larger companies. The European average shows a similar situation: 24% of respondents work in micro/small enterprises and 36% work in large organisations with more than 1,000 employees.

A number of profiles are more prevalent in large organisations (+1,000 employees), these include: Database Administrator (63%), Digital Media Specialist (60%), Project Manager (54%), and Developer (51%). On the other hand, Systems Architects (44%) and Test Specialists (50%) are more commonly found in the micro/small organisations.

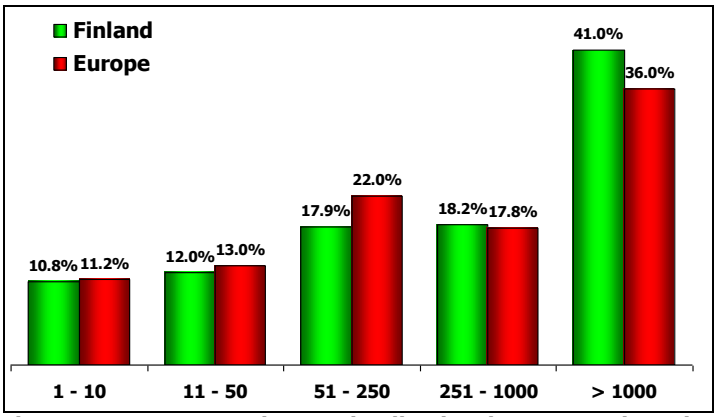


Figure 2.6 – Respondents Distribution by Enterprise Size

5.7 Respondents by Professional Status

The large majority of Finnish respondents hold full-time positions[7] (85%), which is higher than the European average of 78%. However, there are noticeable discrepancies among some ICT profiles. For example, 18% of Finnish Developers are students or unemployed. Moreover, there is a much higher rate of full-time employees among Test Specialists (93%), Database Administrators (95%), and Digital Media Specialists (100%).

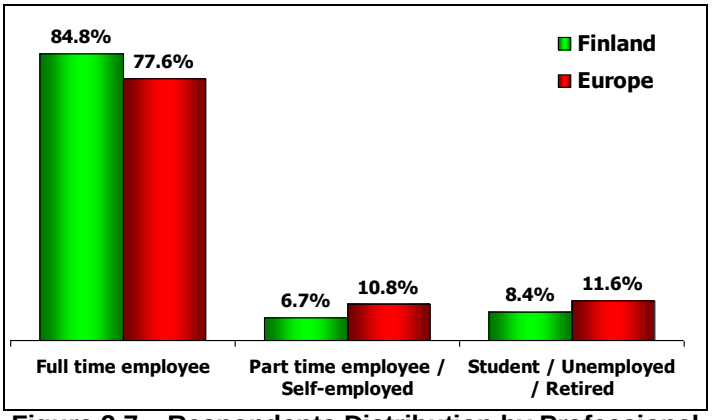


Figure 2.7 – Respondents Distribution by Professional Status

5.8 Respondents by Declared ICT Profile

Figure 2.8 shows the distribution of ICT profiles chosen by the respondents during the 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.

Almost all of the 23 ICT profiles were selected to a certain extent, but twelve profiles were chosen by 3% or less: Business Information Manager, ICT Operations

[7] 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'.

Manager, Business Analyst, Digital Media Specialist, Test Specialist, Account Manager, ICT Trainer, ICT Security Specialist, Database Administrator, Network Specialist, Service Desk Agent, Quality Assurance Manager, and ICT Security Manager. The Database Administrator was not selected by anyone.

Only one of the Finnish self-declared profiles had a noticeable variance compared to the respondent rate of their European colleagues: the Technical Specialist profile was chosen by 13.2% of Finns, but only by 6.9% of European ICT professionals.

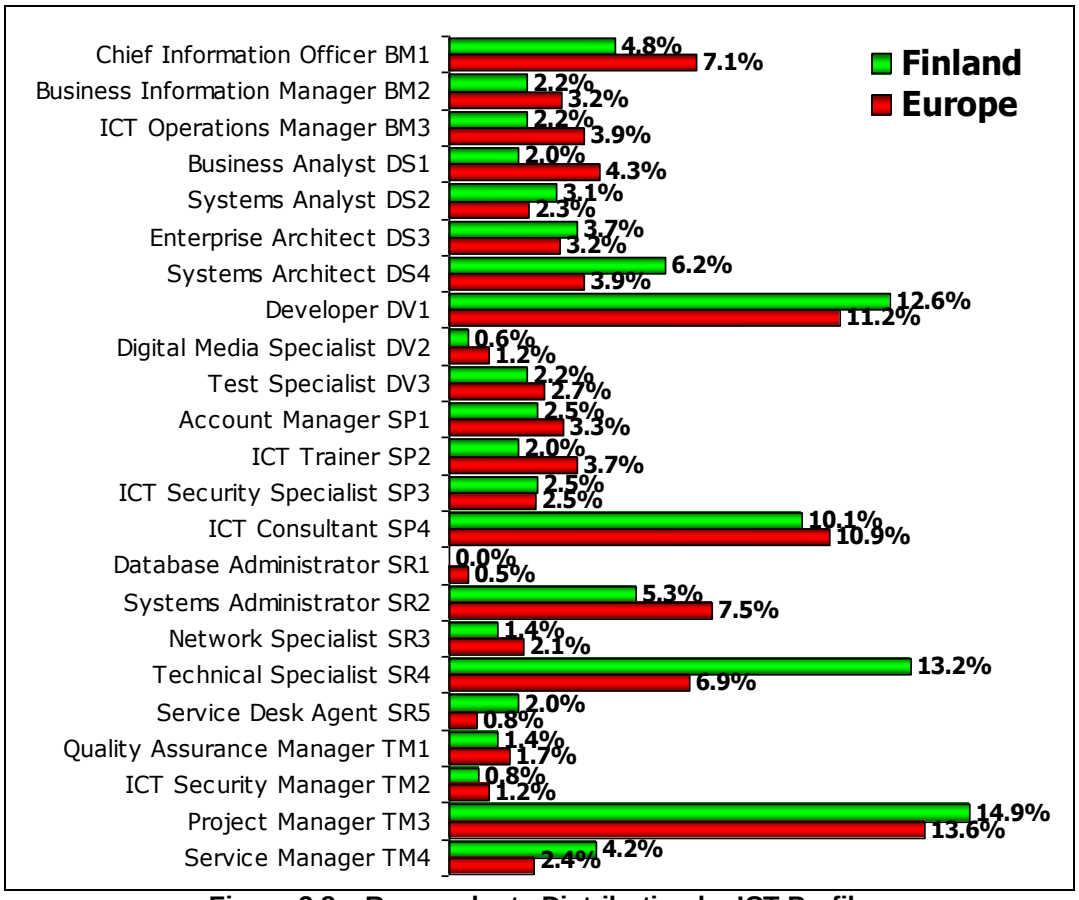


Figure 2.8 – Respondents Distribution by ICT Profile

6 Proximity Profiles and Competences

6.1 Respondents by Proximity Profile

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

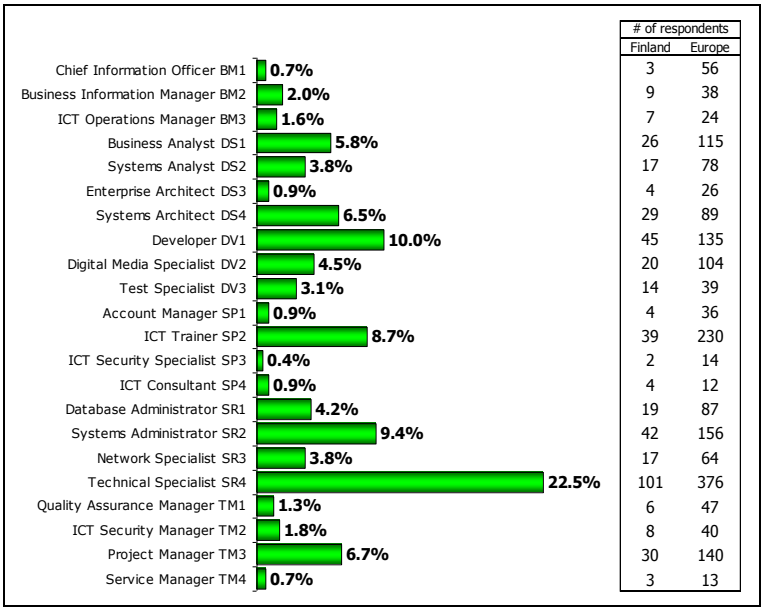


Figure 3.1 – Respondents Distribution by Proximity Profile

A high rate of respondents have competences for the roles of Technical Specialist, Developer, Systems Administrator and ICT Trainer. The Technical Specialist profile shows a high rate of 22.5%, compared with the European average of 19.6%. As regards the Developer role, Finland scores the highest rate in Europe (10%, while for this profile the European average is 7%). The Systems Administrator profile scores a rate (9.4%) that is rather similar to the European average (8.1%). There are remarkable differences between Finland and the rest of Europe in relation to the profiles of Systems Architect (Finland 6.5%, lowest rate, compared with a European average of 4.7%) and Chief Information Officer (0.7% vs. 2.9%).

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 Finland in this sample.

As can be seen from Figure 3.2, only 13% of the Finnish respondents declared themselves as Technical Specialists. However a competence analysis of all Finnish respondents leads to 28% of them having the necessary competences for that role.
This trend, although with a slightly larger gap, is replicated across Europe, where only 7% of European respondents declared to be Technical Specialists, but 23% of practitioners had the required competences for this role.

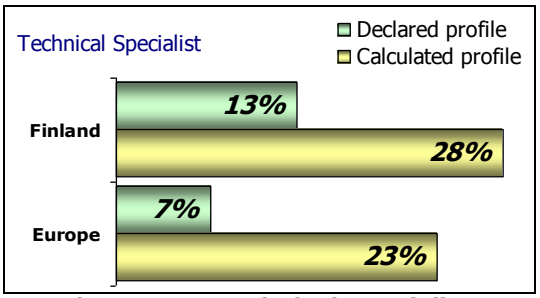


Figure 3.2 – Technical Specialist: Declared and Calculated Profile

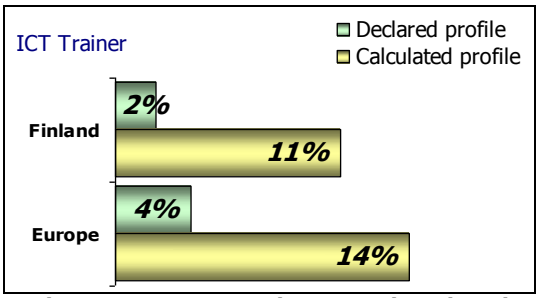


Figure 3.3 – ICT Trainer: Declared and Calculated Profile

In Finland, this difference is also noticeable with ICT Trainers. Only 2% of Finnish respondents in the sample declared this as their profile, but 11% of all respondents in Finland actually hold the necessary competences for this role. This trend is replicated across Europe, as seen in Figure 3.3, where 4% of European respondents declared they were ICT Trainers, but 14% of all practitioners held the required competences.

Again, for the Systems Administrator profile, the results show that only 5% declared the profile, but 12% were seen to have the competences associated with it after their evaluation. As Figure 3.4 reveals, the same situation across Europe, although with a smaller gap: only 8% declare themselves to be Systems Administrators, but 10% of all respondents have the competences for the role.

A different situation emerges for the ICT Consultant profile: 10% of Finnish ICT practitioners declare themselves to be an ICT Consultant, but only 1% have the required competences. The same trend is observed at European level: 11% claim to be ICT Consultants, but only 1% have the appropriate competences (see Figure 3.5).

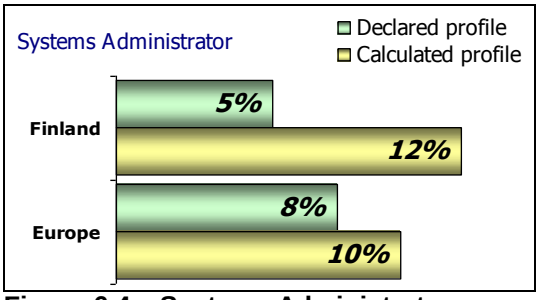


Figure 6.4 – Systems Administrator: Declared and Calculated Profile

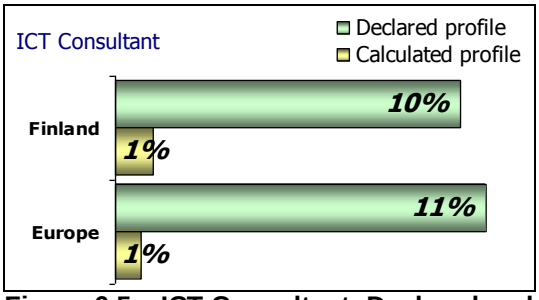


Figure 6.5 – ICT Consultant: Declared and Calculated Profile

The Project Manager profile also shows a variance between the declared and the calculated profile. A substantial rate of Finnish respondents (15%) declared to match this role, but only half (8%) actually have the required competences to perform the role of Project Manager. A similar, if slightly smaller, gap is found at European level. In fact, compared with a self-declaration of 14% of assessments, only 9% of European respondents have the suitable competences for the Project Manager role (see Figure 3.6).

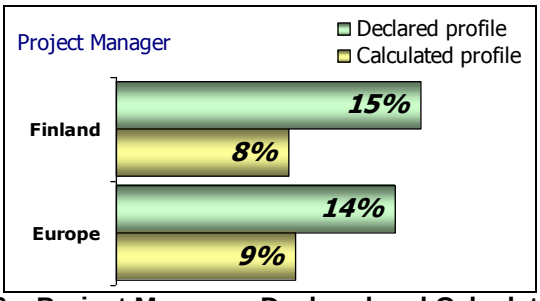


Figure 6.6 – Project Manager: Declared and Calculated Profile

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 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 22% of the declared profiles of Finnish respondents match the calculated profile (the European average is 23%).

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

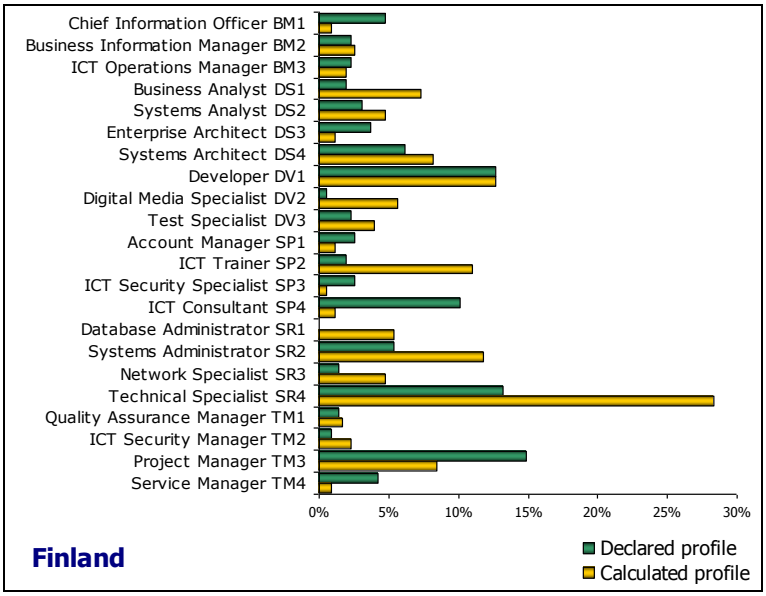


Figure 3.7 – Comparison of Declared Profile and Proximity Profile

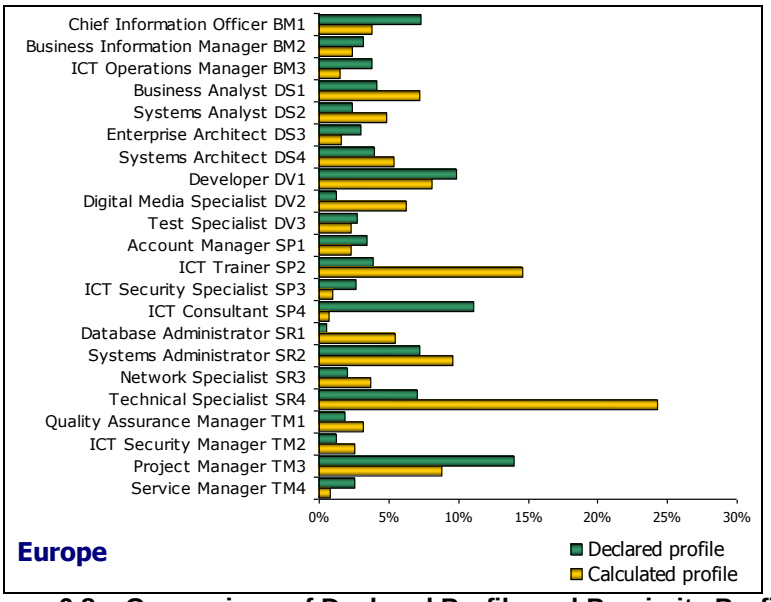


Figure 6.8 – Comparison of Declared Profile and Proximity Profile

6.3 Analysis of Competence Proficiency Index

Figure 3.9 provides a comparison of the Finnish and the European averages of the Competence Proficiency Index (CPI) for the five competence areas: Plan, Build, Run, Enable, and Manage.

