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# Survey of business sectors hiring linguists and language professionals

*Intellectual output 1 – Task 1.4.*

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**UPSKILLS: UPgrading the SKILLS of Linguistics and Language Students**

Erasmus+ Programme

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## UPSKILLS Consortium:



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## **Executive Summary**

The needs analysis of the UPSKILLS project is the foundation for all subsequent project activities. The survey of the business sector(s) hiring linguists and language professionals is the fourth step in the analysis. For this task, we administered surveys to representatives of companies that hire linguists/language specialists. The target group consists of employers from digital and data-intensive sectors, who currently might fail to identify language and linguistics graduates as a target talent pool for their business. This group is additionally expected to benefit from the co-construction and dissemination of a specific job profile with associated competences, skills and knowledge.

The survey of business sectors hiring linguists and language professionals provided valuable additional information to the overall UPSKILLS needs analysis. The surveyed businesses currently operate in a variety of business sectors across Europe, thus providing a wide perspective of the labor market.

The distribution of the number of current positions by business size can provide insights about the size of companies that should be targeted by UPSKILLS activities that aim to promote project results to the business sector. Furthermore, more than half of the surveyed businesses indicate that they plan to open new positions in the near future and around one fifth is uncertain, which also supports the relevance of UPSKILLS's planned promotional activities. When it comes to the scope of our project, the skills and knowledge that UPSKILLS aims to improve through its activities were confirmed to be essential and in need of improvement by this survey.

While the data provides individual perspectives of each employer, the aggregate results provide key insights for a job market where graduates are likely to need or want to transition from one industry to another, and thus should be able to fit into different profiles. The UPSKILLS project can play a key role in raising awareness about this new reality among business and policymakers.

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## **1. Rationale**

The needs analysis of the UPSKILLS project is the foundation for all subsequent project activities. The survey of the business sector(s) hiring linguists and language professionals is the fourth step, following a survey of curricula, literature and job ads. For this task, we administered targeted surveys to representatives of companies that hire linguists/language specialists. This task is the penultimate step of the needs analysis, which concludes with focus groups with business representatives, after which a new profile of a linguistics and language graduate for the 21st century will be created.

## **2. Methodology**

The survey of business sector(s) hiring linguists and language professionals was conducted using a questionnaire, which was compiled in English, and then translated into other languages in line with the needs for adaptation, as assessed by UPSKILLS partners. Initially, input was gathered from previous steps in the needs analysis, specifically the survey of job ads (Ferraresi et al. 2021). Corpus information on required qualifications and competences was drawn for the questionnaire development and a draft was created and sent to all partners for feedback. A list of prospective questionnaire recipients to whom the questionnaire was sent was created based on contacts from the survey of job ads and input from all partners.

After collecting feedback from partners, the English version of the questionnaire was revised. Then the questionnaire was translated into Serbian and Croatian, as partners in these countries assessed that there was a need to adapt it for the collected contacts. The questionnaires were then transferred into Google forms and tested, as detailed below.

After adapting the questionnaire based on feedback from the testing phase, the revised versions of the Google forms were sent as links via email to the collected addresses, explaining the purpose of the project and inviting the respondents to participate. Partners were also asked to disseminate the survey to their contacts as widely as possible. The final survey consisting of 11 questions and is given in Annex 1.

A total of 43 answers were received to the questionnaire in English, 18 to the questionnaire in Croatian, and 9 to the questionnaire in Serbian. All responses were combined for the analysis, as the test and the main questionnaire differ in smaller details that were considered in assessing the responses and drawing conclusions.

## **3. Questionnaire testing**

This phase was aimed at testing whether the questions are clear and getting general feedback on the questionnaire, as well as collecting prospective contacts for the focus groups in the next

step of the UPSKILLS needs analysis. The questionnaire contained four general questions and eight main questions, while the penultimate question asked for suggestions on how to improve the questionnaire. In the last question, respondents could leave their email address if they wanted to be contacted to participate in the focus groups.

In general, the respondents gave positive assessments of the questionnaire’s scope and clarity. Based on more specific feedback, more options were added for areas of knowledge and experience (e.g., knowledge of one’s native language, experience with CAT (Computer-Assisted Translation) tools that are necessary in the translation industry). Some technical difficulties were also recorded and resolved (e.g., formatting of questions as single versus multiple choice).

## 4. Results of the survey

In total, 70 respondents took part in the survey. The results present summarized answers to questions related to the size of the company, the core business, the current and planned positions for linguists, the main tasks envisaged for the linguists, their most important skills and the skills they need to improve, the most important areas of knowledge and experience and the areas they need to improve, as well as additional comments related to external hirings and other relevant topics.

### 4.1 Company size

Micro and large companies are equally represented in the sample (23 each), while there are fewer small and medium enterprises. The distribution and options provided in this multiple choice question are shown in Figure 1.

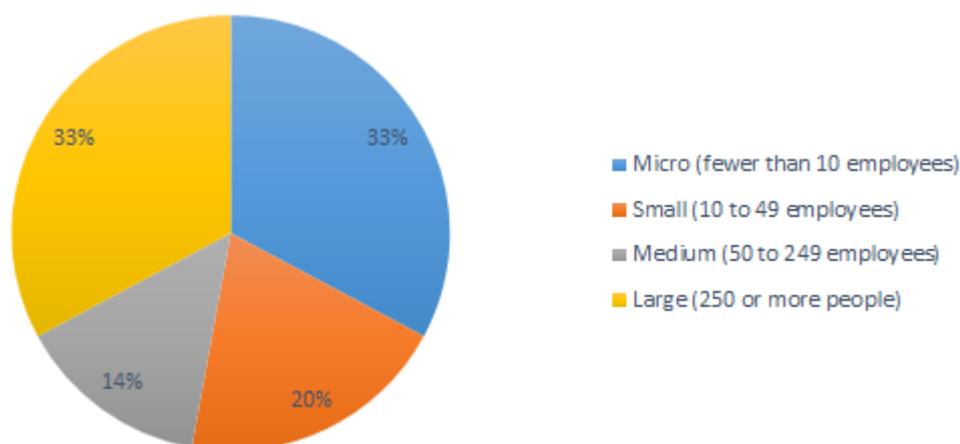


Figure 1. Distribution of surveyed companies by size

## 4.2 Core business

The core businesses of the companies that took part in the survey vary, but all of them need language experts for the services they offer. Most of the surveyed companies are in language-related businesses, such as translation (16) or localisation (6), but a large number represent other industries, e.g. IT (11), insurance (6) etc. Table 1 shows summarized responses, while the full version is given in Annex 2.

