

Freelancer Competences: National Analysis Report

Romania

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Disclaimer

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The quantitative analysis of the national datasets within the ENTEEF project was carried out by Florin Stoica (Lucian Blaga University of Sibiu), following a standardized methodological framework. This centralized approach ensured consistency, comparability, and methodological rigor across all participating countries.

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Introduction

This National Report presents the results of the quantitative analysis conducted for Romania within the framework of the ENTEEF – Fostering Entrepreneurship through Freelancing project. The analysis was carried out by the Romanian research team in strict accordance with the *Freelancer Competences: Quantitative Analysis Guidelines*, ensuring methodological rigor, transparency, and full comparability with national reports produced by other partner countries

The report is based on data collected from Romanian respondents through the ENTEEF Questionnaire for Freelancers and Questionnaire for Companies. Its main objective is to provide an evidence-based assessment of freelancer competences, perceived skill gaps, and training needs within the Romanian freelance ecosystem, while maintaining alignment with the common analytical framework defined at project level.

The structure of the report follows the standardized analytical stages recommended in the ENTEEF guidelines. It begins with descriptive statistics and respondent profiling, offering an overview of the demographic and professional characteristics of Romanian freelancers and companies. This section provides the contextual foundation for interpreting subsequent analytical results.

The report then examines competence importance and proficiency (or meeting standards), identifying key competences perceived as critical by Romanian freelancers and hiring companies. This analysis supports the identification of competences that are most relevant within the national context and contributes directly to addressing Research Question RQ1.

Subsequent sections apply comparative and inferential statistical methods, including cross-tabulation analysis, Chi-square tests, ANOVA, and paired comparisons, to explore relationships between competences and categorical variables such as age, education level, area of activity, company size, and AI usage. These analyses allow for

the systematic identification of competence mismatches and statistically significant differences across respondent groups, addressing Research Questions RQ1 and RQ2.

The report further includes a segmentation and profile analysis, using cluster analysis to identify distinct freelancer typologies in Romania and CHAID decision-tree analysis to explore organizational profiles associated with anticipated challenges in accessing skilled freelancers. These methods provide an interpretable, data-driven understanding of heterogeneity within the Romanian freelance market and support targeted policy and training recommendations, in line with Research Question RQ3.

Finally, the findings are integrated into an identification of training needs, combining freelancer and company perspectives into structured training-needs matrices. This step translates empirical competence gaps into prioritized training areas, providing direct input for the design of educational interventions, upskilling programs, and evidence-based recommendations relevant to the Romanian context.

Overall, this National Report operationalizes the ENTEEF quantitative analysis framework for Romania and contributes robust, comparable evidence to the project's cross-country analysis. Consistent with the conclusions of the methodological guidelines, the results presented here provide a validated empirical foundation for the development of the Competence Assessment Tool (CAT) and for the design of MOOCs and targeted training modules, ensuring alignment between freelancers' professional development needs and companies' demand within the Romanian freelance economy.

1 Descriptive Statistics:

Respondent Profiling

1.1 Freelancers

This section provides a comprehensive overview of the demographic, educational, and professional characteristics of freelancers participating in the ENTEEF survey in Romania. The descriptive analysis presented here establishes the empirical context for understanding freelancers' competence profiles, perceived challenges, and training needs examined in subsequent sections of the report.

The section begins with a detailed demographic profile, including age and gender distributions, which offers insight into the composition of the freelance workforce and supports later subgroup analyses. Educational background is examined both in terms of highest level of education attained and area of education, allowing for a nuanced understanding of freelancers' formal qualifications and disciplinary orientations.

Professional characteristics are then explored through indicators such as years of experience as a freelancer, main area of freelance activity, and number of clients in the past 12 months. Together, these variables describe freelancers' labour-market positioning, degree of professional maturity, and patterns of client engagement, which are essential for interpreting differences in competence use, workload structure, and income stability.

The section further examines job acquisition mechanisms, including freelancers' reliance on personal contacts, professional networks, digital labour platforms, and social networks. By distinguishing between different channels and platforms used to find work, the analysis highlights how freelancers access market opportunities and how digital intermediaries shape freelance careers.

In addition, the section captures freelancers' forward-looking perceptions, addressing anticipated near-term challenges, perceived drivers of freelancing growth,

and expectations regarding the future of freelancing. These perspectives provide valuable insight into freelancers' strategic outlook, perceived risks, and opportunities within a rapidly evolving labour market.

Finally, the section explores freelancers' engagement with artificial intelligence and continuous learning, focusing on expected future use of AI, investment in upskilling and reskilling, and preferred pathways for skill acquisition and development. These dimensions are particularly relevant for understanding how freelancers adapt to technological change and how training interventions can be designed to align with both individual practices and market demands.

Overall, this section establishes a structured and evidence-based profile of freelancers in Romania, serving as a critical foundation for the subsequent analysis of competence importance, proficiency, gaps, and training priorities within the ENTEEF analytical framework.

1.1.1 Age Distribution

The age distribution of Romanian freelancers reveals a clear concentration in the 29–36 and 37–44 age intervals, which together represent the most prominent segments of the national sample. These age groups correspond primarily to early- to mid-career professionals, for whom freelancing often combines accumulated professional experience with a high degree of labour-market flexibility.

The next most represented categories are the 24–28 and 45–52 age intervals. The presence of freelancers aged 24–28 suggests an early transition toward independent work, potentially linked to recent graduates or professionals in the initial stages of career exploration. In contrast, the 45–52 group reflects more established professionals who may engage in freelancing as a form of specialization, portfolio careers, or complementary income strategy.

At the lower end of the distribution, the Under 24 age group is minimally represented. This suggests that freelancing is less prevalent among very young respondents, possibly due to limited professional experience, ongoing formal education, or lower market access. Similarly, the 61 or more age group is also weakly

represented. This lower participation may reflect factors such as career stage preferences, reduced engagement in project-based work, or selective participation of senior professionals, rather than statutory retirement status.

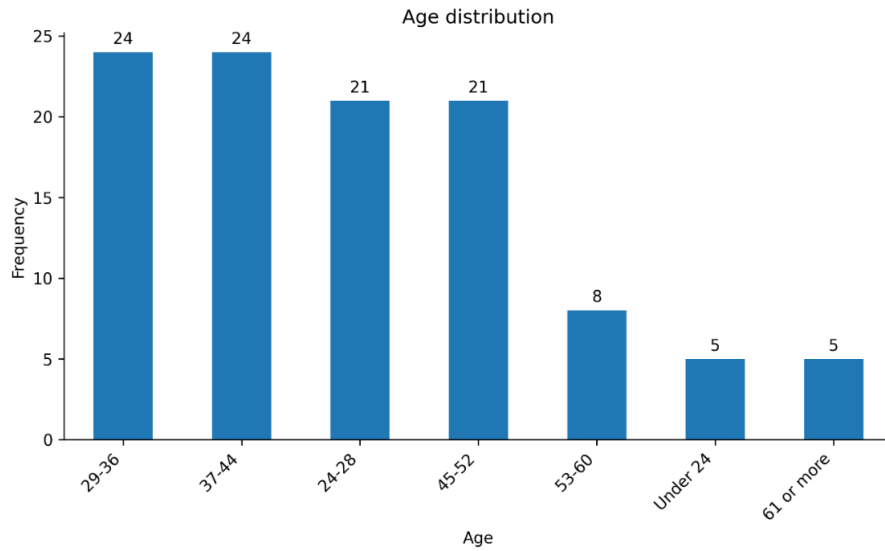


Figure 1. Age distribution of Romanian freelancers (N = 108).

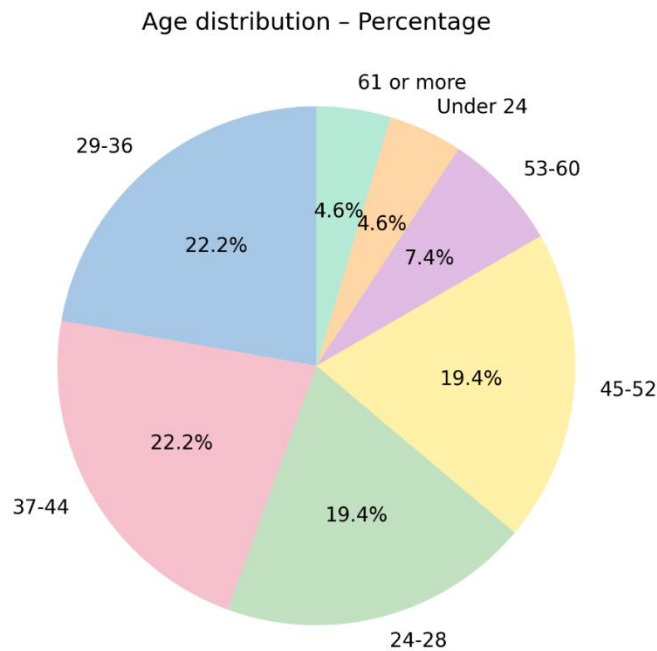


Figure 2. Percentage distribution of Romanian freelancers by age group (N = 108).

Overall, the observed age structure indicates that freelancing in Romania is predominantly concentrated among prime working-age professionals (29–44), with secondary participation from younger entrants and older, experienced specialists. This pattern provides important context for subsequent analyses, as age is likely to influence competence profiles, digital and AI adoption, upskilling frequency, and perceived training needs.

From an analytical perspective, age is a relevant stratification variable, as it is commonly associated with differences in professional experience, digital skills adoption, AI usage patterns, and upskilling behaviour. Therefore, the age profile established here forms an important basis for later cross-tabulation, mean-difference, and segmentation analyses.

1.1.2 Gender Distribution

The gender distribution of Romanian freelancers included in the analysis indicates a higher participation of male respondents, with 66 males (61.1%), compared to 42 female respondents (38.9%). This distribution reflects a moderate male predominance within the national sample.

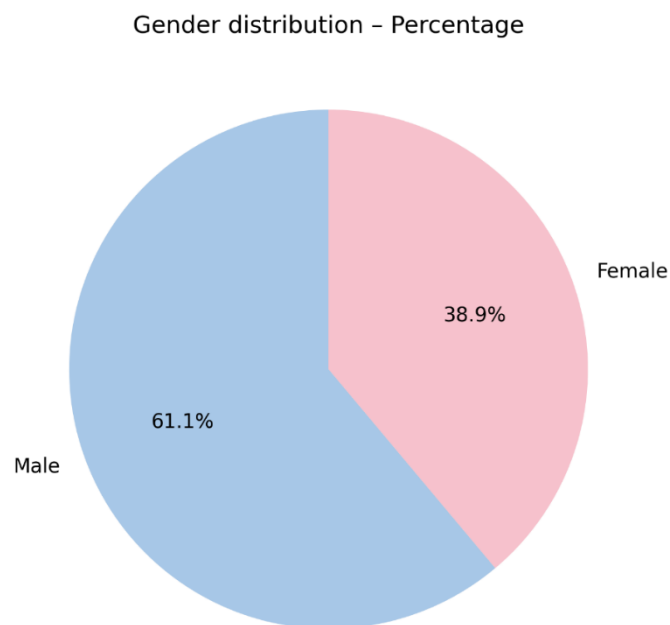


Figure 3. Percentage distribution of Romanian freelancers by gender (N = 108).

In relative terms, the observed gender structure suggests that freelancing activity in the Romanian context, as captured by the ENTEEF survey, is more prevalent among men, while women remain substantially represented. The presence of a sizable female subgroup supports meaningful comparative analyses by gender in subsequent sections of the report.

Understanding gender composition is essential for interpreting potential differences in competence importance, perceived proficiency, access to projects, and training needs. Gender is therefore treated as a key categorical variable in later inferential analyses, including Chi-square tests and ANOVA, to explore whether statistically significant differences exist in competence-related perceptions and outcomes.

1.1.3 Education Level

The education-level distribution of Romanian freelancers participating in the ENTEEF survey indicates a very high level of formal educational attainment. The most prevalent qualification is a Master's degree, reported by 52 respondents (48.1%), making it the dominant educational category within the national sample.

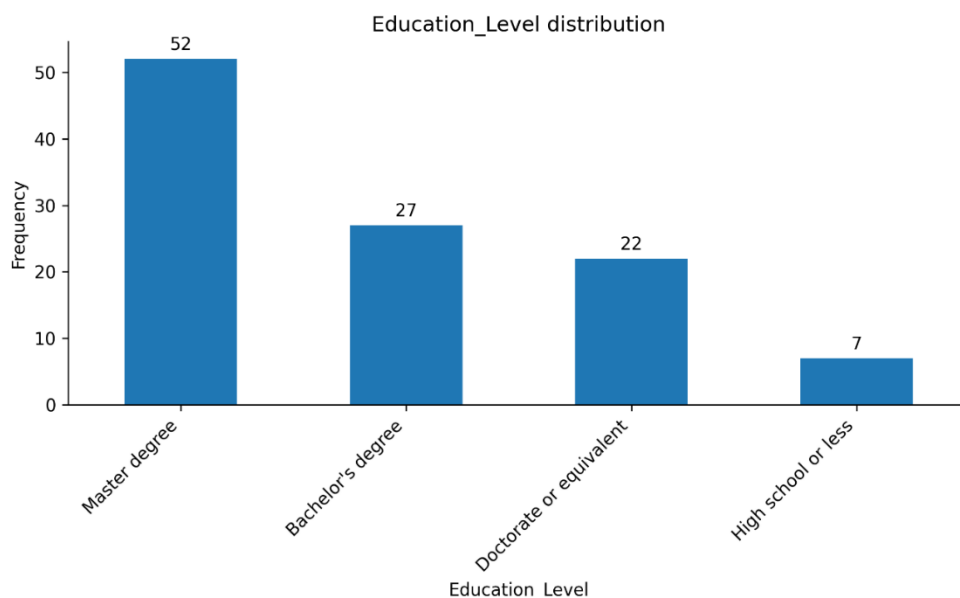


Figure 4. Distribution of Romanian freelancers by education level (N = 108).

This is followed by Bachelor's degree holders, accounting for 27 respondents (25.0%), and by individuals holding a Doctorate or equivalent qualification, representing 22 respondents (20.4%).

Education_Level distribution - Percentage

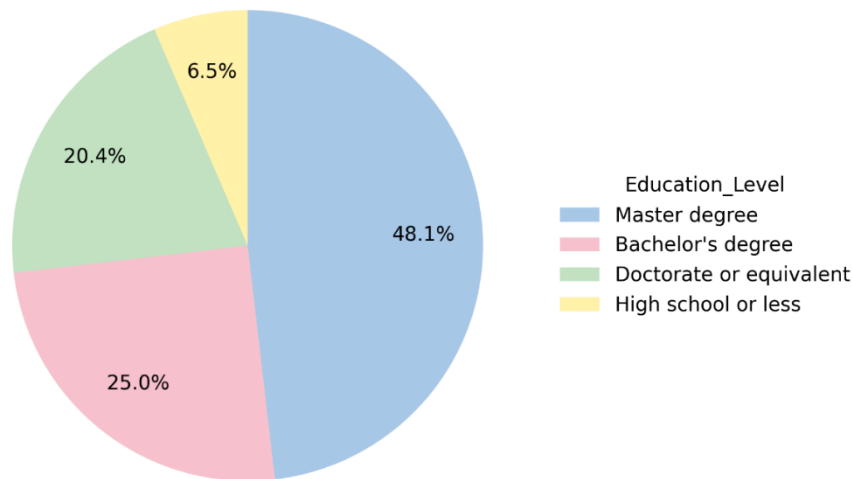


Figure 5. Percentage distribution of Romanian freelancers by education level (N = 108).

The presence of a substantial proportion of doctorate-level respondents highlights a strong representation of highly specialized and academically advanced professionals within the Romanian freelance workforce.

A smaller segment of respondents, 7 individuals (6.5%), reported having high school education or less. While numerically limited, this group confirms that entry into freelancing is not exclusively restricted to higher education graduates, although advanced education appears to be a significant characteristic of the surveyed population.

Overall, the distribution shows that more than nine out of ten respondents (93.5%) hold at least a Bachelor's degree, underscoring the knowledge-intensive nature of freelancing in the Romanian context. This educational profile has important implications for subsequent analyses, as education level is likely to influence competence importance perceptions, proficiency levels, technology adoption, and training needs.

1.1.4 Area of Education

The total number of observations reported for Area of Education (N = 127) differs from the total number of respondents reported for Education Level (N = 108). This difference arises because the Area of Education variable allows respondents to report more than one field of study, reflecting multidisciplinary educational backgrounds. As a result, the frequencies in this category represent the total number of reported educational fields, rather than the number of unique respondents.

Consequently, percentages for Area of Education are calculated relative to the total number of reported fields and should be interpreted as distribution of educational backgrounds, not as proportions of individuals. This approach provides a more accurate representation of the diverse and often cross-disciplinary educational profiles present in the Romanian freelance workforce.

The distribution of respondents by area of education highlights a strong concentration in ICT-related fields, reflecting the knowledge- and technology-intensive nature of freelancing in Romania. The largest group consists of respondents with an educational background in Information and Communication Technologies (ICT), accounting for 56 individuals (44.1%). This dominance indicates that a substantial share of Romanian freelancers operates in digital and technology-driven domains.

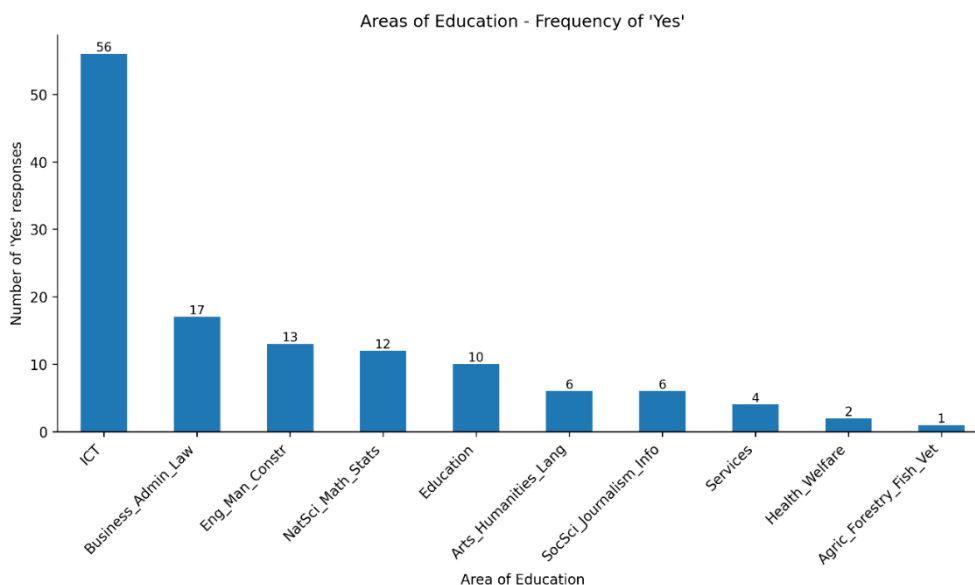


Figure 6. Distribution of Romanian freelancers by area of education (N = 108).

The second most represented category is Business, Administration and Law, with 17 respondents (13.4%), followed by Engineering, Manufacturing and Construction (13 respondents; 10.2%) and Natural Sciences, Mathematics and Statistics (12 respondents; 9.4%). Together, these fields further reinforce the technical and analytical profile of the surveyed freelance population.

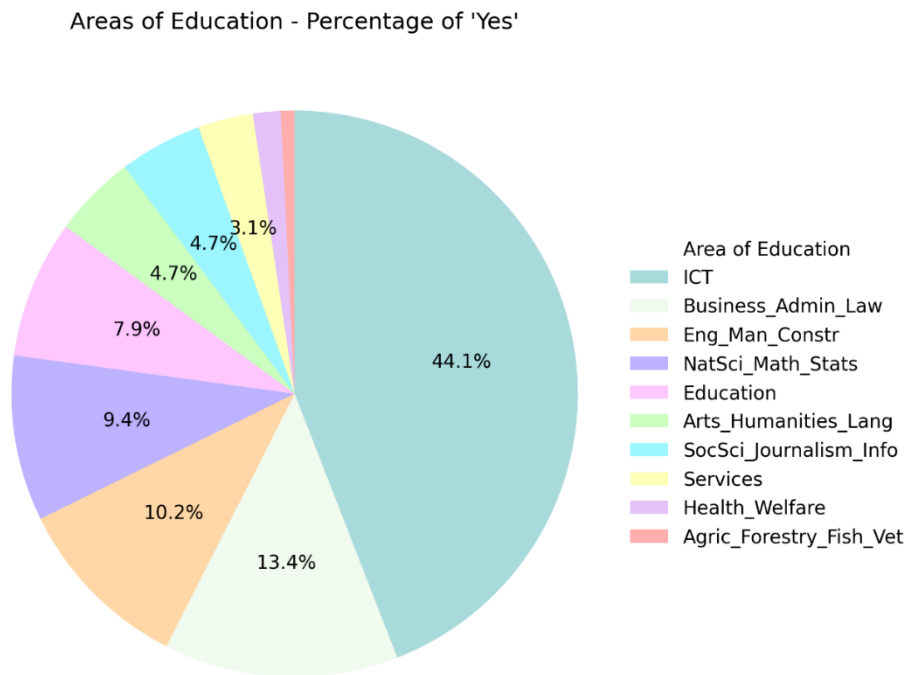


Figure 7. Percentage distribution of Romanian freelancers by area of education (N=108).

Moderate representation is observed in Education (10 respondents; 7.9%), as well as in Arts, Humanities and Languages and Social Sciences, Journalism and Information, each comprising 6 respondents (4.7%). These areas suggest the presence of freelancers engaged in creative, educational, and communication-oriented activities.

At the lower end of the distribution are Services (4 respondents; 3.1%), Health and Welfare (2 respondents; 1.6%), and Agriculture, Forestry, Fisheries and Veterinary sciences (1 respondent; 0.8%). These fields represent niche segments within the Romanian freelance landscape.

Overall, the area-of-education profile indicates that Romanian freelancing is predominantly anchored in ICT and related technical and business disciplines, with

complementary participation from social, educational, and creative fields. This structure provides important context for interpreting competence importance, digital literacy levels, AI adoption, and training needs identified in later sections of the report.

1.1.5 Years of Experience as a Freelancer

The largest group consists of freelancers with 1–5 years of experience, comprising 52 respondents (48.1%). This category reflects a substantial segment of professionals who have moved beyond initial entry into freelancing and have accumulated sufficient experience to operate consistently in project-based or independent work.

The next most represented category is 6–10 years of freelance experience, reported by 26 respondents (24.1%), followed closely by those with more than 10 years of experience, accounting for 24 respondents (22.2%). Together, these two groups indicate that nearly half of the sample consists of highly experienced freelancers, suggesting long-term integration into the freelance labour market.

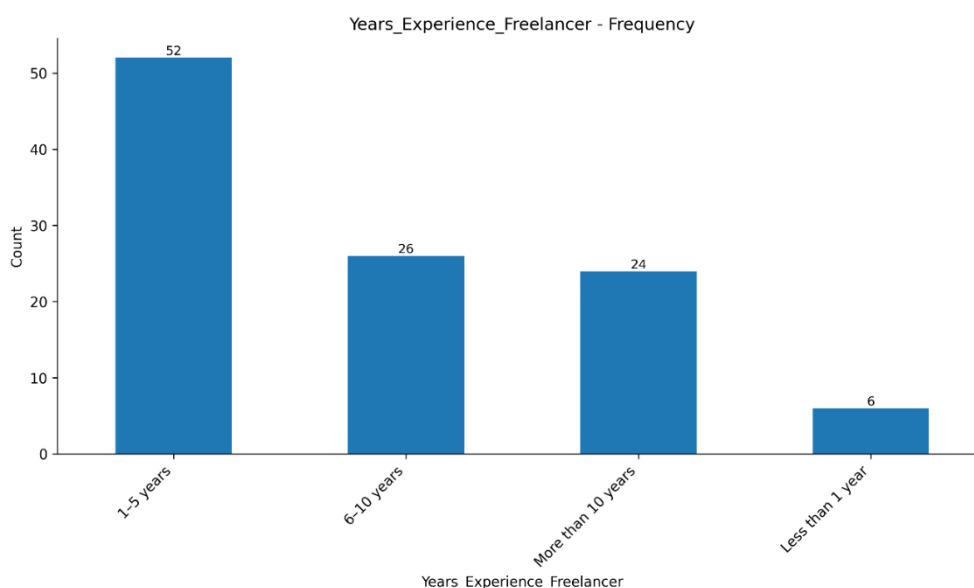


Figure 8. Distribution of Romanian freelancers by years of freelancing experience (N = 108).

At the lower end of the distribution, 6 respondents (5.6%) report less than 1 year of experience. This relatively small share suggests limited representation of newcomers, indicating that the survey sample is weighted toward freelancers with

established professional trajectories rather than individuals in the very early stages of freelance activity.

Overall, the experience profile highlights a mature freelance population in Romania, with a strong presence of mid- and long-term practitioners. This has important implications for the interpretation of competence proficiency, digital and AI adoption, and training needs, as more experienced freelancers may exhibit different upskilling behaviours and competence gaps compared to recent entrants.

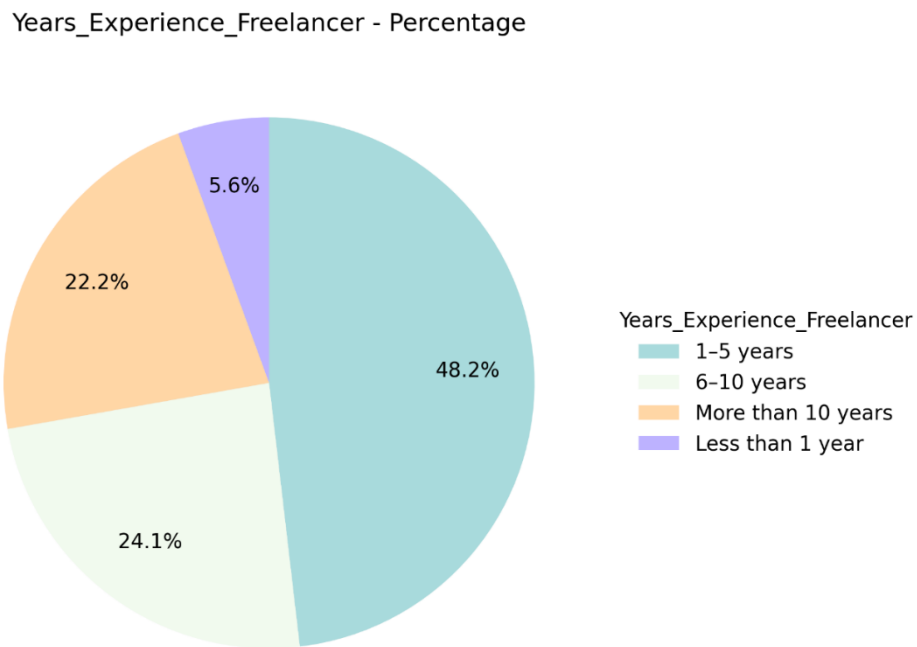


Figure 9. Percentage distribution of Romanian freelancers by years of freelancing experience (N = 108).

1.1.6 Main Area of Freelancer Activity

The distribution of respondents by main area of freelancer activity shows a strong concentration in technology- and knowledge-intensive fields, reflecting the structure of the Romanian freelance market captured by the ENTEEF survey.

The largest group of respondents operates in Software Development and IT, accounting for 50 freelancers (46.3%). This dominant share confirms the central role of digital and IT-based activities within the Romanian freelance ecosystem and aligns

with the high prevalence of ICT-related educational backgrounds observed in the sample.

The next most represented categories are Professional Services (14 respondents; 13.0%), Creative and Multimedia (13 respondents; 12.0%), and Teaching (12 respondents; 11.1%). Together, these areas indicate a substantial presence of freelancers engaged in consultancy-oriented, creative, and educational activities, which typically rely on advanced skills, domain expertise, and project-based work.

Smaller proportions of respondents report activity in Technical Engineering (8 respondents; 7.4%) and Writing and Translation (4 respondents; 3.7%). These categories represent specialised niches within the freelance market, often characterised by task-specific expertise and variable project demand.

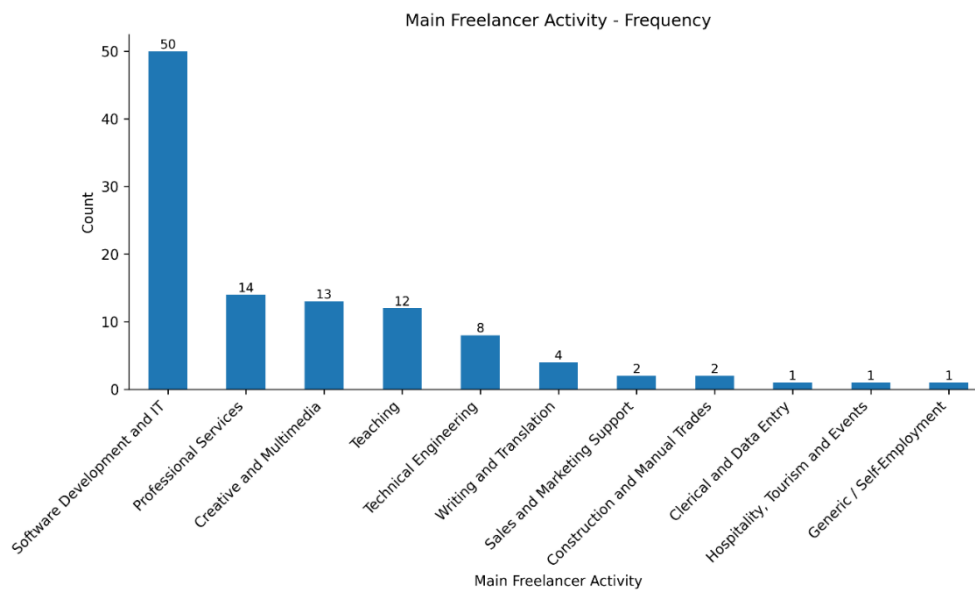


Figure 10. Distribution of Romanian freelancers by main freelancing activity (frequency) (N = 108).

Main Freelancer Activity - Percentage

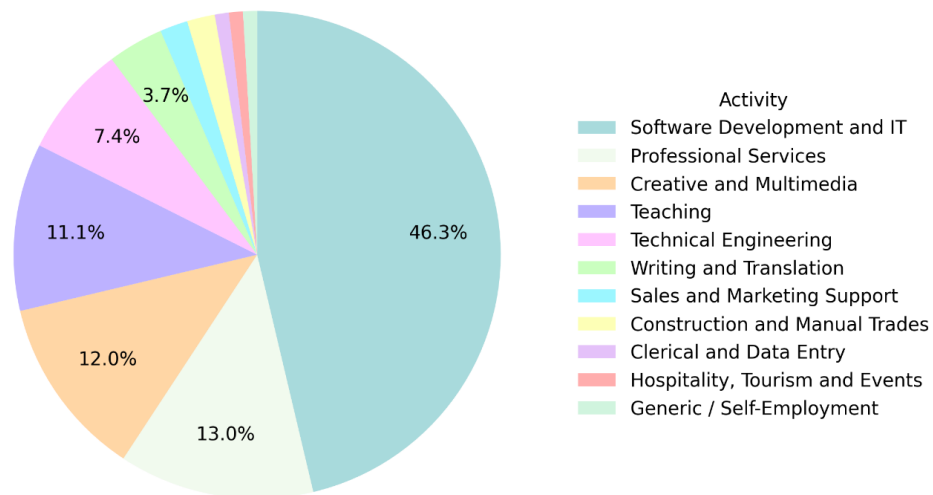


Figure 11. Percentage distribution of Romanian freelancers by main freelancing activity (N = 108).