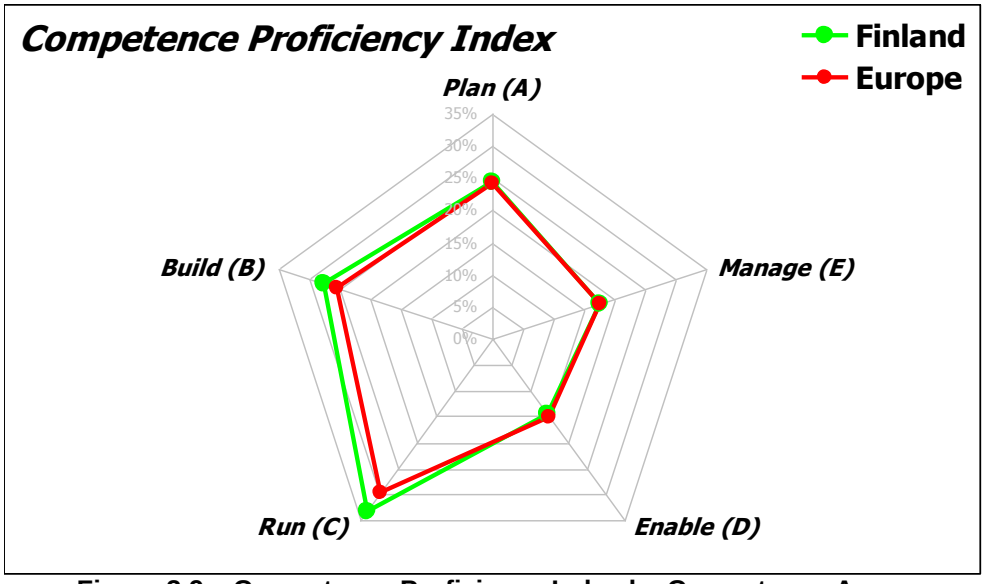


Figure 3.9 – Competence Proficiency Index by Competence Areas

In Finland it appears that the Competence Proficiency Index is slightly higher in this sample than the equivalent for Europe in the Plan, Build and Run areas, and lower for the others. The full value of each CPI is 100%. Other minor differences, compared with the European average, appear in the Run area (32.9% vs. 29.4%) and in the Build area (27.3% vs. 25.1%).

However, it appears that the Enable and Manage Areas are the weakest, both for Finland and Europe. The profile that has the highest CPI in the Plan area is Chief

Information Officer; in the Build area the highest CPI is reached by the Test Specialist, while in the Run area the leading profile is the Technical Specialist. As regards the Enable area, the best score belongs to Chief Information Officer. The Chief Information Officer profile also gains the top score in the Manage area.

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 the Proximity Profiles of each respondent.

The following chart (Figure 3.10) shows the average CPI for all Finnish respondents.

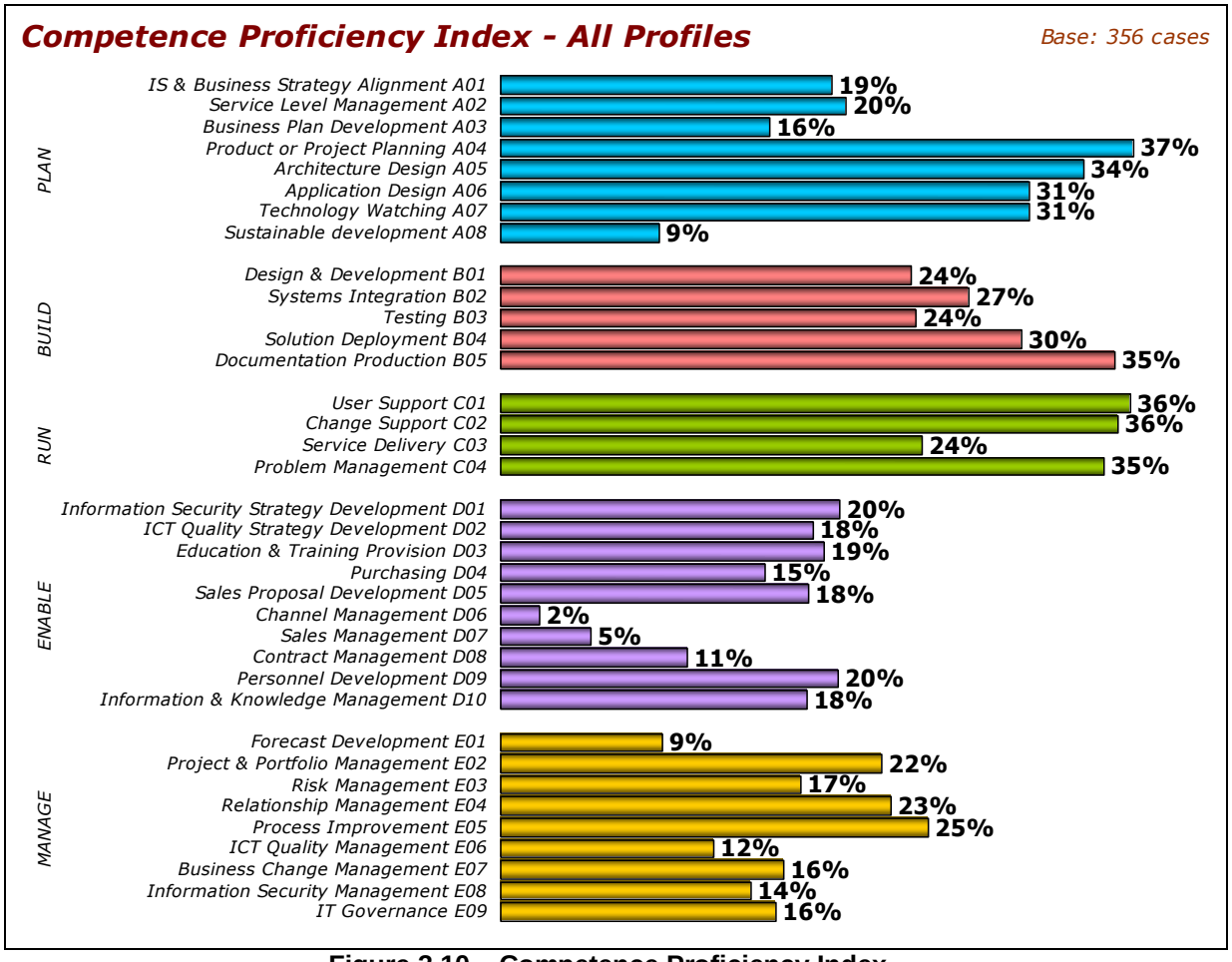


Figure 3.10 – Competence Proficiency Index

7 Profiles Analysis

The answers collected generated 449 Proximity Profiles in relation to 22 ICT professional profiles (Figure 3.1). 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 12 profiles for Finland were selected and analysed:

1. Business Analyst
2. Systems Analyst
3. Systems Architect
4. Developer
5. Digital Media Specialist
6. Test Specialist
7. ICT Trainer
8. Database Administrator
9. Systems Administrator
10. Network Specialist
11. Technical Specialist
12. Project Manager

A deeper analysis of the data for each of these 12 profiles is presented in this chapter.

7.1 Business Analyst

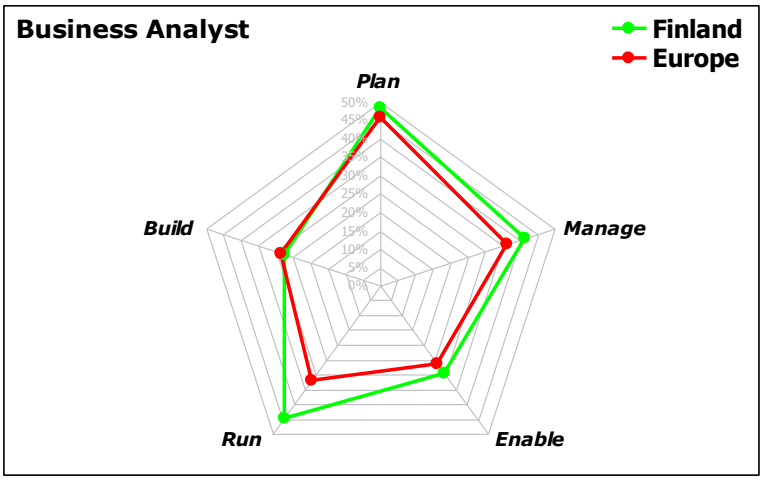


Figure 7.1 – Competence Proficiency Index – Business Analyst

Only 85% of Finnish Business Analysts in the sample have obtained a university degree or higher, compared with the European average of 93%. When it comes to high level education, the difference is less notable: 54% of Finnish Business Analysts have obtained a fourth level qualification (master's degree or PhD), while the

European average is 60%. Business Analyst is the profile showing the highest rate of graduates and fourth level qualification among Finnish ICT professionals.

In Finland 62% of Business Analysts have an IT-focused education; this is lower than the general average of 69% for all Finnish respondents, but it is very close to the 61% average of European Business Analysts.

A large majority of Business Analysts who responded were male (89%), which is slightly higher than the 84% male proportion for all Finnish respondents, but only 1% higher compared to the 87% European average in the role in this sample.

Business Analyst is the oldest ICT professional profile in Finland. The average age is 44 years, about two years older than the average European Business Analyst (42 years old).

Finnish Business Analysts show a higher Competence Proficiency Index than the European average for this profile in four areas. The gap ranges from +12.4 percentage points (Run) to -0.9 (Build). The CPI observed for Finnish Business Analysts and their European equivalent is: 48% vs. 46% in the Plan area; 27% vs. 28% in the Build area; 44% vs. 32% in the Run area; 30% vs. 26% in the Enable Area; and 41% vs. 36% in the Manage area.

Finnish Business Analysts reach their highest CPIs in Process Improvement (77%), IS & Business Strategy Alignment (66%), Product or Project Planning (58%), and Business Plan Development (54%).

In comparison with the European average, the CPI for the Finnish Business Analyst profile shows a higher score especially in Problem Management (+20%), and Change Support (+12%); while Forecast Development (-6%) and Documentation Production (-8%) represent the biggest gaps.

7.2 Systems Analyst

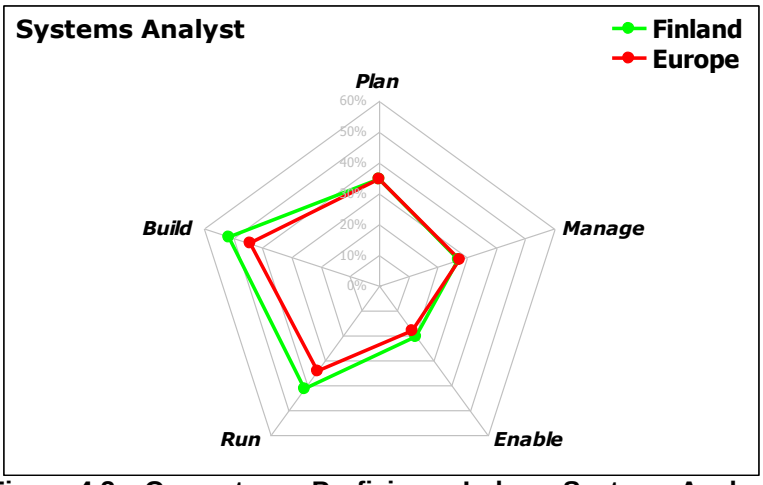


Figure 4.2 – Competence Proficiency Index – Systems Analyst

71% of Finnish Systems Analysts in the sample have obtained a university degree or higher; this is a rate significantly lower than Systems Analysts in the rest of Europe

(86%). However, the rate of fourth level qualification (master's degree or PhD) for Systems Analyst (41%) is higher than the rate among Finnish ICT professionals (35%), and shows a smaller gap compared to the European average of 45%. In Finland, 65% of Systems Analysts have an IT-focused education; this is slightly lower than the average of all Finnish respondents (69%), but in line with the rate of 65% for all Systems Analysts in Europe.

The Systems Analyst is a young ICT professional profile in Finland; the average age is 39, about 1 year younger than the European average, and more than 2 years younger than the average of Finnish respondents.

The majority of the Systems Analysts who responded were male; the rate is higher than the European average (94% vs. 90%) for this profile, and 10% higher than the Finnish average in this sample.

A large majority of Systems Analysts come from the IT supply side (82%), while the European average is 55%.

Finnish Systems Analysts show a better Competence Proficiency Index than the European average for this profile in three of the five areas: Build area 51% vs. 44%, Run area 41% vs. 34%, and Enable area 20% vs. 18%. In the Plan and Manage areas the differences in CPI are very small (less than 1%): Plan 34% vs. 35%, and Manage (both 27%).

The best CPI for Finnish Systems Analysts can be found in Design & Development (68%), Process Improvement (68%), Architecture Design (58%), and Solution Deployment (53%). Comparing these results to the European average, some major differences emerge: the widest gaps can be found for ICT Quality Strategy Development (+14%), Solution Deployment (+14%), Information Security Strategy Development (+13%), and Problem Management (+10%). As regards negative gaps, the major ones are observed for Business Plan Development (-12%) and Forecast Development (-11%).

7.3 Systems Architect

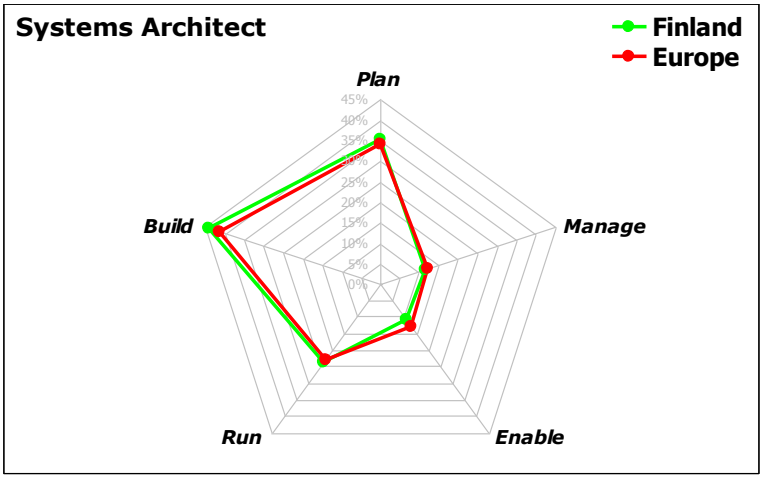


Figure 7.3 – Competence Proficiency Index – Systems Architect

Only 72% of Finnish Systems Architects in the sample have obtained a university degree or higher; this is significantly lower than the 86% of Systems Architects in Europe. Moreover, only 24% of them have obtained a fourth level qualification (master's degree or PhD), which is lower than the European average of 33%. In Finland, only 14% of Systems Architects have an education background where IT was not the main focus; this is much lower than the 21% average of all European Systems Architects and significantly lower than the average domestic rate of 31%.

Finnish Systems Architects are on average 39 years old; they are more than 2 years younger than their European colleagues who are on average 41 years old.

Almost all of the Systems Architects who responded were male (93%); which means that this profile has a higher male presence than the general average for all profiles (84%) but is in line with the European average for this profile in the sample (94%).

Finnish Systems Architects show a better Competence Proficiency Index compared to the European average for this profile in three areas. The most relevant difference, although small, is +2.3% for the Build area (43.7% vs. 41.4%), while the CPI in the other areas shows a smaller gap (Plan area 35.1% vs. 34.2%; Run area 23.5% vs. 22.7%; Enable area 10.6% vs. 12.8%; and Manage area 11.6% vs. 12.1%).

For Finnish Systems Architects, the best CPI can be found in Architecture Design (67%), Technology Watching (65%), Application Design (56%), and Design & Development (53%). Compared to the European average, a Finnish Systems Architect has a better CPI in Solution Deployment (+10%) and Product or Project Planning (+8%), but a worse one in Change Support (-7%).