What is your core business?	
Translation technology and language services	16
IT	11
Localisation	6
Insurance	6
Marketing	4
Voice and speech technologies	3
Content and data analysis	3
Professional services and business consulting	3
Finance	2
Media / Publishing	2
Automotive industry	2
Mobile industry	2
Education	2
Other (see Annex 2 for a full list)	8

*Table 1. Core business of the surveyed companies*

## 4.3 Numbers of positions requiring language and/or linguistics skills

The largest number of surveyed companies stated that there are currently 1-5 positions that require linguists (27 companies), followed by companies with more than 20 language-related positions (19), 5-10 such positions (9) and 10-20 such positions (5). Seven (7) companies do

not have any positions that require language and/or linguistics skills, and three (3) companies marked the answer ‘I don’t know’.

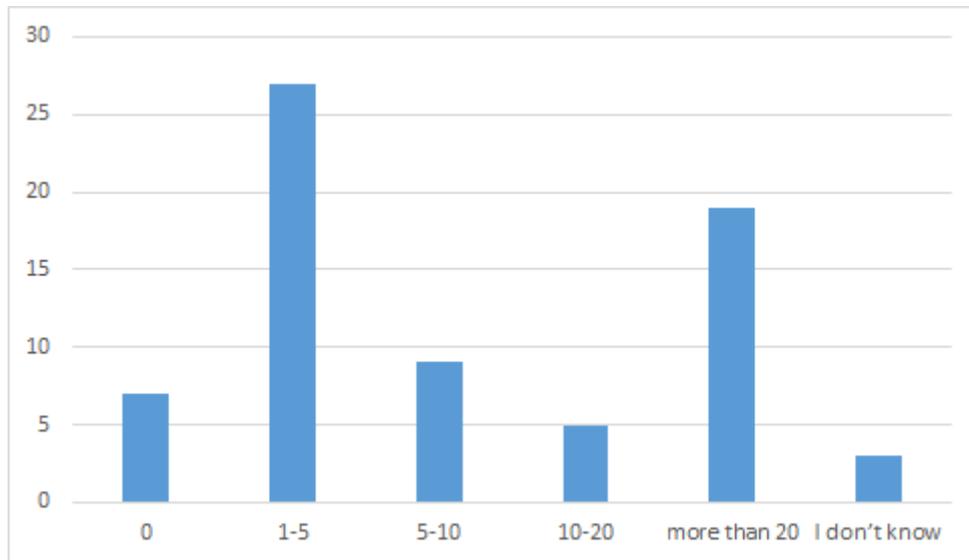


Figure 2. Number of current relevant positions in the surveyed companies

Regarding the plan to open positions that require language and/or linguistics skills in the next 5 years, most of the companies expect to open 1-5 (16 companies) and more than 20 (15 companies) such positions. A similar number of companies do not plan to open language-related positions (16) or do not know whether or not they will open such positions (14). Only 5 companies plan 10-20 such positions and 4 of them plan to open 5-10 positions that require language skills. In sum, slightly more than 20% explicitly do not plan to hire language and/or linguistics experts in the near future, while almost 60% do and around 20% do not know.

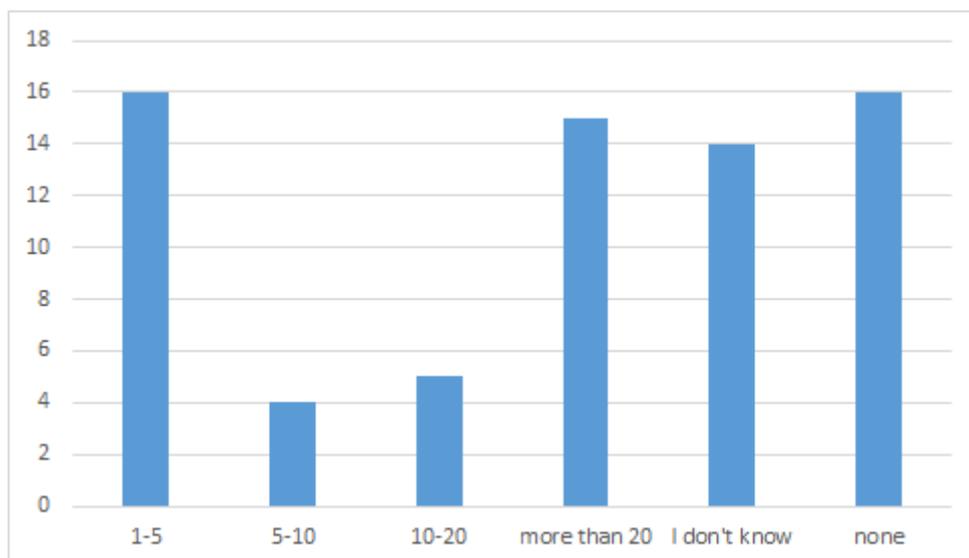


Figure 3. Number of planned relevant positions in the surveyed companies

When the number of existing and planned positions are compared (Figure 4), most companies have opened or expect to open either 1 to 5 positions or more than 20, a majority of the former being micro-companies and the latter large companies. This comparison provides insight into the potential growth trajectories in terms of relevant positions.