At the lower end of the distribution are Sales and Marketing Support and Construction and Manual Trades, each reported by 2 respondents (1.9%), as well as Clerical and Data Entry, Hospitality, Tourism and Events, and Generic / Self-Employment, each with 1 respondent (0.9%). These areas constitute marginal segments within the surveyed population.

Overall, the activity profile indicates that freelancing in Romania is predominantly oriented towards IT, professional, creative, and educational services, with limited representation in manual, clerical, or hospitality-related activities. This structure provides essential context for interpreting competence requirements, digital literacy levels, AI adoption, and training needs analysed in subsequent sections of the report.

1.1.7 Number of Clients in the Past 12 Months

The distribution of respondents by the number of clients served in the past 12 months reveals a strong concentration at the lower end of the client spectrum, indicating that most Romanian freelancers in the sample work with a limited number of clients annually.

The most frequent category is 2 clients, reported by 24 respondents (22.22%), followed closely by 1 client, reported by 21 respondents (19.44%), and 3 clients,

reported by 14 respondents (12.96%). Taken together, these three categories account for 54.62% of the total sample, demonstrating that more than half of the freelancers worked with three or fewer clients during the previous year.

This concentration suggests a prevalence of longer-term or recurring client relationships, project continuity, or engagement in a small number of substantial contracts, rather than high-volume, short-term assignments. Such patterns are often associated with specialised services, trust-based collaborations, or part-time freelancing arrangements.

Beyond this core group, the distribution displays a pronounced long-tail structure, with progressively fewer respondents reporting higher numbers of clients. Categories such as 4–5 clients and 10–20 clients are represented by smaller shares, while a limited number of respondents report very high client counts (e.g., above 50 clients), reflecting niche cases of high-volume freelance activity.

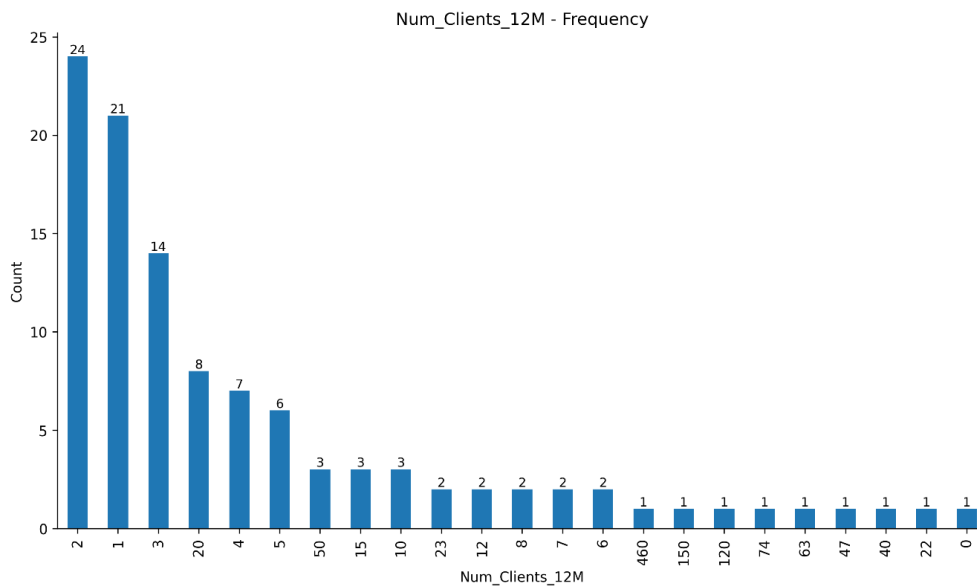


Figure 12. Distribution of Romanian freelancers by number of clients in the past 12 months (frequency) (N = 108).

Overall, the client-volume profile indicates that the Romanian freelance market, as captured in this survey, is characterised primarily by low to moderate client diversification, with a small number of highly active freelancers operating at the upper end of the distribution. This pattern provides important context for interpreting

income stability, workload intensity, competence utilisation, and training needs in subsequent analyses.

1.1.8 Freelancers' Job Acquisition Channels

This subsection examines the channels through which Romanian freelancers identify and secure work opportunities. As respondents were allowed to select multiple job acquisition channels, the reported frequencies and percentages reflect the relative prominence of each channel, rather than mutually exclusive categories.

The results indicate that personal contacts constitute the dominant job acquisition channel, reported by 84 respondents (43.75%). This finding highlights the central role of informal networks, trust-based relationships, and personal referrals mechanisms in the Romanian freelance market.

The second tier of channels includes professional networking platforms (32 respondents; 16.67%) and social networks (30 respondents; 15.62%). Together, these channels underline the importance of both formal professional visibility and broader online social presence in accessing freelance opportunities.

Digital labour platforms are reported by 25 respondents (13.02%), indicating a moderate but not dominant reliance on platform-mediated work. This suggests that, while platform-based freelancing is present in Romania, it complements rather than replaces network-based and relationship-driven job acquisition strategies.

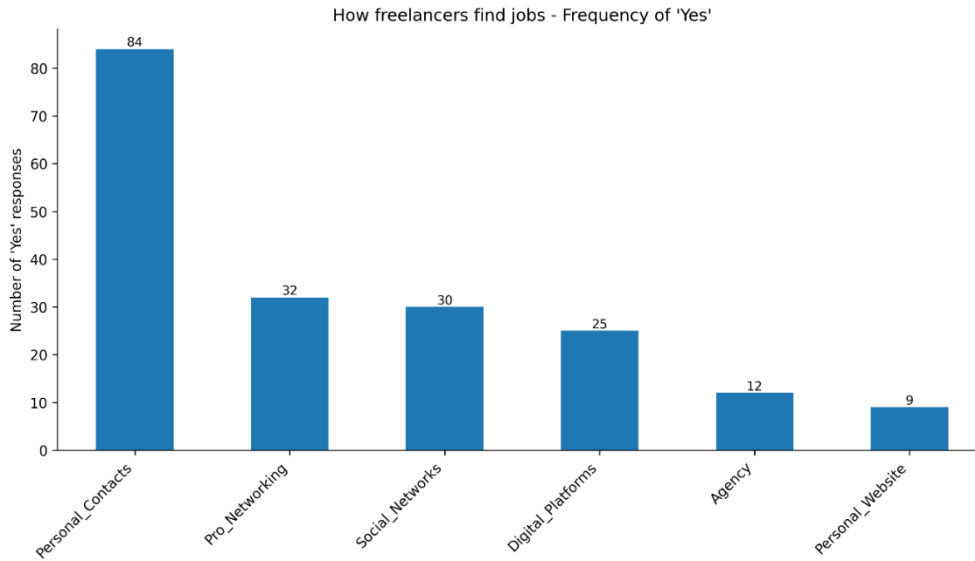


Figure 13. Distribution of Romanian freelancers by job acquisition channels (frequency of 'Yes' responses) (N = 108).

Less frequently used channels include agencies (12 respondents; 6.25%) and personal websites (9 respondents; 4.69%). Their relatively limited use suggests that formal intermediation and self-managed online branding play a secondary role compared to interpersonal and network-driven mechanisms.

Overall, the distribution of job acquisition channels indicates that freelancing in Romania is largely shaped by relational and network-based pathways, with digital platforms and formal intermediaries serving as supplementary mechanisms. This pattern provides important context for interpreting competence development, professional networking skills, and training needs related to market access and client acquisition.

How freelancers find jobs - Percentage of 'Yes'

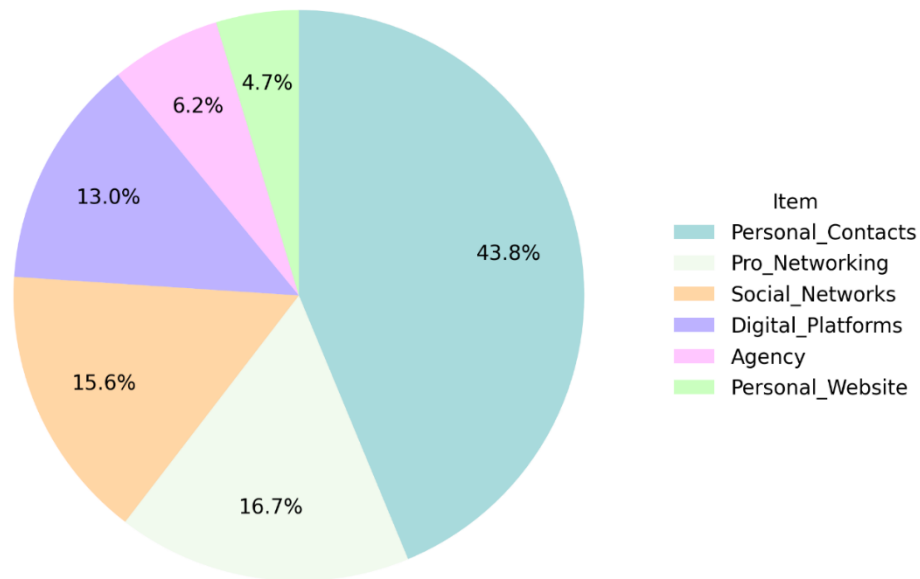


Figure 14. Percentage distribution of Romanian freelancers by job acquisition channels (share of 'Yes' responses) (N = 108).

1.1.9 Digital labour platforms used to find jobs

This subsection examines the digital labour platforms utilised by Romanian freelancers to identify work opportunities. It should be noted that only 43 out of the 108 respondents reported using digital labour platforms. Accordingly, the frequencies and percentages presented in this section are calculated relative to this subgroup of platform users, rather than to the full sample.

Among freelancers who use digital platforms, Freelancer is the most frequently reported service, used by 13 respondents (30.23%), making it the dominant platform within this subgroup. This is followed by Upwork, reported by 11 respondents (25.58%), confirming its strong role as a key international platform facilitating freelance work.

The third most commonly used platform is Fiverr, selected by 5 respondents (11.63%). Although less prevalent than Freelancer and Upwork, Fiverr remains a relevant channel, particularly for task-based and service-oriented freelance activities.

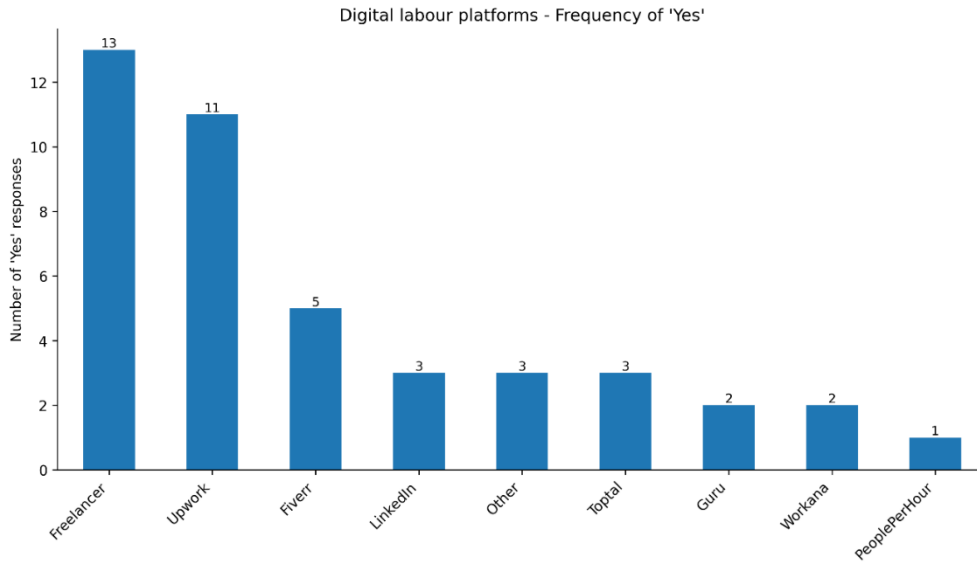


Figure 15. Distribution of Romanian freelancers by digital labour platforms used (frequency of 'Yes' responses) (N = 108).

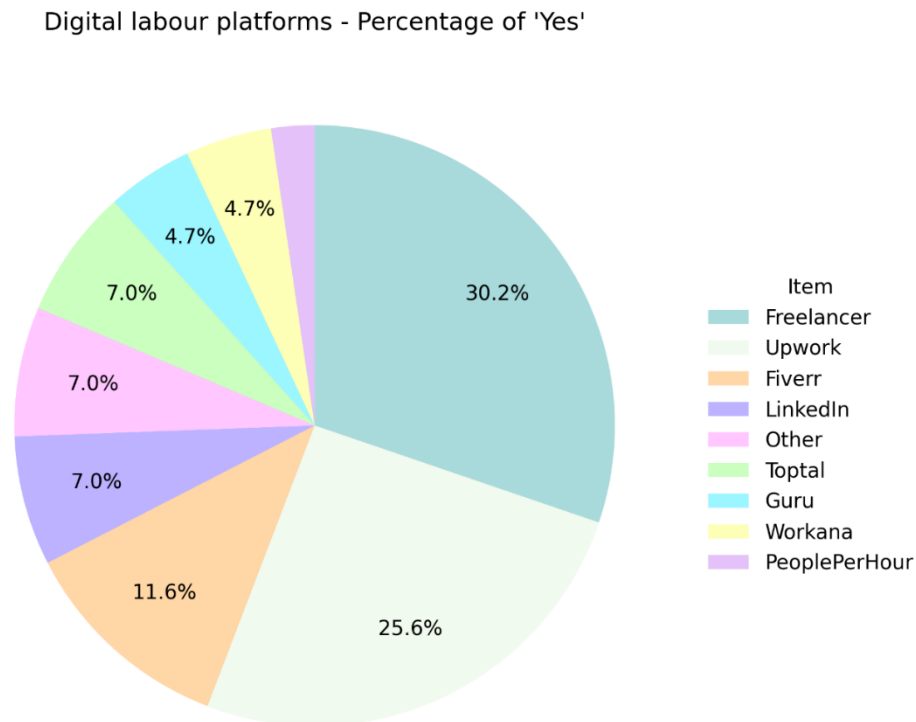


Figure 16. Percentage distribution of Romanian freelancers by digital labour platforms used (share of 'Yes' responses) (N = 108).

A further group of platforms: LinkedIn, Toptal, and other platforms are each reported by 3 respondents (6.98%). LinkedIn reflects the overlap between

professional networking and platform-based job acquisition, while Toptal represents a more selective platform accessed by a limited group of highly skilled freelancers.

The remaining platforms (Guru, Workana, and PeoplePerHour) are reported by only a small number of respondents, indicating limited use within the Romanian sample.

Overall, the results show that digital labour platform usage among Romanian freelancers is concentrated within a relatively small subset of respondents, and that this usage is dominated by a few well-established platforms. This finding provides important context for interpreting competition intensity, platform dependency, and competence requirements related to platform-based freelancing.

1.1.10 Social Networks Used to Find Jobs

This subsection analyses the social networks employed by Romanian freelancers to find work opportunities. It should be noted that 42 out of the 108 respondents reported using social networks for job acquisition. Consequently, the frequencies and percentages presented below are calculated relative to this subgroup of social-network users, rather than to the full sample.

Within this subgroup, LinkedIn emerges as the most prominent platform, used by 23 respondents (54.76%). This finding underscores the central role of LinkedIn as a professional-oriented social network facilitating visibility, networking, and access to freelance opportunities.

The second most frequently reported platform is Facebook, used by 12 respondents (28.57%). Although not primarily designed as a professional network, Facebook appears to function as an important informal channel for job-related information, community-based groups, and informal referrals.

Other platforms play a considerably smaller role. Instagram is reported by 4 respondents (9.52%), while TikTok is used by 2 respondents (4.76%). These platforms are likely associated with specific creative or content-driven freelance activities rather than broad-based job acquisition. An additional 1 respondent (2.38%) reports using other social networks, indicating limited diversification beyond the main platforms.

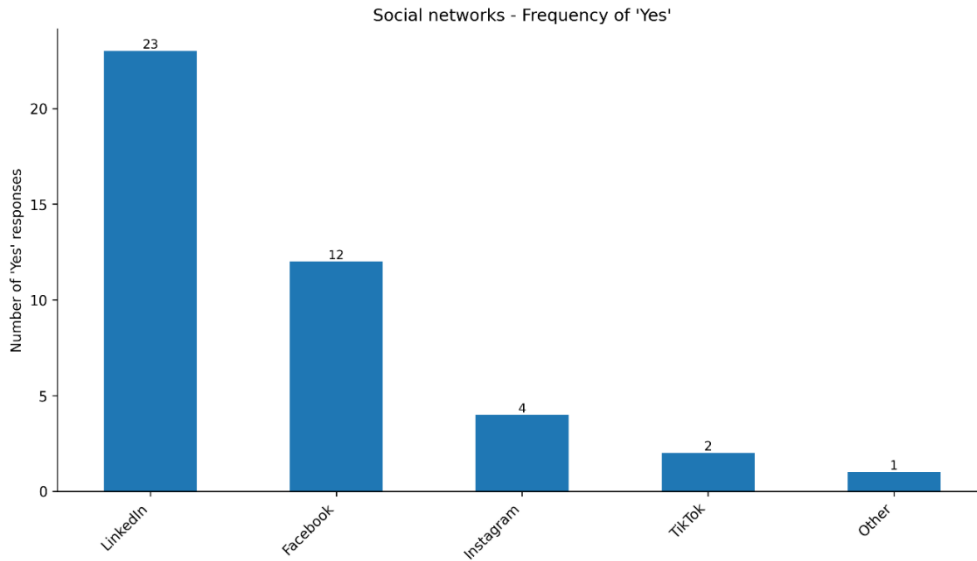


Figure 17. Distribution of Romanian freelancers by social networks used (frequency of 'Yes' responses) (N = 108).

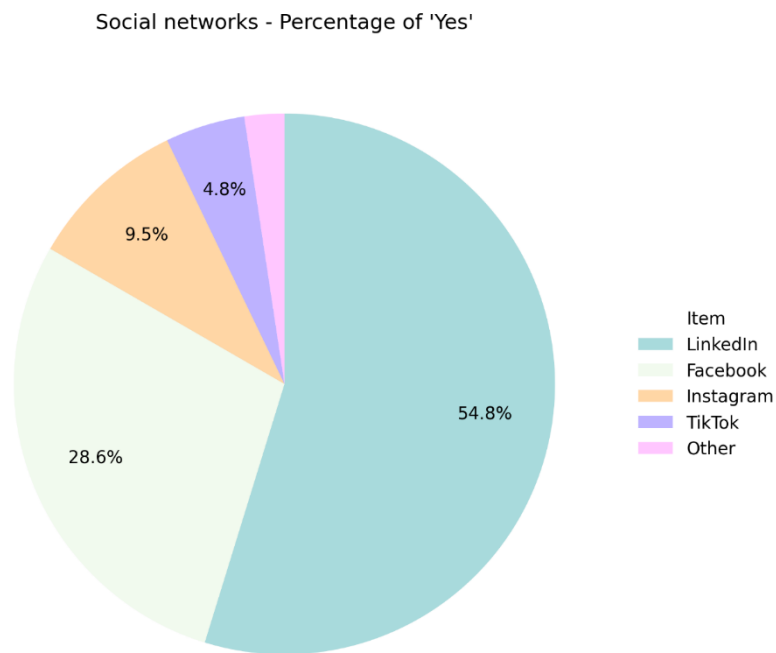


Figure 18. Percentage distribution of Romanian freelancers by social networks used (share of 'Yes' responses) (N = 108).

Overall, the results indicate that social-network-based job acquisition among Romanian freelancers is strongly concentrated on LinkedIn, with Facebook serving as a secondary channel and other platforms playing a marginal role. This pattern highlights the importance of professional online presence and networking skills for freelancers seeking work opportunities through social media.

1.1.11 Freelancers' Anticipated Near-Term Challenges

This subsection examines the near-term challenges anticipated by Romanian freelancers. Respondents were allowed to select up to three challenges, resulting in a total of 288 selections made by 108 respondents. Consequently, the frequencies and percentages reported below reflect the relative prominence of each challenge among all selected options, rather than mutually exclusive respondent categories.

The most frequently reported challenge relates to **market changes that may reduce demand or replace freelance services**, selected 64 times (22.22%). This indicates a high level of concern regarding market volatility, competitive pressures, and evolving client needs. Closely following this, the **need to upskill and keep pace with emerging trends** is selected 54 times (18.75%), underscoring the importance of continuous learning and adaptability in the freelance economy.

A similarly prominent concern is the **ability to secure consistent and stable income**, reported 53 times (18.40%). This reflects the inherent income uncertainty associated with freelance work and highlights financial stability as a key near-term challenge. In addition, **changes in customer expectations and contractual arrangements** are selected 51 times (17.71%), suggesting increasing complexity in client relationships and contractual conditions.

Challenges related to **maintaining resilience, discipline, and long-term motivation** account for 42 selections (14.58%), indicating that personal sustainability and well-being are significant considerations for freelancers. Less frequently reported challenges include **increasing project complexity** (19 selections; 6.60%), while **economic and regulatory instability** (4 selections; 1.39%) and **AI and automation-related concerns** (1 selection; 0.35%) are mentioned only marginally.

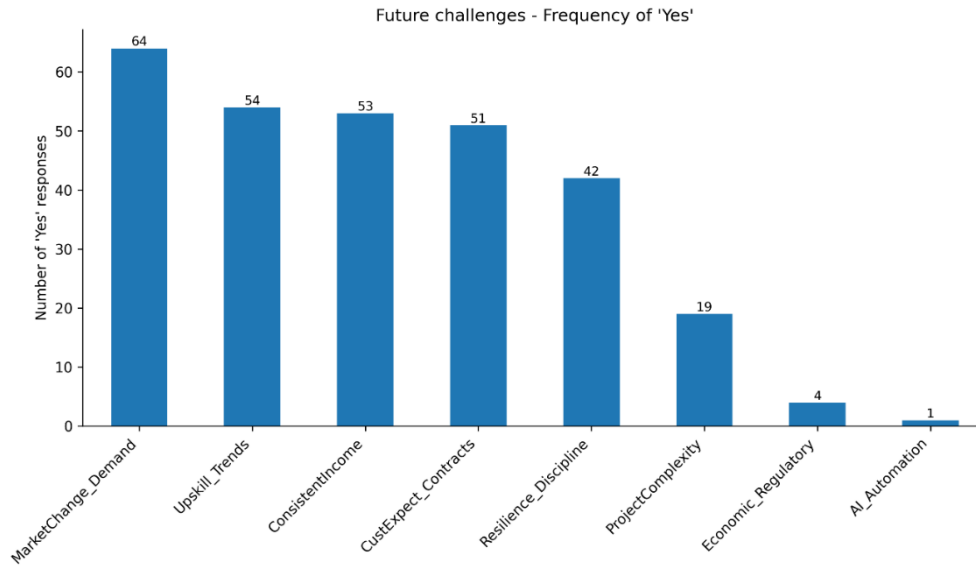


Figure 19. Distribution of Romanian freelancers by perceived future challenges (frequency of 'Yes' responses) (N = 108).

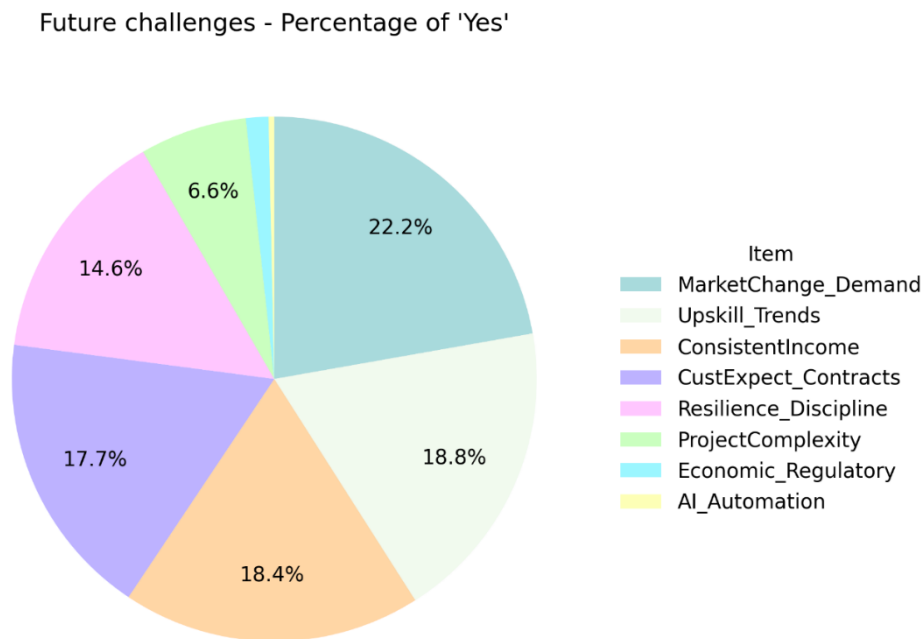


Figure 20. Percentage distribution of Romanian freelancers by perceived future challenges (share of 'Yes' responses) (N = 108).

Overall, the distribution of anticipated challenges suggests that Romanian freelancers primarily perceive **market dynamics**, **skills obsolescence**, **income stability**, and **evolving client expectations** as the most pressing near-term issues. These findings provide essential context for the subsequent analysis of competence

gaps and training needs, particularly in relation to upskilling, adaptability, and sustainable professional development.

1.1.12 Freelancers' Perceived Drivers of Freelancing Growth

This subsection explores the factors that Romanian freelancers perceive as driving the growth of freelancing. Respondents were allowed to select multiple factors, resulting in a total of 275 selections reported by 108 respondents. Accordingly, the frequencies and percentages presented below reflect the relative prominence of each perceived driver among all selected options, rather than mutually exclusive respondent categories.

The most frequently identified driver is **greater business flexibility**, selected 65 times (23.64%). This finding suggests that freelancers primarily associate the expansion of freelancing with increased autonomy, flexibility in work arrangements, and the ability to tailor professional activities to individual needs.

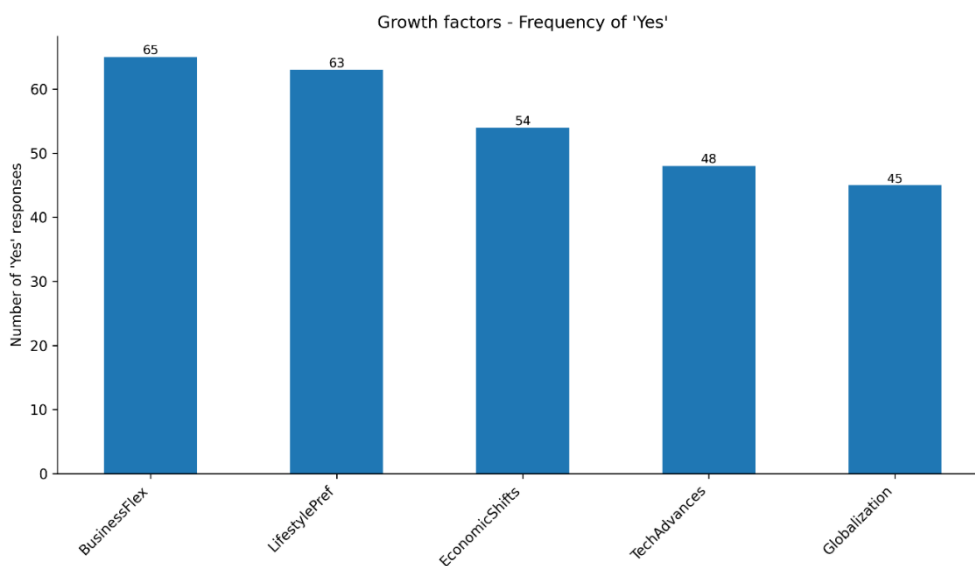


Figure 21. Distribution of Romanian freelancers by perceived growth factors (frequency of 'Yes' responses) (N = 108).

Closely following this, **lifestyle preferences** are reported 63 times (22.91%), indicating that non-economic motivations, such as work-life balance, location independence, and personal fulfilment, play a substantial role in freelancers' perceptions of sector growth.

Structural economic factors are also viewed as important. **Economic shifts** are selected 54 times (19.64%), reflecting perceptions of labour-market transformation, organisational restructuring, and changing employment models. In parallel, **technological advances** are reported 48 times (17.45%), highlighting the enabling role of digital tools, remote-work technologies, and online platforms in facilitating freelance activity.

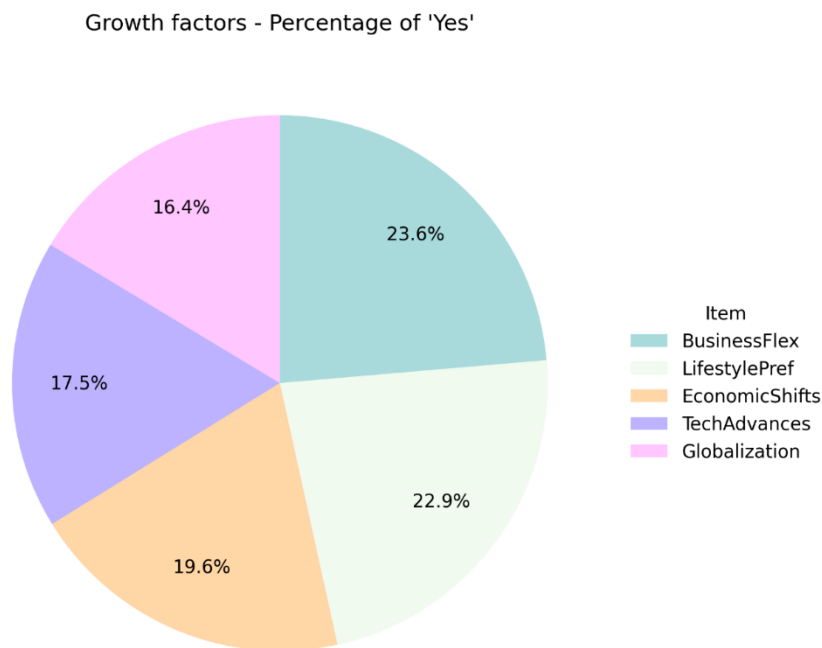


Figure 22. Percentage distribution of Romanian freelancers by perceived growth factors (share of 'Yes' responses) (N = 108).

Finally, **globalisation** is selected 45 times (16.36%), indicating awareness of expanding international markets, cross-border collaboration, and increased global competition as contributing factors to the growth of freelancing.

Overall, the distribution of perceived drivers suggests that Romanian freelancers view the growth of freelancing as the result of a **combination of individual-level motivations (flexibility and lifestyle preferences) and broader structural forces (economic change, technological development, and globalisation)**. These perceptions provide important contextual insight for interpreting freelancers' career choices, competence development needs, and anticipated challenges discussed in subsequent sections.

1.1.13 Freelancers' Perceptions of the Future of Freelancing

This subsection presents Romanian freelancers' perceptions regarding the future of freelancing in their professional fields. The distribution of responses indicates a generally positive outlook, accompanied by a notable share of neutral and cautious perspectives.

The most frequently reported sentiment is **somewhat optimistic**, expressed by 46 respondents (42.59%). This suggests that a substantial proportion of freelancers anticipate favourable developments in their fields, while still acknowledging potential uncertainties or challenges. A further 23 respondents (21.30%) report being **very optimistic**, reflecting strong confidence in the continued growth and sustainability of freelancing.