7.4 Developer

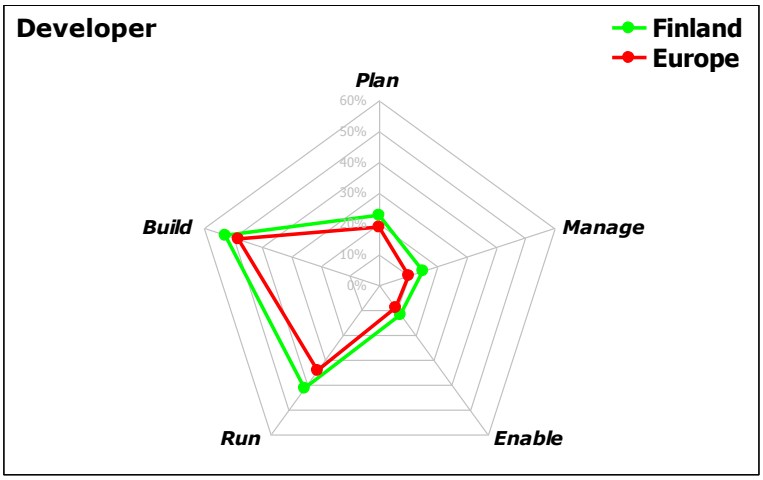


Figure 7.4 – Competence Proficiency Index – Developer

Only 69% of Finnish Developers in the sample have obtained a university degree or higher, which is clearly lower than the 75% European average for this role. The previous research in 2011 found a higher rate: 75% for Finnish Developers and 78% for the European average. However, 40% of Finnish Developers have obtained a

fourth level qualification (master's degree or PhD), which is higher than the European average of 37%, and also higher than the domestic rate (35%). In Finland, 73% of Developers have an IT-focused education, which is in line with the domestic rate (68%), and equal to the Europe average for Developers (73%).

The average Finnish Developer is 39 years old, almost 2 years older than the European average.

The majority of the Developers who responded were male (87%). This figure is in line with the 84% male proportion for all Finnish respondents, but it is higher than the European average (82%) for this profile in the sample.

Finnish Developers show a better Competence Proficiency Index than the European average for this profile in all five areas. Differences range from +3% to +7.2%: Plan area 23% vs. 19%, Build area 53% vs. 48%, Run area 41% vs. 34%, Enable area 12% vs. 9%, and Manage area 15% vs. 10%.

For Finnish Developers, the best CPI can be found in Documentation Production (79%) and Design & Development (55%). Comparing these results with the European average, the widest positive gaps exist for Product or Project Planning (+12%), Architecture Design (+11%), Sales Proposal Development (+11%), and Project & Portfolio Management (11%). There are no negative gaps larger than 1%.

7.5 Digital Media Specialist

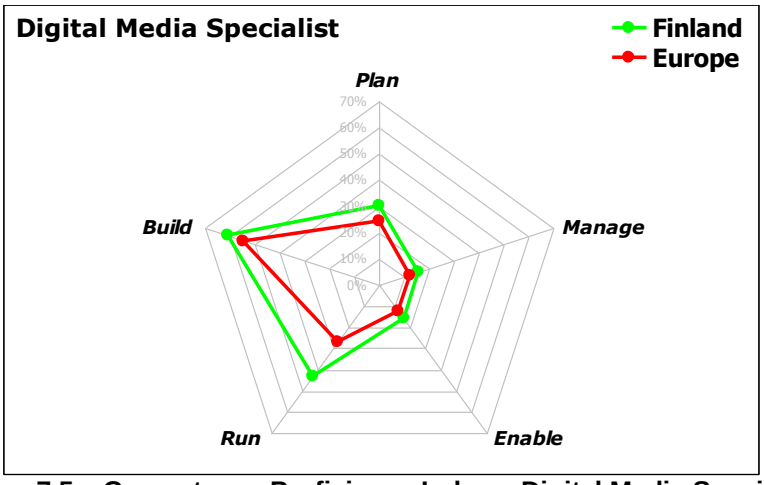


Figure 7.5 – Competence Proficiency Index – Digital Media Specialist

80% of Finnish Digital Media Specialists in the sample have obtained a university degree or higher, a lower rate than the 90% European average. However, 45% of Finnish Digital Media Specialists have obtained a fourth level qualification (master's degree or PhD), which is close to the European average of 43%. In Finland, 85% of Digital Media Specialists have an IT-focused education; this is higher than the national average (69%), but equal to European average for this role (85%).

The average Digital Media Specialist is 38 years old, the second youngest ICT professional in Finland, 3 years younger than the Finnish average, and about 1 year younger than the average age in Europe (39 years old).

Most of the Digital Media Specialists who responded were male (80%). This rate is slightly lower than the 84% male proportion for all Finnish respondents, and even lower than the European average for the profile in this sample (87%).

All Finnish Digital Media Specialists are full-time employees, whereas the European average for this profile is 80%. More than half of them (60%) work in large organisations (+1,000 employees), while this is only the case for 46% of their European colleagues. Only 20% of Finnish Digital Media Specialists come from the demand side of ICT industry, while the European average is 39%.

Finnish Digital Media Specialists show a higher Competence Proficiency Index in all areas, compared to the European average. Differences range from a minimum variance of +3.5% (Manage area: 15.6% vs. 12.1%) to the largest gap of +16.2% (Run: 42.5% vs. 26.3%). Intermediate values are 30% vs. 24% for the Plan area, 61% vs. 54% for the Build area, and 16% vs. 12% for the Enable area.

For Finnish Digital Media Specialists the best CPI can be found in Documentation Production (78%), Application Design (75%), Solution Deployment (73%), and Design & Development (64%). The variance with the European average CPI shows the Finnish Digital Media Specialist in a positive light: major differences are found in Problem Management (+21%), Product or Project Planning (+20%), and Relationship Management (+16%). CPI lower than the European average can be found in Forecast Development (-7%) and Business Plan Development (-6%).

7.6 Test Specialist

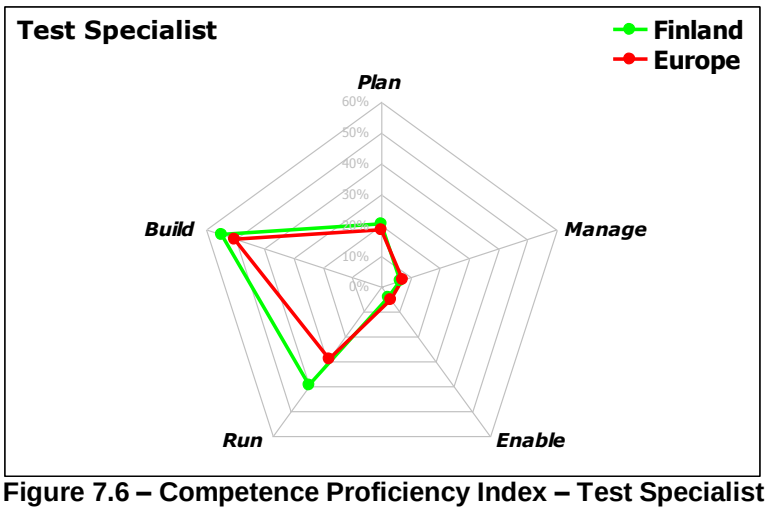


Figure 7.6 – Competence Proficiency Index – Test Specialist

Only 64% of Finnish Test Specialists in the sample have obtained a university degree or higher, which is significantly lower than the European average of 88% for this role. Moreover, 29% of Finnish Test Specialists have obtained a fourth level qualification (master's degree or PhD) which is lower than the European average of 38%. In

Finland, 71% of Test Specialists have an IT-focused education; this is slightly higher than the 68% average of Test Specialists in Europe, and also above the average rate for all profiles in Finland (69%).

The Finnish Test Specialist is 40 years old on average; this is almost in line with the average age of Finnish ICT professionals (41 years old). However, Finnish Test Specialists are 2 years older than their European counterparts who are 38 years old on average.

All Test Specialists who responded were male, while the male proportion for all Finnish respondents in this sample is 89%. This rate is close to the European average for the role (93%).

Finnish Test Specialists show a significantly higher Competence Proficiency Index than the European average for the profile in three of the five areas. The CPI is slightly lower for the Enable area with 4.1% vs. 5.4%, and Manage area with 6.6% vs. 7.4%. For the other areas the results are the following: 20% vs. 18% in the Plan area, 55% vs. 50% in the Build area, and 40% vs. 29% in the Run area.

For Finnish Test Specialists, the best CPIs are in Design & Development (66%), Testing (62%), Application Design (54%), and Solution Deployment (52%).

The best performances compared to the European average CPI are in Change Support (+13%), User Support (+12%), Product or Project Planning (+11%), and ICT Quality Strategy Development (+11%). Some negative differences with the European average arise in ICT Quality Management (-10%) and Forecast Development (-7%).

7.7 ICT Trainer

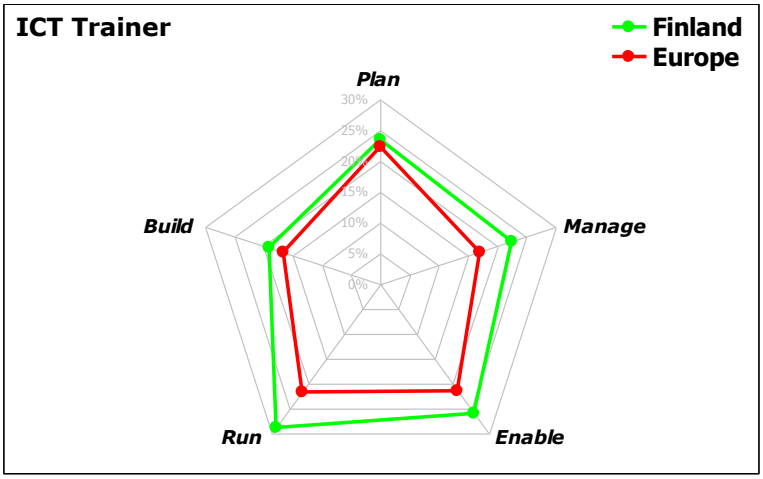


Figure 7.7 – Competence Proficiency Index – ICT Trainer

85% of Finnish ICT Trainers in the sample have obtained a university degree or higher, which is lower than the 91% rate of ICT Trainers in Europe. This profile holds the highest rate of graduates among Finnish ICT professionals. Moreover, 41% of Finnish ICT Trainers have obtained a fourth level qualification (master's degree or PhD) which is clearly lower than the European average of 53%. In Finland, 62% of

ICT Trainers have an IT-focused education; this is lower than general Finnish average (69%), but slightly higher than the average for ICT Trainers in Europe (59%).

ICT Trainer is the second oldest profile in Finland, with an average age of 44 years. This is about one year younger than the European average for European ICT Trainers (45 year old).

The majority of ICT Trainers who responded were male. However this profile shows the highest rate of women among Finnish ICT profiles (28%) and even among European profiles in this sample (25%).

Finnish ICT Trainers show a Competence Proficiency Index than exceeds the European average for this profile in every area: Plan: 23% vs. 22%, Build: 19% vs. 17%, Run: 29% vs. 22%, Enable: 26% vs. 21%, and Manage: 23% vs. 17%.

Regarding the Competence Proficiency Index, Finnish ICT Trainers gain unsurprisingly their best results in Education & Training Provision (64%) and Personnel Development (49%). Comparing the Finnish CPI results to the European average does not reveal remarkable differences: major gaps are seen in Risk Management (+11%) and Service Delivery (+11%). The largest negative difference, although very small, is in Architecture Design (-4%).

7.8 Database Administrator

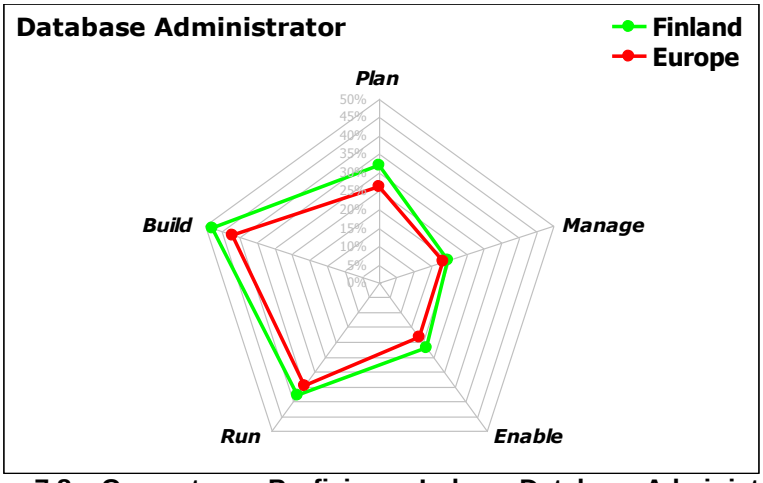


Figure 7.8 – Competence Proficiency Index – Database Administrator

79% of Finnish Database Administrators in the sample have obtained a university degree or higher; a lower rate than the 82% of Database Administrators in Europe. This rate has increased compared with the 64% rate for Finland and the 77% rate for Europe found in the CEPIS research carried out in 2011.[8] National experts point to big data as a base for decision making at the business level underlining the importance of the competences needed to manage such information.

[8] See 'CEPIS Survey of Professional e-Competence in Europe - Finland Report', available at: http://www.cepis.org/media/CEPISProfessionaleCompetenceSurvey_FinlandReport1.pdf

42% of Finnish Database Administrators have obtained a fourth level qualification (master's degree or PhD), which is higher than the European average of 33%. In Finland, 79% of Database Administrators have an IT-focused education; this is in line with the national average (78%), but is slightly lower than the European average (82%).

The average Finnish Database Administrator is 42 years old, 4 years older than the European average (38 years old), and about one year older than the average for ICT professionals in Finland (41 years old).

A large majority of Database Administrators who responded were male (90%); this is exactly the same rate as for their European colleagues, while the male proportion for all Finnish respondents is 84% in this sample.

95% of Database Administrators declared themselves to be in full-time employment, the second highest rate for a Finnish profile. This rate is higher than the average for all Finnish ICT professionals (85%) and significantly higher than the European average of 65%. About two thirds of Database Administrators work in larger organisations (+1,000 employees; 63%), the highest rate in Finland where the average for all respondents results is 41%. The corresponding European average is 39%.

Finnish Database Administrators show a slightly higher Competence Proficiency Index than the European average for this profile in four areas: the Plan area with 32% vs. 26%, the Build area with 47% vs. 42%, 38% in the Run area vs. 34%, and 22% in the Enable area vs. 18%. In the Manage area they obtain a closer index (19%) to their European colleagues (18%).

For Finnish Database Administrators, the best CPIs can be found in Application Design (57%), Systems Integration (55%), Documentation Production (54%), Architecture Design (50%), and Design & Development (48%).

Comparing Finnish Database Administrator results with the European average reveals some major differences: the widest positive gap exists for Sales Proposal Development (+21%) and Documentation Production (+15%). On the negative side, the widest gaps are in Information Security Strategy Development (-7%) and in Forecast Development (-7%).

7.9 Systems Administrator

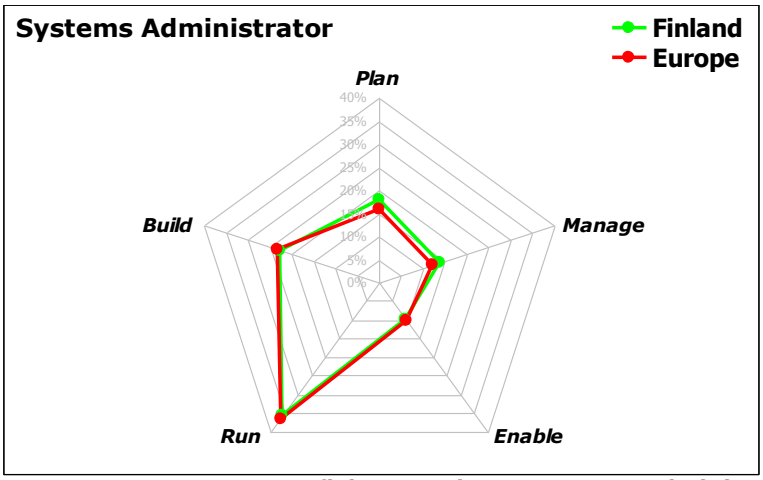


Figure 7.9 – Competence Proficiency Index – Systems Administrator

74% of Finnish Systems Administrators in the sample have obtained a university degree or higher, a lower rate than the 79% of Systems Administrators in Europe. Moreover, 24% of Finnish Systems Administrators have obtained a fourth level qualification (master's degree or PhD), slightly higher than the European average of 23%. In Finland, 79% of Systems Administrators have an IT-focused education; this is significantly higher than the national average (69%), and also higher than the average of their European colleagues (72%).

The average Finnish Systems Administrator is 37 years old on average, the youngest ICT professional in Finland, about 1 year older than the European average for this profile (38 years old).

The majority of Systems Administrators who responded were male (88%); this is slightly above the 84% male proportion for all Finnish respondents, but very close to the European average (87%) for this role in the sample.

Systems Administrator in Finland, as well as in Europe, is the ICT profile which has the lowest proximity rate: 72%. An explanation for this low rate could be that it is more difficult to meet all the required competences for this profile.

In Finland, the Systems Administrators show Competence Proficiency Indexes which are very close to the European average, three areas are below: Build area: 22.6% vs. 23.2%, Run area: 35.7% vs. 36.3%, and Enable area: 9.7% vs. 9.9%. The CPIs in the other two areas are higher than the European average: Plan area with 17.9% vs. 15.8% and Manage area with 13.7% vs. 12%.