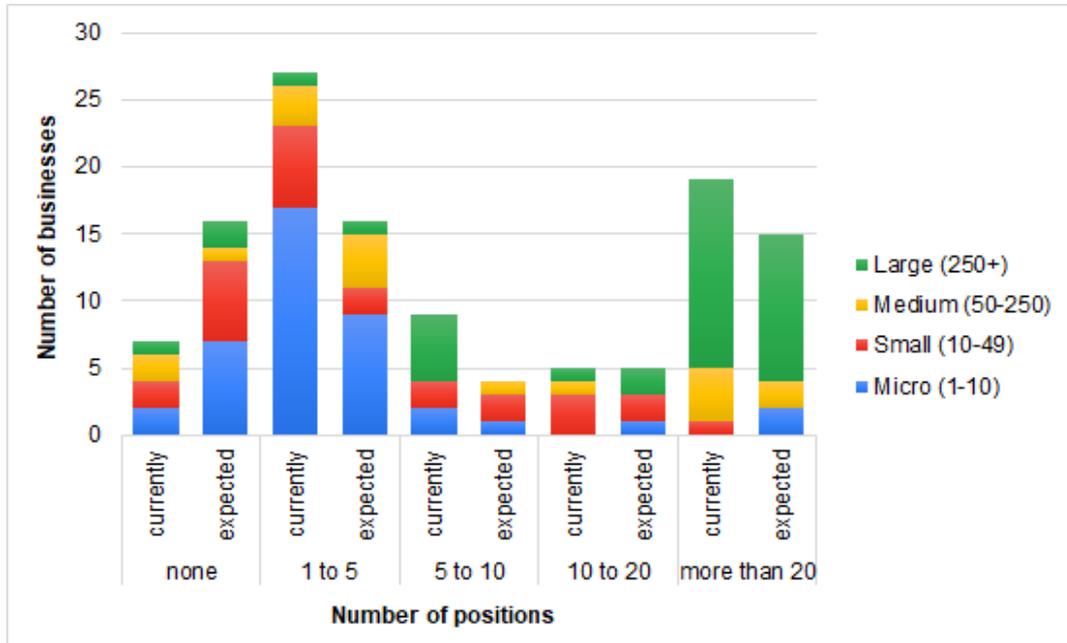


Figure 4. Distribution of current and planned positions by company size

A further look into the plans of companies by size (Figure 5) shows that companies of almost all sizes plan to significantly expand the number of language and/or linguistic positions, apart from small companies where there is an equal number of those who plan to have new positions and those who do not.

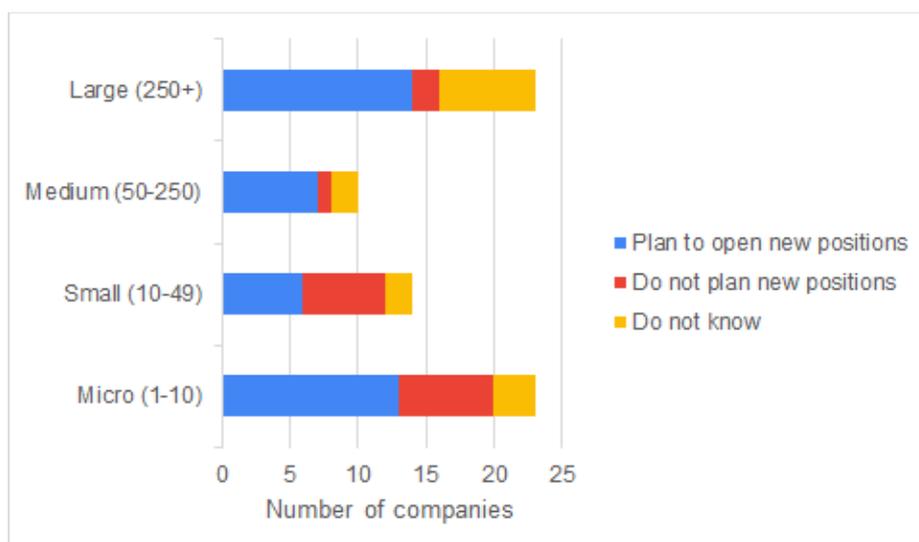


Figure 5. Distribution of plans to open new positions by company size

Finally, the planned increase differs by company size (Figure 6), with large companies planning the largest increases (double or more), followed by micro-companies where a significant number also plans to increase the number of positions up to double their current number. In the surveyed sample, the largest number of planned new openings are in large companies that work in the business domain of insurance. Small companies seem to have the lowest hiring plans in this domain in the next 5 years.

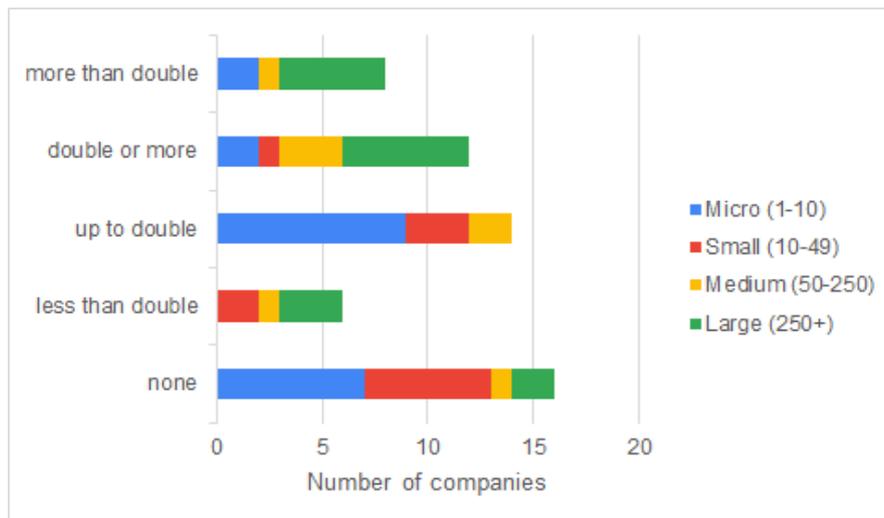


Figure 6. Distribution of expected increase in the number of positions by business size

#### 4.4 Types of positions for language and/or linguistics experts

When it comes to the kinds of positions the industry considers for language and/or linguistics experts, most companies chose from the suggested options. A majority noted language specialists (39) and computational linguists and language engineers (34), followed by project managers/coordinators (32) and analytical/data linguists (30), as well as research associates (20).