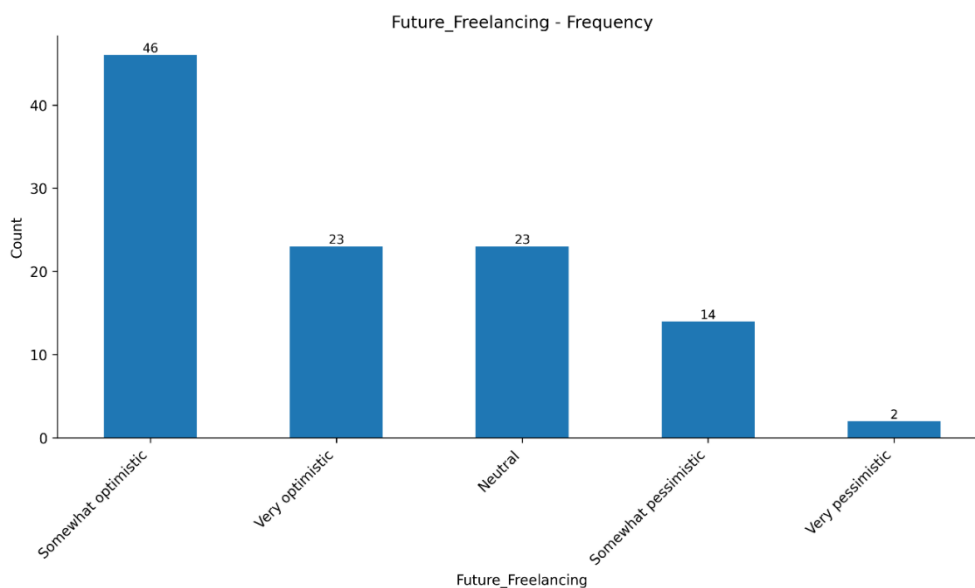


Figure 23. Distribution of Romanian freelancers by expectations regarding the future of freelancing (N = 108).

At the same time, 23 respondents (21.30%) express a **neutral** outlook, indicating ambivalence or uncertainty about future developments. This group may reflect freelancers who perceive both opportunities and risks and are therefore hesitant to adopt a strongly positive or negative stance.

More cautious views are reported by 14 respondents (12.96%) who are **somewhat pessimistic**, while only 2 respondents (1.85%) express a **very pessimistic** outlook.

The relatively small size of these groups suggests that strongly negative expectations about the future of freelancing are limited within the Romanian sample.

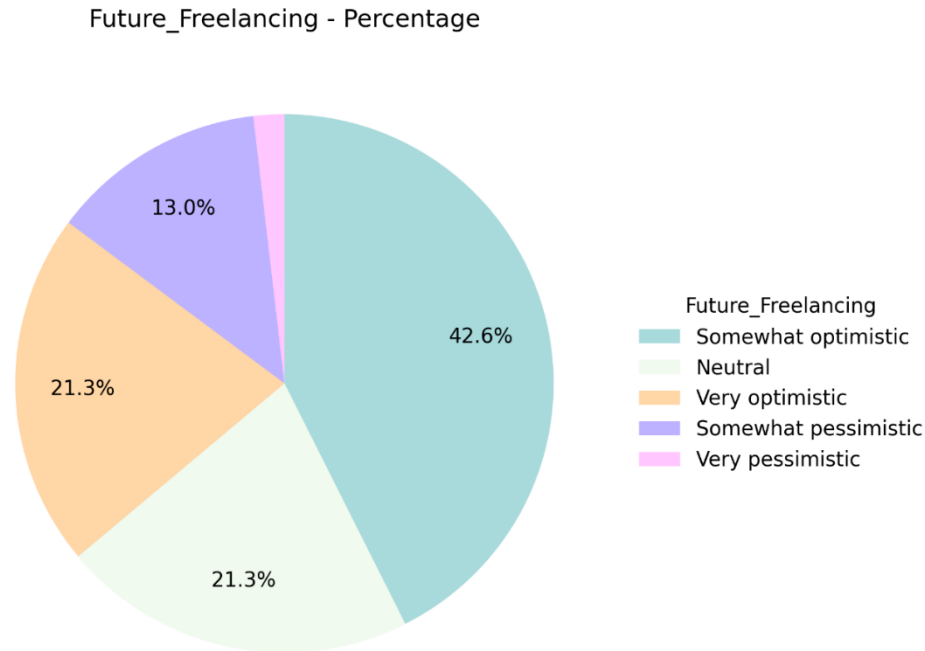


Figure 24. Percentage distribution of Romanian freelancers by expectations regarding the future of freelancing (N = 108).

Overall, the findings indicate that **nearly two-thirds of respondents (63.89%) hold an optimistic view** of the future of freelancing, while a smaller proportion remains neutral or pessimistic. This generally positive perception provides important context for interpreting freelancers' career decisions, investment in skill development, and engagement with emerging technologies discussed in subsequent sections of the report.

1.1.14 Freelancers' Expected Future Use of AI

This subsection examines Romanian freelancers' expectations regarding the use of artificial intelligence (AI) in their professional activities over the next five years. The distribution of responses indicates a strong anticipated integration of AI into freelance work, alongside varying degrees of expected usage intensity.

The largest share of respondents expects to use AI **regularly**, with **50** freelancers (46.30%) reporting this intention. This suggests that nearly half of the sample

anticipates AI becoming a routine component of their work processes within the next five years. A further 26 respondents (24.07%) indicate that they expect to use AI **often**, reinforcing the view that AI adoption is likely to become widespread among freelancers.

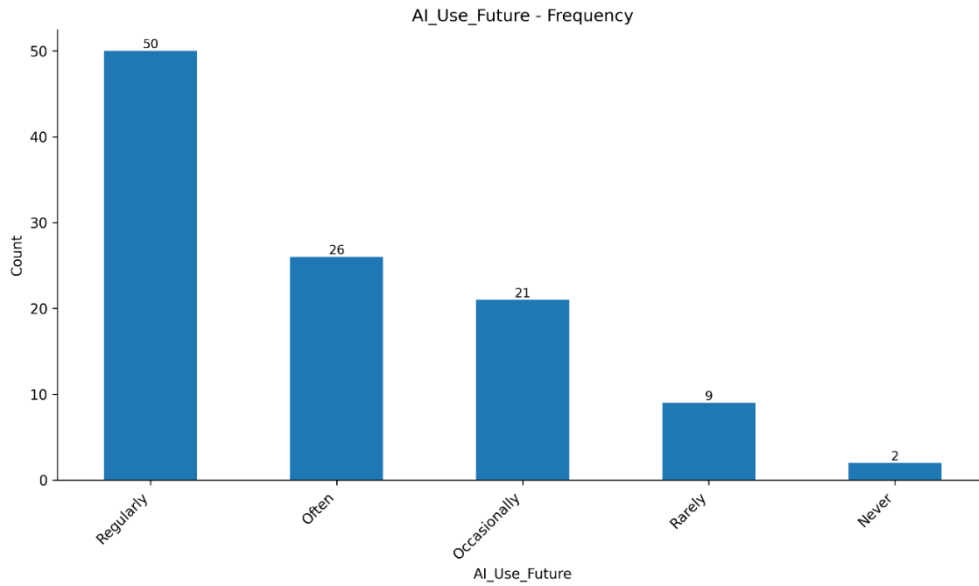


Figure 25. Distribution of Romanian freelancers by intended future use of artificial intelligence (frequency) (N = 108).

AI_Use_Future - Percentage

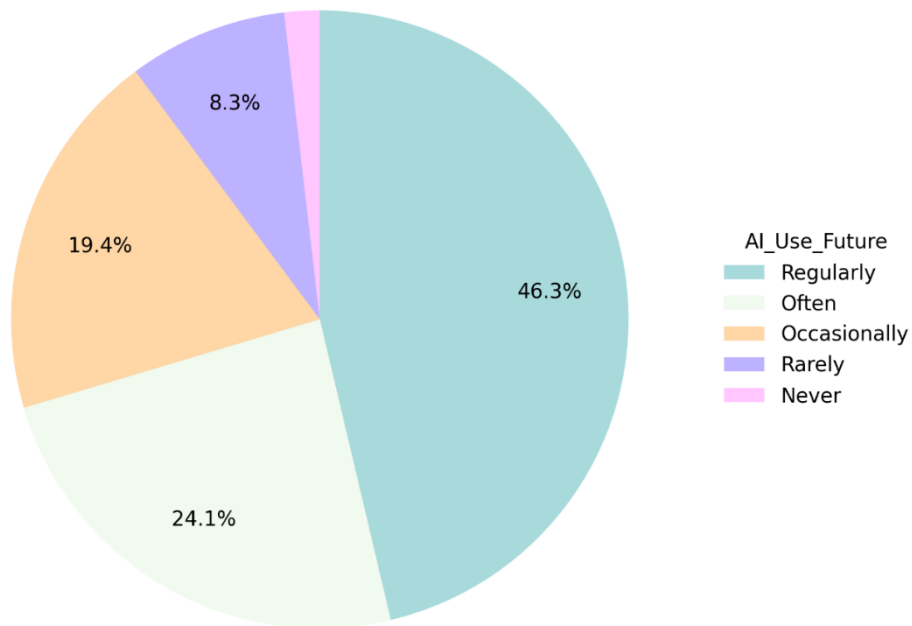


Figure 26. Percentage distribution of Romanian freelancers by intended future use of artificial intelligence (N = 108).

Moderate levels of anticipated AI usage are reported by 21 respondents (19.44%), who expect to use AI **occasionally**. This group may represent freelancers whose tasks are only partially amenable to automation or AI-assisted workflows. Lower expected adoption levels are observed among 9 respondents (8.33%) who anticipate using AI **rarely**, and 2 respondents (1.85%) who expect **never** to use AI in their freelance activities.

Overall, the findings indicate that **more than seven out of ten respondents (70.37%) expect to use AI regularly or often within the next five years**, highlighting a strong perceived relevance of AI technologies within the Romanian freelance economy. This anticipated adoption provides important context for interpreting competence requirements, training needs, and perceived challenges related to AI discussed in subsequent sections of the report.

1.1.15 Investment in Upskilling and Reskilling by Freelancers

This subsection examines the frequency with which Romanian freelancers invest in upskilling and reskilling as part of their professional development. The distribution of

responses indicates a high overall commitment to continuous learning within the freelance workforce.

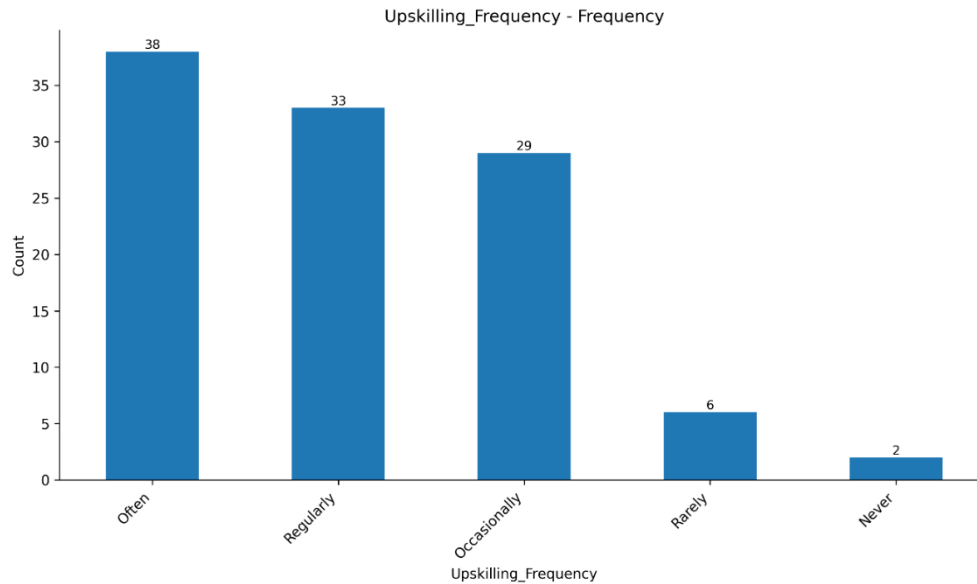


Figure 27. Distribution of Romanian freelancers by frequency of upskilling activities (N = 108).

The largest share of respondents report investing in upskilling or reskilling **often**, with 38 freelancers (35.19%) selecting this option. This is closely followed by 33 respondents (30.56%) who indicate that they engage in upskilling or reskilling **regularly**, suggesting that structured and repeated investment in skill development is common practice among freelancers.

Upskilling_Frequency - Percentage

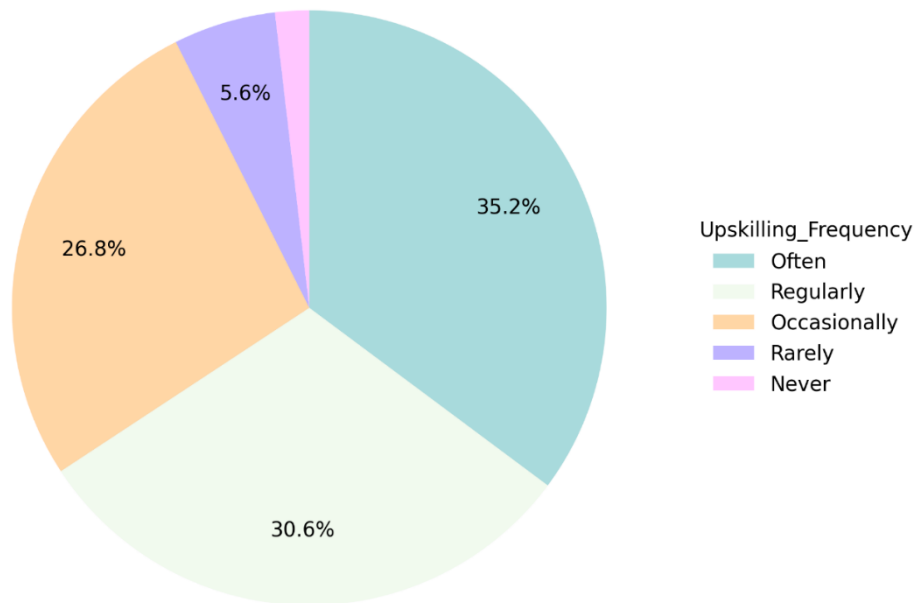


Figure 28. Percentage distribution of Romanian freelancers by frequency of upskilling activities (N = 108).

A further 29 respondents (26.85%) report investing in upskilling or reskilling **occasionally**, indicating periodic engagement in learning activities, potentially driven by project requirements or emerging market demands. In contrast, only 6 respondents (5.56%) report doing so **rarely**, and 2 respondents (1.85%) indicate that they **never** invest in upskilling or reskilling.

Overall, the findings show that **nearly two-thirds of respondents (65.75%) invest in upskilling or reskilling often or regularly**, and that more than **nine out of ten freelancers (92.60%) engage in such activities at least occasionally**. This strong orientation towards continuous learning provides important context for interpreting anticipated AI adoption, perceived competence gaps, and the prioritisation of training needs in subsequent sections of the report.

1.1.16 Pathways to Skill Acquisition and Development in Freelancing

This subsection examines the pathways through which Romanian freelancers acquire and develop new skills. Respondents were allowed to select multiple learning pathways, resulting in a total of 223 selections reported by 108 respondents.

Consequently, the frequencies and percentages presented below reflect the relative prominence of each pathway among all selected options, rather than mutually exclusive respondent categories.

The most frequently reported pathway is **online learning**, selected 89 times (39.91%). This finding highlights the central role of digital learning formats—such as online courses, tutorials, webinars, and self-paced learning resources—in supporting continuous skill development among freelancers. The prominence of online learning aligns with the flexible and self-directed nature of freelance work.

The second most common pathway is **learning through work experience**, reported 68 times (30.49%). This indicates that a substantial share of skill development occurs informally, through practical engagement in projects, problem-solving, and on-the-job learning. Such experiential learning is particularly relevant in rapidly changing fields where skills are refined through real-world application.

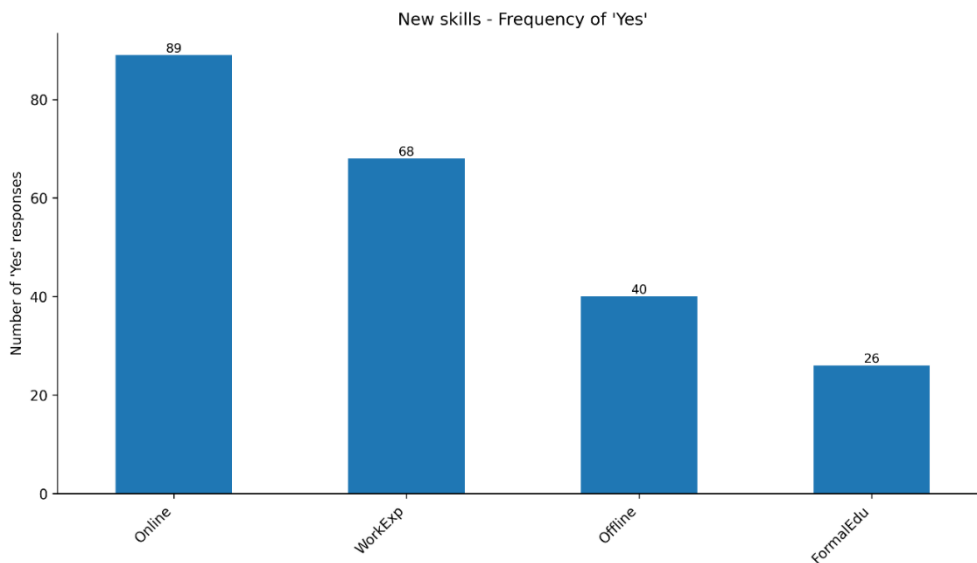


Figure 29. Distribution of Romanian freelancers by methods of acquiring new skills (frequency of 'Yes' responses) (N = 108).

New skills - Percentage of 'Yes'

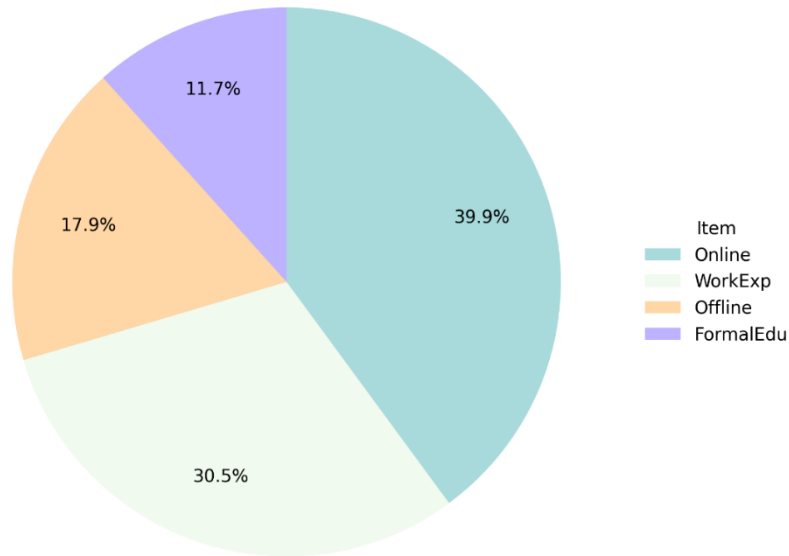


Figure 30. Percentage distribution of Romanian freelancers by methods of acquiring new skills (share of 'Yes' responses) (N = 108).

Offline learning activities, including workshops, seminars, and in-person training, account for 40 selections (17.94%). While less prevalent than online or experiential learning, offline pathways continue to play a meaningful role, particularly for skills that benefit from face-to-face interaction or hands-on practice.

Finally, **formal education** is reported 26 times (11.66%), representing the least frequently selected pathway. This suggests that, for freelancers, structured education programmes are less central to ongoing skill development compared to more flexible, modular, and experience-based learning approaches.

Overall, the distribution of learning pathways indicates that skill acquisition and development in freelancing are primarily driven by **online and experiential learning**, with formal education playing a complementary role. This pattern provides important context for the design of targeted training interventions and supports the emphasis on flexible, practice-oriented learning formats in subsequent training-needs analyses.

1.2 Companies

This section presents a structured overview of the organisational characteristics, hiring practices, and strategic perceptions of companies participating in the ENTEEF survey in Romania. The descriptive analysis provides essential context for understanding companies' demand-side perspectives on freelance work, competence requirements, and anticipated labour-market developments.

The section begins with a description of companies' structural characteristics, including their main area of activity, size, and years active on the market. These variables capture the sectoral, organisational, and maturity-related dimensions of the surveyed firms and support the interpretation of differences in freelancer engagement strategies across organisational profiles.

Subsequent subsections examine companies' experience with freelance labour, focusing on the duration of freelancer hiring and the types of freelance services hired.

The section further explores companies' motivations for hiring freelancers and the risks associated with relying on freelance labour. Together, these dimensions highlight the perceived benefits and constraints of freelancer engagement, offering insight into organisational decision-making processes and risk management considerations.

In addition, the section addresses companies' forward-looking expectations, including anticipated near-term challenges related to freelancer engagement and perceptions of the influence of artificial intelligence on hiring freelancers. These perspectives reflect how organisations anticipate changes in workforce availability, cost structures, and skill requirements in the near future.

Finally, the section examines companies' views on the broader impact of AI technology on the freelancing market, capturing organisational perceptions of market-level transformations beyond firm-specific hiring decisions.

Overall, this section establishes a comprehensive picture of the company-side context of freelancing in Romania, serving as a critical foundation for subsequent comparative analyses and for understanding the alignment or misalignment between

organisational demand and freelancers' skills, expectations, and development trajectories within the ENTEEF analytical framework.

1.2.1 Main Area of Company Activity

This subsection presents the distribution of surveyed companies by their main area of activity, classified according to the NACE-based categories used in the ENTEEF questionnaire. The analysis provides contextual information on the sectoral background of companies participating in the study and supports the interpretation of subsequent findings related to freelancer hiring practices and competence requirements.

The results indicate a strong concentration of respondents in **ICT services**, which account for 5 companies (62.5%) of the total sample. This dominance reflects the central role of the ICT sector in engaging freelancers, particularly for project-based, knowledge-intensive, and digitally mediated work.

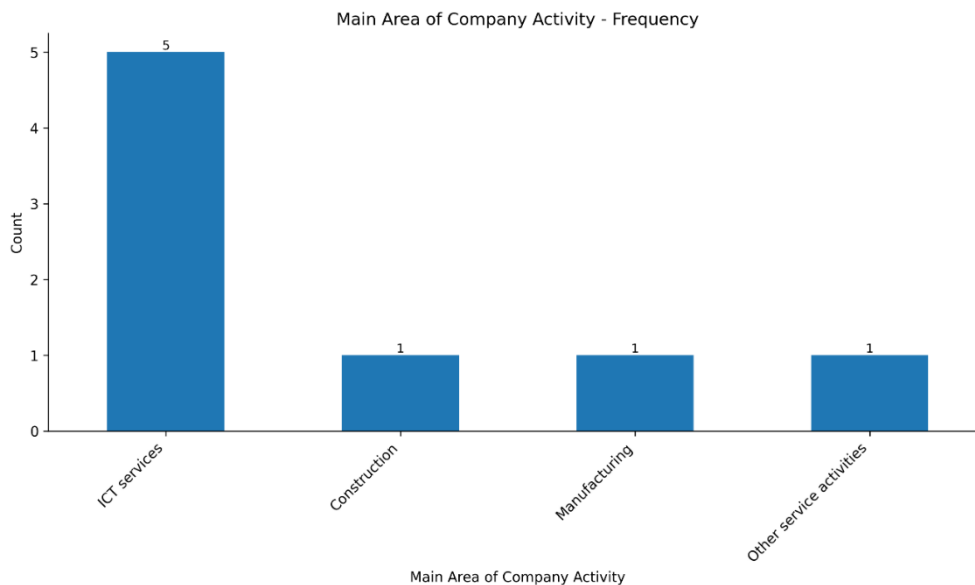


Figure 31. Distribution of Romanian companies by main area of activity (frequency) (N = 8).

The remaining companies are evenly distributed across **Construction**, **Manufacturing**, and **Other service activities**, each represented by 1 company (12.5%). Although these sectors are less prevalent in the sample, their inclusion

highlights that freelancer engagement is not limited exclusively to ICT services but also extends to traditional industrial and service-oriented domains.

Overall, the sectoral profile of surveyed companies suggests that the demand for freelancers in the Romanian context is **predominantly driven by ICT-related activities**, with more limited but still relevant participation from other economic sectors. This distribution provides important context for interpreting companies' perspectives on competence requirements, anticipated challenges, and training needs analysed in later sections of the report.

1.2.2 Company Size

This subsection presents the distribution of surveyed companies by company size, based on standard employment-size categories. The analysis provides contextual information on the organisational scale of companies participating in the study and supports the interpretation of their engagement with freelancers.

The results show that **medium-sized enterprises (50–249 employees)** constitute the largest share of the sample, represented by 3 companies (37.5%). This suggests that medium-sized organisations play a prominent role in freelancer engagement, potentially using freelancers to complement internal capabilities and address specialised or project-based needs.

Small enterprises (10–49 employees) and **micro-enterprises (1–9 employees)** are each represented by 2 companies (25.0%). Together, these groups account for half of the surveyed companies, indicating that smaller organisations also rely on freelancers, possibly to enhance flexibility and access specialised skills without long-term staffing commitments.

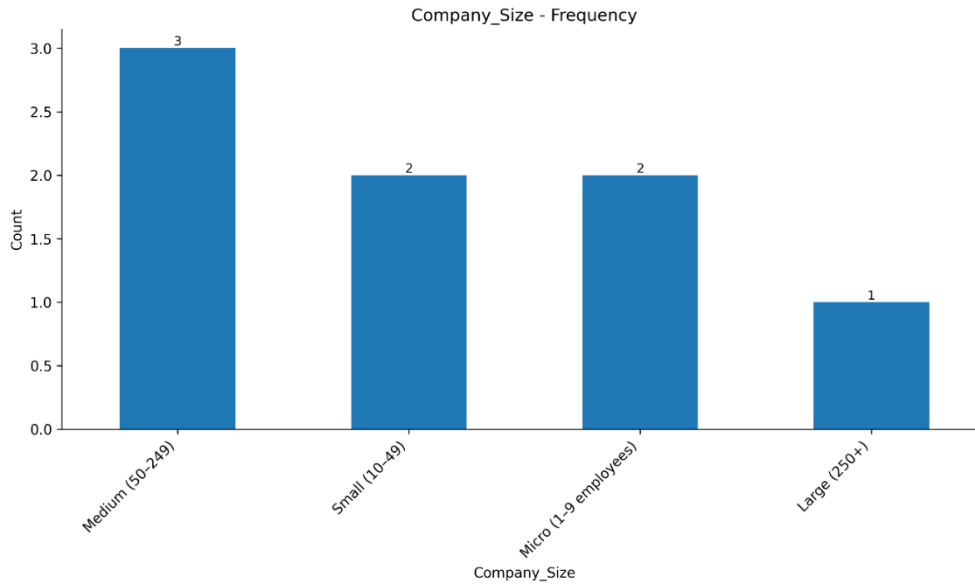


Figure 32. Distribution of Romanian companies by company size (frequency) (N = 8).

Only **1 large company (250+ employees)** is included in the sample, accounting for 12.5% of respondents. While numerically limited, the presence of a large enterprise suggests that freelancer engagement extends across organisational sizes, including larger and more structured corporate environments.

Overall, the company-size profile indicates that freelancer engagement in the Romanian context is **primarily driven by small and medium-sized enterprises**, with more limited representation from large organisations. This distribution provides important context for interpreting companies' hiring motivations, perceived risks, and anticipated challenges discussed in subsequent sections of the report.

1.2.3 Years Active on the Market

This subsection presents the distribution of surveyed companies according to the number of years they have been active on the market, providing an indication of organisational maturity and market experience among participating firms.

The results show that a substantial share of companies have **long-standing market presence**. Two companies report **30 years of activity** (25.0%), and a further two companies report **22 years of activity** (25.0%), indicating that half of the sample consists of well-established organisations with over two decades of market experience.

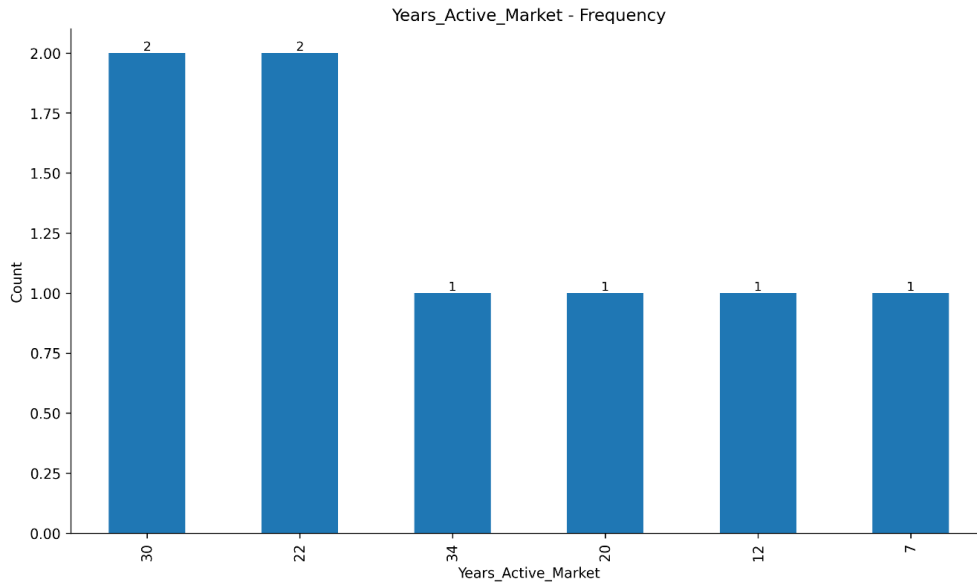


Figure 33. Distribution of Romanian companies by years active on the market (frequency) (N = 8).

One company reports **34 years of activity** (12.5%), reflecting very long-term market participation, while three companies report **20 years** (12.5%), **12 years** (12.5%), and **7 years** (12.5%) of activity, respectively. This range suggests a mix of mature and comparatively younger firms within the sample.

Overall, the distribution indicates that the surveyed companies are predominantly **experienced market actors**, rather than newly established firms. This organisational maturity provides important context for interpreting companies' approaches to freelancer engagement, competence requirements, and anticipated challenges, as firms with longer market presence may differ in their hiring strategies and expectations compared to younger organisations.

1.2.4 Years of Freelancer Hiring

This subsection presents the distribution of surveyed companies according to the number of years they have been hiring freelancers, providing insight into organisational experience with freelancer engagement.

The results indicate that a substantial share of companies have **extensive experience with hiring freelancers**. Two companies report engaging freelancers for

20 years (25.0%), while a further two companies report **5 years of experience** (25.0%).