For Finnish Systems Administrators, the best CPIs are in User Support (60%), Problem Management (37%), and Systems Integration (30%). The widest gaps appear for Project & Portfolio Management (+8%), Product or Project Planning (+6%), Contract Management (-6%), and Service Delivery (-5%).

7.10 Network Specialist

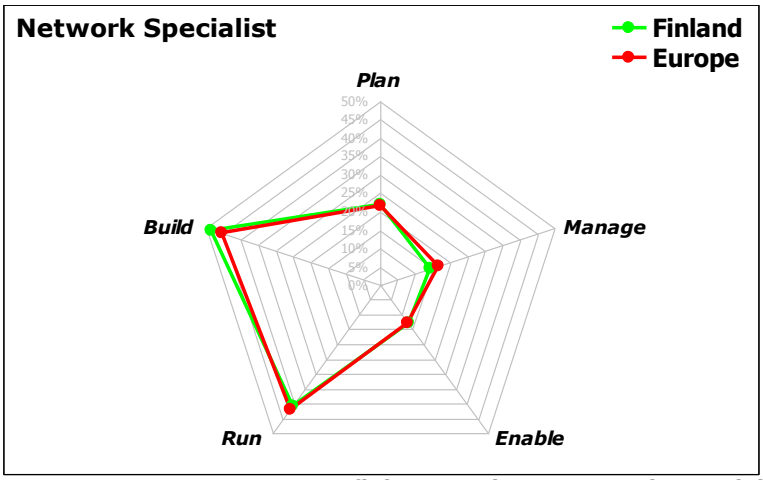


Figure 7.10 – Competence Proficiency Index – Network Specialist

71% of Finnish Network Specialists in the sample have obtained a university degree or higher, lower than Europe average and national average (both 78%) for this role. Moreover, only 18% of Finnish Network Specialists have obtained a fourth level qualification (master's degree or PhD). This is the lowest rate among ICT profiles and also lower compared with the Finnish average (26%) and the European average (21%). In Finland, 77% of the Network Specialists have an IT-focused education; which is higher than the domestic rate (69%), but in line with the average of their European colleagues (76%).

Finnish Network Specialists are on average 41 years old, exactly the same as for ICT professionals in Finland, but 3 years older than the European average for this role (38 years old).

The majority of the Network Specialists who responded were male (94%); while the male proportion for all Finnish respondents is 84%. Finland is in line with the European average for the profile in the sample (93%).

In Finland, a large majority of Network Specialists come from the IT supply side (94%), while the European average is 63%.

Finnish Network Specialists show a better Competence Proficiency Index than the European average in two areas: Plan (22% vs. 21%) and Build (48% vs. 45%). Their CPIs are lower for the Run (40% vs. 42%) and Manage (14% vs. 17%) areas. As regards the Enable area, CPI results are equal to the European average (13%).

For Finnish Network Specialists, the best CPIs are in Solution Deployment (68%), Systems Integration (55%), Architecture Design (49%), and User Support (47%). Comparing Finnish results with the European average reveals noticeable negatives differences in Process Improvement (-10%), Business Plan Development (-9%), Business Change Management (-8%), and Problem Management (-7%). On the positive side, the Finnish CIPs for this profile are higher in Product or Project Planning (+14%) and Testing (+11%).

7.11 Technical Specialist

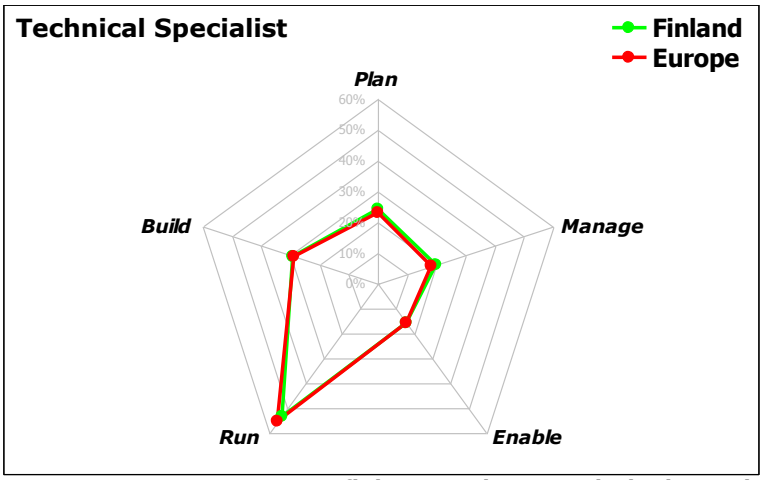


Figure 7.11 – Competence Proficiency Index – Technical Specialist

71% of Finnish Technical Specialists in the sample have obtained a university degree or higher; this is a lower rate than the 79% of Technical Specialists in Europe and also lower than the national average (78%). Only 19% of Finnish Technical Specialists have obtained a fourth level qualification (master's degree or PhD), which is 7% lower than the European average (26%) and is approximately half of the Finnish national average (35%). In Finland, 67% of Technical Specialists have an IT-focused education, a rate very close to the 68% average of their European colleagues, and also to the 69% of all Finnish respondents.

Finnish Technical Specialists are 41 years old on average, about 1 year younger than their European colleagues (42 years old), but on the same average of all ICT professionals in Finland.

A majority of Technical Specialists who responded were male (84%); this is a slightly lower percentage than the proportion of respondents from all Europe (89%) but it is in line with the Finnish average in the sample (84%).

Finnish Technical Specialists show Competence Proficiency Indexes that are quite similar to the European average: they are slightly lower in the Run area (53% vs. 55%) and a bit higher in Plan area (24% vs. 23%) and Manage area (20% vs. 18%). In the remaining areas they are almost equal to the European average: Build area 29% and Enable area 16%.

Regarding the Competence Proficiency Index, Finnish Technical Specialists gain their best results in all the competences of the Run area: Change Support (70%), Problem Management (52%), User Support (49%), and Service Delivery (46%). Compared to the European CPIs, some negative differences appear in User Support (-4%), Purchasing (-3%), and Technology Watching (-3%). The best performance compared to the European average CPI is in Product or Project Planning (+8%).

7.12 Project Manager

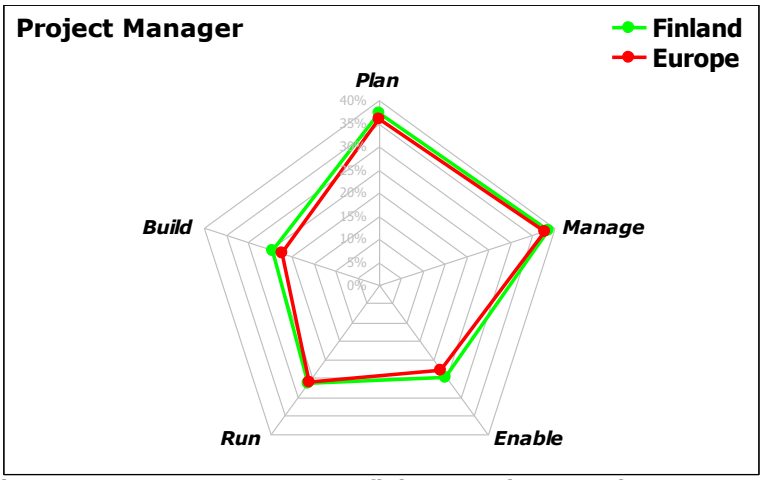


Figure 7.12 – Competence Proficiency Index – Project Manager

A majority (83%) of Finnish Project Managers in the sample have obtained a university degree or higher, a lower rate than the 89% of Project Managers in Europe, but higher than national average (78%). 53% of Finnish Project Managers have obtained a fourth level qualification (master's degree or PhD), which is very close to the European average of 54%. Moreover, this profile shows the second highest rate of graduates among Finnish ICT professionals. In Finland, 53% of Project Managers have an IT- focused education; this is lower than the 69% of all Finnish respondents, but slightly higher compared with the 48% of European Project Managers.

About three out of four of Project Managers who responded were male (73%), which is not far from the 84% male proportion for all Finnish respondents, and is almost equal to the European average (75%). However, Project Manager (as well as ICT Trainer) is one of the profiles showing the highest rate of women, both in Finland and in Europe.

The average Finnish Project Manager is 44 years old, one of the three oldest profiles in Finland in the sample and exactly the same age as the European average age for this profile.

More than half of Finnish Project Managers work in larger organisations (+1,000 employees, 54%), a high rate in Finland, where the average for all respondents results is 41%. The corresponding European average is 41%.

Finnish Project Managers show a better Competence Proficiency Index than the European average for this profile in each of the five areas, although the differences are very small: the Plan area with 37.2% vs. 36%, the Build area with 24.3% vs. 22.1%, the Run area with 26.2% vs. 26%, the Enable area with 24.7% vs. 22.9%, and the Manage area with 38.4% vs. 37.6%.

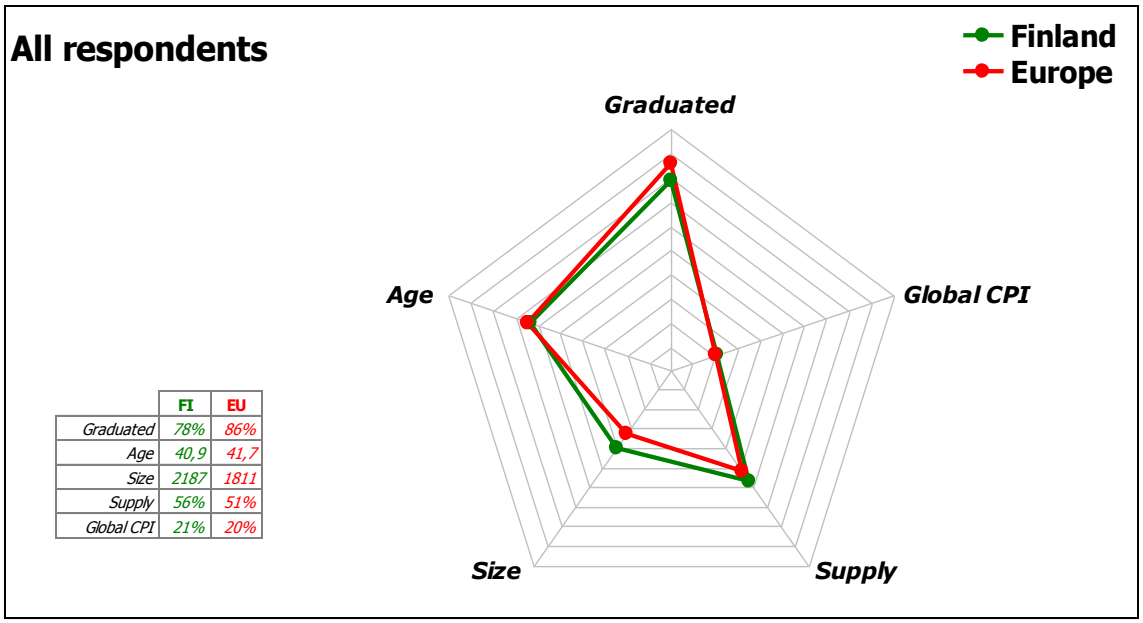
The Project Manager gains the best Competence Proficiency Index in Product or Project Planning (61%), Project & Portfolio Management (57%), Relationship Management (51%), and Risk Management (50%).

The most significant differences in comparison to European colleagues are in Testing (+13%), Personnel Development (+12%), and Service Level Management (+10%). On the negative side, User Support (-7%), Business Change Management (-7%), and Education & Training Provision (-7%) show the most remarkable differences.

8 Conclusions

The following section draws conclusions based on the analysis of 14 profiles that arose from the 356 respondents of Finland.

The data gathered through this phase of the CEPIS e-Competence Benchmark research proves a high level of interest among ICT 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 Finland.



	FI	EU
Graduated	78%	86%
Age	40,9	41,7
Size	2187	1811
Supply	56%	51%
Global CPI	21%	20%

Figure 8.1 – The Finnish Respondents Profile

The average profile of the Finnish respondent (Figure 5.1) differs from the European average profile essentially by working in larger organisations and by being less educated.

The analysis of profile segmentation per profile and by age (see section 6.1.1) shows that the general average age is around 41 years in Finland and therefore very close to the European average age of 42 years. As in other countries, there is a need in Finland to attract younger people to the ICT profession without losing the experience of the older age group. There are a number of profiles with a very low rate of professionals in the under 30 segment in the sample (12%). Figure 5.2 below shows the distribution for each profile of Finnish ICT professionals by age range.

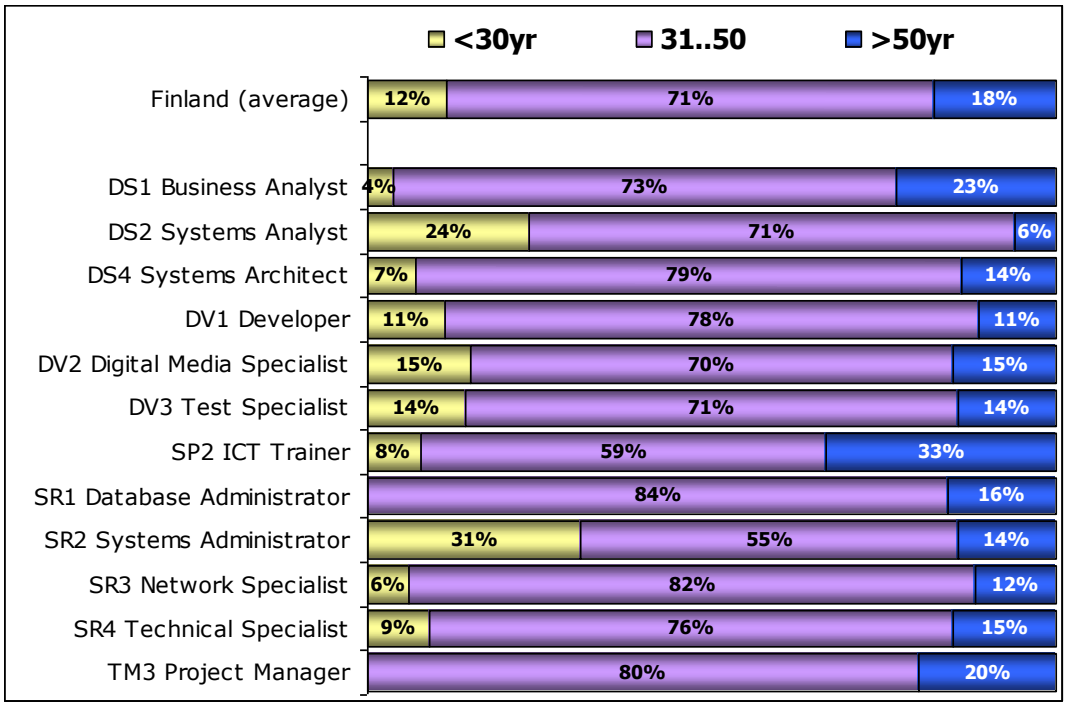


Figure 5.2 – Profile Distribution by Age Range

The segmentation of the profiles by gender (section 6.1.2) provides evidence that female representation in Finland is very limited, as indeed is the case across Europe in the sample. The participation of women is only exceeds 15% in a few profiles (ICT Trainer with 28%, Project Manager with 27%, Digital Media Specialist with 20%, and Technical Specialist with 16%). In one profile, there were no female respondents at all (Test Specialist) yet also at a European level, female representation in this profile is lower than average (7%).

The results of the educational level questions (section 6.1.3 and 6.1.4) suggest that there is a low level of attainment of degrees compared with other countries. For all of the 12 analysed profiles, the Finnish rate is lower than the corresponding European rate, and in four profiles the Finnish rate shows a gap wider than 10%: Test Specialist (-24%), Systems Analyst (-16%), Systems Architect (-14%), and Digital Media Specialist (-10%). Nevertheless, the Business Analyst profiles show the highest rate of graduates and fourth level qualifications among Finnish ICT professionals. National experts belief that a focus on Innovation and Business Solutions which are partly incorporated into new educational programmes may explain this.

With regards to the profile distribution by IT-focused education, there is evidence to suggest a sufficient level of IT-focused education. In fact, for almost all profiles the rate of IT-focused education is higher than 60%, with the only exception of Project Manager (53%).

Results show that apart from the Test Specialist profile, all other profiles work in the IT supply side (section 6.1.5): Network Specialist, Systems Analyst, Digital Media Specialist, Developer, and Project Manager all have a rate of 60% or more. As the majority of companies in Finland are SMEs, this split is likely due to the tendency of

SMEs to buy-in certain competences. The other profiles do not show a relevant predominance of the IT supply side (range of distribution between 55% - 60%).