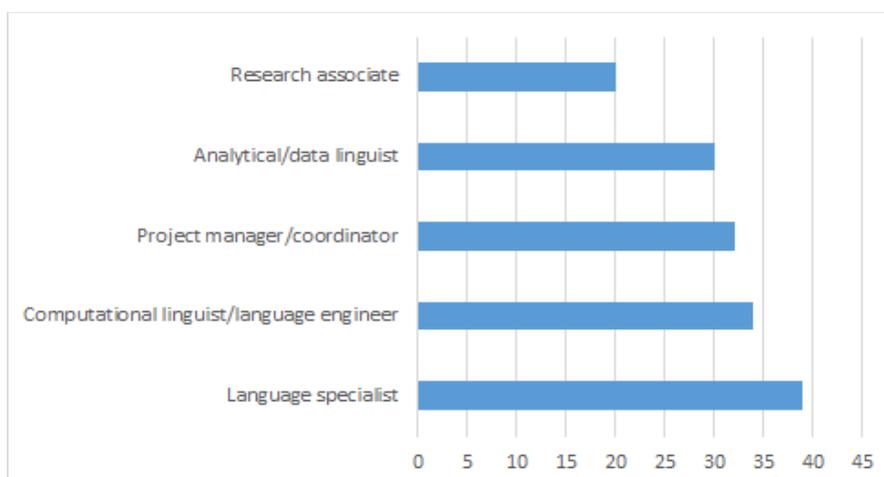


Figure 7. Positions of linguists and language professionals in the surveyed companies

Some companies chose the option “Other” and gave the following answers: product manager (2 cases), recruitment, copywriter/content writer, language editor, community manager, quality manager, account manager, data scientist, machine learning engineer, sales specialist, solutions architect, linguistic tester, content manager, and user experience content writer.

#### 4.5 Main tasks of language and/or linguistics experts

Regarding the main tasks intended for language and/or linguistics experts, most companies marked working with data (24), working with software and technological tools (23) and communicating with teams, clients and/or vendors (22). We have an equal number of companies that envisage conducting research and managing projects (17+18). Writing reports is a linguist experts’ task needed by 15 companies, and evaluating processes by 14 companies.

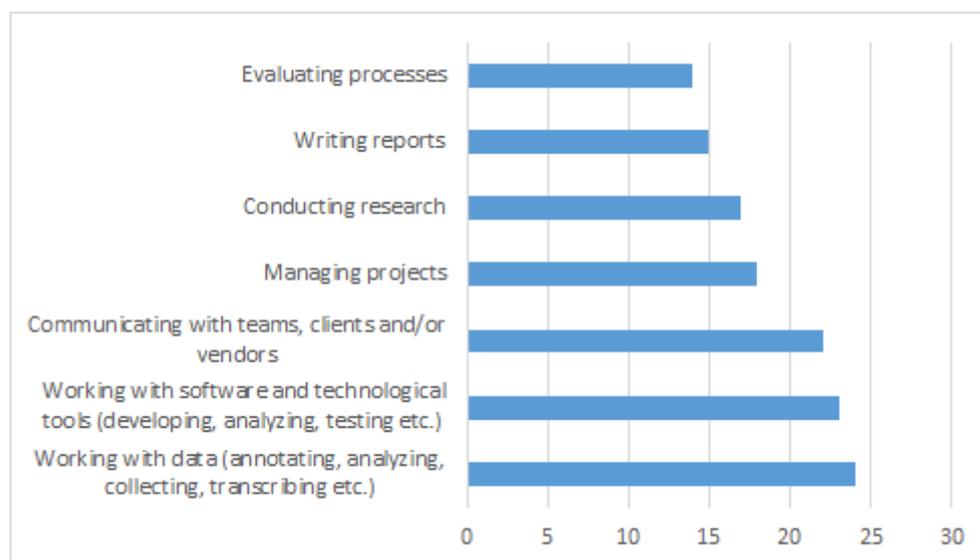


Figure 8. Main tasks for language and/or linguistics experts in the surveyed companies

Tasks suggested by the industry under “Other” are product management, translating, testing, and technical content writing.

#### 4.6 Skills of language and/or linguistics experts

Businesses were asked about the most important skills they look for in the staff they hire for language and/or linguistics tasks and which skills they found need to improve the most in their experience working with language and/or linguistics experts.

Considering the industry’s responses regarding the skills for language and/or linguistics tasks, the most important skills are problem-solving (35) and communication skills (35). Attention to detail is selected by 28 companies, analytical skills by 26, organisational skills by

26, technical skills by 20, working under pressure and presentation skills by 17, and creativity by only 1 company.