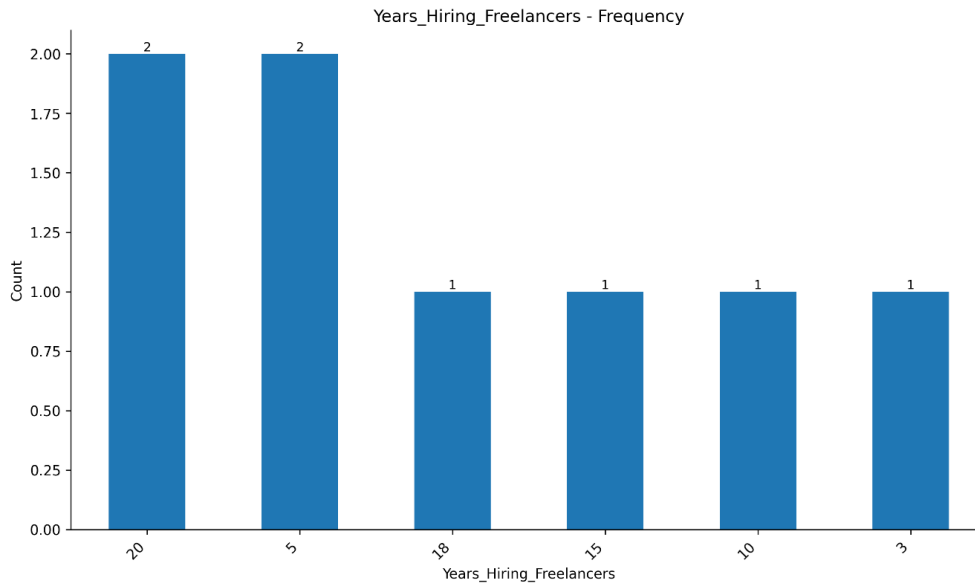


Figure 34. Distribution of Romanian companies by years of hiring freelancers (frequency) (N = 8).

These findings suggest that, for a significant proportion of respondents, freelancer engagement represents a well-established organisational practice rather than a recent adaptation.

Additional companies report intermediate levels of experience with hiring freelancers, including **18 years**, **15 years**, and **10 years**, each represented by **1 company** (12.5%). One company reports a shorter engagement period of **3 years** (12.5%), indicating more recent adoption of freelance work arrangements.

Overall, the distribution shows that the surveyed companies include both **organisations with long-standing experience in hiring freelancers** and companies that have **more recently begun to engage freelance labour**. This variation in experience with freelancer hiring provides important context for interpreting companies' motivations, expectations, and anticipated challenges related to freelancer engagement discussed in subsequent sections of the report.

1.2.5 Type of Freelance Services Hired

This subsection presents the types of freelance services hired by the surveyed companies. It should be noted that the analysis is based on a small sample of 8 companies, and that respondents were allowed to select multiple types of freelance services. Consequently, the reported frequencies and percentages reflect the relative distribution of hired service types, rather than mutually exclusive company categories.

The most frequently reported types of freelance services are **Professional Services** and **Software Development and IT**, each selected by 6 companies (30.0%). This indicates that companies primarily rely on freelancers to access specialised expertise and technical skills that support core business activities, particularly in knowledge-intensive and digital domains.

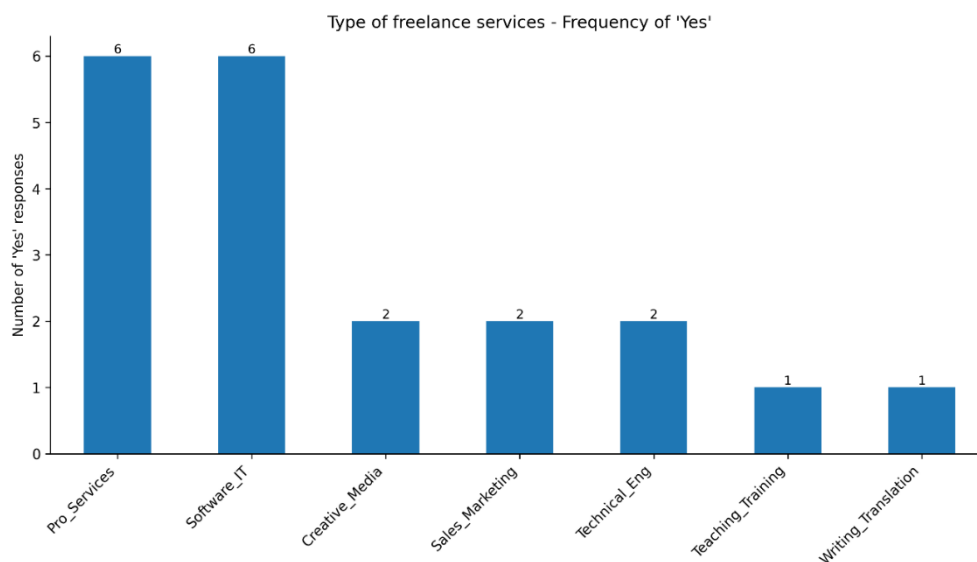


Figure 35. Distribution of Romanian companies by types of freelance services utilized (frequency of 'Yes' responses) (N = 8).

A second group of services—including **Creative and Multimedia**, **Sales and Marketing Support**, and **Technical Engineering**—is each reported by 2 companies (10.0%). These categories suggest more targeted or project-specific use of freelancers, often linked to communication, promotion, or specialised technical tasks.

Less frequently reported services include **Teaching and Training** and **Writing and Translation**, each selected by 1 company (5.0%). These services appear to play a

complementary role, supporting internal knowledge transfer, documentation, or content-related needs.

Type of freelance services - Percentage of 'Yes'

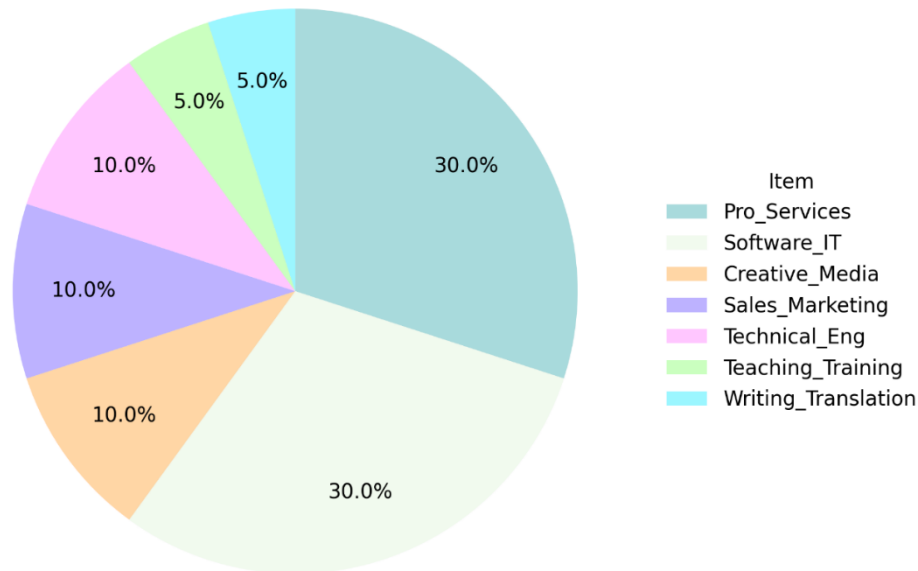


Figure 36. Percentage distribution of Romanian companies by types of freelance services utilized (share of 'Yes' responses) (N = 8).

Overall, the distribution indicates that, among the surveyed companies, freelancer engagement is **primarily oriented towards professional, IT, and technical services**, with more limited use of freelancers for creative, commercial, and educational activities. Given the small number of participating companies, these findings should be interpreted as indicative rather than representative, but they nonetheless provide useful context for understanding companies' competence requirements and hiring strategies in subsequent analyses.

1.2.6 Motivations for Hiring Freelancers

This subsection examines the motivations that drive companies to hire freelancers. It should be noted that the analysis is based on a sample of 8 companies, and that respondents were allowed to select multiple motivations. As a result, the reported frequencies and percentages reflect the relative importance of different motivations, rather than mutually exclusive company categories.

The most frequently reported motivation is **access to specialised skills**, selected by 8 companies (47.06%). This finding indicates that companies primarily engage freelancers to complement internal capabilities and to obtain expertise that may not be readily available in-house, particularly for specialised or project-based tasks.

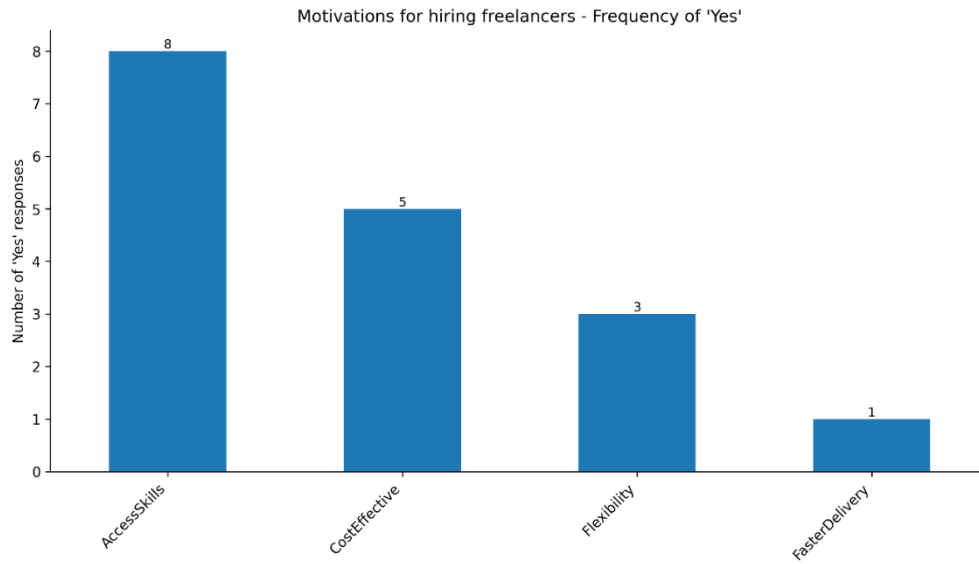


Figure 37. Distribution of Romanian companies by motivations for hiring freelancers (frequency of 'Yes' responses) (N = 8).

Motivations for hiring freelancers - Percentage of 'Yes'

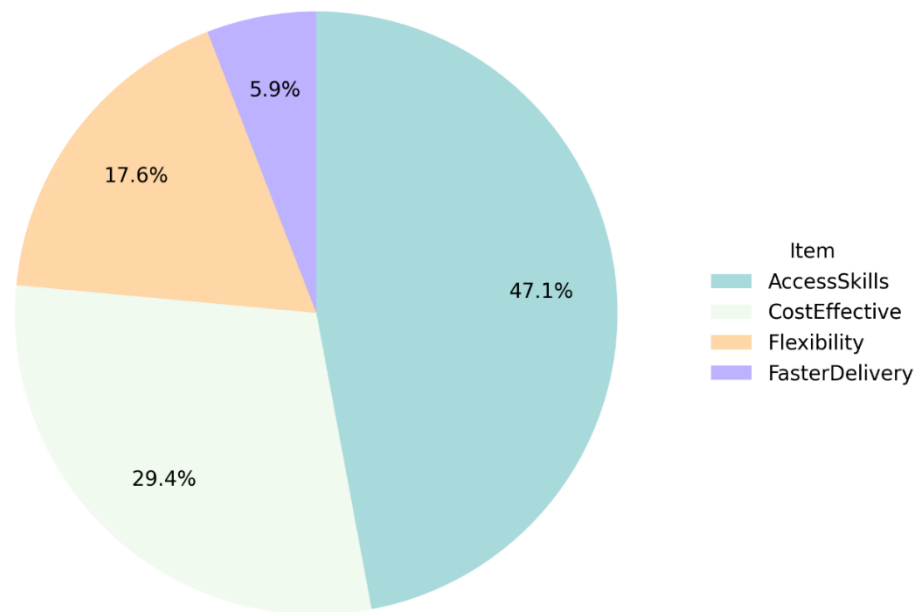


Figure 38. Percentage distribution of Romanian companies by motivations for hiring freelancers (share of 'Yes' responses) (N = 8).

The second most prominent motivation is **cost effectiveness**, reported by 5 companies (29.41%). This suggests that financial considerations, such as reducing fixed labour costs or optimising resource allocation, play an important role in decisions to hire freelancers. **Flexibility** is cited by 3 companies (17.65%), highlighting the value placed on adaptable workforce arrangements that allow organisations to respond to changing workloads and project requirements.

A smaller share of responses points to **faster delivery**, selected by 1 company (5.88%), indicating that speed and time-to-completion are less frequently cited as primary motivations compared to skills access and cost considerations.

Overall, the results suggest that companies' decisions to hire freelancers are predominantly driven by **strategic needs for specialised expertise**, supported by considerations of **cost efficiency and organisational flexibility**. Given the limited number of participating companies, these findings should be interpreted with caution, but they nonetheless provide useful insight into the rationale underlying freelancer engagement in the Romanian context.

1.2.7 Risks of Relying on Freelancers

This subsection examines the risks perceived by companies when relying on freelancers. The analysis is based on responses from 8 companies, with respondents allowed to select multiple risk factors. Consequently, the reported frequencies and percentages represent the relative prominence of perceived risks, rather than mutually exclusive company categories.

The most frequently cited risks relate to **integration and communication challenges** and **freelancer unavailability**, each selected 5 times (22.73%). These concerns suggest that companies perceive coordination, alignment with internal teams, and continuity of availability as the primary vulnerabilities associated with freelance engagement.

A second tier of risks includes **data leakage and confidentiality concerns**, reported 3 times (13.64%). This highlights apprehension regarding information security and data protection when work is performed by external collaborators.

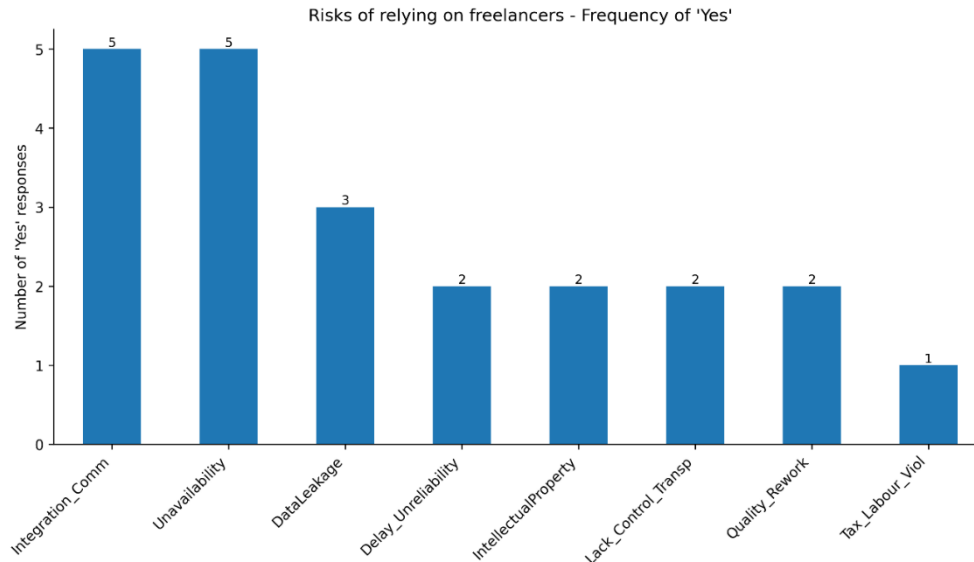


Figure 39. Distribution of Romanian companies by perceived risks of relying on freelancers (frequency of 'Yes' responses) (N = 8).

Several risks are reported with similar frequency, each selected 2 times (9.09%). These include **delays or unreliability in delivery**, **intellectual property issues**, **lack of control and transparency**, and **quality issues requiring rework**. Although less

prominent individually, together these risks reflect broader concerns related to governance, accountability, and quality assurance in freelance collaborations.

Risks of relying on freelancers - Percentage of 'Yes'

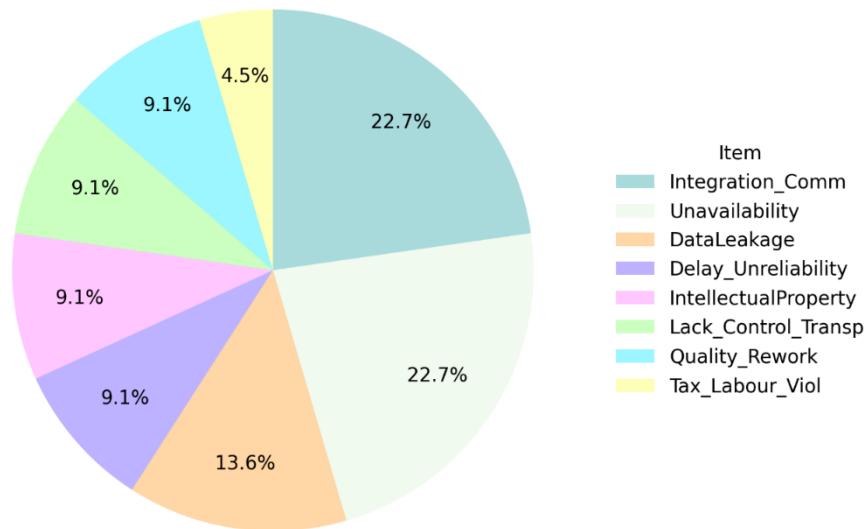


Figure 40. Percentage distribution of Romanian companies by perceived risks of relying on freelancers (share of 'Yes' responses) (N = 8).

The least frequently cited risk is **tax or labour regulation violations**, selected once (4.55%). While not a dominant concern in this sample, its presence indicates some awareness of regulatory and compliance-related risks associated with freelance work arrangements.

Overall, the results indicate that companies' risk perceptions are primarily focused on **operational and coordination challenges**, rather than on legal or regulatory issues. Given the small number of participating companies, these findings should be interpreted cautiously; however, they provide valuable context for understanding companies' expectations, risk management considerations, and decision-making processes related to freelancer engagement.

1.2.8 Companies' Anticipated Near-Term Challenges

This subsection examines the near-term challenges anticipated by companies in relation to their engagement with freelancers. The analysis is based on responses from

8 companies, with respondents allowed to select multiple challenges. Accordingly, the reported frequencies and percentages reflect the relative prominence of each challenge among all selected options, rather than mutually exclusive company categories.

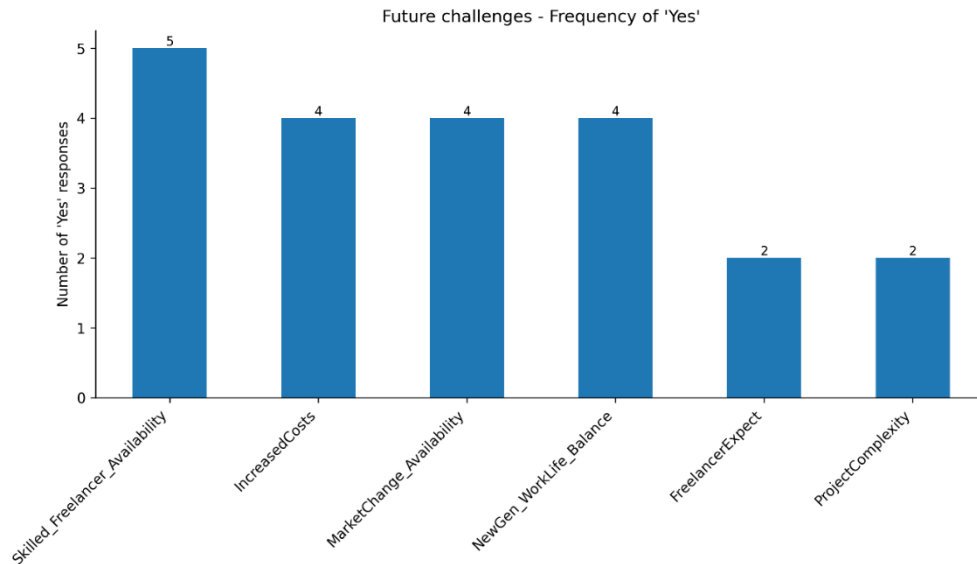


Figure 41. Distribution of Romanian companies by perceived future challenges related to freelancing (frequency of 'Yes' responses) (N = 8).

The most frequently anticipated challenge concerns the **availability of skilled freelancers**, selected 5 times (23.81%). This highlights companies' concerns about accessing adequately qualified freelance talent in the near future, particularly in specialised or high-demand domains.

Future challenges - Percentage of 'Yes'

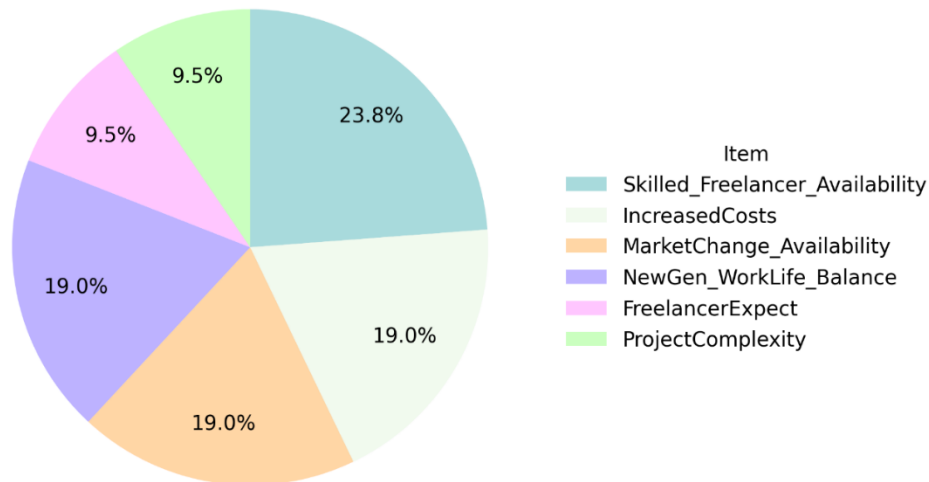


Figure 42. Percentage distribution of Romanian companies by perceived future challenges related to freelancing (share of 'Yes' responses) (N = 8).

A second group of challenges, each reported 4 times (19.05%), relates to **increased costs associated with freelancer engagement, market changes affecting freelancer availability, and changing work-life balance expectations among new generations of freelancers**. Together, these challenges point to a combination of economic pressures, labour-market dynamics, and evolving workforce expectations that companies perceive as potentially constraining freelancer engagement.

Less frequently reported challenges include **rising freelancer expectations and increasing project complexity**, each selected 2 times (9.52%). While less prominent, these concerns indicate awareness of shifting expectations regarding compensation, working conditions, and the management of more complex or interdisciplinary freelance projects.

Overall, the results suggest that companies' anticipated near-term challenges are primarily centred on **talent availability, cost pressures, and evolving market and workforce dynamics**, rather than purely operational or technical issues. Given the limited number of participating companies, these findings should be interpreted cautiously; however, they provide valuable context for understanding organisational constraints and strategic considerations related to future freelancer engagement.

1.2.9 Perceived Influence of AI on Freelancer Hiring

This subsection examines companies' perceptions regarding how the use of artificial intelligence (AI) is expected to influence their future hiring of freelancers. The analysis is based on responses from 8 companies, and the reported frequencies and percentages reflect the distribution of perceptions within this sample.

The most frequently reported expectation is that AI will lead to **hiring fewer freelancers**, indicated by 4 companies (50.0%). This suggests that, for a substantial share of respondents, AI is perceived as a potential substitute for certain freelance tasks, particularly those that are routine, automatable, or data-intensive.

A further 3 companies (37.5%) report that AI is expected to have **no effect** on their freelancer hiring practices. This group may reflect organisations that view AI primarily as a complementary tool that enhances productivity without fundamentally altering their reliance on freelance labour.

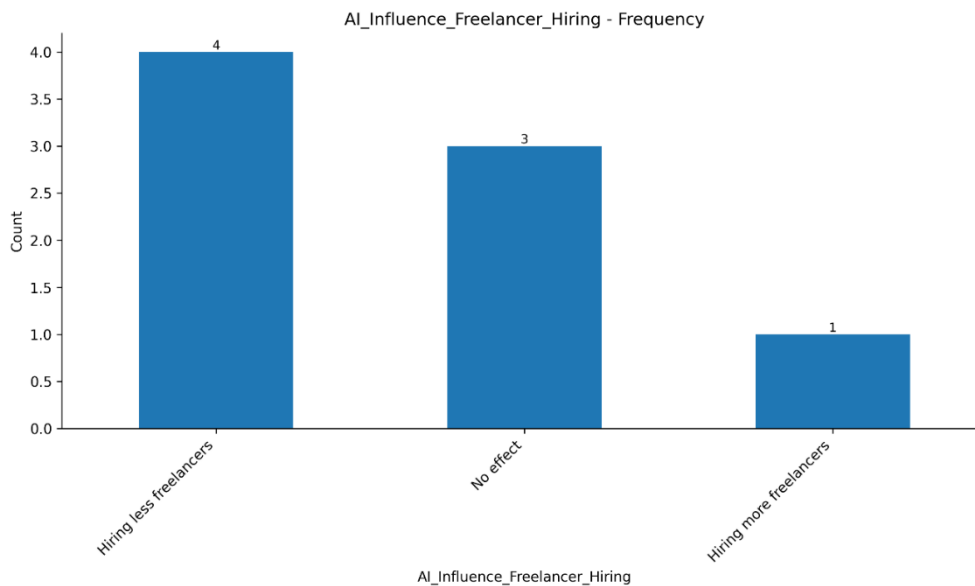


Figure 43. Distribution of Romanian companies by perceived influence of artificial intelligence on freelancer hiring (frequency) (N = 8).

Only 1 company (12.5%) anticipates **hiring more freelancers** as a result of AI adoption. This perspective may be associated with the expectation that AI will increase demand for specialised freelance skills, such as AI integration, data analysis, or advanced digital competencies.

Overall, the findings indicate that companies' perceptions of AI's impact on freelancer hiring are **predominantly cautious**, with most respondents expecting either a reduction in freelancer engagement or no significant change. Given the limited number of participating companies, these results should be interpreted as indicative rather than representative, but they nonetheless provide valuable insight into organisational expectations regarding the interaction between AI adoption and freelance labour demand.

1.2.10 Perceived Impact of AI Technology on the Freelancing Market

This subsection examines companies' perceptions of how AI technology is influencing the freelancing market. The analysis is based on responses from 8 companies, with respondents allowed to select multiple perceived effects. As a result, the reported frequencies and percentages reflect the relative prominence of each perceived impact, rather than mutually exclusive categories.

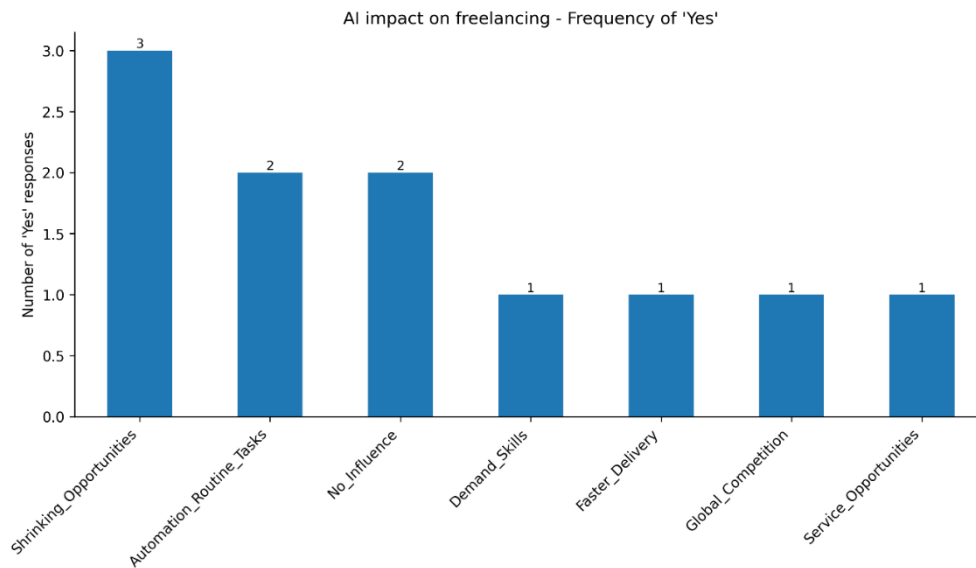


Figure 44. Distribution of Romanian companies by perceived impact of artificial intelligence on freelancing (frequency of 'Yes' responses) (N = 8).

The most frequently reported perceived impact is **shrinking freelance opportunities**, selected 3 times (27.27%). This suggests that some companies associate AI adoption with a potential reduction in demand for certain types of

freelance work, particularly tasks that may be automated or internalised through AI-enabled solutions.

AI impact on freelancing - Percentage of 'Yes'

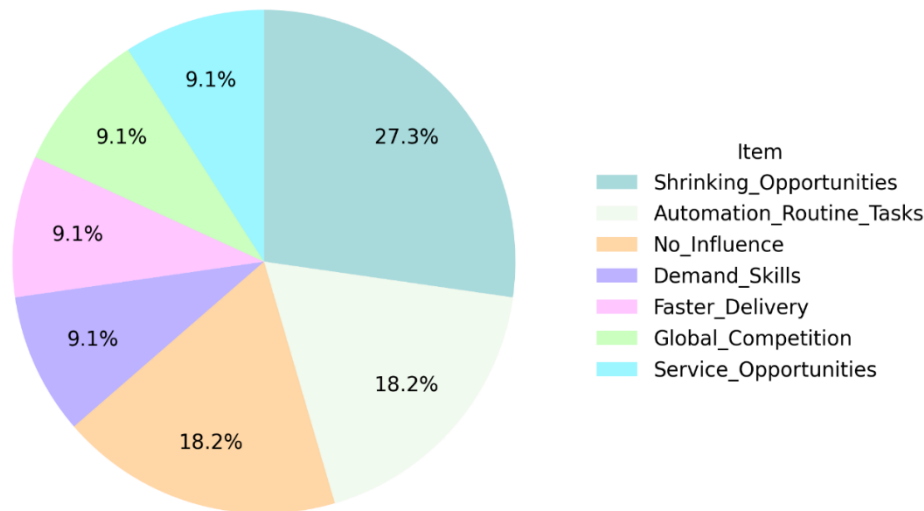


Figure 45. Figure 46. Percentage distribution of Romanian companies by perceived impact of artificial intelligence on freelancing (share of 'Yes' responses) (N = 8).

A second group of perceived impacts includes **automation of routine tasks** and **no noticeable influence**, each reported 2 times (18.18%). The former reflects the view that AI primarily affects repetitive or standardised freelance activities, while the latter indicates that some companies do not yet perceive a clear or direct impact of AI on the freelancing market.

Several additional effects are each reported once (9.09%), including **increased demand for AI skills**, **faster project delivery expectations**, **greater global competition**, and the emergence of **new AI-driven service opportunities**. Although less frequently cited, these responses highlight more nuanced perceptions of AI as both a disruptive and an enabling force within the freelance economy.

Overall, the distribution of responses indicates that companies' perceptions of AI's market-level impact are **heterogeneous**, encompassing both concerns about reduced opportunities and recognition of new skill demands and service possibilities. Given the limited number of participating companies, these findings should be interpreted with

caution; however, they provide valuable qualitative context for understanding organisational views on how AI is reshaping the freelancing landscape.

2 Competency Analysis:

Importance and Proficiency

2.1 Freelancers

2.1.1 Top-Ranked Competencies by Importance across Age Groups

This subsection analyses the top competencies ranked by importance across different freelancer age groups. The comparison highlights both stable core competencies valued across the life course and age-specific emphases reflecting different career stages and professional priorities.