For the level of Competence Proficiency Index (section 3.3) of Finnish respondents, it appears that the results compare favourably to two of the five areas at European level (Run area: 33% vs. 29% and Build area: 27% vs. 25%). On the other hand, the results show a small gap in the Enable area (14% vs. 15%), and similar CPIs for the Plan (24%) and Manage areas (18%). 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.

The following chart (Figure 5.3) reveals the difference between the CPI in Finland and the corresponding European average CPI.

In general, Finnish CPI in the sample does not show significant gaps compared to the European average. The largest variance, lower than the European CPI, appears for IS & Business Strategy Alignment (-3.5%), Education & Training Provision (-3.1%), Business Plan Development, Contract Management, and Personnel Development (-2.3% each). On the other hand, Finnish CPIs are higher than the European average for Problem Management (+5.5%), Solution Deployment (+5.0%), Product or Project Planning (+4.7%), and Change Support (3.3%).

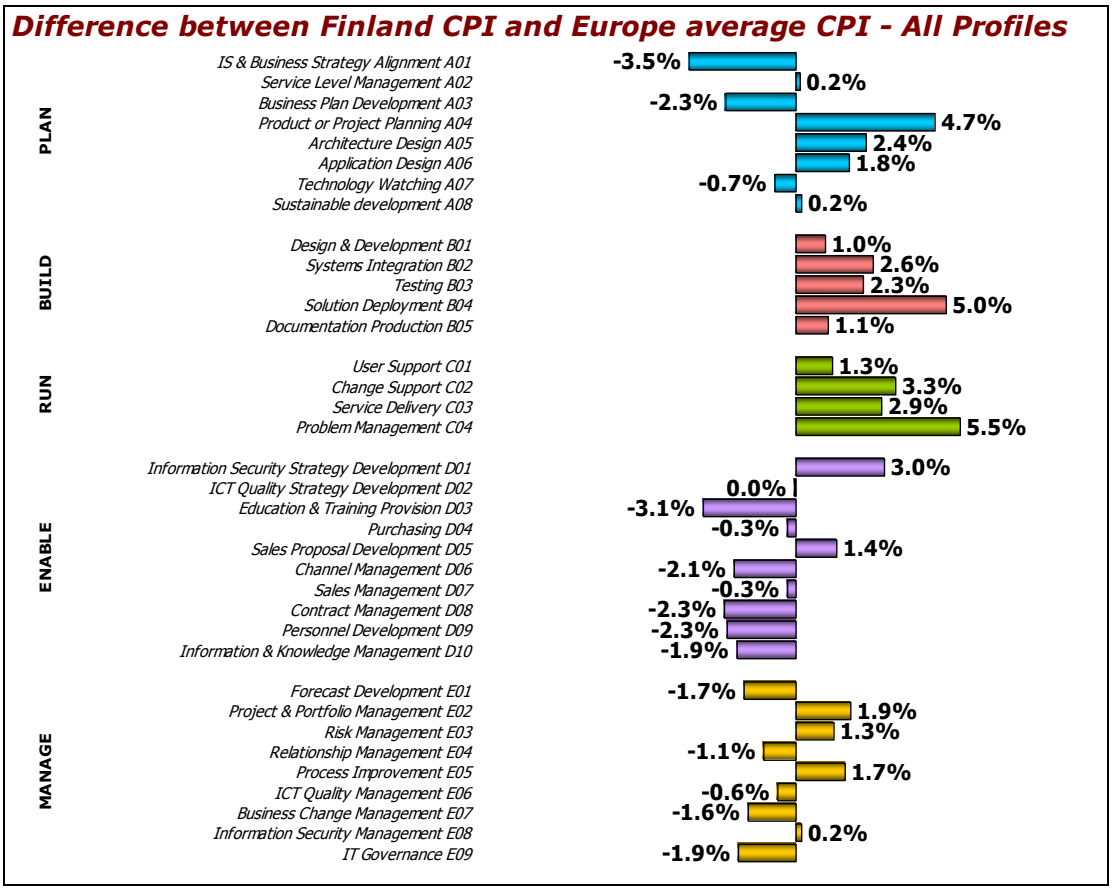


Figure 8.3 – Competence Proficiency Index – Differences to European Average

Some interesting results arise from the comparison between competences among professionals working in micro/small organisations (1-50 employees) and those working in medium/large organisations (more than 50 employees). Figure 5.4 shows a general better competence in micro/small organisations.

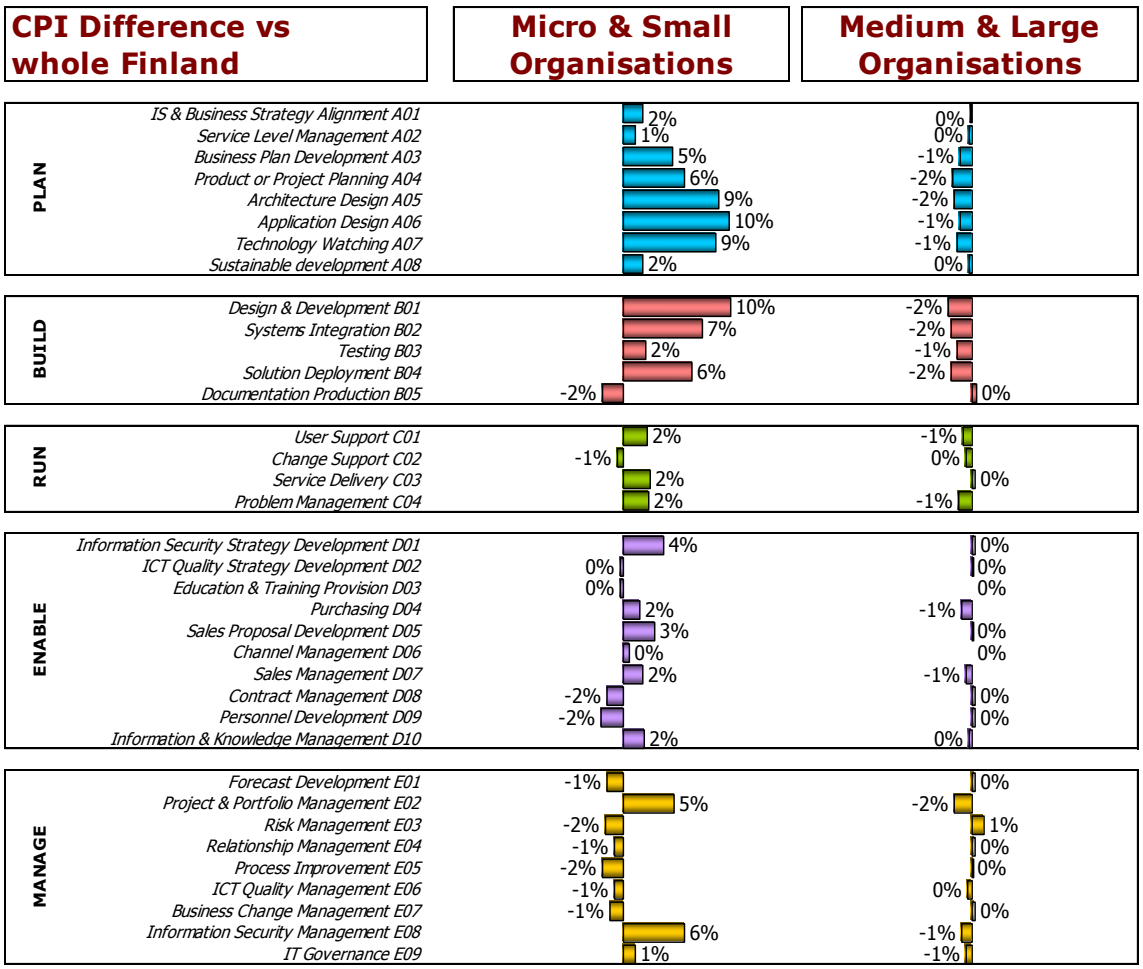


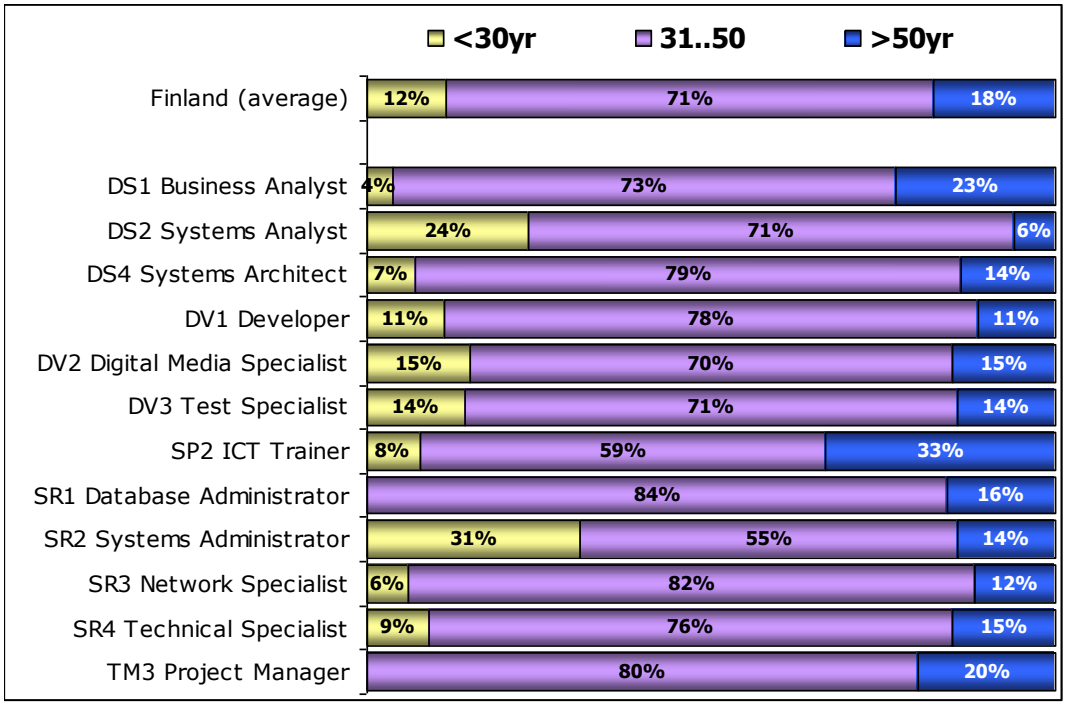
Figure 8.4 – CPI Difference versus whole Finland

For example, the analysis of the main competences of the Developer profile reveals that Finnish Developers always show a CPI equal or higher than their European colleagues: equal as regard the Testing competences and higher in Design & Development (+4%), Systems Integration (+4%), Documentation Production (+5%), and Problem Management (+9%).