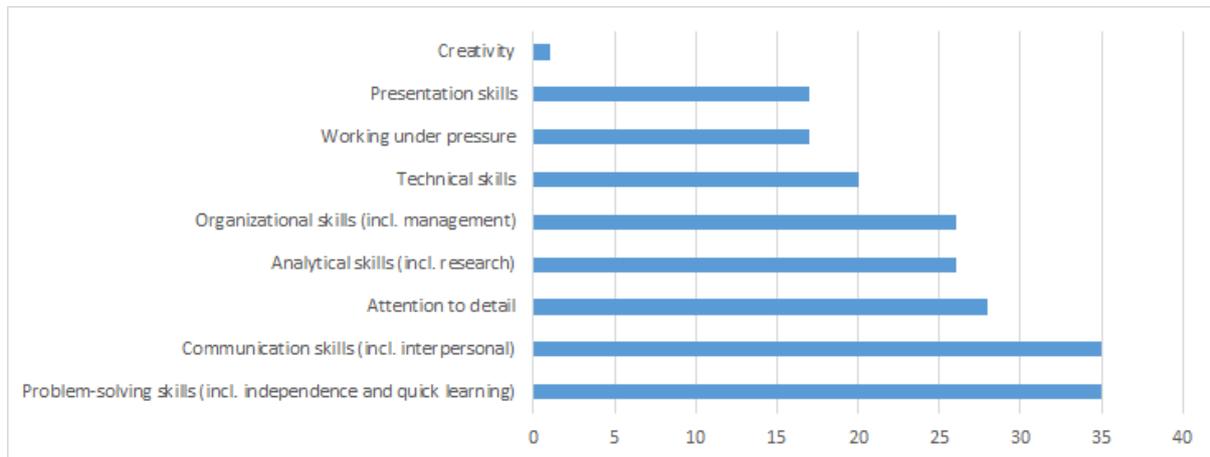


Figure 9. Most important skills sought in language and linguistics professionals

Skills suggested by the industry under “Other” are innovation, enthusiasm, willingness to learn and not being afraid to try new things, and being driven/resourceful.

Regarding the skills that need to be improved, the distribution is as follows: problem-solving is the skill most in need of improvement with 33 answers, followed by technical skills that are marked by 24 respondents, organizational skills by 20, communication skills by 18, attention to detail by 16, analytical skills, working under pressure and creativity by 14 each, and presentation skills by 9.

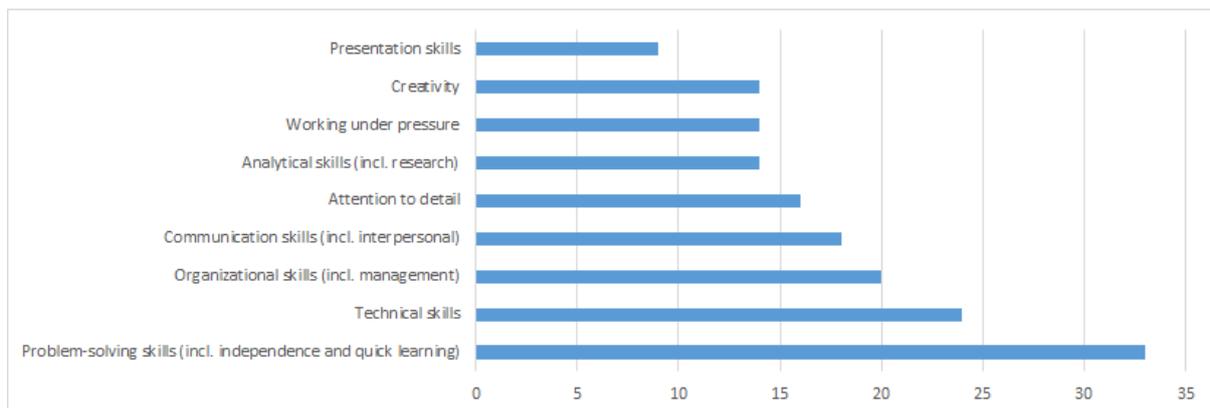


Figure 10. Skills that need to be improved most

Skills suggested by the respondents under “Other” are innovation, learning to work in a business environment, technical skills, enthusiasm, willingness to learn and not being afraid to try new things, being able to adapt to new technologies and standards, and somewhat surprisingly linguistics. Under the “Other” option, the following comments were also provided:

- *Lack in UNIX skills, lack in data structures;*
- *We don't hire people who don't have these skills to a satisfactory level;*
- *Most language experts struggle to develop strategic thinking and often focus on a small set of details;*
- *Different departments may put more priority on some of these aspects depending on the position.*

When the level of importance and the need for improvement of skills are compared (Figure 11), the highest mismatch is identified with creativity, where only one company listed it as one of the most important skills but 14 companies noted it is greatly lacking. The only other area where the need for improvement is higher than the importance is technical skills, but the discrepancy is not as high (20 Vs. 24). Other domains that were assessed as similar in terms of importance and need for improvement are organizational skills, problem-solving skills and working under pressure. Finally, analytical skills, attention to detail, communication skills, and presentation skills are assessed as important by around double the number of companies that assess them as lacking.

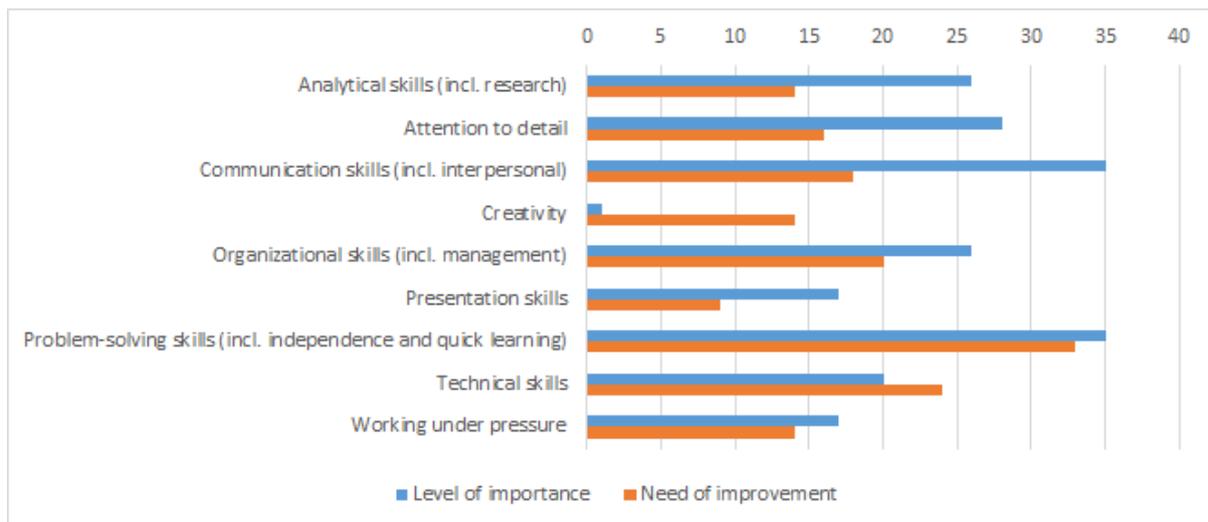


Figure 11. Comparison of level of importance and need of improvement of skills

#### 4.7 Knowledge and experience of language and/or linguistics experts

Businesses were asked about the most important areas of knowledge and experience they generally look for in language and/or linguistics experts and which areas they found need to improve the most in their experience.