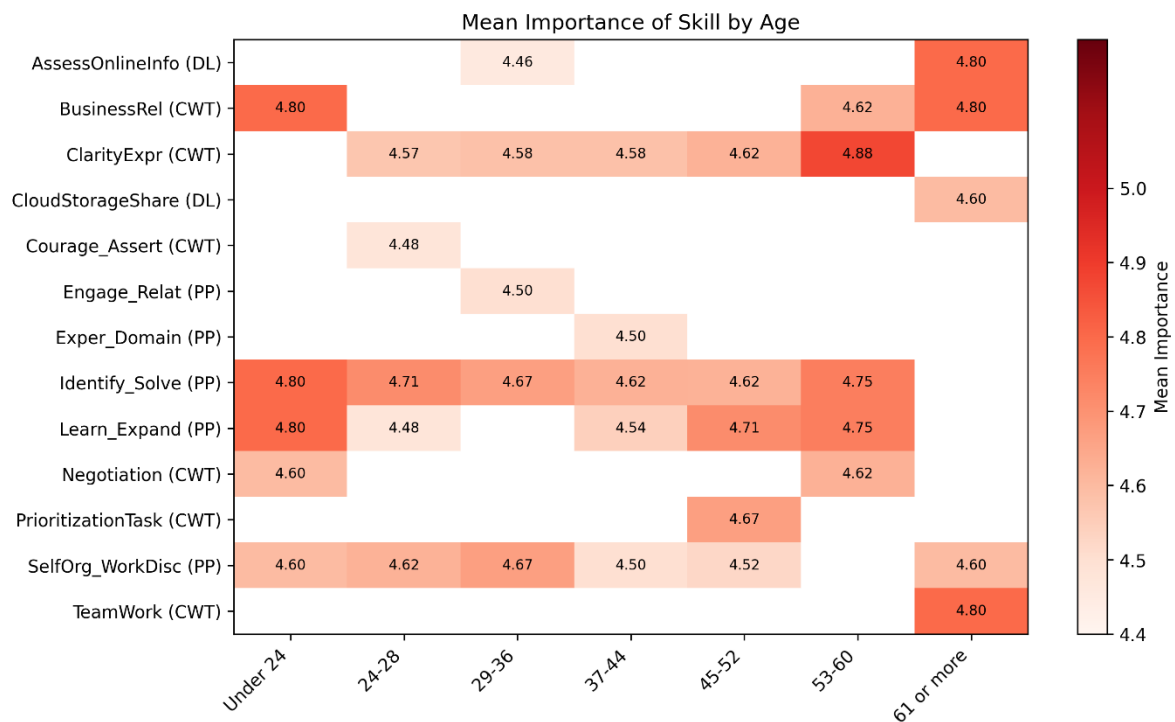


Figure 46. Mean importance of skills by age group among Romanian freelancers (N = 108).

Under 24

Among the youngest freelancers, the highest-ranked competencies are **learning and skill expansion, problem identification and solving**, and the **ability to keep good relationships in business collaboration**, all occupying the top importance ranks. This pattern reflects an early-career orientation towards **capability building, adaptability, and relational competence**.

In addition to developing cognitive and technical skills, freelancers in this age group place strong emphasis on **establishing and maintaining professional relationships**, which is essential for accessing opportunities, building trust with clients, and compensating for limited work experience. Interpersonal and collaboration skills are perceived as critical enablers for successful market entry and early professional integration in freelancing.

24–28

Freelancers aged **24–28** prioritise **problem identification and solving** as the most important competence, followed closely by **self-organisation and work discipline**. This combination suggests a transition from learning-oriented priorities towards **operational effectiveness**, as freelancers in this age group begin to manage projects independently and balance multiple work demands.

29–36

In the **29–36** age group, **self-organisation and work discipline** emerges as the top-ranked competence, jointly followed by **problem identification and solving**. This reflects a consolidation phase in freelance careers, where **autonomy, time management, and structured work practices** become central to sustaining productivity and client relationships.

37–44

For freelancers aged **37–44**, **problem identification and solving** remains the highest-ranked competence, followed by **clarity of expression and communication**. This shift highlights the increasing importance of **advanced analytical thinking**

combined with effective communication, consistent with more complex project roles, client-facing responsibilities, and coordination tasks.

45–52

In the **45–52** age group, the leading competence is **learning and continuous development**, followed by **task prioritisation**. This indicates sustained recognition of the need to **update skills over time**, alongside a strong emphasis on **strategic workload management** as professional responsibilities and project complexity increase.

53–60

Freelancers aged **53–60** rank **clarity of expression and communication** as the most important competence, followed by **learning and skill expansion**. This profile suggests a strong orientation towards **knowledge transfer, advisory roles, and mentoring**, combined with continued engagement in lifelong learning to remain competitive.

61 or More

Among freelancers aged **61 or more**, the top-ranked competencies are **critical assessment of online information** and **teamwork**. This pattern reflects a strong emphasis on **judgement, experience-based evaluation, and collaborative work**, rather than purely technical or operational skills, indicating a shift towards **advisory, collaborative, or support-oriented roles**.

Cross-Age Synthesis

Across all age groups, **problem identification and solving, self-organisation and work discipline**, and **learning and continuous development** consistently appear among the top-ranked competencies. This demonstrates that **cognitive problem-solving capacity, autonomous work management, and lifelong learning** form a stable core of competence importance throughout freelance careers.

At the same time, age-specific variations reveal a clear progression: from **learning and capability building** in early career stages, through **operational efficiency and communication** in mid-career, to **judgement, collaboration, and reflective skills** in later stages. These patterns provide important context for interpreting age-related differences in competence gaps and for designing age-sensitive training and upskilling interventions in subsequent analyses.

2.1.2 Top-Ranked Competencies by Importance across Gender

This subsection examines the top competencies ranked by importance for male and female freelancers, highlighting both shared priorities and gender-specific emphases in perceived competence relevance.

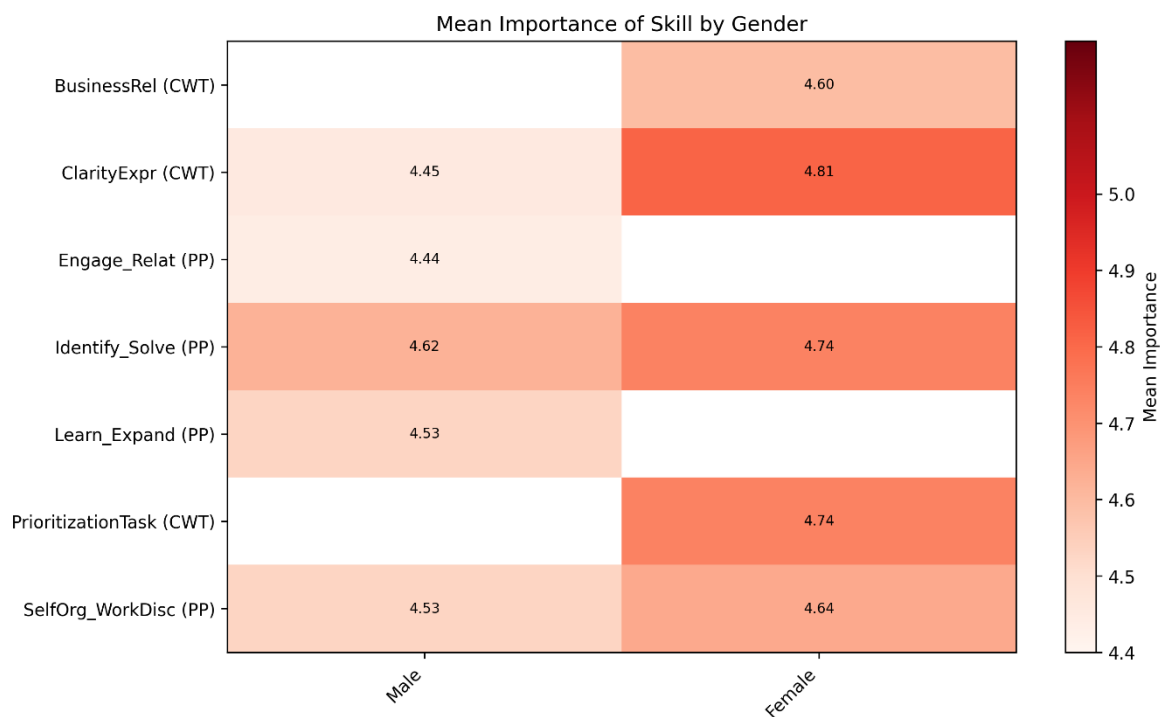


Figure 47. Mean importance of skills by gender among Romanian freelancers (N = 108).

Male Freelancers

Among **male freelancers**, the most highly ranked competence is **problem identification and solving**, indicating a strong emphasis on **analytical thinking, troubleshooting, and solution-oriented approaches**. This reflects the importance

placed on addressing complex tasks and resolving project-related challenges in freelance work.

The second-ranked competence is **self-organisation and work discipline**, underscoring the value of **autonomy, time management, and structured work practices** required to manage independent work effectively. In third place, **learning and skill expansion** emerges as a key competence, highlighting the perceived importance of **continuous learning and adaptability** in maintaining competitiveness in the freelance market.

Taken together, the top three competencies for male freelancers emphasise **cognitive problem-solving capacity, disciplined self-management, and ongoing skill development**, forming a profile oriented towards efficiency, independence, and sustained professional growth.

Female Freelancers

For **female freelancers**, the highest-ranked competence is **clarity of expression and communication**, reflecting the critical role of **effective communication** in managing client relationships, collaborating with stakeholders, and ensuring shared understanding in freelance projects.

The second-ranked competence is **problem identification and solving**, demonstrating a strong shared emphasis with male freelancers on analytical and solution-oriented skills. The third-ranked competence is **task prioritisation**, highlighting the importance of **organising workloads, managing deadlines, and balancing multiple tasks** in freelance activity.

Overall, the top three competencies for female freelancers combine **communication effectiveness, analytical problem-solving, and workload prioritisation**, indicating a balanced focus on relational, cognitive, and organisational skills.

Gender-Based Synthesis

Across both genders, **problem identification and solving** consistently appears among the most important competencies, indicating a **core competence valued**

irrespective of gender. However, differences in emphasis are observed: male freelancers place greater importance on **self-organisation and continuous learning**, whereas female freelancers prioritise **communication clarity and task prioritisation**.

These distinctions suggest nuanced gender-based competence profiles that provide valuable context for interpreting subsequent analyses of competence gaps and for informing the design of gender-sensitive training and upskilling strategies.

2.1.3 Top-Ranked Competencies by Importance across Education Levels

This subsection examines the top competencies ranked by importance across different education levels, highlighting both shared priorities and education-specific emphases in freelancers’ perceptions of competence relevance.

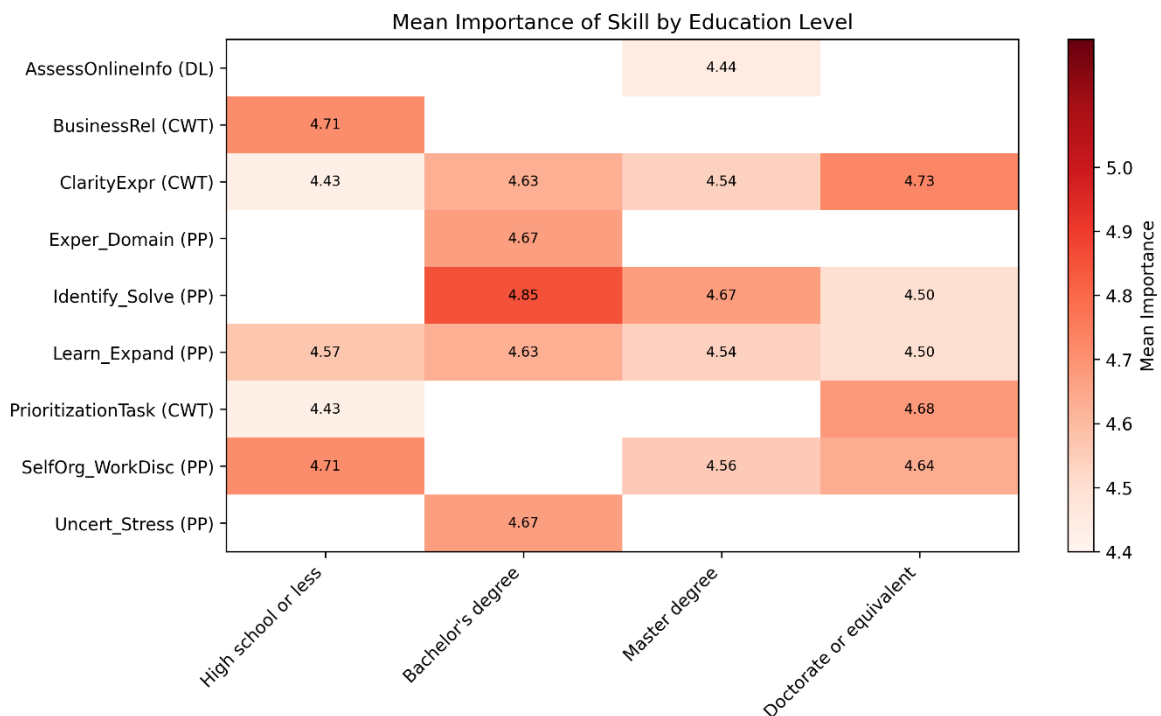


Figure 48. Mean importance of skills by education level among Romanian freelancers (N = 108).

High School or Less

Among freelancers with **high school education or less**, the most important competence is **self-organisation and work discipline**, followed by the **ability to keep good relationships in business collaboration**. This pattern suggests that, for freelancers with lower levels of formal education, **effective self-management and interpersonal skills** are perceived as critical for sustaining freelance activity and securing work opportunities, potentially compensating for more limited formal qualifications.

Bachelor's Degree

For freelancers holding a **Bachelor's degree**, **problem identification and solving** ranks as the most important competence, followed by **coping with uncertainty and stress**. This combination reflects a strong emphasis on **analytical problem-solving**, alongside the ability to manage ambiguity and pressure, which is characteristic of early to mid-career freelancers navigating competitive and dynamic market conditions.

Master's Degree

Among freelancers with a **Master's degree**, the top-ranked competence is **problem identification and solving**, closely followed by **self-organisation and work discipline**. This profile indicates a consolidation of **advanced cognitive skills and autonomous work management**, reflecting the demands placed on highly educated freelancers who often handle complex tasks and operate with a high degree of independence.

Doctorate or Equivalent

For freelancers holding a **Doctorate or equivalent qualification**, the most important competence is **clarity of expression and communication**, followed by **task prioritisation**. This emphasis highlights the importance of **effective communication and strategic workload management**, consistent with roles involving consultancy, advisory work, knowledge transfer, or highly specialised expert services.

Cross-Education Synthesis

Across education levels, **problem identification and solving** and **self-organisation and work discipline** repeatedly emerge among the top-ranked competencies, indicating that these skills constitute a **core competence set valued regardless of educational attainment**. At the same time, clear differentiation is observed: freelancers with lower formal education prioritise **discipline and relationship-building**, while those with higher academic qualifications place greater emphasis on **communication, prioritisation, and managing complexity**.

These patterns provide important context for interpreting education-based differences in competence gaps and support the design of education-sensitive training and upskilling strategies in subsequent analyses.

2.1.4 Top-Ranked Competencies by Importance across Years of Experience as a Freelancer

This subsection analyses the top competencies ranked by importance across different levels of freelance experience, highlighting how competence priorities evolve as freelancers progress from entry-level to highly experienced stages.

Less than 1 Year

Among freelancers with **less than one year of experience**, the two highest-ranked competencies are **self-organisation and work discipline** and **clarity of expression and communication**. This profile suggests that newcomers perceive success in early freelance activity as strongly dependent on **managing one's work independently** (e.g., structuring time, meeting deadlines, maintaining discipline) and **communicating effectively with clients** (e.g., clarifying requirements, negotiating expectations, and ensuring mutual understanding). These competences likely support credibility-building and smoother project coordination during the entry phase.

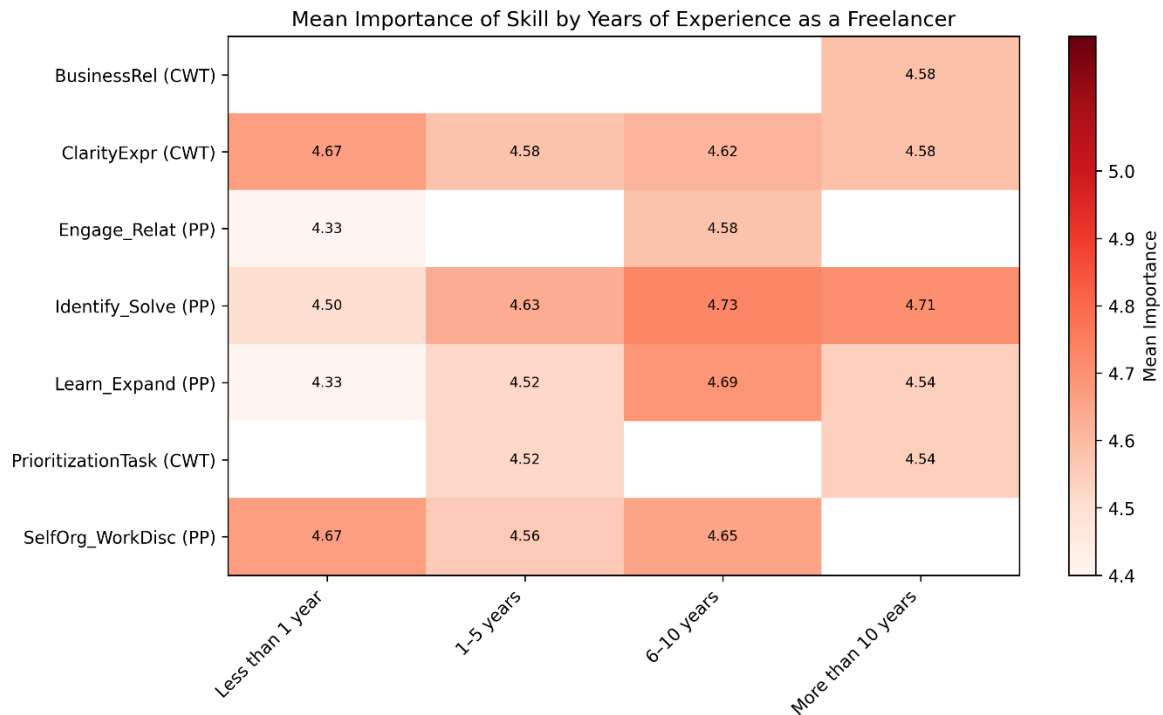


Figure 49. Mean importance of skills by years of freelancing experience among Romanian freelancers (N = 108).

1–5 Years

For freelancers with **1–5 years of experience**, the top-ranked competence is **problem identification and solving**, followed by **clarity of expression and communication**. This indicates that, once freelancers gain initial market exposure, they increasingly prioritise **analytical problem-solving** as a core value proposition, while continuing to view communication as essential for effective delivery and client satisfaction.

6–10 Years

Among freelancers with **6–10 years of experience**, the two most important competencies are **problem identification and solving** and **learning and skill expansion**. This pattern suggests a mature stage in which freelancers both address more complex problems and recognise the need for **continuous development** to remain competitive as technologies, tools, and client requirements evolve.

More than 10 Years

For freelancers with **more than 10 years of experience**, **problem identification and solving** remains the highest-ranked competence. The second rank is **shared** by **clarity of expression and communication** and the **ability to keep good relationships in business collaboration**.

This pattern indicates that, at advanced stages of freelance careers, success is strongly associated not only with **expert problem-solving capacity**, but also with **relational and communication-oriented competences**. Experienced freelancers are more likely to operate in roles that require sustained client relationships, trust-based collaboration, and advisory or coordination functions. The equal importance attributed to communication clarity and business relationship management reflects the growing relevance of **reputation, long-term partnerships, and interpersonal effectiveness** in sustaining freelance careers over time.

Cross-Experience Synthesis

Across experience levels, **problem identification and solving** appears consistently among the top competences for established freelancers (1–5 years and above), highlighting it as a central competence underpinning freelance value creation. In contrast, for freelancers with **less than one year of experience**, the top priorities shift towards **self-organisation** and **communication**, suggesting that early-stage success depends strongly on **operational discipline and client interaction**, before the market rewards deeper problem-solving specialisation.

2.1.5 Top-Ranked Competence by Main Freelancer Activity

This subsection examines the top competencies ranked by importance for each main freelancer activity, highlighting how competence priorities vary across professional domains and reflect the specific demands of different types of freelance work.

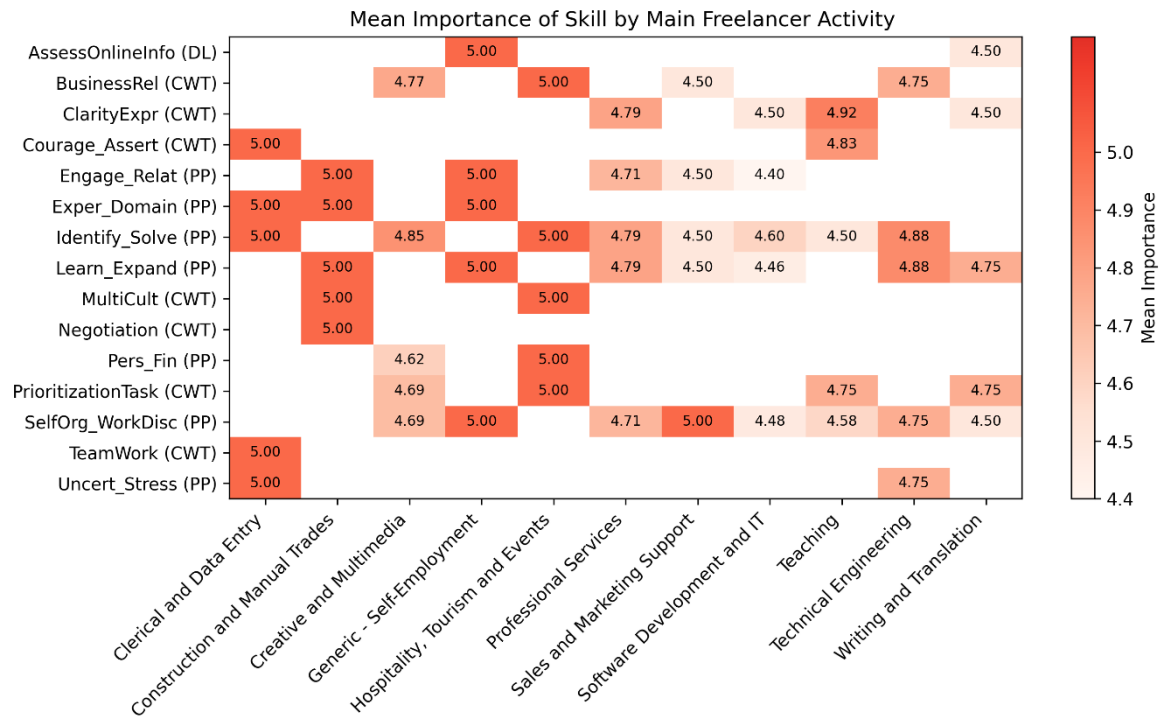


Figure 50. Mean importance of skills by main freelancing activity among Romanian freelancers (N = 108).

Software Development and IT

For freelancers active in Software Development and IT, the top-ranked competence is **problem identification and solving**. This reflects the centrality of analytical thinking, debugging, and solution design in technical roles, where value creation is closely linked to the ability to address complex and often ill-defined problems.

Professional Services

Within the Professional Services category, several competencies reach a very high and identical importance score of 4.79. The presence of multiple competencies at the same score suggests that professional services work requires a balanced and multi-dimensional competence profile, rather than reliance on a single dominant skill.

First, **learning and continuous skill expansion** is rated at the highest level, underscoring the importance of ongoing professional development in professional services. Freelancers in this domain must continuously update their knowledge to remain credible, respond to evolving client needs, and adapt to regulatory, technological, or methodological changes.

Equally important is **problem identification and solving**, reflecting the core value proposition of professional services freelancers. Clients typically engage such freelancers to diagnose complex situations, structure problems, and deliver tailored solutions, making advanced analytical and problem-solving abilities indispensable.

In addition, **clarity of expression and communication** is rated at this top level, indicating that expertise alone is insufficient without the ability to communicate insights clearly and persuasively. Effective communication is critical for managing client relationships, explaining complex concepts, and supporting decision-making processes.

Rather than relying on a single dominant skill, success in this domain depends on a balanced combination of continuous learning, advanced problem-solving and effective communication, with self-organisation playing a supportive role.

Creative and Multimedia

For Creative and Multimedia freelancers, **problem identification and solving** emerges as the top-ranked competence. This suggests that creative work is perceived not only as artistic expression, but also as a process of conceptual problem-solving, responding to client briefs, constraints, and evolving project requirements.

Technical Engineering

Within the Technical Engineering category, **learning and continuous skill expansion** emerges as the top-ranked competence, reflecting the strong need for freelancers to remain up to date with evolving technologies, tools, standards, and technical regulations. Continuous learning is perceived as essential for maintaining professional relevance and ensuring compliance with technical and safety requirements.

In addition, **problem identification and solving** is also rated among the highest-importance competencies for technical engineering freelancers. This highlights the central role of solution-oriented thinking in engineering tasks, which often involve addressing complex technical issues, optimising systems, and resolving unexpected operational challenges.

Teaching

Freelancers engaged in Teaching rank **clarity of expression and communication** as the most important competence. This reflects the core role of effective communication in explaining concepts, structuring knowledge, and facilitating learning, whether in formal or informal educational contexts.

Sales and Marketing Support

For Sales and Marketing Support, the top-ranked competence is **self-organisation and work discipline**. This suggests that success in these roles depends strongly on independent task management, meeting deadlines, and coordinating multiple activities, often under time pressure.

Writing and Translation

Within the Writing and Translation category, **learning and continuous skill expansion** is identified as the top-ranked competence, reflecting the need for freelancers to continuously refine language proficiency, adapt to new subject domains, and respond to evolving stylistic, technical, or market requirements.

In addition, **task prioritisation** emerges as a highly important competence. This highlights the relevance of managing multiple assignments, deadlines, and client requirements, which is particularly critical in writing and translation work where freelancers often handle parallel projects with varying urgency and complexity.

Construction and Manual Trades

Within the Construction and Manual Trades category, a set of competencies attains the maximum importance score of 5, indicating that these skills are perceived as critical prerequisites for effective freelance performance in this domain.

One of the top-ranked competencies is the **ability to work in multicultural environments**. This reflects the frequent involvement of freelancers in diverse teams and cross-cultural work settings, where adaptability, cultural awareness, and effective interaction are essential.

Negotiation skills also receive the highest importance rating, highlighting the need for freelancers to negotiate contracts, terms, timelines, and responsibilities in project-based and often fragmented work arrangements typical of construction and manual trades.

Equally important is the **ability to engage and maintain professional relationships**, underscoring the relational nature of work in this sector. Sustained collaboration, trust, and reputation are key factors in securing repeat engagements and coordinating effectively with multiple stakeholders.

Learning and continuous skill expansion is another competence rated at the maximum level. This indicates recognition of the need to update skills continuously, whether in response to new techniques, tools, safety regulations, or materials used in construction-related activities.

Finally, **domain-specific expertise and practical experience** are rated at the highest level, reflecting the central role of hands-on knowledge and technical proficiency in delivering quality work and ensuring compliance with professional standards.

Clerical and Data Entry

Within the Clerical and Data Entry category, several competencies attain the maximum importance score of 5, indicating that these skills are perceived as essential for effective performance in this type of freelance work.

One of the highest-rated competencies is **ability to work in a team**, highlighting the importance of cooperation and coordination with colleagues, supervisors, or client teams. Even in task-oriented clerical roles, freelancers often operate as part of broader workflows, making effective collaboration critical.

Domain-specific expertise and practical experience also receive the maximum score, reflecting the need for accuracy, familiarity with procedures, and contextual understanding of the tasks being performed. Prior experience is particularly important in clerical and data-related work, where errors can have cumulative or downstream effects.

Another top-ranked competence is **problem identification and solving**, indicating that freelancers are expected not only to execute routine tasks but also to recognise inconsistencies, resolve issues, and address unexpected situations independently.

The **ability to express opinions clearly and assertively** is also rated at the highest level. This suggests that clerical freelancers value the capacity to seek clarification, raise issues, and communicate concerns confidently, particularly when dealing with data quality, task instructions, or workflow constraints.

Finally, **dealing with uncertainty and stress** attains the maximum importance score, reflecting the often repetitive, deadline-driven, or high-volume nature of clerical and data entry work. The ability to maintain focus and performance under pressure is therefore perceived as critical.

Hospitality, Tourism and Events

Within the Hospitality, Tourism and Events category, several competencies attain the maximum importance score of 5, indicating that they are perceived as critical for effective freelance performance in this highly dynamic and client-facing domain.

One of the top-ranked competencies is the **ability to work in multicultural environments**, reflecting the international and culturally diverse nature of tourism and event-related activities. Freelancers in this field frequently interact with clients, partners, and audiences from different cultural backgrounds, making cultural sensitivity and adaptability essential.

The **ability to keep good relationships in business collaboration** also receives the highest importance rating, highlighting the central role of trust-based interactions, customer relations, and partnership management. Sustained professional relationships are particularly important in hospitality and events, where repeat engagements and reputation strongly influence career opportunities.

Problem identification and solving is another competence rated at the maximum level. This underscores the need for freelancers to respond effectively to unpredictable

situations, operational disruptions, or client-related issues that often arise in live or time-critical contexts.

In addition, **personal financial management** is rated at the highest importance level, reflecting the seasonal and project-based nature of work in this sector. Effective management of income variability, budgeting, and financial planning is therefore perceived as essential for sustainability in freelance hospitality and tourism work.

Finally, **task prioritisation** attains the maximum score, emphasising the importance of managing multiple activities, deadlines, and responsibilities simultaneously, particularly during peak periods or complex events.

Generic / Self-Employment

Within the Generic / Self-Employment category, several competencies attain the maximum importance score of 5, indicating a set of foundational capabilities perceived as essential for sustaining independent freelance activity across diverse and non-specialised work contexts.

The highest-rated competence is **self-organisation and work discipline**, reflecting the central importance of autonomous planning, consistency, and personal accountability. In generic self-employment, where work structures are often informal and self-defined, disciplined self-management is critical for maintaining productivity and reliability.

Critical assessment of online information is also rated at the maximum level, highlighting the need for freelancers to evaluate information quality, credibility, and relevance when sourcing opportunities, tools, or knowledge in digital environments.

The **ability to engage and maintain professional relationships** receives the highest importance rating, underscoring the role of networking, trust, and interpersonal effectiveness in accessing work opportunities and sustaining freelance activity in the absence of a clearly defined occupational niche.

Learning and continuous skill expansion is another top-ranked competence, reflecting the necessity for ongoing adaptability and skill development in generic self-employment, where freelancers may need to pivot across tasks, roles, or sectors.

Finally, **domain-specific expertise and practical experience** is rated at the maximum level, indicating that even in broadly defined freelance activities, hands-on knowledge and experience remain essential for delivering value and maintaining credibility.