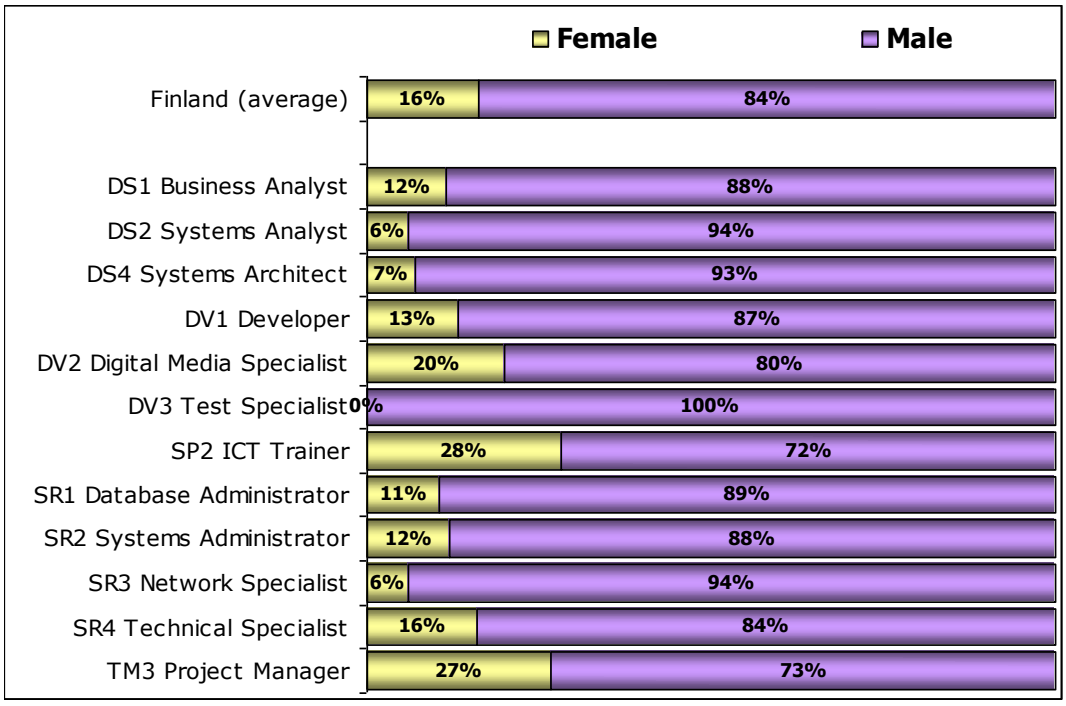
9 Annex

9.1 Proximity Profiles – Overview

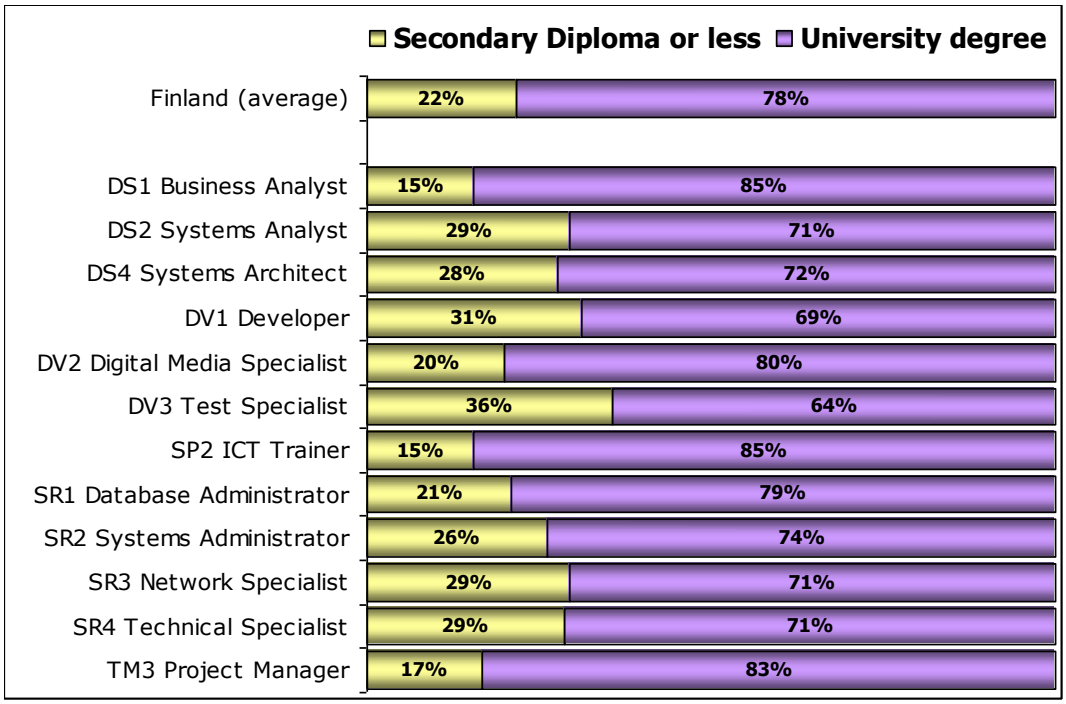
9.1.1 Profile Distribution by Age



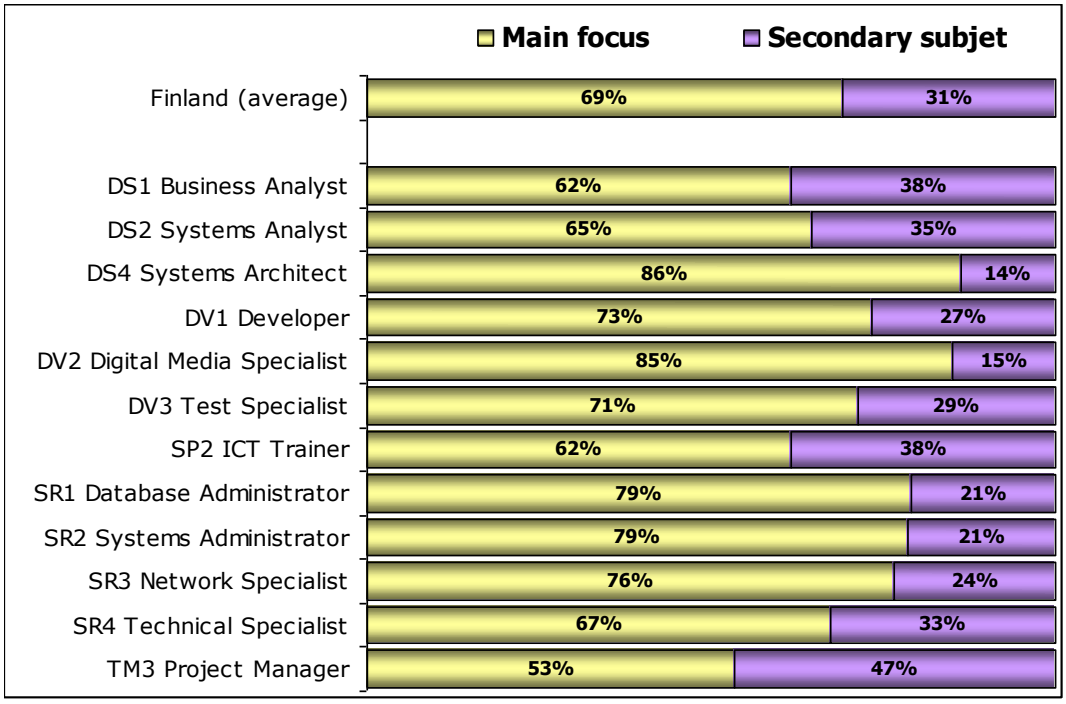
9.1.2 Profile Distribution by Gender



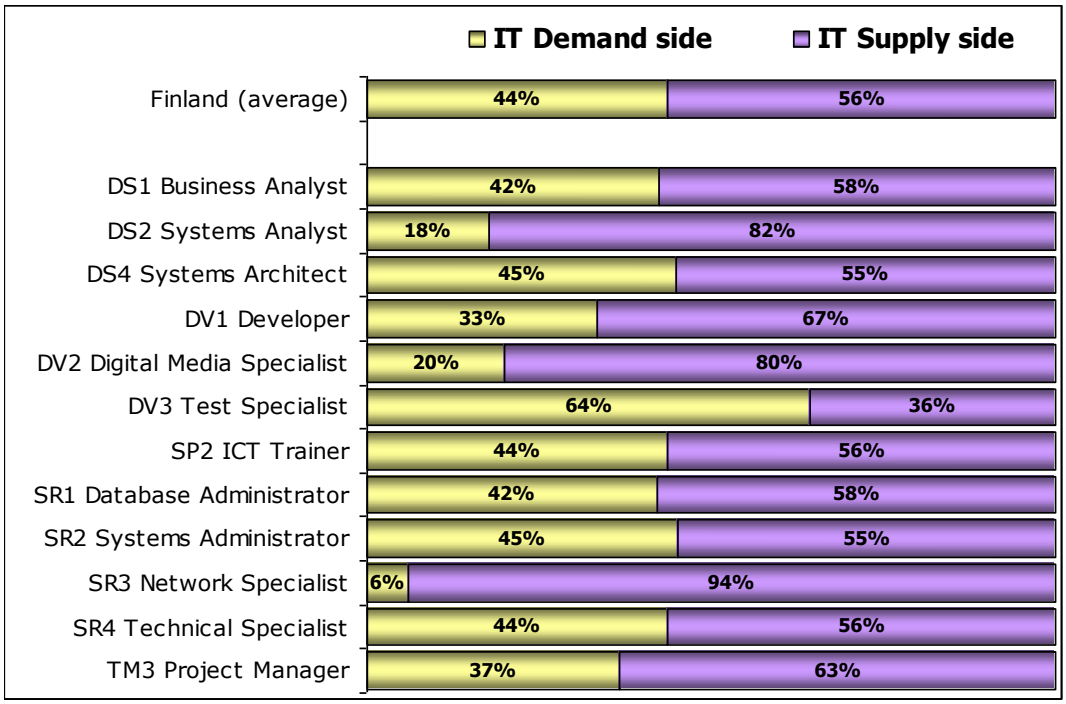
9.1.3 Profile Distribution by Education Level



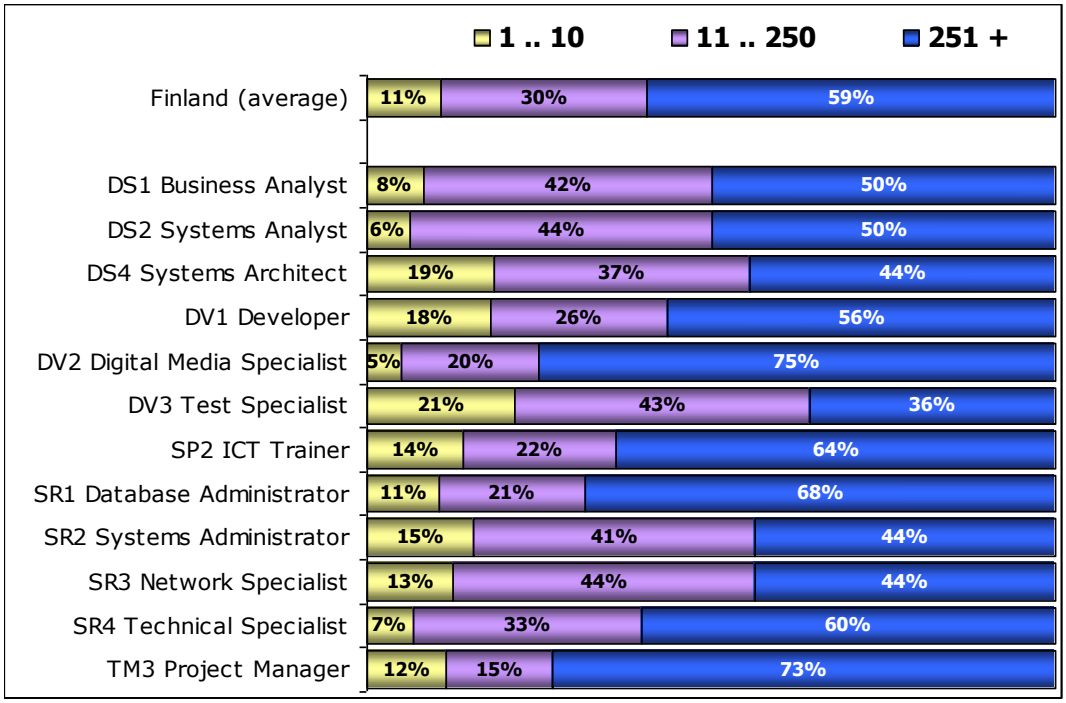
9.1.4 Profile Distribution by IT Education



9.1.5 Profile Distribution by Industry



9.1.6 Profile Distribution by Enterprise Size

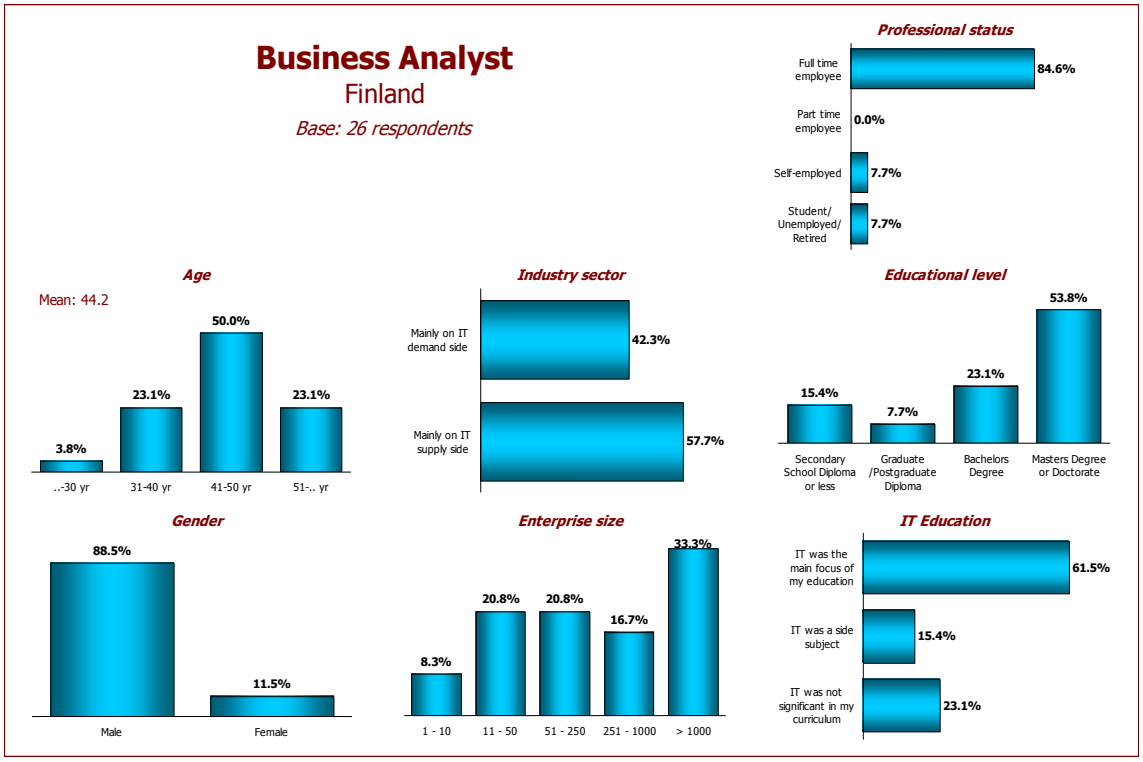


9.1.7 Profile Summary Table

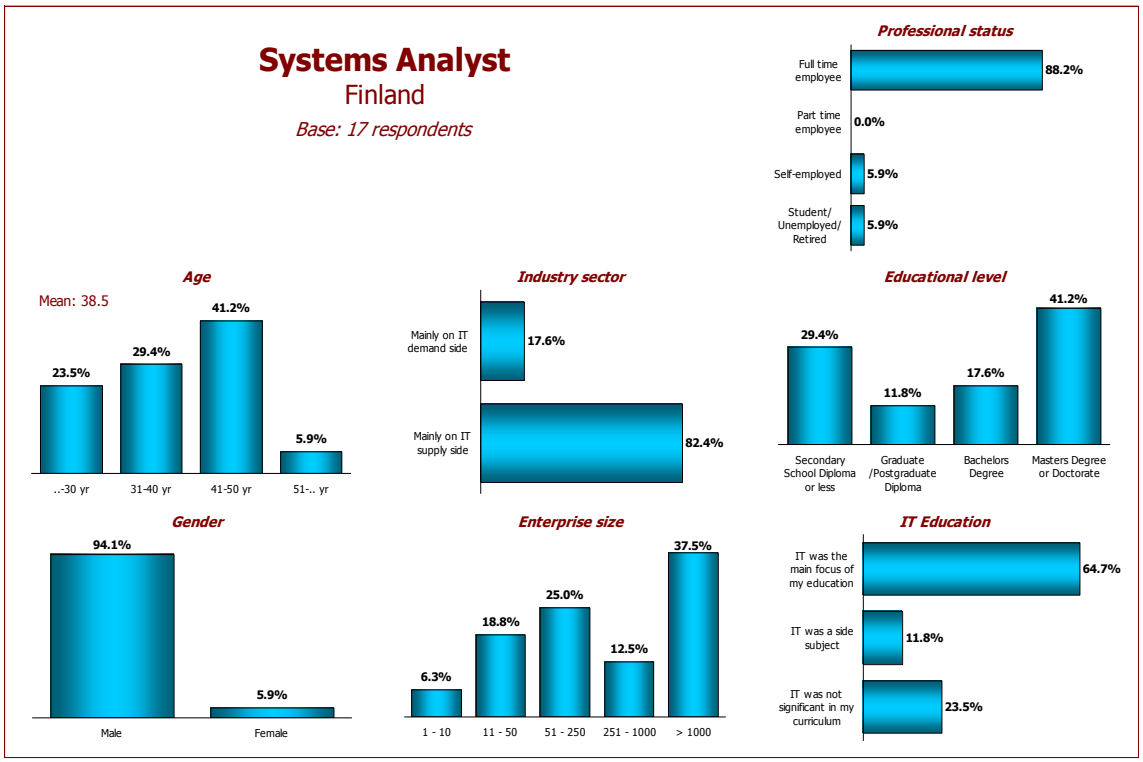
	Europe	Finland	DS1 Business Analyst	DS2 Systems Analyst	DS4 Systems Architect	DV1 Developer	DV2 Digital Media Specialist	DV3 Test Specialist	SP2 ICT Trainer	SR1 Database Administrator	SR2 Systems Administrator	SR3 Network Specialist	SR4 Technical Specialist	TM3 Project Manager
Cases	**1604**	**356**	**26**	**17**	**29**	**45**	**20**	**14**	**39**	**19**	**42**	**17**	**101**	**30**
Age														
Mean	***41.7***	***40.9***	***44.2***	***38.5***	***39.1***	***39.4***	***38.0***	***40.0***	***44.0***	***41.8***	***37.1***	***40.9***	***41.1***	***44.0***
<30 yr	16%	12%	4%	24%	7%	11%	15%	14%	8%		31%	6%	9%	
30 - 40	29%	38%	23%	29%	62%	44%	55%	43%	31%	53%	33%	47%	38%	30%
40 - 50	32%	33%	50%	41%	17%	33%	15%	29%	28%	32%	21%	35%	39%	50%
50 - 60	17%	15%	23%	-	10%	11%	15%	7%	31%	11%	12%	6%	13%	20%
61 - ..	5%	3%	-	6%	3%	-	-	7%	3%	5%	2%	6%	2%	-
Gender														
Female	15%	16%	12%	6%	7%	13%	20%	-	28%	11%	12%	6%	16%	27%
Female	85%	84%	88%	94%	93%	87%	80%	100%	72%	89%	88%	94%	84%	73%
Education														
Secondary or less	14%	22%	15%	29%	28%	31%	20%	36%	15%	21%	26%	29%	29%	17%
University (Graduate or more)	86%	78%	85%	71%	72%	69%	80%	64%	85%	79%	74%	71%	71%	83%
4th Level (Masters/Phd)	*40%*	*35%*	*54%*	*41%*	*24%*	*40%*	*45%*	*29%*	*41%*	*42%*	*24%*	*18%*	*19%*	*53%*
IT Educational														
IT was the main focus of my education	67%	69%	62%	65%	86%	73%	85%	71%	62%	79%	79%	76%	67%	53%
IT was a side subject	23%	20%	15%	12%	10%	22%	10%	21%	15%	11%	10%	18%	23%	30%
IT was not significant in my curriculum	11%	11%	23%	24%	3%	4%	5%	7%	23%	11%	12%	6%	10%	17%
Current professional status														
Full time employee	78%	85%	85%	88%	79%	80%	100%	93%	82%	95%	76%	88%	85%	87%
Part time employee	2%	3%	0%	0%	7%	2%	0%	0%	5%	0%	10%	0%	1%	0%
Self-employed	8%	4%	8%	6%	10%	0%	0%	7%	5%	0%	7%	0%	2%	7%
Student / Unemployed / Retired	12%	8%	8%	6%	3%	18%	0%	0%	8%	5%	7%	12%	12%	7%
Number of employees														
1 - 10	11%	11%	8%	6%	19%	18%	5%	21%	14%	11%	15%	13%	7%	12%
11 - 50	13%	12%	21%	19%	26%	5%	10%	29%	6%	16%	3%	19%	12%	15%
51 - 250	22%	18%	21%	25%	11%	21%	10%	14%	17%	5%	38%	25%	21%	0%
251 - 1000	18%	18%	17%	13%	11%	5%	15%	14%	17%	5%	18%	13%	24%	19%
> 1000	36%	41%	33%	38%	33%	51%	60%	21%	47%	63%	26%	31%	36%	54%
Industry														
Mainly on IT demand side	49%	44%	42%	18%	45%	33%	20%	64%	44%	42%	45%	6%	44%	37%
Mainly on IT supply side	51%	56%	58%	82%	55%	67%	80%	36%	56%	58%	55%	94%	56%	63%
Proximity index	**86.9**	**88.5**	**94.6**	**85.5**	**87.0**	**88.7**	**92.5**	**82.8**	**90.7**	**84.9**	**71.7**	**86.5**	**93.0**	**89.0**
Min	*40*	*41*	*54*	*45*	*41*	*47*	*51*	*47*	*53*	*44*	*44*	*62*	*41*	*44*
Max	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Competence index														
A- Plan	**24%**	**24%**	**48%**	**34%**	**35%**	**23%**	**30%**	**20%**	**23%**	**32%**	**18%**	**22%**	**24%**	**37%**
B- Build	**25%**	**27%**	**27%**	**51%**	**44%**	**53%**	**61%**	**55%**	**19%**	**47%**	**23%**	**48%**	**29%**	**24%**
C- Run	**29%**	**33%**	**44%**	**41%**	**23%**	**41%**	**43%**	**40%**	**29%**	**38%**	**36%**	**40%**	**53%**	**26%**
D- Enable	**15%**	**14%**	**30%**	**20%**	**11%**	**12%**	**16%**	**4%**	**26%**	**22%**	**10%**	**13%**	**16%**	**25%**
E- Manage	**18%**	**17%**	**41%**	**27%**	**12%**	**15%**	**16%**	**7%**	**23%**	**19%**	**14%**	**14%**	**20%**	**38%**
Competence index														
A01 % IS & Business Strategy Alignment	23%	19%	66%	34%	18%	14%	16%	0%	26%	25%	11%	6%	16%	36%
A02 % Service Level Management	20%	20%	37%	22%	13%	6%	7%	3%	21%	20%	14%	8%	21%	41%
A03 % Business Plan Development	18%	16%	54%	20%	16%	9%	3%	2%	20%	21%	11%	2%	14%	32%
A04 % Product or Project Planning	32%	37%	58%	51%	46%	38%	57%	40%	38%	43%	28%	45%	39%	61%
A05 % Architecture Design	31%	34%	50%	58%	67%	42%	52%	38%	21%	50%	27%	49%	34%	39%
A06 % Application Design	29%	31%	46%	47%	56%	44%	75%	54%	20%	57%	21%	34%	28%	37%
A07 % Technology Watching	31%	31%	47%	42%	65%	28%	31%	29%	32%	34%	25%	28%	30%	35%
A08 % Sustainable development	9%	9%	20%	5%	8%	6%	10%	7%	7%	9%	6%	8%	11%	14%
B01 % Design & Development	23%	24%	25%	68%	53%	55%	64%	66%	14%	48%	10%	44%	20%	14%
B02 % Systems Integration	24%	27%	25%	40%	48%	43%	44%	50%	19%	55%	30%	55%	33%	23%
B03 % Testing	22%	24%	17%	33%	26%	45%	50%	62%	12%	30%	25%	31%	24%	38%
B04 % Solution Deployment	25%	30%	35%	53%	45%	44%	73%	52%	18%	46%	29%	68%	38%	23%
B05 % Documentation Production	34%	35%	38%	51%	35%	79%	78%	33%	38%	54%	29%	44%	39%	36%
C01 % User Support	35%	36%	47%	44%	19%	41%	42%	40%	35%	35%	60%	47%	49%	28%
C02 % Change Support	32%	36%	45%	44%	15%	41%	45%	41%	30%	38%	28%	38%	70%	35%
C03 % Service Delivery	21%	24%	29%	31%	25%	30%	38%	29%	26%	29%	16%	32%	46%	17%
C04 % Problem Management	29%	35%	52%	45%	30%	49%	45%	45%	25%	45%	37%	42%	52%	26%
D01 % Information Security Strategy Development	17%	20%	29%	30%	20%	19%	23%	11%	29%	11%	20%	24%	23%	25%
D02 % ICT Quality Strategy Development	18%	18%	41%	36%	12%	15%	30%	23%	23%	19%	10%	16%	23%	26%
D03 % Education & Training Provision	22%	19%	35%	14%	12%	10%	16%	0%	64%	21%	9%	12%	18%	21%
D04 % Purchasing	16%	15%	38%	21%	13%	9%	8%	4%	22%	18%	12%	10%	16%	31%
D05 % Sales Proposal Development	16%	18%	34%	28%	17%	23%	23%	0%	24%	43%	11%	31%	21%	34%
D06 % Channel Management	4%	2%	0%	0%	0%	1%	5%	0%	4%	0%	4%	3%	1%	1%
D07 % Sales Management	5%	5%	13%	12%	3%	6%	10%	5%	11%	10%	6%	2%	4%	10%
D08 % Contract Management	13%	11%	27%	15%	5%	5%	6%	0%	23%	19%	6%	0%	14%	23%
D09 % Personnel Development	22%	20%	37%	20%	11%	12%	20%	0%	49%	19%	9%	18%	21%	44%
D10 % Information & Knowledge Management	20%	18%	40%	26%	13%	18%	19%	0%	25%	47%	11%	13%	19%	28%
E01 % Forecast Development	11%	9%	16%	3%	8%	2%	0%	0%	16%	5%	3%	3%	10%	15%
E02 % Project & Portfolio Management	20%	22%	51%	35%	12%	22%	19%	16%	28%	32%	20%	22%	22%	57%
E03 % Risk Management	16%	17%	33%	22%	11%	13%	12%	6%	25%	23%	13%	16%	17%	50%
E04 % Relationship Management	24%	23%	39%	28%	13%	25%	33%	16%	31%	29%	15%	16%	28%	51%
E05 % Process Improvement	23%	25%	77%	68%	20%	21%	21%	7%	27%	20%	20%	10%	30%	42%
E06 % ICT Quality Management	13%	12%	32%	20%	6%	10%	11%	0%	13%	12%	8%	13%	16%	23%
E07 % Business Change Management	18%	16%	48%	29%	11%	16%	16%	7%	20%	20%	10%	7%	18%	41%
E08 % Information Security Management	14%	14%	30%	20%	16%	12%	17%	2%	19%	12%	17%	26%	19%	23%
E09 % IT Governance	18%	16%	38%	16%	8%	10%	5%	0%	24%	14%	13%	10%	15%	30%