The most important area of knowledge and experience a company generally looks for in language and/or linguistics experts is by far knowledge of English and/or other languages with 41 responses. The translation and localisation knowledge area is marked by 28 respondents, while computational linguistics is marked by 26 respondents. We have an equal number of

companies that consider essential data analysis and language technology tools (incl. CAT tools) (21 each). Computer science (incl. programming) was marked by 19 companies, terminology management by 18, project management by 16 and linguistics by 14.

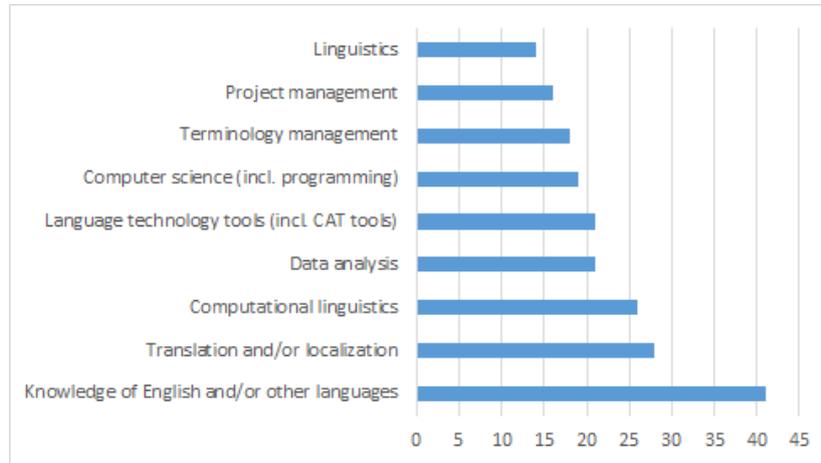


Figure 12. Most important areas of knowledge and experience sought in linguistics and language professionals

Areas of knowledge and experience suggested by the industry under “Other” are:

- practical machine learning skills
- framework/policy development
- being able to adapt to new technologies and standards.

Regarding the areas of knowledge and experience that need to be improved, most companies chose project management (25), language technology tools (incl. CAT tools) (18), computer science (incl. programming) (17) and terminology management (17). An almost equal number of companies marked translation and/or localization (12), linguistics (12) and data analysis (11). Computational linguistics and knowledge of English and/or other languages were chosen by 8 companies each.

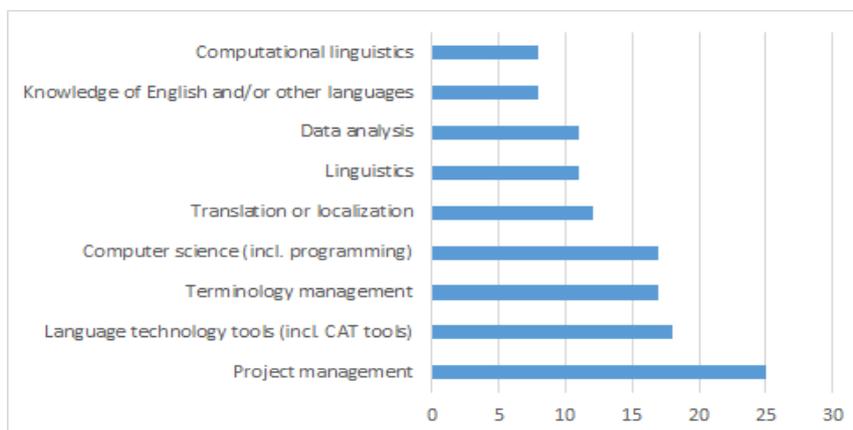


Figure 13. Areas of knowledge and experience that need to be improved most

Areas of knowledge and experience suggested by the industry under “Other” are:

- framework/policy on a particular non-linguistic issue
- being able to adapt to new technologies and standards.

Additionally, the following comments were made:

- *Again, we don't hire people who don't have these skills already*
- *Most language experts have very limited knowledge and experience processing and analysing large sets of data, and are often uncomfortable project managing, two areas that are often required when working in large organizations that work at scale.*

When the level of importance and the need for improvement of knowledge and experience are compared (Figure 14), the highest mismatch is identified with knowledge of English and/or other languages. However, in this case there is a majority view that language knowledge is essential, while few companies see it as lacking in their experience with language and/or linguistics experts. A similar difference, if not as large, is seen in the case of computational linguistics and translation and/or localization, and to a somewhat lesser extent data analysis. Knowledge and experience in the domains of computer science (incl. programming), language technology tools (incl. CAT tools), linguistics and terminology management are seen as somewhat lacking in comparison to their importance. The only domain where a higher number of companies noted a need for improvement than the number of companies that noted the importance is project management.