Cross-Activity Synthesis

Across main freelancer activities, clear patterns emerge. **Problem-solving** dominates in technical and creative fields, **continuous learning** is central in knowledge-intensive and language-based activities, while **self-organisation, communication, and relational competences** become critical in service-oriented, educational, and generic freelance roles. These distinctions underline the importance of activity-specific competence prioritisation and support the need for tailored training and upskilling strategies aligned with freelancers' professional domains.

2.1.6 Empirical Analysis of Importance-Proficiency Gaps

This subsection examines the competencies for which the largest discrepancies between perceived importance and self-assessed proficiency are observed among Romanian freelancers.

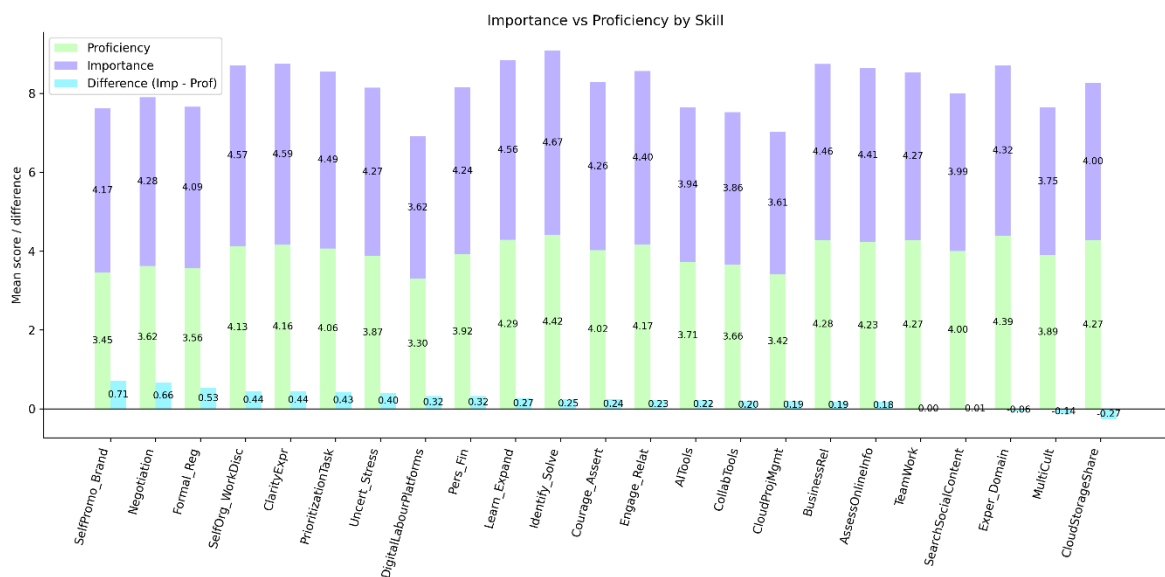


Figure 51. Mean importance, proficiency, and gap (importance–proficiency) by skill among Romanian freelancers (N = 108).

These gaps indicate areas where freelancers recognise high relevance for successful professional activity, but report comparatively lower levels of mastery, signalling priority domains for targeted upskilling and intervention.

The analysis highlights ten competencies with the most pronounced importance–proficiency differences.

First, **self-promotion and personal branding** and **negotiation skills** exhibit substantial gaps. While freelancers perceive these competencies as highly important for securing work, negotiating terms, and sustaining careers in competitive markets, their reported proficiency remains comparatively lower. This suggests structural challenges related to market visibility, value communication, and bargaining power, particularly in platform-mediated and project-based work.

A significant gap is also observed for **knowledge of formal and regulatory requirements**. This indicates that freelancers recognise the importance of understanding contracts, taxation, labour regulations, and compliance issues, yet feel insufficiently prepared to navigate these aspects confidently. Such gaps may expose freelancers to legal, financial, or contractual risks.

Another critical gap concerns **self-organisation and work discipline**, underscoring tensions between the high demands of autonomous work and the challenges of maintaining consistent structure, time management, and workload balance. Although this competence is widely recognised as essential, proficiency does not fully match its perceived importance.

Communication-related and organisational competences, including **clarity of expression and communication** and **task prioritisation**, also show notable gaps. These findings suggest that freelancers face difficulties in managing complex communication demands and competing priorities, particularly when working with multiple clients or under tight deadlines.

Psychosocial dimensions are reflected in the gap for **coping with uncertainty and stress**, indicating that emotional resilience and stress management are perceived as crucial but insufficiently developed. This is particularly relevant given the income

volatility, project uncertainty, and performance pressures characteristic of freelance work.

Digital market participation is another area of concern, as evidenced by the gap in **use of digital labour platforms**. While such platforms are recognised as important channels for accessing work, freelancers report lower proficiency in effectively leveraging them, possibly due to platform complexity, algorithmic opacity, or intense competition.

Financial sustainability issues are highlighted by the gap in **personal financial management**, reflecting challenges related to income planning, budgeting, and financial risk management in irregular and project-based work settings.

Finally, a substantial gap is observed for **learning and continuous skill expansion**. Although freelancers strongly recognise the importance of lifelong learning in rapidly changing markets, they report difficulties in keeping pace with skill development demands, potentially due to time constraints, cost barriers, or lack of structured learning pathways.

These findings provide a clear empirical basis for the computation of a **competence gap score**, which will be formally calculated and standardised, and it will serve as a core analytical input for Section 5 – Gap Analysis.

The identified gaps thus represent not only descriptive discrepancies, but also actionable indicators for prioritising training needs, designing targeted upskilling interventions, and aligning policy recommendations with freelancers' most critical unmet competence requirements.

2.2 Companies

2.2.1 Top-Ranked Competencies by Importance across Main Area of Company Activity

This subsection examines companies' assessments of competence importance, focusing on the highest-rated competencies by main area of company activity. By identifying competencies that companies consistently rate at very high or maximum

importance levels, the analysis highlights critical demand-side expectations that shape freelancer selection, performance evaluation, and future skill requirements.

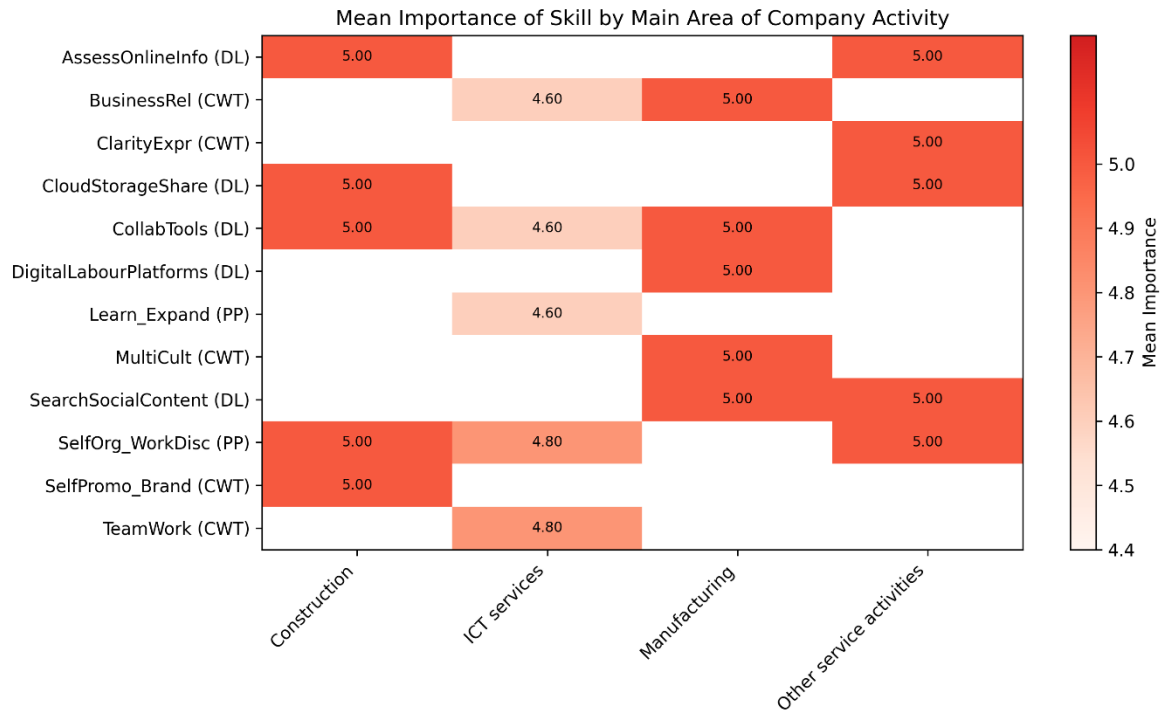


Figure 52. Mean importance of skills by main area of company activity among Romanian companies (N = 8).

The findings provide a necessary reference point for the subsequent computation of importance-proficiency gap scores, which will be formally derived and analysed in Section 5 (Gap Analysis), enabling a systematic comparison between company expectations and freelancers’ self-assessed capabilities.

Construction

For companies operating in Construction, the following competencies are rated at the maximum importance level, indicating critical expectations regarding freelancers’ ability to operate reliably, securely, and autonomously in digitally supported work environments:

- Self-organisation and work discipline
- Self-promotion and personal branding

- Use of collaborative digital tools
- Use of cloud storage and file-sharing tools
- Critical assessment of online information

This competence profile reflects the increasing digitalisation of construction-related workflows, where freelancers are expected not only to manage their work independently, but also to communicate their value, collaborate digitally, handle shared documentation securely, and assess information quality in complex project settings.

Manufacturing

In Manufacturing, companies assign maximum importance to a different set of competencies, emphasising interaction, digital sourcing, and collaborative coordination:

- Ability to work in multicultural environments
- Ability to keep good relationships in business collaboration
- Effective use of digital labour platforms
- Use of search engines, social media, and content platforms
- Use of collaborative digital tools

This pattern highlights manufacturing companies' reliance on freelancers who can operate across cultural boundaries, engage effectively with partners, and navigate digital labour markets and online content ecosystems to support production, coordination, and supply-chain-related activities.

Other Service Activities

For companies classified under Other Service Activities, the competencies rated at the highest importance level focus on organisation, communication, and digital information management:

- Self-organisation and work discipline
- Clarity of expression and communication

- Use of search engines, social media, and content platforms
- Use of cloud storage and file-sharing tools
- Critical assessment of online information

This competence set reflects the client-facing and information-intensive nature of service activities, where freelancers must manage tasks autonomously, communicate clearly, and efficiently handle digital information and online content in support of service delivery.

ICT Services

In contrast to the previous sectors, companies in ICT Services show a more differentiated importance structure, with several competencies receiving very high, but not uniformly maximal, importance scores.

The most highly rated competencies in ICT Services are:

- Self-organisation and work discipline (Mean importance = 4.8)
- Teamwork (Mean importance = 4.8)
- Ability to keep good relationships in business collaboration (Mean importance = 4.6)
- Use of collaborative digital tools (Mean importance = 4.6)
- Learning and continuous skill expansion (Mean importance = 4.6)

This profile highlights the importance of autonomous work management and collaboration in digitally mediated environments. While technical competence is assumed, companies place particular emphasis on freelancers' ability to integrate into teams, collaborate remotely using digital tools, and continuously update skills in response to rapid technological change.

2.2.2 Top-Ranked Competencies by Importance across Company Size

This subsection analyses the competencies that companies rate at the maximum importance level (score = 5), disaggregated by company size. The results reveal clear

differences in competence expectations that reflect organisational scale, internal capacity, and modes of freelancer integration.

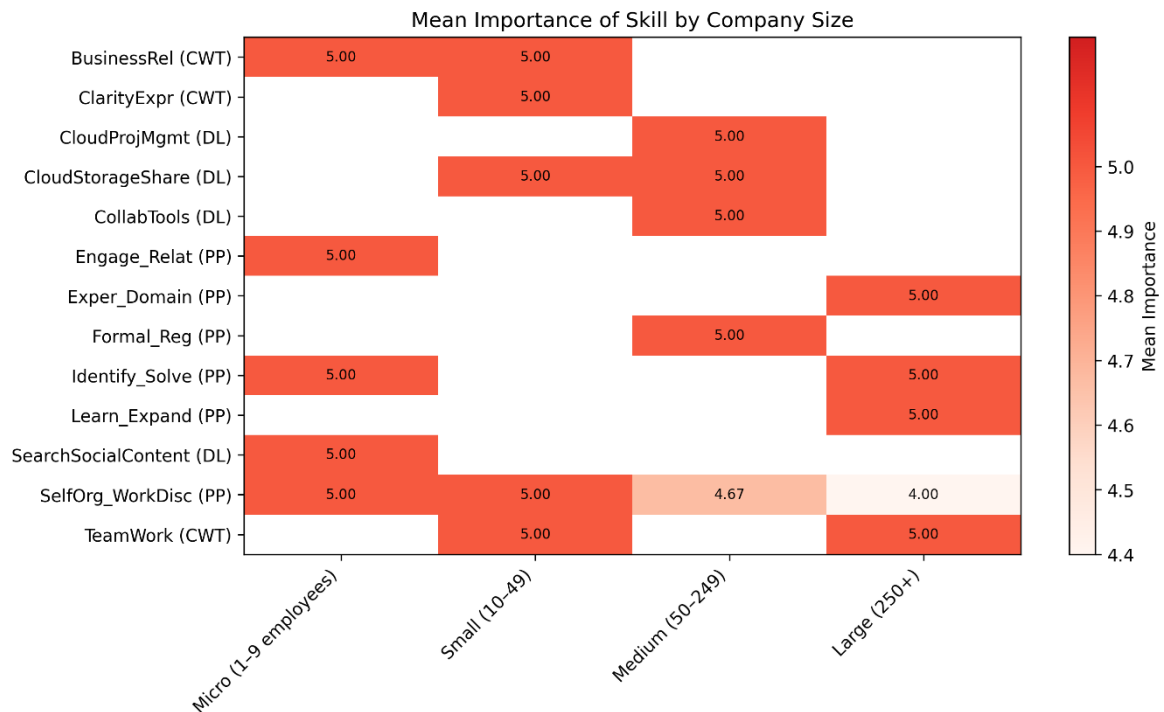


Figure 53. Mean importance of skills by company size among Romanian companies (N = 8).

Micro Enterprises (1–9 Employees)

For micro-enterprises, the following competencies are rated at the maximum importance level:

- Self-organisation and work discipline
- Ability to keep good relationships in business collaboration
- Ability to engage and maintain professional relationships
- Use of search engines, social media, and content platforms
- Problem identification and solving

This profile reflects the highly informal and resource-constrained nature of micro-enterprises. Freelancers are expected to operate with a high degree of autonomy, contribute directly to problem-solving, and actively support business development

through relationship-building and effective use of online information sources. The emphasis on relational and self-management competences suggests that freelancers often function as quasi-core team members rather than peripheral contributors.

Small Enterprises (10–49 Employees)

In small enterprises, the competencies rated at the maximum importance level include:

- Self-organisation and work discipline
- Clarity of expression and communication
- Use of cloud storage and file-sharing tools
- Teamwork
- Ability to keep good relationships in business collaboration

This competence set highlights the importance of coordination and communication in small organisations, where freelancers must integrate smoothly into existing teams and workflows. Digital collaboration through shared cloud tools is seen as essential, while strong communication and relationship management support effective collaboration in relatively lean organisational structures.

Medium Enterprises (50–249 Employees)

For medium-sized enterprises, the competencies rated at the maximum importance level shift towards more structured and process-oriented capabilities:

- Use of collaborative digital tools
- Use of cloud storage and file-sharing tools
- Use of cloud-based project management tools
- Knowledge of formal and regulatory requirements

This profile reflects the greater organisational complexity of medium-sized firms, where freelancers are expected to operate within formalised workflows, compliance frameworks, and digitally coordinated project environments. The emphasis on

regulatory knowledge indicates higher expectations regarding contractual, legal, and procedural alignment.

Large Enterprises (250+ Employees)

In large enterprises, the competencies rated at the maximum importance level focus on expertise, integration, and advanced problem-solving:

- Learning and continuous skill expansion
- Domain-specific expertise and practical experience
- Problem identification and solving
- Teamwork

This competence profile suggests that large organisations primarily engage freelancers for specialised expertise and high-value problem-solving, while also expecting them to collaborate effectively within complex, multi-layered teams. Continuous learning is viewed as essential to ensure alignment with evolving organisational standards, technologies, and strategic objectives.

2.2.3 Empirical Analysis of Importance-Proficiency Gaps

This subsection analyses the competencies for which companies report the largest discrepancies between perceived importance and observed or expected proficiency among freelancers. These gaps indicate areas where companies place high strategic or operational value on specific skills, yet perceive freelancers' current proficiency as insufficient, signalling critical demand–supply mismatches in the freelancing market.

The analysis identifies thirteen competencies with the most pronounced importance–proficiency gaps.

A major gap is observed in **use of AI tools**, indicating that companies increasingly recognise AI-related capabilities as important for efficiency, competitiveness, and innovation, while perceiving that freelancers' practical proficiency has not yet fully caught up with these expectations. This reflects the rapid pace of AI diffusion and uneven skill adoption across the freelance workforce.

Several **collaborative and interpersonal competencies** also show substantial gaps. These include **teamwork, ability to keep good relationships in business collaboration, and clarity of expression and communication.** Although companies consider these competences essential for effective integration of freelancers into teams and workflows, the reported proficiency gaps suggest ongoing challenges in coordination, mutual understanding, and relationship management, particularly in remote or hybrid work contexts.

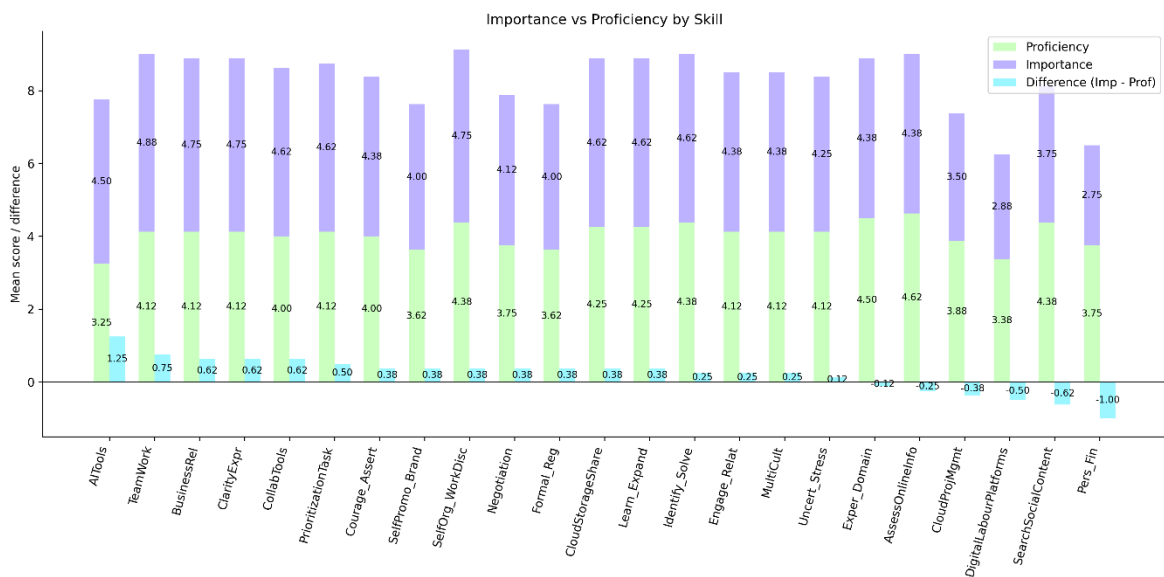


Figure 54. Mean importance, proficiency, and gap (importance–proficiency) by skill among Romanian companies (N = 8).

Organisational and workflow-related competencies represent another important gap cluster. **Use of collaborative digital tools, use of cloud storage and file-sharing tools, and task prioritisation** all exhibit notable discrepancies between importance and proficiency. This indicates that companies expect freelancers to operate smoothly within digitally coordinated environments, yet perceive shortcomings in the consistent or effective use of such tools and practices.

A significant gap is also identified for **learning and continuous skill expansion.** While companies strongly value freelancers’ ability to update skills and adapt to changing requirements, they perceive limitations in freelancers’ capacity to engage systematically in ongoing learning, possibly due to time constraints, cost considerations, or lack of structured learning pathways.

Regulatory and governance-related knowledge constitutes another area of concern. The gap observed for **knowledge of formal and regulatory requirements** suggests that companies consider compliance, contractual awareness, and regulatory understanding to be important, but do not consistently observe adequate proficiency among freelancers. This gap may increase organisational risk and transaction costs.

Several **market-facing and self-management competencies** also display pronounced gaps. These include **assertiveness and confidence in expressing viewpoints, negotiation skills, self-promotion and personal branding, and self-organisation and work discipline**. Together, these gaps indicate that companies expect freelancers to engage proactively, negotiate effectively, manage themselves reliably, and communicate their value clearly, yet perceive uneven performance in these areas.

Synthesis and Subsequent Analysis

Taken together, these findings point to a concentration of importance-proficiency gaps in three broad domains:

- **digital and AI-related competences,**
- **collaborative, communicative, and organisational skills,** and
- **self-management and market-interaction competences.**

In the following section, these discrepancies will be formalised through the computation of a competence gap score, defined as the difference between companies' importance ratings and perceived proficiency levels for each skill. This gap score will be used as a core analytical input in Section 5 – Gap Analysis, enabling systematic identification of priority areas for targeted training, upskilling, and policy intervention from the company perspective.

3 Cross-Tabulation Analysis of Competency Gaps (χ^2 Tests)

This section presents the results of the cross-tabulation analysis of competency gap scores using Chi-square (χ^2) tests, conducted in accordance with the methodological guidelines. The analysis was performed exclusively on the freelancers' dataset, as the number of company responses ($n = 8$) was insufficient to support reliable inferential statistical testing.

Categorical Variable	Competence Gap* Score Variable	χ^2	df	p-value	Cramers'_V	Effect Size
Main_Freelancer_Activity	Courage_Assert (CWT)	116.18	20	0.000	0.67	Strong
Main_Freelancer_Activity	AssessOnlineInfo (DL)	49.65	20	0.000	0.37	Strong
Age	Uncert_Stress (PP)	32.70	12	0.001	0.31	Strong
Education_Level	AssessOnlineInfo (DL)	21.20	6	0.002	0.27	Strong
Education_Level	Uncert_Stress (PP)	21.06	6	0.002	0.27	Strong
Upskilling_Frequency	AssessOnlineInfo (DL)	22.66	8	0.004	0.26	Strong
Main_Freelancer_Activity	Uncert_Stress (PP)	34.11	20	0.025	0.26	Strong
AI_Use_Future	Uncert_Stress (PP)	20.55	8	0.008	0.24	Strong
Upskilling_Frequency	AITools (DL)	19.00	8	0.015	0.23	Strong

*) Competence gap scores are computed for each competence C using the formula:

$$\text{Gap Score}_c = (\text{Importance Mean}_c - \text{Proficiency Mean}_c) * \text{Importance Mean}_c$$

Table 1. Significant associations between categorical variables and competency gap scores among Romanian freelancers based on Chi-square (χ^2) tests (N = 108).

To ensure interpretability and focus, only results which directly capture misalignment between perceived requirements and self-assessed capabilities, meeting both statistical and practical relevance criteria are reported:

- statistically significant Chi-square tests ($p < 0.05$) and
- strong association strength, defined by Cramér's $V > 0.22$ for $df > 5$, following df-adjusted effect size thresholds.

Detailed outputs are provided in Table 1.

Following the predefined interpretation rule, only standardized residuals with absolute values greater than 2 were considered meaningful contributors to the overall Chi-square association.

3.1 Interpretation of Significant Associations

3.1.1 Main Freelancer Activity × Courage & Assertiveness

A very strong and highly significant association ($\chi^2 = 116.18$, $df = 20$, $p < 0.001$; Cramér’s $V = 0.67$) indicates that competency gaps in *courage and assertiveness in communication* differ substantially across *main freelance activity* categories. This suggests that different professional domains impose distinct expectations regarding self-confidence, negotiation, and assertive interaction with clients and stakeholders, leading to heterogeneous gap patterns between required and perceived communication-related competences.

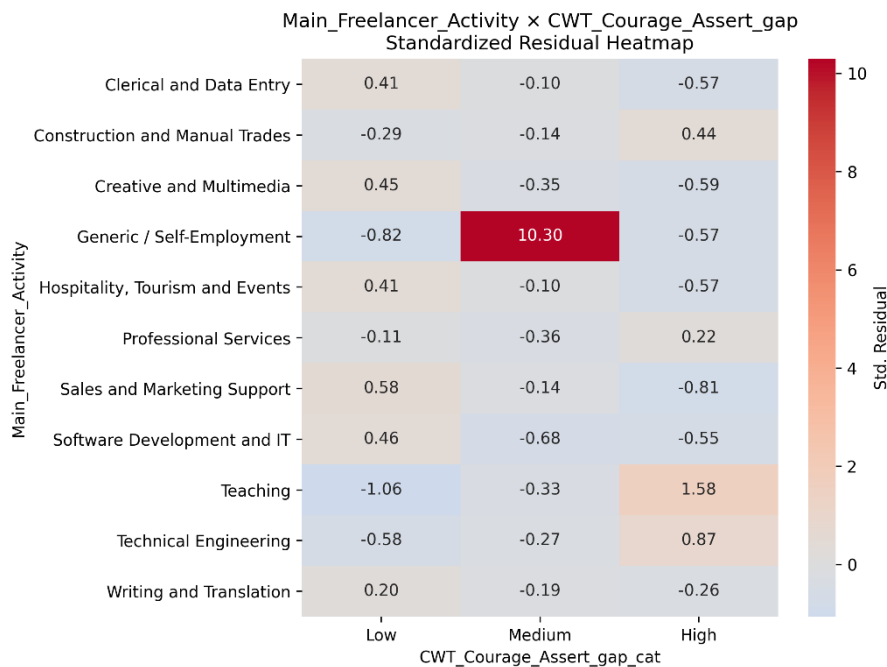


Figure 55. Standardized residual heatmap for the association between main freelancer activity and the courage & assertiveness in communication competency gap among Romanian freelancers (N = 108).

The association between *main freelancer activity* and the *courage & assertiveness in communication* competency gap is primarily explained by the **Generic / Self-Employment group**, which shows a pronounced concentration in the **Medium gap** category.

This finding supports a targeted interpretation, suggesting that interventions aimed at this group should focus on refining and stabilizing assertiveness-related competences, rather than addressing severe deficits or advanced performance gaps.

3.1.2 Main Freelancer Activity × Assessing Online Information

The significant and strong relationship ($\chi^2 = 49.65$, $df = 20$, $p < 0.001$; Cramér's $V = 0.37$) shows that gaps in the *ability to assess the relevance and credibility of online information* vary by freelance activity. This reflects heterogeneous exposure to, and reliance on, digital information sources across freelance sectors, with some domains requiring more advanced critical evaluation skills than others.

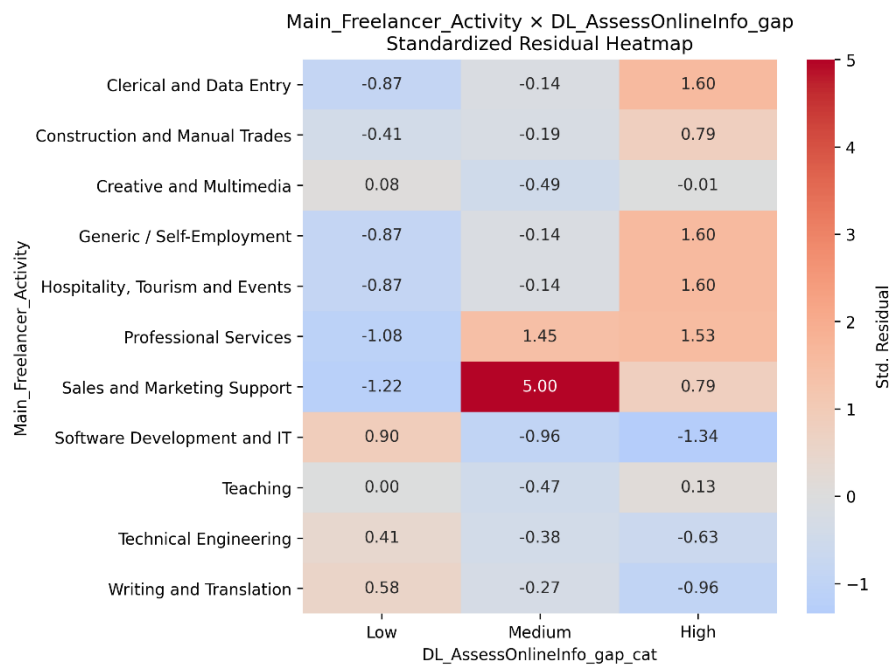


Figure 56. Standardized residual heatmap for the association between main freelancer activity and assessing online information gap among Romanian freelancers (N = 108).

The association between *main freelancer activity* and the *assessing online information gap* is largely explained by a single structurally distinctive pattern: an over-representation of **Sales and Marketing Support** freelancers in the **Medium gap** category. This finding supports the need for targeted digital information evaluation training for this professional group, rather than broad, undifferentiated interventions.

3.1.3 Main Freelancer Activity × Uncertainty & Stress Management

The analysis revealed a statistically significant and strong association between *main freelance activity* and gaps in *uncertainty and stress management* ($\chi^2 = 34.11$, $df = 20$, $p < 0.05$; Cramér's $V = 0.26$). This suggests that freelancers operating in different professional domains experience distinct levels of mismatch between the demands placed on stress and uncertainty management and their perceived proficiency. The result highlights the domain-specific nature of psychological and self-management challenges in freelance work.

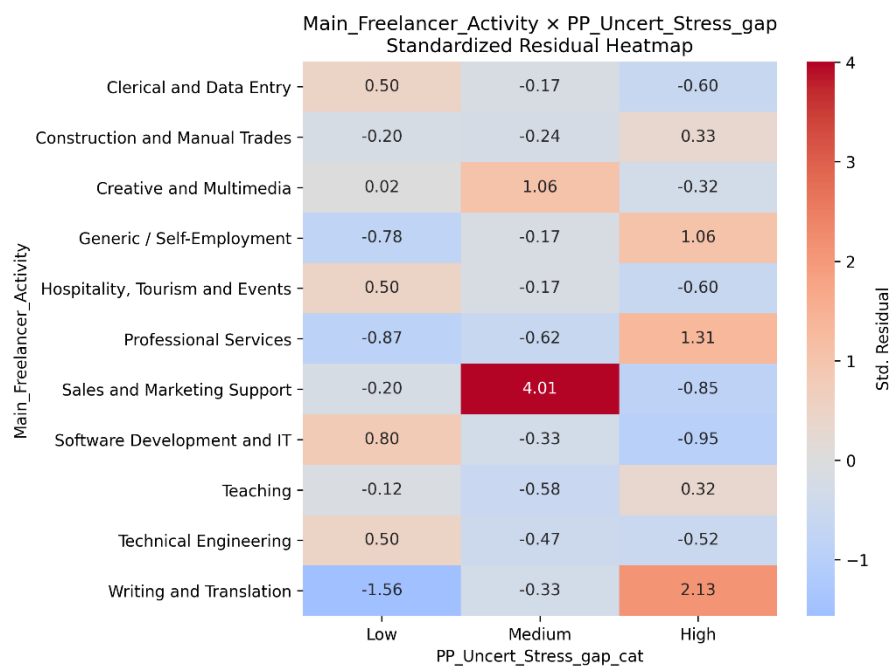


Figure 57. Standardized residual heatmap for the association between main freelancer activity and the uncertainty and stress management gap among Romanian freelancers (N = 108).