9.2 Proximity Profiles – Details

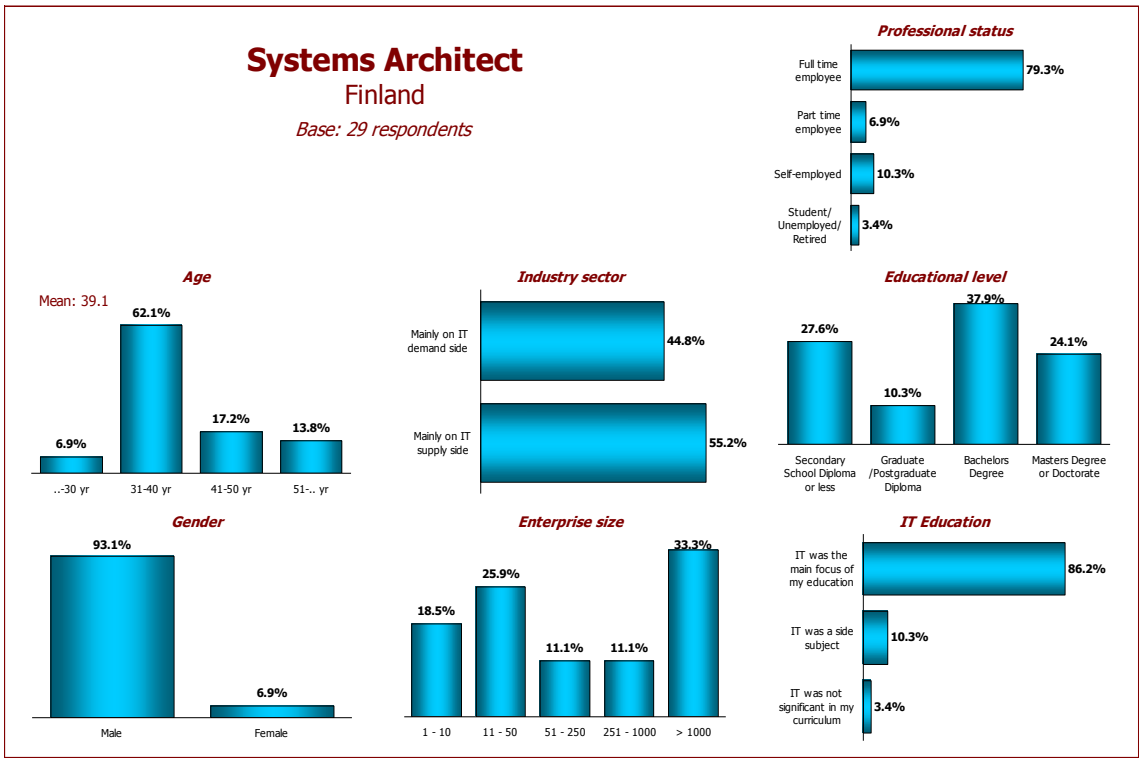
9.2.1 Business Analyst



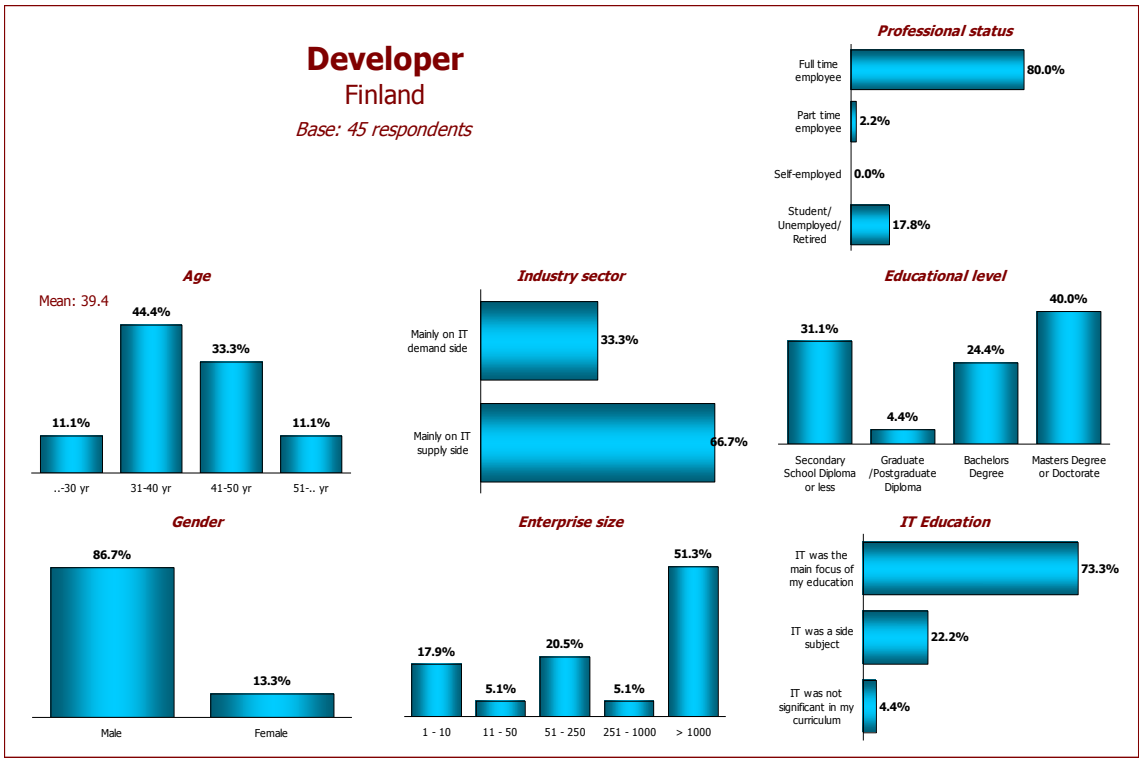
9.2.2 Systems Analyst



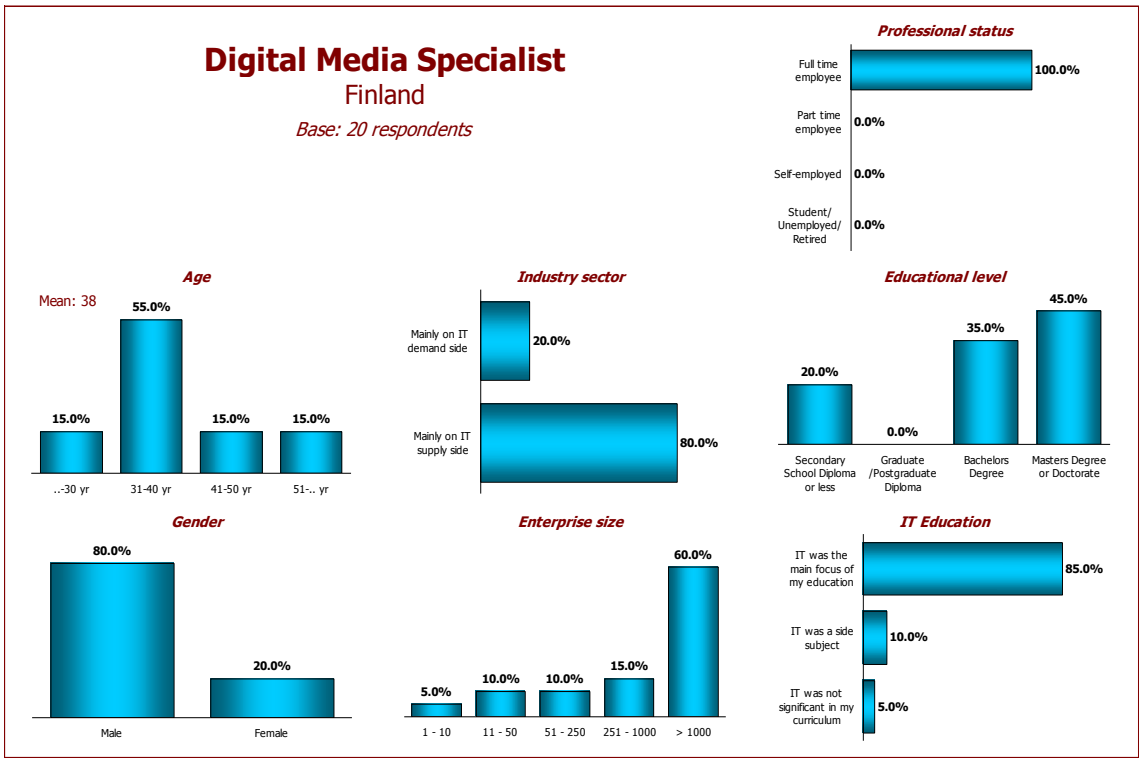
9.2.3 Systems Architect



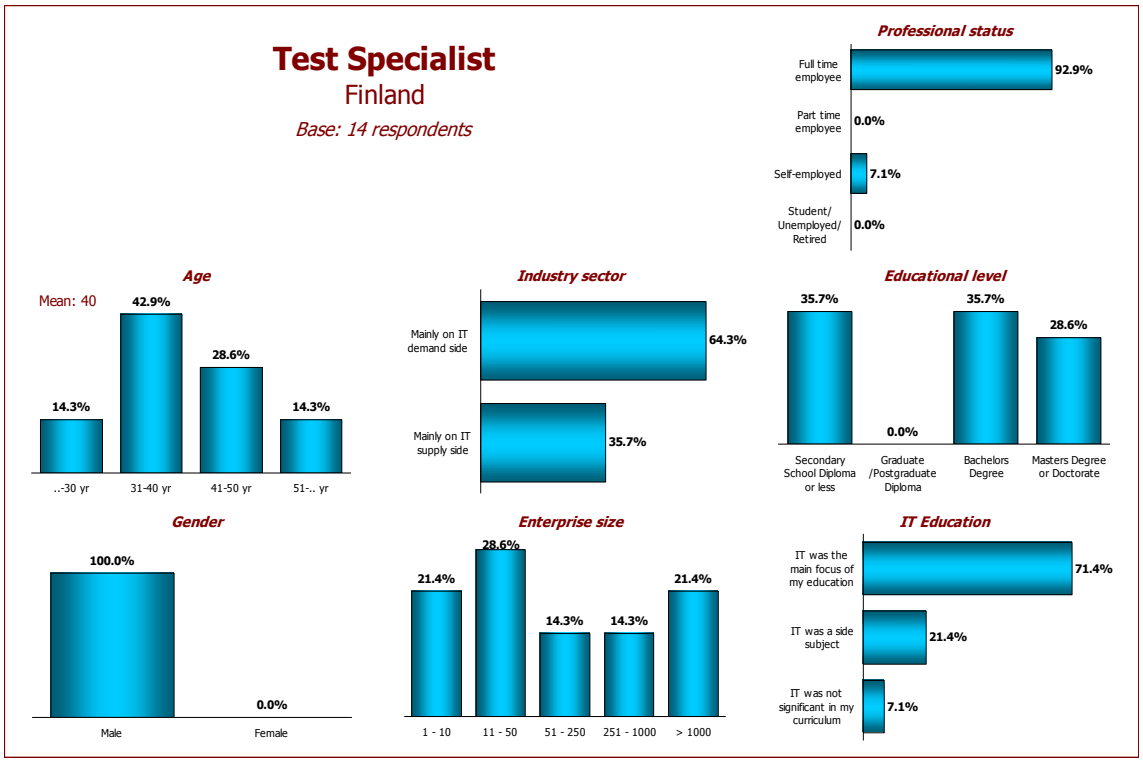
9.2.4 Developer



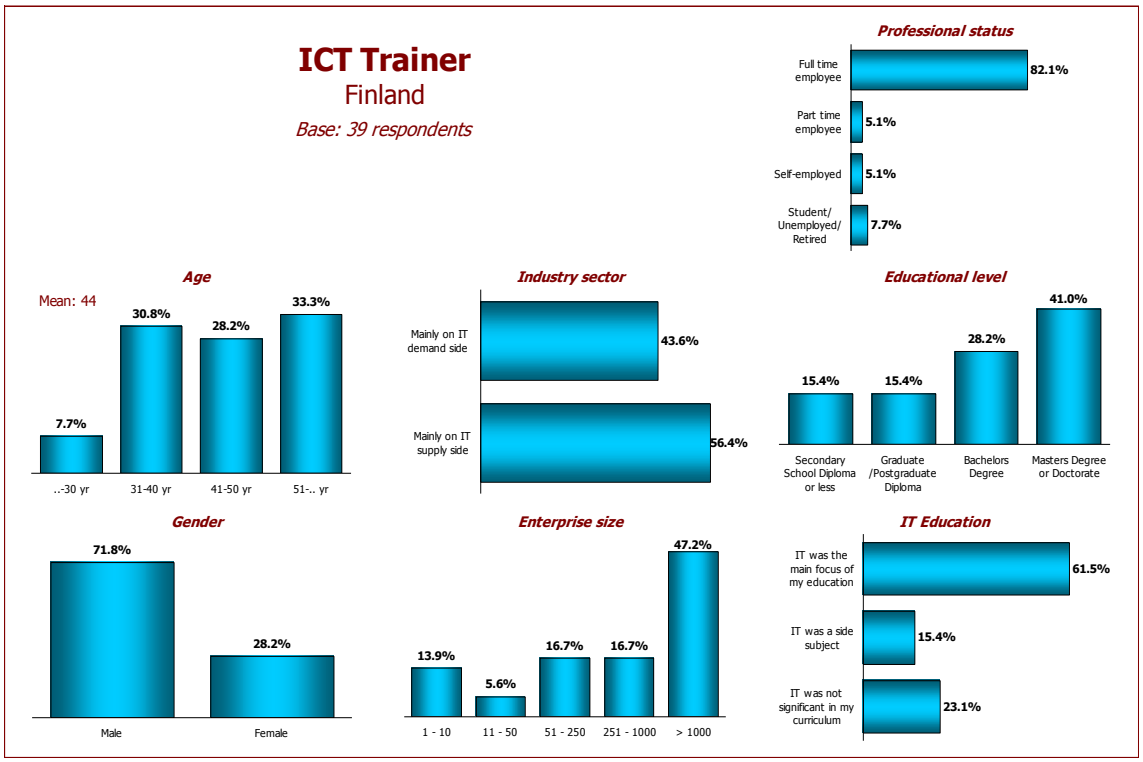
9.2.5 Digital Media Specialist



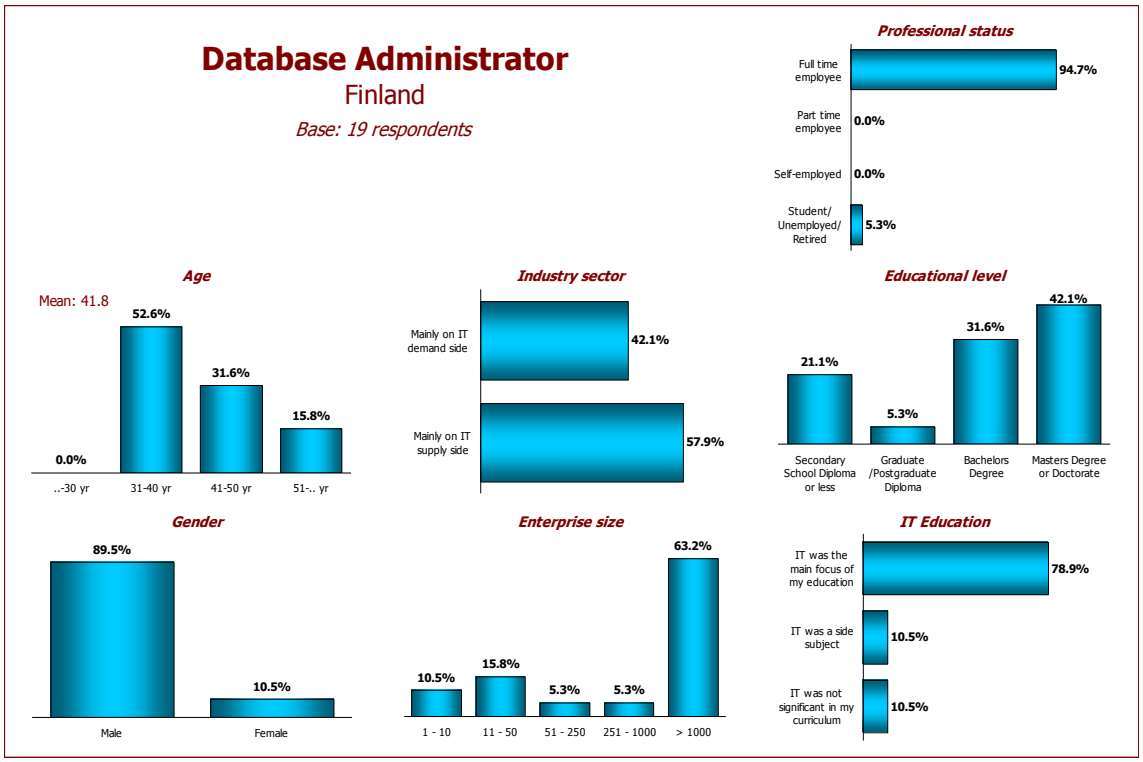
9.2.6 Test Specialist



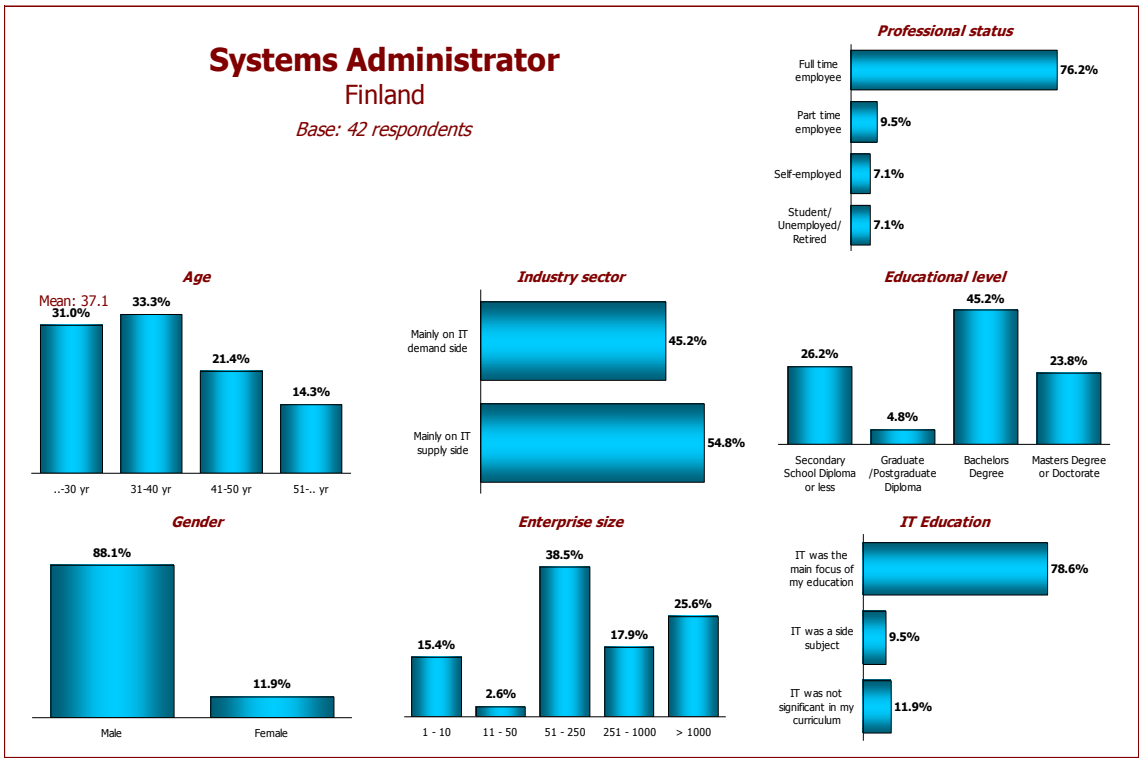
9.2.7 ICT Trainer



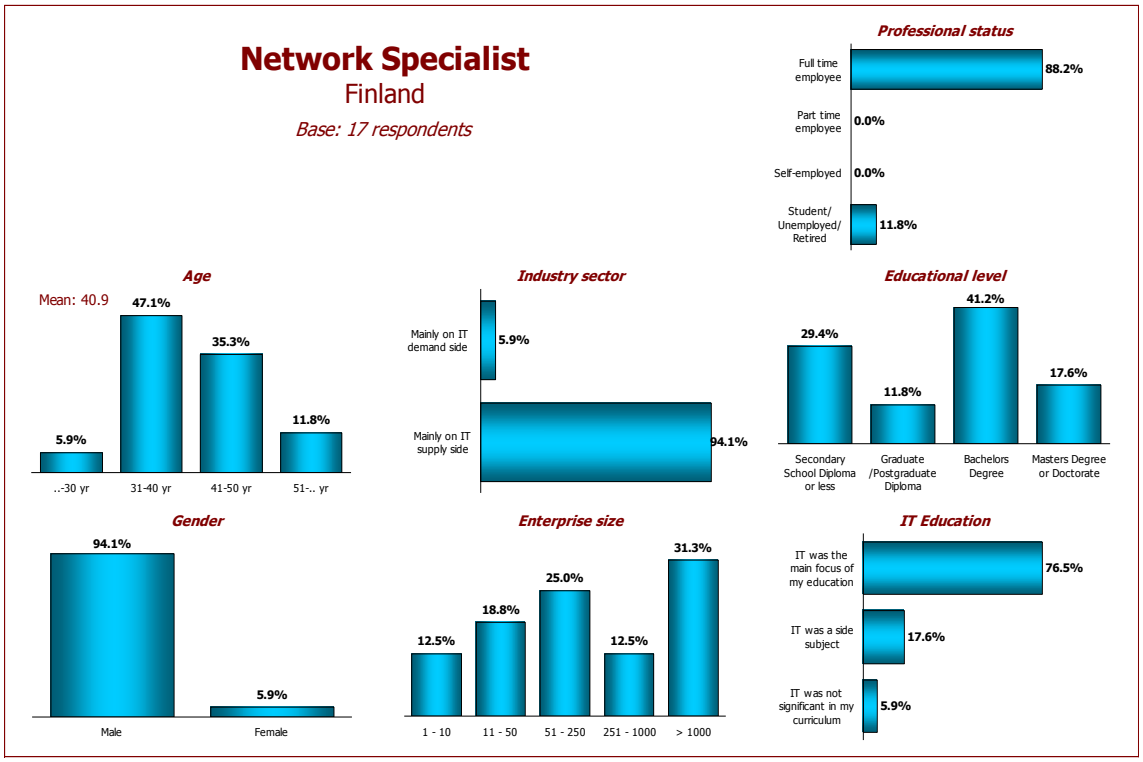
9.2.8 Database Administrator