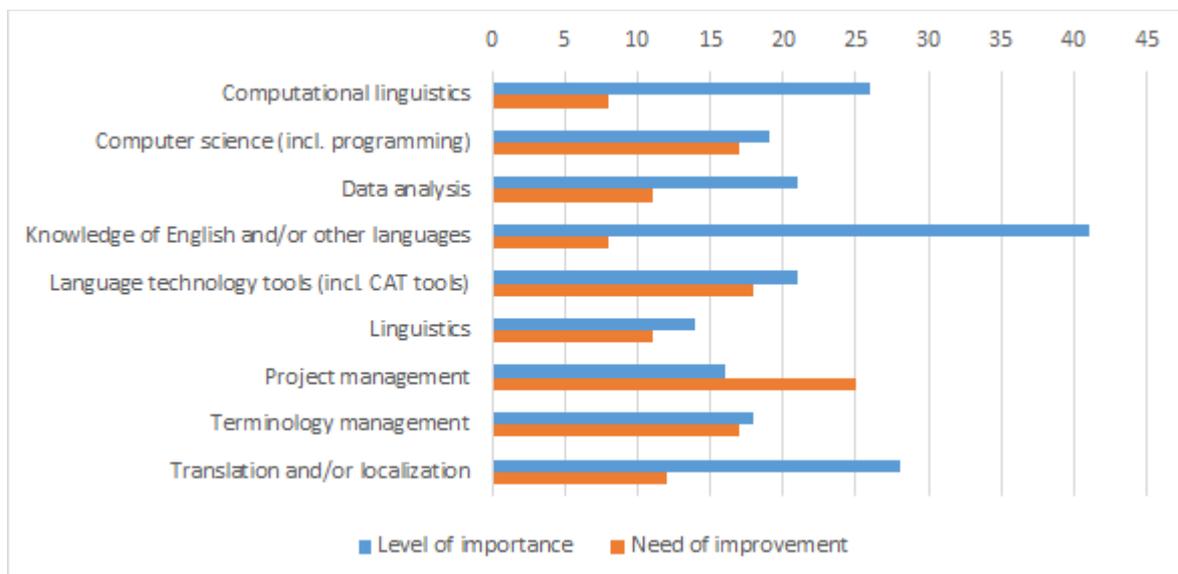


Figure 14. Comparison of level of importance and need of improvement of skills

## 4.8 Additional comments

In the final question of the survey, businesses were asked to provide any additional clarifications or relevant comments, especially if they outsource language tasks to external experts. Five companies note that they outsource tasks to freelancers, either on a regular or occasional basis, and in varying numbers (three respondents provided figures – 3, 50 and more than 200.000). In one case it is indicated that the responses to the survey refer to the freelancers, and in another case it is revealed that the entire business model relies on freelancers in all work domains. One respondent states that people with language degrees do not necessarily perform language expert jobs, but rather learn additional skills to work in sales, education in a foreign language etc.

Several businesses have very clear and practical advice for the work scope of the UPSKILLS project about skills and knowledge that could be useful or need to be improved:

- Machine learning (MT) and NLP:

*...In general, I think there is an expectation that the current generation of graduates in linguistics, translation, or a degree in a similar area will have more technical knowledge, i.e. an intimate knowledge of MT post-editing (and ideally even knowing how to basically train MT engines), as well as a basic understanding of NLP toolkits, ML algorithms and the implication they may have on the business of translation, perhaps even some basic knowledge of Python. I think candidates with such a profile would be very sought after.*

*Machine learning knowledge is currently critical to most linguist roles in industry.*

- CAT tools:

*In the past few weeks, we have had several job interviews with graduation candidates. ... The biggest problem is that everyone has heard that there are CAT tools, but almost none of them, except for a few enthusiasts who wanted to learn more about them themselves, knew what a CAT tool looked like, let alone know how to work in CAT tools. CAT tools are no longer a novelty on the market and we think it would be very useful for colleges to buy several tool licenses such as SDL Trados or MemoQ (or at least Memsource, which is free) and to teach students to work with the tools.*

- Artificial intelligence:

*It seems that linguists are still very technically and disciplinary focused. It has been quite challenging for people from the public sector e.g. international organisation, where the emerging use of AI has exposed knowledge gaps in applied linguistics, to effectively understand, communicate and work with linguists at the moment. There is a need for linguists to be able to strengthen their understanding of common issues at*

*global, regional level and issues of the major sectors (economics, social, health and so on), with special attention to artificial intelligence related applications. It is critical for linguists to play an indispensable role in the ongoing digital transformation within each nation.*

- Project management:

*... project management is an indispensable part of working in a translation agency, but also for those translators who decide to become freelancers. It turned out that the students knew almost nothing about it. It's not really something that should have its own course, but one part of the semester should be devoted to that as well.*

One respondent remarks that insight and talent analytics might be skills that are now more important than linguistics and computational linguistics, while another points out that language experts could also work as writers in PR and other sectors.

Another respondent stressed that reforming and advancing studies of language and linguistics needs to be coupled with policy reform, so that companies can justify new recruitments:

*In addition, there is also need on the policymaking level, to create dedicated programmes and functions in support of linguistic competences, to affirm their legitimacy within the current governance structure of any operations. Without proper terms of references within a company, it will be always challenging to justify the recruitment of such experts.*

Finally, two respondents caution that they do not have much experience with hiring linguists or working with such experts in their company.

## 5. Conclusions

The survey of business sectors hiring linguists and language professionals provided valuable additional information to the overall UPSKILLS needs analysis. A vast majority of the surveyed businesses currently have relevant positions in their companies based on which they could provide insight (only 10% do not). They also operate in a variety of business sectors across Europe, thus providing a wide perspective of the labor market.

The highest number of current positions are, naturally, in large companies (size 250+ employees), but this is in relative numbers. In terms of absolute number of respondents, an almost equal number of micro and large companies currently have linguists and/or professionals employed, followed by medium and to a much lesser extent small business. This

can provide insights about the size of companies that should be targeted by UPSKILLS activities that aim to promote project results to the business sector.

Another result that supports the timeliness of our project is that more than half of the surveyed businesses indicate that they plan to open new positions in the near future. Around one fifth is uncertain, which also supports the relevance of UPSKILLS's planned promotional activities.