The association between *main freelancer activity* and the *uncertainty and stress management gap* is primarily explained by:

- an over-representation of **Sales and Marketing Support** freelancers in the **Medium gap** category, and
- an over-representation of **Writing and Translation** freelancers in the **High gap** category.

These findings support **targeted, activity-specific interventions**, particularly focusing on stress regulation, workload management, and psychological resilience for the identified groups.

3.1.4 Age × Uncertainty & Stress Management

A strong association ($\chi^2 = 32.70$, $df = 12$, $p < 0.01$; Cramér's $V = 0.31$) indicates *age*-related differences in competency gaps for *managing uncertainty and stress*. This pattern suggests that freelancers at different career stages experience and cope with uncertainty differently, which may translate into distinct development needs across age groups.

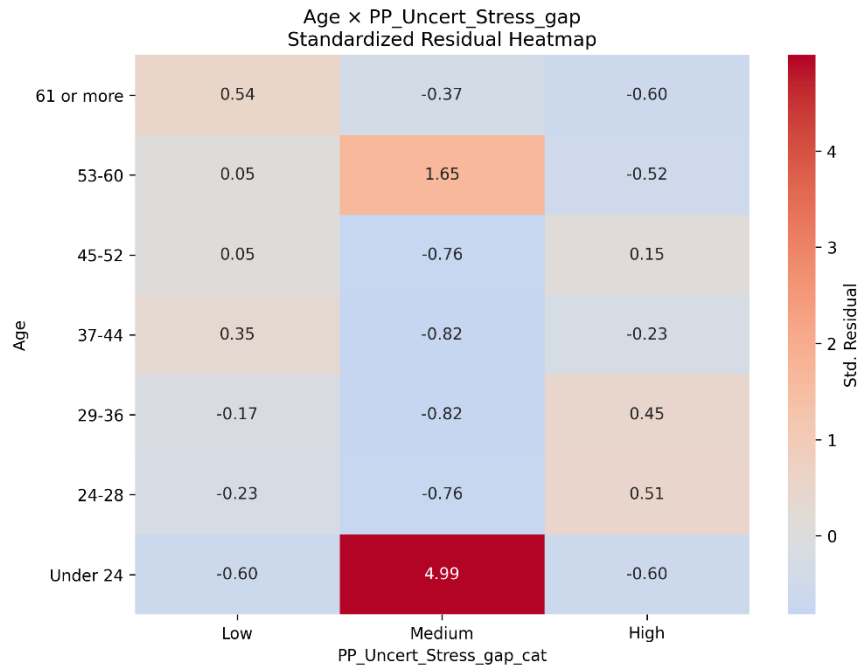


Figure 58. Standardized residual heatmap for the association between age and the uncertainty and stress management gap among Romanian freelancers (N = 108).

The association between *age* and the *uncertainty and stress management gap* is primarily driven by freelancers **under 24**, who show a pronounced concentration in the **Medium gap** category. This finding supports the relevance of early-career support measures, such as mentoring, resilience training, and structured guidance for managing uncertainty in freelance work.

3.1.5 Education Level × Assessing Online Information

The statistically significant and strong effect ($\chi^2 = 21.20$, $df = 6$, $p < 0.01$; Cramér's $V = 0.27$) highlights that gaps in *ability to critically assess online information* are systematically related to educational attainment. This implies that formal education contributes to reducing—but does not eliminate—misalignments between required and actual digital literacy competences.

The association between *education level* and the *assessing online information gap* is driven primarily by:

- an over-representation of **Bachelor's degree** holders in the **High gap** category, and

- an over-representation of freelancers with **high school education or less** in the **Medium gap** category.

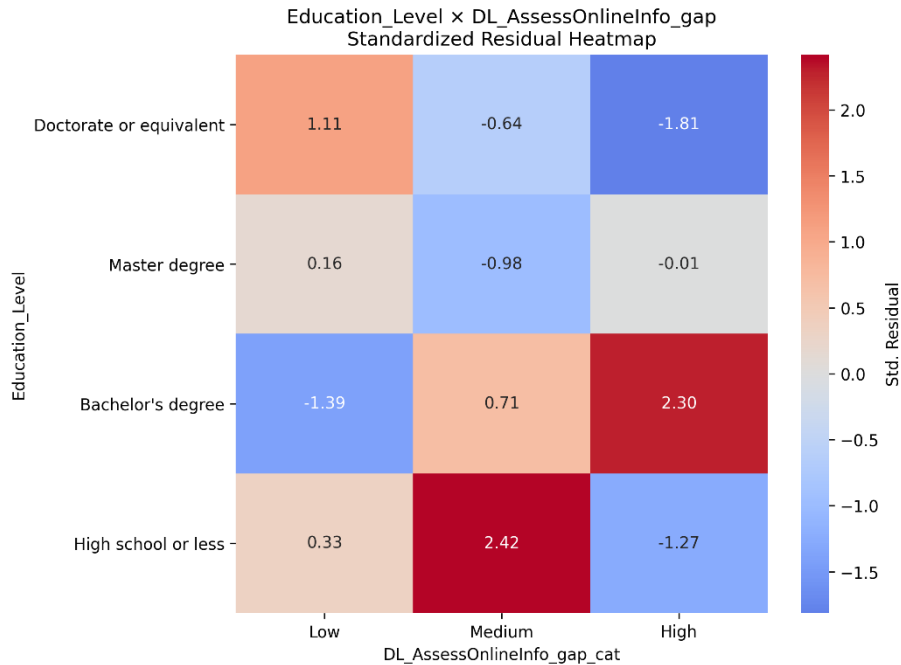


Figure 59. Standardized residual heatmap for the association between education level and the assessing online information gap among Romanian freelancers (N = 108).

These findings support the need for education-sensitive digital literacy interventions, tailored both to foundational skill development and to higher-level critical evaluation competences.

3.1.6 Education Level × Uncertainty & Stress Management

A comparable strong association ($\chi^2 = 21.06$, $df = 6$, $p < 0.01$; Cramér's $V = 0.27$) suggests that *education level* also differentiates gaps in *uncertainty and stress management*. Higher educational backgrounds may provide better coping frameworks, yet the persistence of gaps indicates a need for targeted, practice-oriented upskilling beyond formal education.

The association between *education level* and the *uncertainty and stress management* gap is primarily driven by freelancers with **high school education or less**, who show a pronounced concentration in the **Medium gap** category. This finding supports the

relevance of education-sensitive resilience and stress-management interventions, particularly targeting freelancers with lower formal education levels.

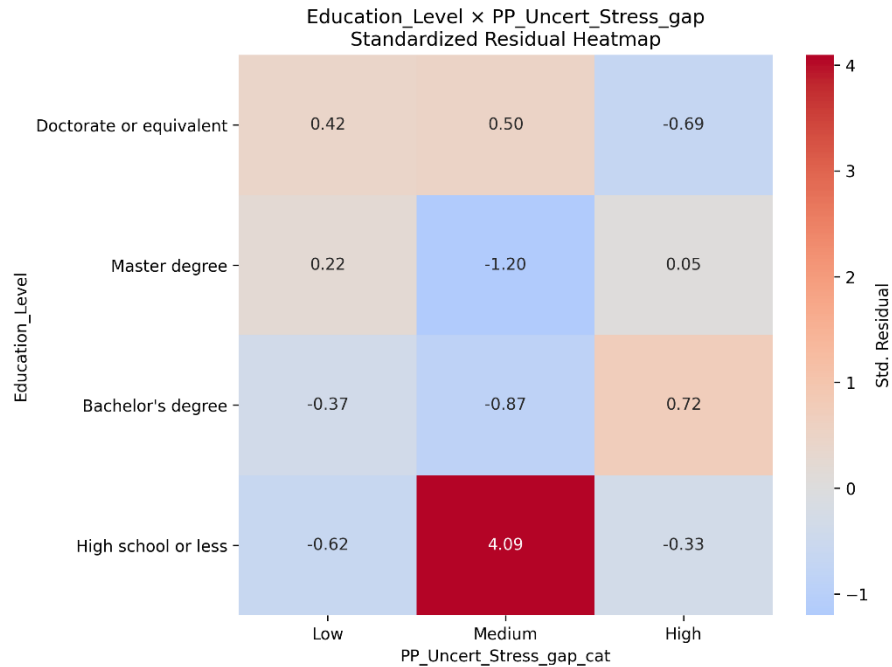


Figure 60. Standardized residual heatmap for the association between education level and the uncertainty and stress management gap among Romanian freelancers (N = 108).

3.1.7 Upskilling Frequency × Assessing Online Information (DL)

A statistically significant and strong association was identified between *upskilling frequency* and competency gaps in the *ability to assess the relevance and reliability of online information* ($\chi^2 = 22.66$, $df = 8$, $p < 0.01$; Cramér's $V = 0.26$). This result indicates that freelancers who engage more frequently in upskilling activities tend to report systematically different gap profiles compared to those who upskill less often. The finding underscores the importance of continuous learning in maintaining alignment between required and actual digital information evaluation skills, which are particularly sensitive to rapid changes in online content quality and misinformation risks.

The result suggests that freelancers who seldom participate in learning or training activities are far more likely than expected to experience pronounced mismatches between the importance of evaluating online information and their perceived

proficiency. This pattern underscores the cumulative effect of limited skill renewal in domains where information quality, misinformation risks, and digital content dynamics evolve rapidly.

The association between *upskilling frequency* and the *assessing online information gap* is primarily explained by freelancers who **rarely upskill**, who are disproportionately represented among those with **high competency gaps**.

A borderline residual (standardized residual = +2.00) suggests a potential over-representation of freelancers who **upskill only occasionally** in the **Medium gap** category. While this value does not exceed the strict threshold, it points to a transitional competence profile, where partial engagement in learning activities appears insufficient to fully meet digital information assessment demands, yet does not typically result in severe gaps.

This finding provides strong empirical support for promoting continuous learning initiatives aimed at maintaining digital information evaluation competences.

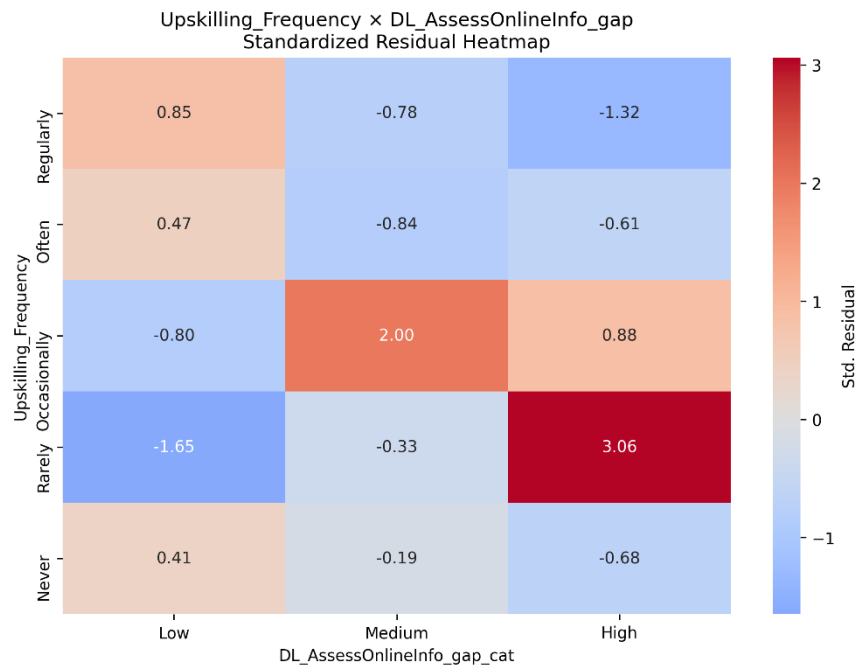


Figure 61. Standardized residual heatmap for the association between upskilling frequency the assessing online information gap among Romanian freelancers (N = 108).

3.1.8 Upskilling Frequency × AI Tools Usage (DL)

The Chi-square test indicates a statistically significant and strong association between *upskilling frequency* and gaps in the *ability to effectively use AI tools in professional activities* ($\chi^2 = 19.00$, $df = 8$, $p < 0.05$; Cramér's $V = 0.23$). This result confirms that AI-related digital competences are highly dependent on regular skill development activities. Freelancers who engage less frequently in upskilling are more likely to experience pronounced gaps, reinforcing the dynamic and fast-evolving nature of AI tool proficiency requirements.

The negative residual of -2.11 indicates a clear under-representation of freelancers who **regularly engage in upskilling** within the **High gap** category for *AI tools usage*. In practical terms, freelancers who learn regularly are significantly less likely than expected to experience pronounced gaps in using AI tools, suggesting a protective effect of continuous learning.

A positive residual of +2.12 shows a clear over-representation of freelancers who **rarely engage in upskilling** in the **High gap** category. This cell is a primary contributor to the overall χ^2 association and highlights a strong link between infrequent learning and substantial AI-related competence gaps.

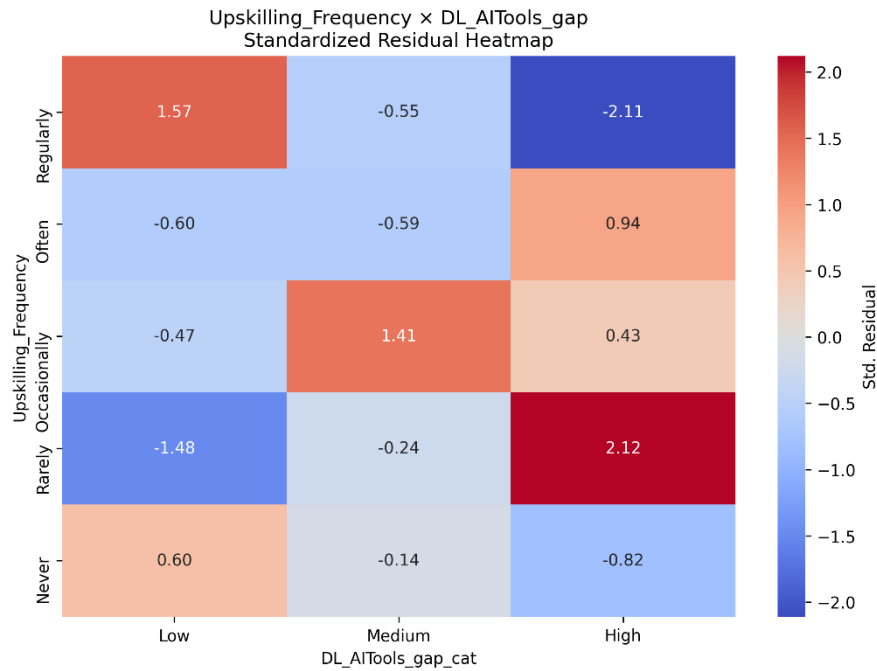


Figure 62. Standardized residual heatmap for the association between upskilling frequency and gaps in the ability to effectively use AI tools among Romanian freelancers (N = 108).

In conclusion, the association between *upskilling frequency* and the *AI tools usage gap* is driven by a **clear learning-frequency effect**: freelancers who upskill **regularly** are protected against severe AI competence gaps, whereas those who upskill **rarely** are disproportionately affected by such gaps. This finding strongly supports continuous, hands-on AI training as a key intervention for freelancers.

3.1.9 Future AI Use × Uncertainty & Stress Management (PP)

A significant and strong relationship was observed between anticipated *future AI use* and competency gaps related to *uncertainty and stress management* ($\chi^2 = 20.55$, $df = 8$, $p < 0.01$; Cramér's $V = 0.24$). Freelancers who foresee higher levels of AI adoption display different gap patterns, suggesting that expectations of technological change are associated with increased psychological demands. This finding points to the need for resilience and adaptability-oriented support alongside technical AI training.

Freelancers who anticipate **no future AI use** are far more likely than expected to experience a moderate mismatch between the psychological demands of freelance work and their perceived ability to cope with uncertainty and stress. Importantly, the

over-representation occurs in the **Medium** (rather than High) **gap** category, indicating noticeable but not extreme stress-management challenges.

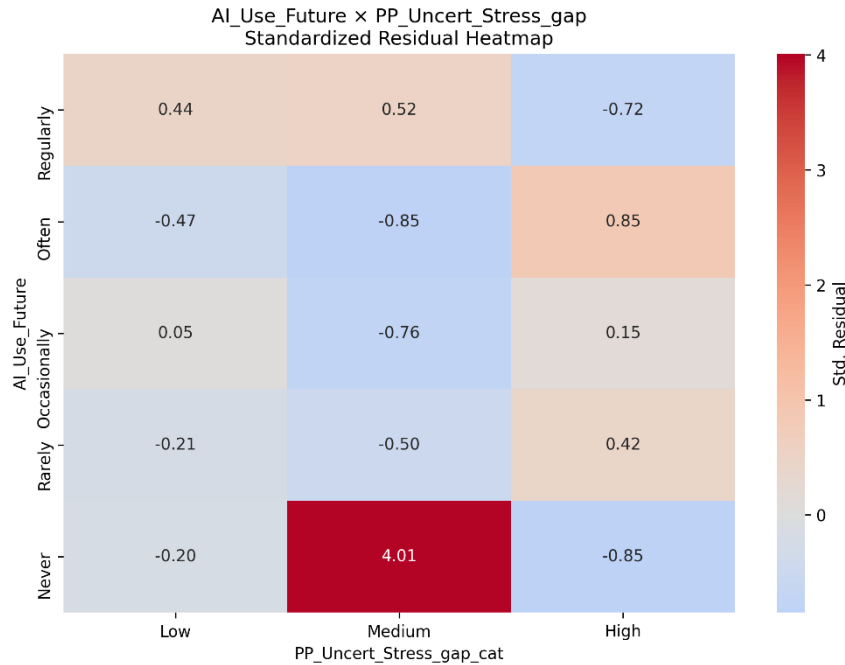


Figure 63. Standardized residual heatmap for the association between intended future use of AI the uncertainty and stress management gap among Romanian freelancers (N = 108).

The association between *future AI use* intentions and the *uncertainty and stress management* gap is primarily driven by freelancers who **do not intend to use AI**, who show a pronounced concentration in the **Medium gap** category. This finding highlights the relevance of change-readiness and adaptability support, particularly for freelancers less inclined toward AI adoption.

3.2 Concluding Interpretation

The cross-tabulation analysis reveals that competency gaps among freelancers are systematically structured by professional domain, demographic characteristics, educational background, and learning behaviour. The presence of statistically significant and strong associations across all reported tests indicates that misalignments between perceived requirements and self-assessed capabilities are not

randomly distributed, but follow stable and interpretable patterns linked to freelancers' work contexts and development trajectories.

Professional activity emerges as a central differentiating factor. Strong associations between main freelance activity and gaps in courage and assertiveness, digital information assessment, and stress management demonstrate that different sectors impose distinct cognitive, communicative, and psychological demands. In particular, freelancers in sales, marketing, writing, and generic self-employment display concentrated medium-to-high gap profiles, reflecting heightened pressures related to client interaction, performance uncertainty, and continuous information processing. These findings confirm that competence development needs are highly domain-specific and cannot be effectively addressed through uniform training models.

Age and education further shape vulnerability to psychological and digital competence gaps. Younger freelancers and those with lower or intermediate educational attainment show systematically higher mismatches in uncertainty management and online information evaluation. This suggests that early career stages and limited formal training are associated with weaker coping frameworks and less-developed critical digital literacy skills. At the same time, the persistence of gaps among Bachelor's-level graduates indicates that formal education alone is insufficient to ensure alignment with evolving freelance work demands.

Upskilling behaviour represents one of the most influential protective factors. Strong associations between learning frequency and both digital information assessment and AI tool usage demonstrate that continuous skill renewal plays a decisive role in preventing severe competence gaps. Freelancers who rarely upskill are consistently over-represented in high-gap categories, while regular learners are under-represented, particularly in technologically intensive domains. This confirms that ongoing learning functions not only as a means of skill acquisition, but also as a mechanism for maintaining professional adaptability.

The relationship between anticipated AI use and stress management further highlights the interconnected nature of technological and psychological competences. Freelancers who do not intend to adopt AI tools show elevated stress-related gaps, suggesting difficulties in coping with technological change and market uncertainty.

This indicates that digital transformation processes generate both technical and emotional challenges, which must be addressed in an integrated manner.

Taken together, the findings demonstrate that competence gaps reflect complex interactions between work environment, personal resources, and learning engagement. High gaps are most likely to occur where demanding professional contexts intersect with limited training participation and transitional career stages. Conversely, strong learning engagement and adaptive orientations mitigate both digital and psychological vulnerabilities.

From a strategic perspective, the results support the development of differentiated, profile-sensitive intervention frameworks. Domain-specific training should be combined with early-career mentoring, education-sensitive digital literacy programs, resilience-building initiatives, and sustained AI-focused upskilling pathways. Such integrated approaches are necessary to address not only technical deficits, but also communication, self-regulation, and adaptability challenges.

In conclusion, the cross-tabulation analysis confirms that freelancers' competence gaps are structurally embedded in their professional and developmental contexts. Effective policy and training responses must therefore move beyond generic skill provision and instead promote continuous, context-aware, and psychologically informed capacity-building models that support long-term professional sustainability.

4 Group Mean Differences in Competency Gaps (ANOVA)

This section examines group mean differences in competency gap scores using one-way ANOVA and Welch's ANOVA, conducted in accordance with the methodological guidelines.

The analysis was performed exclusively on the freelancers' dataset, as the number of company responses ($n = 8$) was insufficient to support reliable mean-comparison testing.

Only results meeting both statistical significance and practical relevance criteria are reported. Specifically, the section includes competency gap scores for which:

- the one-way ANOVA or Welch's ANOVA indicated statistically significant group differences ($p < 0.05$) and
- the associated effect size was large, defined as Partial $\eta^2 \geq 0.14$.

This dual filtering ensures that the reported findings reflect not only statistically detectable differences, but also differences of substantive magnitude.

For each significant result reported in the following, an analytical interpretation is provided, focusing on how competency gap levels vary across groups (e.g., age, education level, upskilling frequency, AI use).

Post-hoc analyses using Tukey's Honest Significant Difference (HSD) or Games-Howell tests will be incorporated subsequently to identify the specific group pairs driving the observed mean differences.

Detailed outputs are provided in the following table:

Grouping Variable	Competence Gap Score Variable	Test Type	Equal Variances Assumed	F	p-value	η^2	Effect Size
Age	BusinessRel (CWT)	Welch	false	3.04	0.026	0.46	Large
Education_Level	Exper_Domain (PP)	Welch	false	4.65	0.011	0.39	Large
Education_Level	AssessOnlineInfo (DL)	Welch	false	5.61	0.004	0.37	Large
Main_Freelancer_Activity	SelfOrg_WorkDisc (PP)	Welch	false	4.69	0.001	0.65	Large
Main_Freelancer_Activity	Engage_Relat (PP)	ANOVA	true	2.43	0.013	0.20	Large
Main_Freelancer_Activity	Learn_Expand (PP)	ANOVA	true	2.22	0.023	0.19	Large
Main_Freelancer_Activity	ClarityExpr (CWT)	Welch	false	4.34	0.004	0.72	Large
Main_Freelancer_Activity	AssessOnlineInfo (DL)	Welch	false	5.57	0.001	0.77	Large
Upskilling_Frequency	SelfOrg_WorkDisc (PP)	Welch	false	12.83	0.000	0.65	Large
Upskilling_Frequency	PrioritizationTask (CWT)	Welch	false	14.70	0.000	0.68	Large
Upskilling_Frequency	CloudProjMgmt (DL)	Welch	false	7.05	0.000	0.51	Large
Upskilling_Frequency	AITools (DL)	ANOVA	true	4.48	0.002	0.15	Large

Table 2. Group mean differences in competence gap scores among Romanian freelancers based on one-way ANOVA and Welch's ANOVA tests (N = 108).

4.1 Interpretation of Significant Group Mean Differences

4.1.1 Group Mean Differences in Competence Gaps by Age

Competence: Building and Managing Business Relationships

Differences in the competence gap related to *building and managing business relationships*, defined as the ability to establish, maintain, and develop professional relationships with clients and partners, were examined across *age groups*. This competence gap reflects the mismatch between the perceived importance of business relationship skills and freelancers' self-assessed proficiency in this area.

Because the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of *age* on the competence gap for *business relationship management* (Welch's $F = 3.04$, $p = 0.026$).

The associated effect size was large ($\eta^2 = 0.46$), indicating that age explains a substantial proportion of the variance in the perceived gap. This suggests that differences between age groups are not only statistically detectable but also practically meaningful.

Post-hoc Analysis (Games–Howell)

The Games–Howell post-hoc test identified one statistically significant pairwise difference between age groups with respect to the competence gap in building and managing business relationships (i.e., the mismatch between the perceived importance of maintaining professional client relationships and self-assessed proficiency).

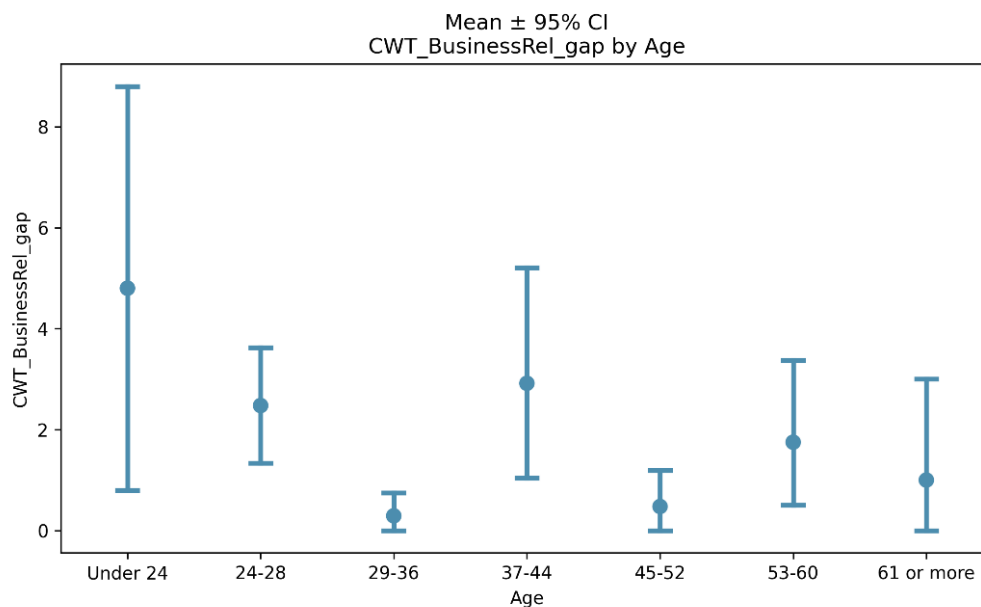


Figure 64. Mean competency gap (building and managing business relationships) by age group with 95% confidence intervals among Romanian freelancers (N = 108).

Significant pairwise difference

- Age 24–28 vs. Age 29–36
 - Mean gap (24–28): 2.48
 - Mean gap (29–36): 0.29
 - Mean difference: +2.18

- $p = 0.045$ (Games–Howell)

Freelancers aged **24–28** exhibit a significantly **higher competence gap** in *managing business relationships* compared to those aged **29–36**.

Interpretation

This result indicates that **early-career freelancers (24–28)** experience a **marked mismatch** between the importance they assign to building and sustaining business relationships and their perceived ability to do so. In contrast, freelancers aged **29–36** report substantially **lower gaps**, suggesting improved alignment between relational demands and competence.

The finding is consistent with a career-development trajectory:

- Freelancers in their late twenties may still be consolidating client communication, negotiation, and trust-building skills.
- By the early thirties, accumulated professional exposure and repeated client interactions appear to significantly reduce this gap.

Notably, although the youngest group (*Under 24*) shows a high mean gap, **no** statistically significant differences were detected for this group in pairwise comparisons, likely due to small subgroup size and higher variance, which the Welch–Games–Howell framework explicitly accounts for.

Conclusion

The post-hoc analysis shows that the overall Welch ANOVA effect of age on the business relationship competence gap is primarily driven by the **contrast between freelancers aged 24–28 and those aged 29–36**. This highlights a critical transition phase in freelance careers, where relational competences rapidly mature.

These results support the need for targeted early-career interventions, such as mentoring, client-communication training, and negotiation skill development, particularly for freelancers in the 24–28 age group.

4.1.2 Group Mean Differences in Competence Gaps by Education Level

Competence: Experience in the Work Domain

Differences in the competence gap related to *experience in the work domain*, defined as the extent to which freelancers perceive a mismatch between the importance of having sufficient hands-on experience in their professional field and their self-assessed level of domain-specific experience, were examined across *education levels*.

Because the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of *education level* on the *experience in the work domain* competence gap (Welch's $F = 4.65$, $p = 0.011$).

The associated effect size was large ($\eta^2 = 0.39$), indicating that education level accounts for a substantial proportion of variance in the perceived experience gap. This suggests that differences between education groups are not only statistically significant but also practically meaningful.

Post-hoc Analysis (Games–Howell)

To identify which education groups differ significantly, Games–Howell post-hoc tests were conducted, as this procedure is robust to unequal variances and group sizes.

Significant pairwise difference

- Bachelor's degree vs. Doctorate or equivalent
 - Mean gap (Bachelor's): 2.04
 - Mean gap (Doctorate): 0.00
 - Mean difference: +2.04
 - $p = 0.041$ (Games–Howell)

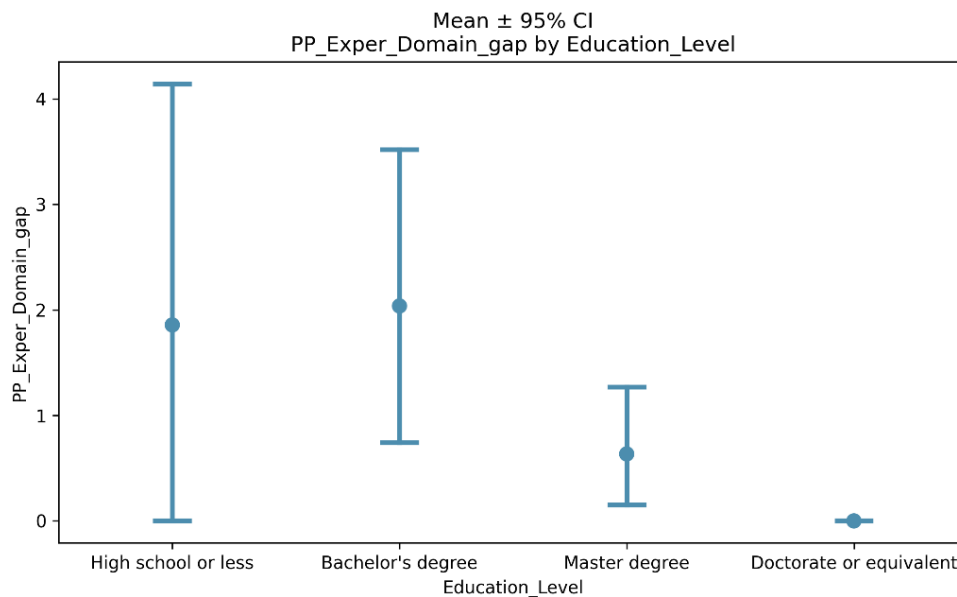


Figure 65. Mean competency gap (experience in the work domain) by education level with 95% confidence intervals among Romanian freelancers (N = 108).