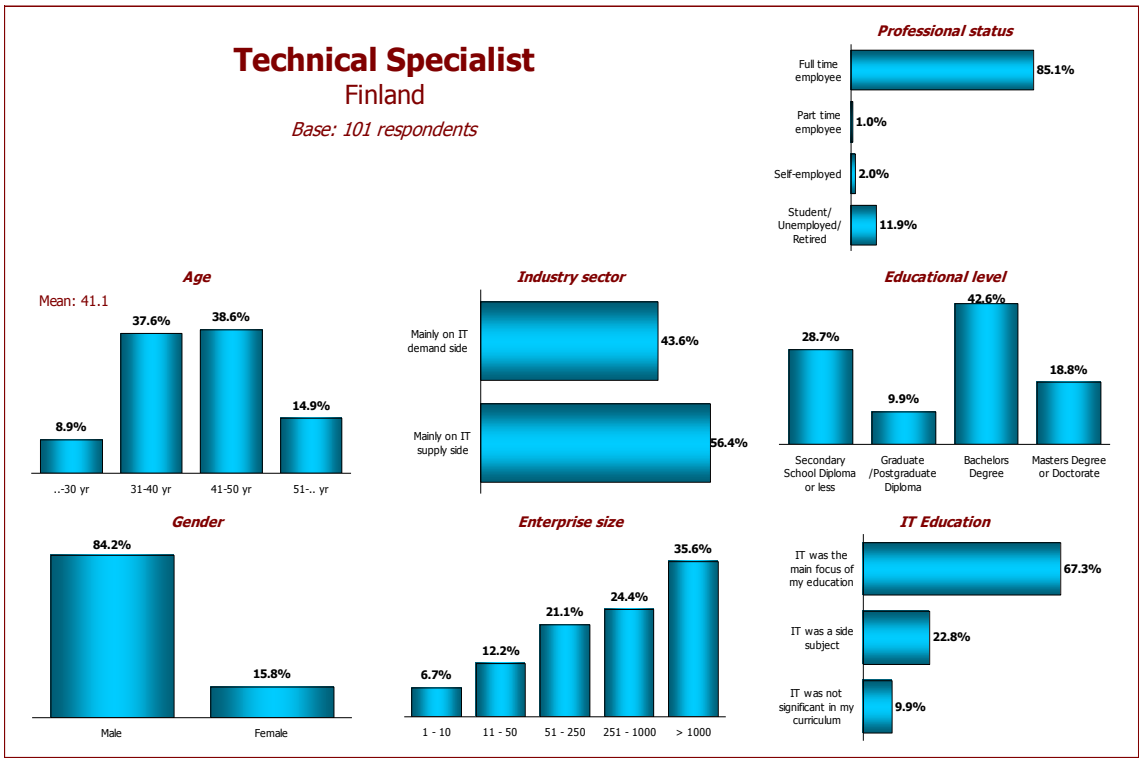
9.2.9 Systems Administrator



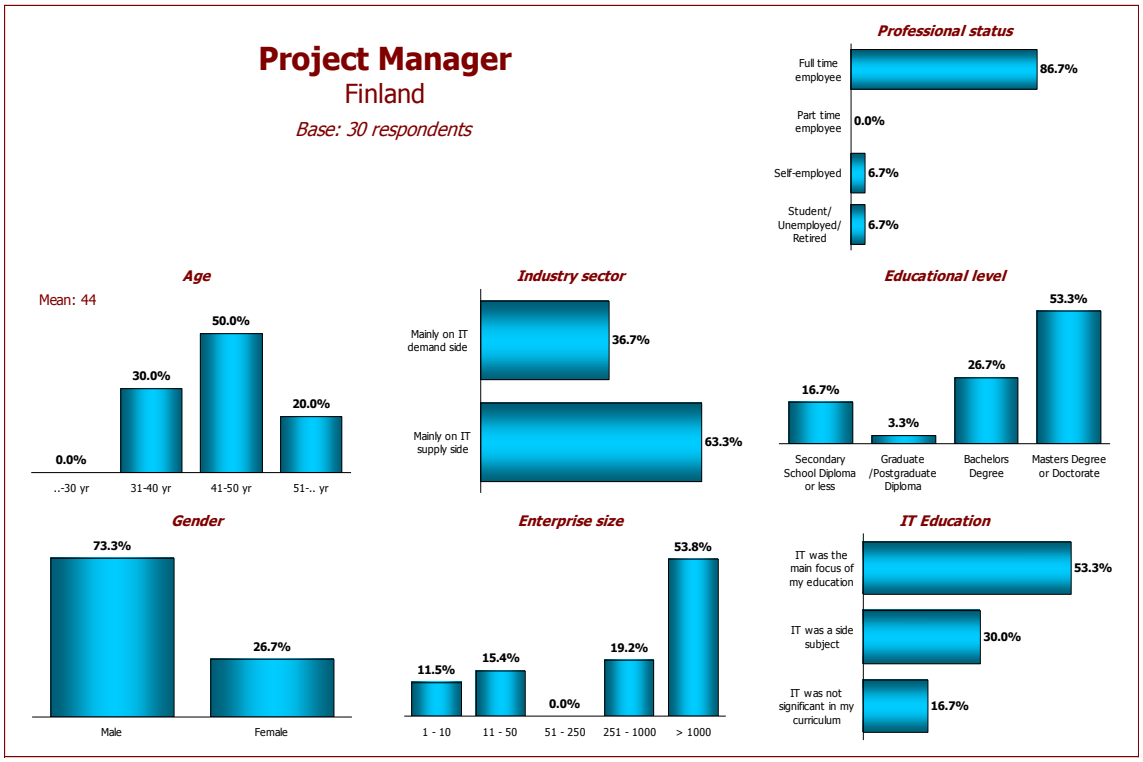
9.2.10 Network Specialist



9.2.11 Technical Specialist



9.2.12 Project Manager



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The Council of European Professional Informatics Societies (CEPIS) is a non-profit organisation seeking to improve and promote a high standard among informatics professionals in recognition of the impact that Informatics has on employment, business and society.

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