When it comes to the scope of our project, the skills and knowledge that UPSKILLS aims to improve through its activities were confirmed to be essential and in need of improvement by this survey (e.g., machine learning, project management, problem-solving). One company also notes a new skill that might be considered in the UPSKILLS project - insight and talent analytics. While creativity was not assessed as the most important by most companies, around one fifth noted it is lacking which might be sufficient to develop this skill too, as it might rise in importance in the new profile of a linguistics and language graduate for the 21st century that UPSKILLS aims to define.

The results also confirm the level of quality of current curricula in some key areas, which was also presumed in the UPSKILLS project proposal and found in the survey of curricula (Gledić et al. 2021). Namely, general language knowledge and communication, presentation and analytical skills are not seen as lacking by many companies. Content developed under UPSKILL can thus perhaps focus on other areas, especially when it comes to student projects and research-based teaching, or further efforts can be made to identify more specifically which segments of these key skills might not be covered by existing curricula.

While the data provides individual perspectives of each employer, the aggregate results provide key insights for a job market where graduates are likely to need or want to transition from industry to industry, and thus should be able to fit into different profiles. The UPSKILLS project can play a key role in raising awareness about this new reality among businesses and policymakers as well as educational institutions.

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## Annex 1 -- Final questionnaire in English

# UPSKILLS questionnaire for industry

Thank you for taking the time to fill in this survey! It should take you around 10 minutes to complete it.

This study is part of the Erasmus+ project entitled UPgrading the SKills of Linguistics and Language Students. The central goal of the UPSKILLS project is to identify and tackle skills gaps of language graduates and to better prepare them for the evolving job market. Your answers are part of a wider needs analysis and will be used to guide the development of learning materials within the project.

The survey is aimed towards anyone who has a knowledge of the staff employed by your company or in your team (including, but not limited to managers, HR, team coordinators, etc.). When answering the questions, please refer to the whole company. If this is not possible, please refer to the unit to which you can and leave a note about this in the final open question.

The information provided by you in this questionnaire will be used for research purposes. It will not be used in a manner which would allow the identification of your individual responses. Anonymised research data will be archived in order to make them available to other researchers within the UPSKILLS project in line with the current data sharing practices.

### General questions

What is the size of your company? \*

Micro (fewer than 10 employees)

Small (10 to 49 employees)

Medium (50 to 249 employees)

Large (250 or more people)

What is your core business? \*

Your answer

How many positions that require language and/or linguistics skills do you currently have in your company (not counting external experts)? \*

None

1-5

5-10

10-20

more than 20

I don't know

How many positions that require language and/or linguistics skills do you expect to open in the next 5 years (not counting external experts)? \*

None

1-5

5-10

10-20

more than 20

I don't know

## Main questions

For which kinds of positions would you consider language and/or linguistics experts? (please check all that apply)

Language specialist

Analytical/data linguist

Computational linguist/language engineer

Project manager/coordinator

Research associate

Other:

What are the main tasks that language and/or linguistics experts might have in your company? (please check all that apply)

Communicating with teams, clients and/or vendors

Managing projects

Evaluating processes

Writing reports

Working with data (annotating, analyzing, collecting, transcribing etc.)

Working with software and technological tools (developing, analyzing, testing etc.)

Conducting research

Other:

What are the most important skills you look for in the staff you hire for language and/or linguistics tasks? (please check all that apply)

Communication skills (incl. interpersonal)

Organizational skills (incl. management)

Analytical skills (incl. research)

Technical skills

Problem-solving skills (incl. independence and quick learning)

Presentation skills

Attention to detail

Working under pressure

Creativity

Other:

In your experience working with language and/or linguistics experts, which skills do you find they need to improve the most? (please check all that apply)

Communication skills (incl. interpersonal)

Organizational skills (incl. management)

Analytical skills (incl. research)

Technical skills

Problem-solving skills (incl. independence and quick learning)

Presentation skills

Attention to detail

Working under pressure

Creativity

Other:

What are the most important areas of knowledge and experience you generally look for in language and/or linguistics experts (please check all that apply)

Knowledge of English and/or other languages

Linguistics

Computational linguistics

Translation and/or localization

Terminology management

Data analysis

Computer science (incl. programming)

Language technology tools (incl. CAT tools)

Project management

Other:

In your experience working with language and/or linguistics experts, which areas of knowledge and experience do you find they need to improve the most? (please check all that apply)

Knowledge of English and/or other languages

Linguistics

Computational linguistics

Translation or localization

Terminology management

Data analysis

Computer science (incl. programming)

Language technology tools (incl. CAT tools)

Project management

Other:

Please add here any additional comments that you would like to share with us, e.g. if you referred to a unit rather than a whole company or if you have a specific definition of the terms used in this questionnaire. If you outsource language tasks, please note here the number of external experts.

Your answer

Thank you for taking part! We really appreciate your feedback.

## Annex 2 -- Core business of the surveyed companies – all responses

What is your core business?	Number of responses
62.03 (likely Managing computer equipment, based on the Croatian classification of businesses)	1
Adds, web portals and e commerce	1
Advertisement	1
ASR	1
Automotive	1
Business consulting	1
Computer programming	2
Content analysis	1
Data driven web applications	1
Development of software solutions	1
Digital marketing services	1
E-commerce	1
Education	2

Electro	1
Entertainment	1
Financial content NLU and analytics generation	1
Financial information	1
Forensic casework	1
Gaming localization	1
Health	1
Insurance	6
Internet business	1
Internet services	1
IT	2
IT solutions	1
Language services	1
Language training and translation	1
Lexical data	1
Localisation	3
Localization	1

Manufacture of cosmetic products	1
Marketing	1
Media	1
Professional services	2
Providing translation and localization services	1
Publishing newspapers	1
Recruitment business for the translation industry	1
SMS	1
Software development	1
Software solutions	1
Speech recognition	1
Speech technology, natural language understanding	1
Tech (my team focuses on ads)	1
Translation	6
Translation and editing for the automotive industry	1
Translation and interpreting	1
Translation and localization	2

Translation and localization services	1
Translation and related services	1
Translation technology	1
Virtual assistant	1
Voice technologies	1
Voip telephony	1