Freelancers holding a **Bachelor's degree** exhibit a **significantly higher gap** in *experience in the work domain* compared to those with a **Doctorate or equivalent**.

Interpretation

This result indicates that freelancers with a **Bachelor's-level** education perceive a substantial mismatch between the importance of accumulated professional experience and their current level of domain-specific experience. In contrast, freelancers with **doctoral-level** education report near-complete alignment, suggesting that advanced academic training and prolonged engagement in a field contribute to stronger confidence in work-domain experience.

Although other education-level contrasts show noticeable mean differences, these do not reach statistical significance under the Games–Howell procedure, likely due to higher within-group variability and unequal sample sizes.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide robust evidence that education level significantly influences competence gaps in experience in the work domain, with the overall effect primarily driven by the contrast between **Bachelor's-level** and **Doctoral-level** freelancers. The large effect size highlights the importance of

experience-building pathways, particularly for freelancers with mid-level formal education.

These findings support the need for practice-oriented interventions, such as mentoring, project-based learning, and structured exposure to complex professional tasks, especially targeted at Bachelor's-educated freelancers.

Competence: Ability to Assess the Relevance of Online Information

Differences in the competence gap related to *assessing online information*, defined as the mismatch between the perceived importance of evaluating the relevance, accuracy, and credibility of online sources and freelancers' self-assessed proficiency in doing so, were examined across education levels.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of education level on the competence gap for online information assessment (Welch's $F = 5.61$, $p = 0.004$).

The associated effect size was large ($\eta^2 = 0.37$), indicating that education level explains a substantial proportion of variance in this competence gap. This suggests that differences between education groups are not only statistically significant but also practically meaningful.

Post-hoc Analysis (Games–Howell)

To identify specific group differences, Games–Howell post-hoc tests were conducted, as this procedure is robust to unequal variances and group sizes.

Significant pairwise differences

Two statistically significant contrasts were identified:

- High School or Less vs. Bachelor's Degree
 - Mean gap (High school or less): 0.43
 - Mean gap (Bachelor's): 2.59
 - Mean difference: -2.16
 - $p = 0.031$

Freelancers with Bachelor's degrees exhibit significantly higher gaps in assessing online information compared to those with lower formal education.

- Bachelor's Degree vs. Doctorate or Equivalent
 - Mean gap (Bachelor's): 2.59
 - Mean gap (Doctorate): 0.23
 - Mean difference: +2.37
 - $p = 0.004$

Bachelor's degree holders also show significantly higher gaps than freelancers with doctoral-level education.

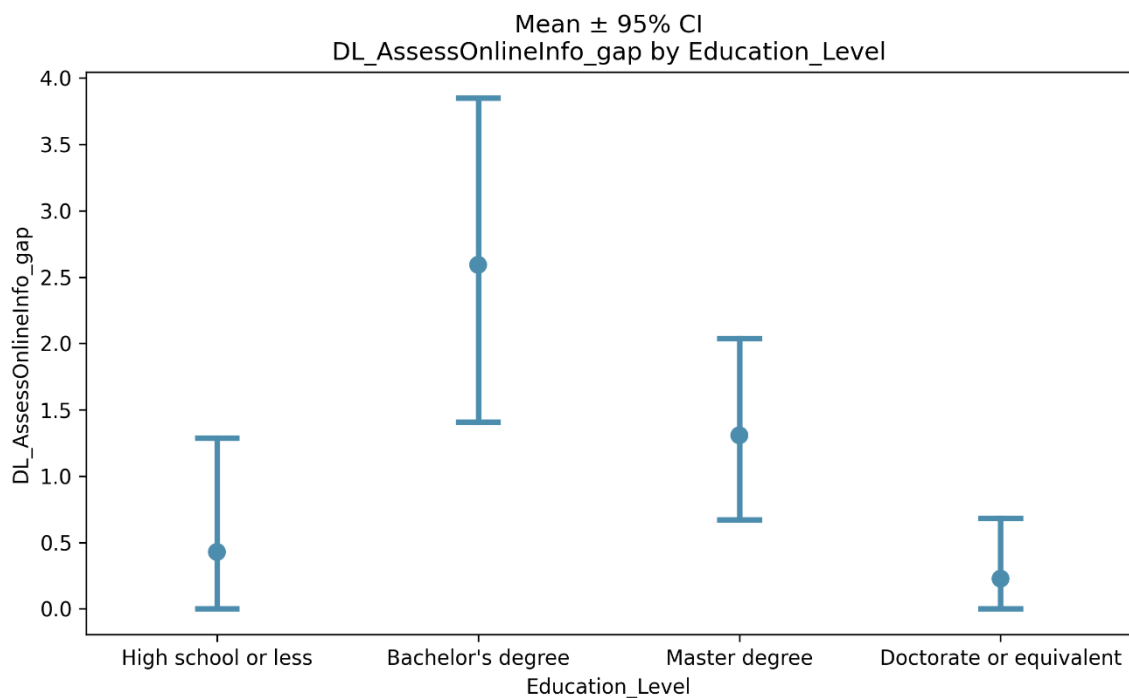


Figure 66. Mean competency gap (assessing online information) by education level with 95% confidence intervals among Romanian freelancers (N = 108).

Interpretation

The post-hoc results indicate that the overall education effect is primarily driven by **Bachelor's degree** holders, who consistently exhibit higher competence gaps in evaluating online information.

This pattern suggests that:

- Freelancers with lower education may rely on practical experience and informal learning, partially compensating for formal training limitations.
- Doctoral graduates benefit from advanced analytical training and research-oriented skills, leading to stronger alignment between competence demands and proficiency.
- Bachelor's graduates appear to occupy an intermediate position where digital information demands are high, but formal preparation and experiential learning may be insufficient to fully meet these requirements.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide strong evidence that education level significantly shapes competence gaps in assessing online information, with a large practical impact. The results are driven mainly by the elevated gaps observed among **Bachelor's degree holders**, relative to both lower and higher education groups.

These findings support the need for targeted digital literacy and critical information evaluation training, particularly aimed at freelancers with Bachelor's-level education, to strengthen their capacity to navigate complex and rapidly evolving online information environments.

4.1.3 Group Mean Differences in Competence Gaps by Main Freelancer Activity

Competence: Self-Organization and Work Discipline

Differences in the competence gap related to *self-organization and work discipline* were examined across main freelance activity domains. The competence gap reflects the mismatch between the perceived importance of these self-management skills and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of main freelance activity

on the self-organization and work discipline competence gap (Welch's $F = 4.69$, $p = 0.001$).

The associated effect size was large ($\eta^2 = 0.65$), indicating that professional domain explains a substantial proportion of variance in this competence gap. This suggests that differences between activity groups are not only statistically significant but also highly relevant in practical terms.

Post-hoc Analysis (Games–Howell)

To identify specific group differences, Games–Howell post-hoc tests were conducted, as this method is robust to unequal variances and group sizes.

Significant pairwise differences

The post-hoc analysis identified one statistically significant contrast, reflected symmetrically in the pairwise table:

- Construction and Manual Trades vs. Software Development and IT
 - Mean gap (Construction and Manual Trades): 0.00

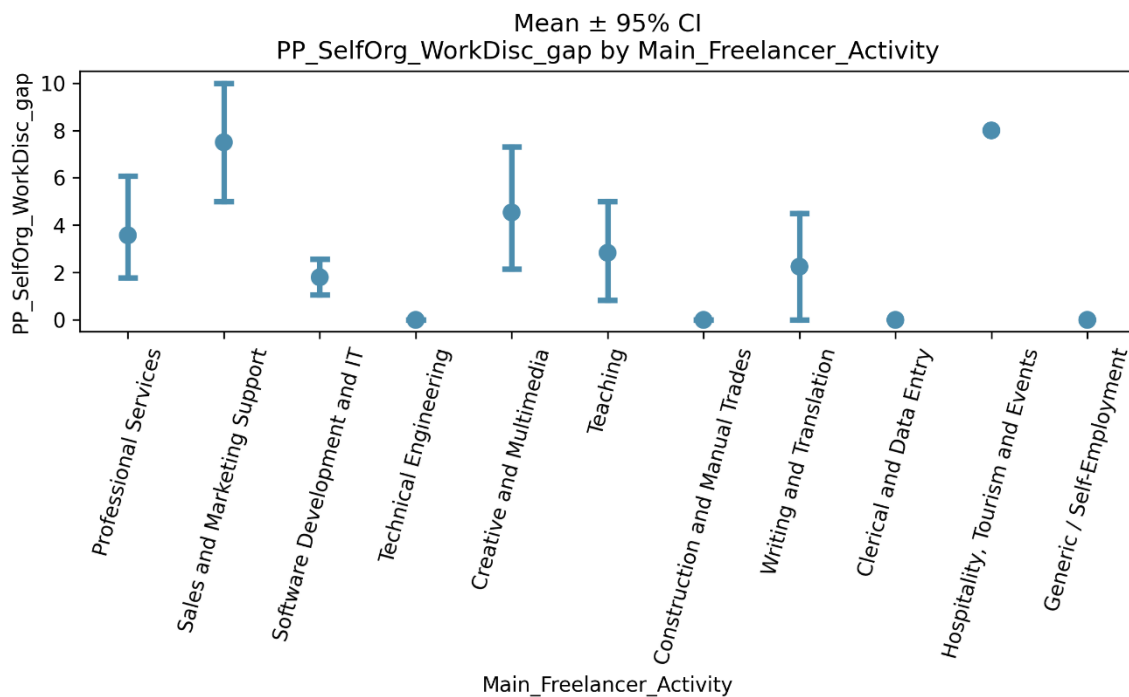


Figure 67. Mean competency gap (self-organization and work discipline) by main freelancer activity with 95% confidence intervals among Romanian

freelancers (N = 108).

- Mean gap (Software Development and IT): 1.80
- Mean difference: $-1.80 / +1.80$
- $p = 0.001$ (Games–Howell)

Freelancers working in **Software Development and IT** exhibit **significantly higher gaps** in self-organization and work discipline compared to those in **Construction and Manual Trades**.

Interpretation

The results indicate that the overall effect of professional domain is primarily driven by the contrast between **Software Development and IT** and **Construction/Manual Trades**.

Freelancers in **Software Development and IT** report a **substantially larger mismatch** between the importance of self-organization and their perceived ability to maintain consistent work discipline. This pattern may reflect:

- flexible and less structured working schedules,
- multitasking across multiple digital projects,
- frequent interruptions and context switching,
- blurred boundaries between personal and professional time.

In contrast, freelancers in **Construction and Manual Trades** tend to operate within more structured, task-oriented environments, which may support stronger alignment between work discipline requirements and actual practices.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide strong evidence that competence gaps in self-organization and work discipline differ significantly across freelance activity domains, with a large practical impact. The effect is mainly driven by higher gaps among **Software Development and IT** freelancers compared to those in **Construction and Manual Trades**.

These findings support the need for domain-specific interventions, particularly focusing on time management, workload planning, and self-regulation strategies for freelancers in digital and IT-related fields.

Competence: Ability to Engage in and Maintain Relationships

Differences in the competence gap related to *engagement in professional relationships*, defined as the ability to actively initiate, maintain, and develop collaborative and client-related relationships, were examined across main freelance activity domains. The competence gap reflects the mismatch between the perceived importance of relational engagement and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was satisfied, a one-way ANOVA was applied. The analysis revealed a statistically significant effect of main freelance activity on this competence gap ($F = 2.43, p = 0.013$).

The associated effect size was large ($\eta^2 = 0.20$), indicating that professional domain accounts for a substantial proportion of variance in engagement-related competence gaps, with meaningful practical implications.

Post-hoc Analysis (Tukey's HSD)

To identify specific group differences, Tukey's Honest Significant Difference (HSD) test was conducted.

Significant pairwise differences

Five statistically significant contrasts were identified (Group1 vs. Group2):

1. Construction and Manual Trades vs. Creative and Multimedia
 - Mean difference = -8.54
 - $p = 0.0069$
2. Construction and Manual Trades vs. Software Development and IT
 - Mean difference = -8.18
 - $p = 0.0061$
3. Construction and Manual Trades vs. Teaching

- Mean difference = -9.25

- $p = 0.0024$

4. Construction and Manual Trades vs. Technical Engineering

- Mean difference = -9.38

- $p = 0.0033$

5. Construction and Manual Trades vs. Writing and Translation

- Mean difference = -9.00

- $p = 0.0181$

(All differences are reported as *Group1 - Group2*.)

These results indicate that freelancers in **Construction and Manual Trades** consistently report significantly lower competence gaps in engaging in professional relationships compared to several other activity domains.

Interpretation

The post-hoc results show that the overall ANOVA effect is primarily driven by the contrast between **Construction and Manual Trades** and **multiple knowledge-intensive or creative domains**.

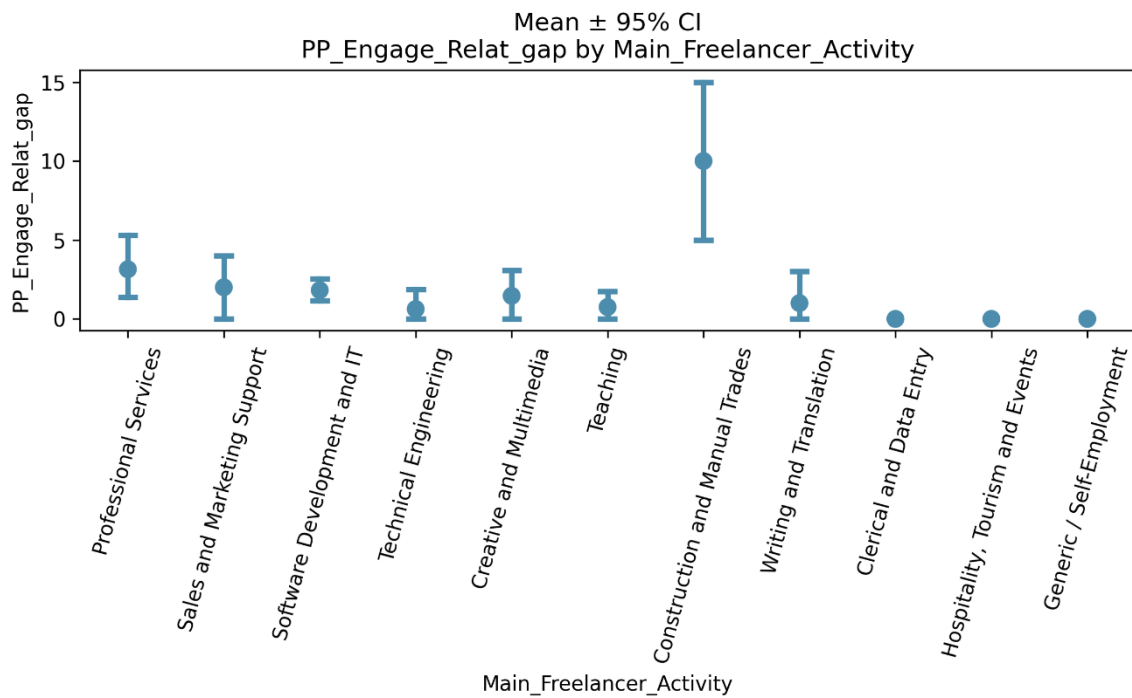


Figure 68. Mean competency gap (engagement in professional relationships) by main freelancer activity with 95% confidence intervals among Romanian freelancers (N = 108).

Freelancers in **Construction and Manual Trades** appear to have **stronger alignment** between the importance of relational engagement and their perceived ability to maintain professional relationships. This may reflect:

- frequent face-to-face client interaction,
- stable, localized professional networks,
- repeated collaboration with the same partners, and
- clearly defined contractual and communication routines.

In contrast, freelancers in **Creative and Multimedia, Software Development and IT, Teaching, Technical Engineering, and Writing and Translation** report **significantly higher gaps**, suggesting greater challenges in sustaining professional engagement in more fragmented, digitally mediated, or project-based work environments.

Conclusion

The one-way ANOVA and Tukey HSD post-hoc analysis provide strong evidence that competence gaps in engaging in professional relationships differ significantly across freelance activity domains, with a large practical impact. The results are mainly driven by the consistently lower gaps observed among freelancers in **Construction and Manual Trades** compared to **several other professional fields**.

These findings support the need for domain-specific communication and networking interventions, particularly targeting freelancers in **creative, technical, and knowledge-intensive** sectors, where sustained relational engagement is more difficult to achieve.

Competence: Ability to Learn Quickly and Expand Knowledge

Differences in the competence gap related to the *ability to learn quickly and expand knowledge* were examined across main freelance activity domains. The competence gap reflects the mismatch between the perceived importance of continuous learning and freelancers' self-assessed engagement in competence development.

Because the assumption of homogeneity of variances was satisfied, a one-way ANOVA was applied. The analysis revealed a statistically significant effect of main freelance activity on this competence gap ($F = 2.22, p = 0.023$).

The associated effect size was large ($\eta^2 = 0.19$), indicating that professional domain explains a meaningful proportion of variance in learning and development-related competence gaps.

Post-hoc Analysis (Tukey's HSD)

To identify specific group differences, Tukey's Honest Significant Difference (HSD) test was conducted.

Pairwise comparisons

The Tukey HSD results indicate that:

- No individual pairwise comparison reached statistical significance after adjustment for multiple testing (all adjusted $p > 0.05$).

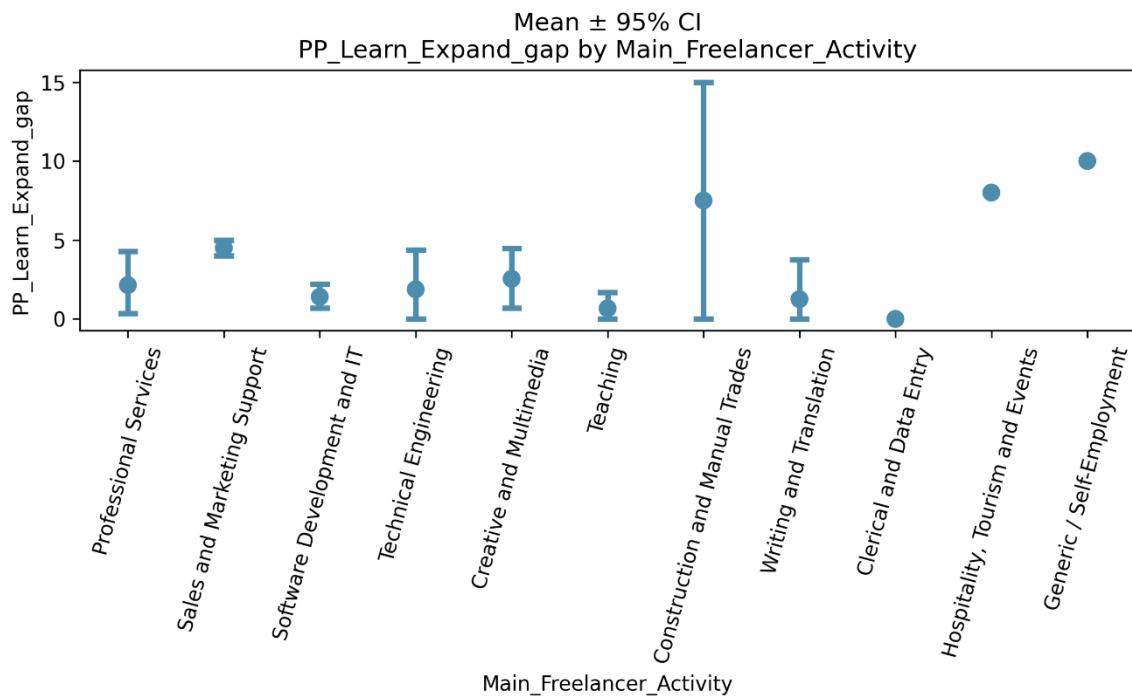


Figure 69. Mean competency gap (ability to learn quickly and expand knowledge) by main freelancer activity with 95% confidence intervals among Romanian freelancers (N = 108).

- All confidence intervals include zero, confirming the absence of statistically reliable contrasts between specific activity domains.

Although several comparisons display relatively large mean differences (e.g., Clerical and Data Entry vs. Generic / Self-Employment, Construction and Manual Trades vs. Teaching), these differences do not reach significance under the conservative Tukey correction.

Interpretation

The results indicate that the overall ANOVA significance reflects small, distributed differences across multiple professional domains, rather than sharp contrasts between specific pairs of activities.

In substantive terms, freelancers' orientation toward learning and competence expansion appears to vary moderately across domains, but no single activity group stands out as clearly advantaged or disadvantaged. This suggests that:

- The importance of continuous learning is broadly recognized across freelance sectors.
- Differences in perceived learning gaps are influenced by multiple overlapping factors (e.g., workload, access to training, project complexity), rather than by professional domain alone.

The presence of a significant omnibus ANOVA alongside non-significant Tukey contrasts is consistent with a pattern of diffuse between-group variation combined with substantial within-group heterogeneity.

Conclusion

The one-way ANOVA indicates that main freelance activity has a statistically significant influence on competence gaps related to learning and professional development orientation, with a meaningful practical effect. However, the Tukey HSD analysis shows that this effect is not driven by any specific pair of activity domains, but rather by gradual differences across groups.

These findings suggest that interventions aimed at strengthening lifelong learning and competence expansion should be broadly targeted across freelance sectors, rather than focused on a limited number of professional fields.

Competence: Clarity of Expression in Communication

Differences in the competence gap related to *clarity of expression in communication*, defined as the ability to convey ideas, requirements, and information clearly and effectively in professional interactions—were examined across main freelance activity domains. The competence gap reflects the mismatch between the perceived importance of clear communication and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of main freelance activity on this competence gap (Welch's $F = 4.34$, $p = 0.004$).

The associated effect size was large ($\eta^2 = 0.72$), indicating that professional domain explains a substantial proportion of variance in communication clarity gaps, with strong practical relevance.

Post-hoc Analysis (Games–Howell)

To identify specific group differences, Games–Howell post-hoc tests were conducted, as this procedure is robust to unequal variances and group sizes.

Significant pairwise difference

One statistically significant contrast was identified:

- Software Development and IT vs. Writing and Translation
 - Mean gap (Software Development and IT): 1.86
 - Mean gap (Writing and Translation): 0.00
 - Mean difference: +1.86
 - $p = 0.001$

Freelancers working in **Software Development and IT** exhibit significantly **higher gaps** in clarity of expression compared to those in **Writing and Translation**.

Interpretation

The post-hoc results indicate that the overall activity-related effect on communication clarity is primarily driven by the contrast between **Software Development and IT** and **Writing and Translation**.

Freelancers in **Software Development and IT** report a **greater mismatch** between the importance of clear professional communication and their perceived expressive abilities. This may reflect:

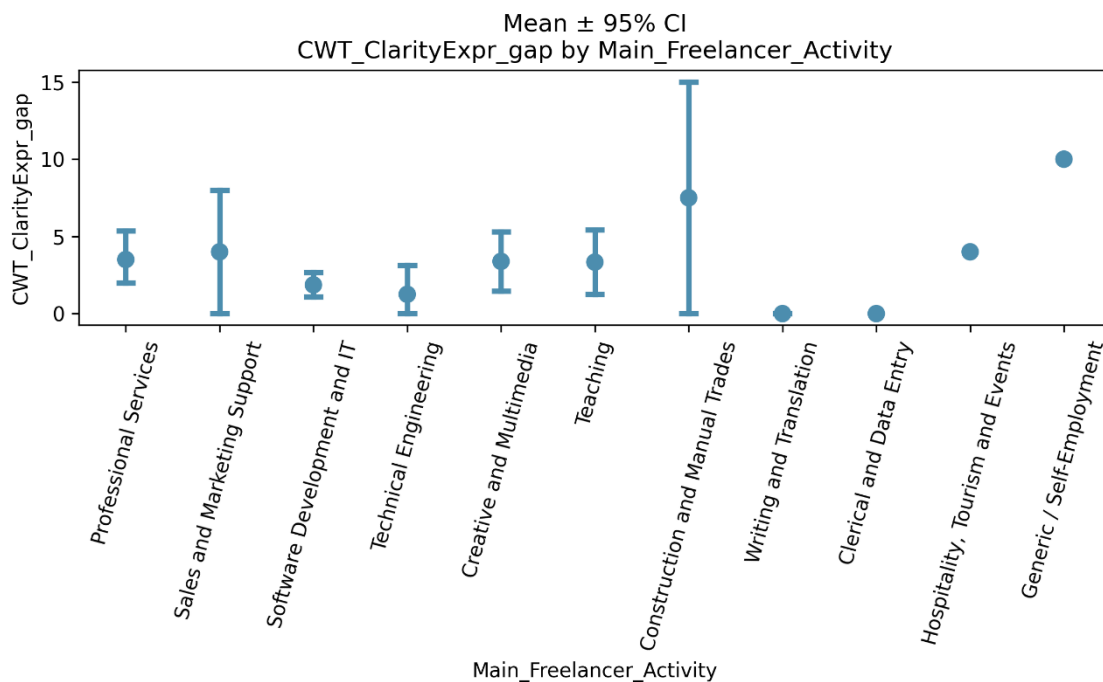


Figure 70. Mean competency gap (clarity of expression in communication) by main freelancer activity with 95% confidence intervals among Romanian freelancers (N = 108).

- a stronger focus on technical problem-solving rather than interpersonal communication,
- frequent use of specialized terminology,
- reliance on written or asynchronous communication channels.

In contrast, freelancers in **Writing and Translation** demonstrate **strong alignment** between communicative demands and proficiency, reflecting continuous practice in language-based tasks.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide strong evidence that competence gaps in clarity of expression differ significantly across freelance activity domains, with a large practical impact. The results are mainly driven by higher gaps among **Software Development and IT freelancers** relative to **Writing and Translation professionals**.

These findings support the need for targeted communication-skills training for technically oriented freelancers, particularly in IT-related fields.

Competence: Ability to Assess the Relevance of Online Information

Differences in the competence gap related to *assessing online information*, defined as the mismatch between the perceived importance of evaluating the relevance, accuracy, and credibility of online sources and freelancers' self-assessed proficiency—were examined across main freelance activity domains.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a statistically significant effect of main freelance activity on this competence gap (Welch's $F = 5.57, p = 0.001$).

The associated effect size was large ($\eta^2 = 0.77$), indicating that professional domain explains a substantial proportion of variance in digital information assessment gaps, with strong practical relevance.

Post-hoc Analysis (Games–Howell)

To identify specific group differences, Games–Howell post-hoc tests were conducted.

Pairwise comparisons

The Games–Howell results indicate that:

- No individual pairwise comparison reached statistical significance after adjustment (all $p > 0.05$).
- All confidence intervals include zero, confirming the absence of statistically reliable contrasts between specific activity domains.

Although several contrasts display relatively large mean differences (e.g., Clerical and Data Entry vs. Writing and Translation; Construction and Manual Trades vs. Software Development and IT), these differences do not reach significance under the conservative Games–Howell correction.

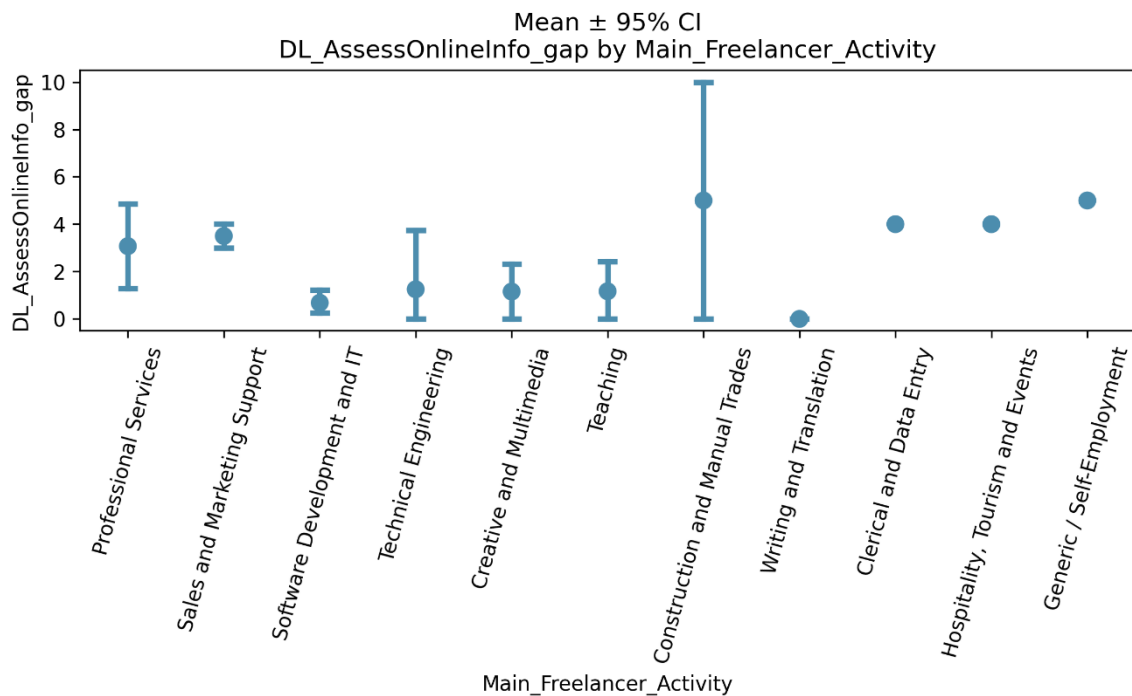


Figure 71. Mean competency gap (assessing online information) by main freelancer activity with 95% confidence intervals among Romanian freelancers (N = 108).

Interpretation

The presence of a highly significant omnibus Welch ANOVA alongside non-significant pairwise comparisons suggests that the observed effect reflects **small, cumulative differences across multiple professional domains**, rather than sharp contrasts between specific groups.

In substantive terms, the ability to critically assess online information appears to vary gradually across freelance activities, influenced by domain-specific exposure to digital content, platform use, and information quality requirements.

The large effect size indicates that, taken together, these domain-related differences are meaningful, even though no single pairwise contrast dominates the pattern.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis indicate that main freelance activity has a strong influence on competence gaps in assessing online

information, with a large practical impact. However, this effect is diffuse and distributed across activity domains, rather than driven by specific pairs.

These findings support the need for broad-based digital literacy and critical information evaluation training, applicable across freelance sectors, rather than narrowly targeted interventions.

4.1.4 Group Mean Differences in Competence Gaps by Upskilling Frequency

Competence: Self-Organization and Work Discipline

Differences in the competence gap related to *self-organization and work discipline*, defined as the ability to plan tasks, manage time effectively, maintain work routines, and meet professional commitments—were examined across levels of upskilling frequency. The competence gap reflects the mismatch between the perceived importance of self-management skills and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a highly significant effect of upskilling frequency on this competence gap (Welch's $F = 12.83$, $p < 0.001$).

The associated effect size was large ($\eta^2 = 0.65$), indicating that learning frequency explains a substantial proportion of variance in self-organization and work discipline gaps, with strong practical relevance.

Post-hoc Analysis (Games–Howell)

To identify specific differences between upskilling groups, Games–Howell post-hoc tests were conducted.

Significant pairwise differences

Three statistically significant contrasts were identified:

1. Never vs. Occasionally
 - Mean gap (Never): 0.00
 - Mean gap (Occasionally): 3.52

- Mean difference: -3.52
- $p = 0.0016$

2. Never vs. Often

- Mean gap (Never): 0.00
- Mean gap (Often): 2.79
- Mean difference: -2.79
- $p = 0.0008$

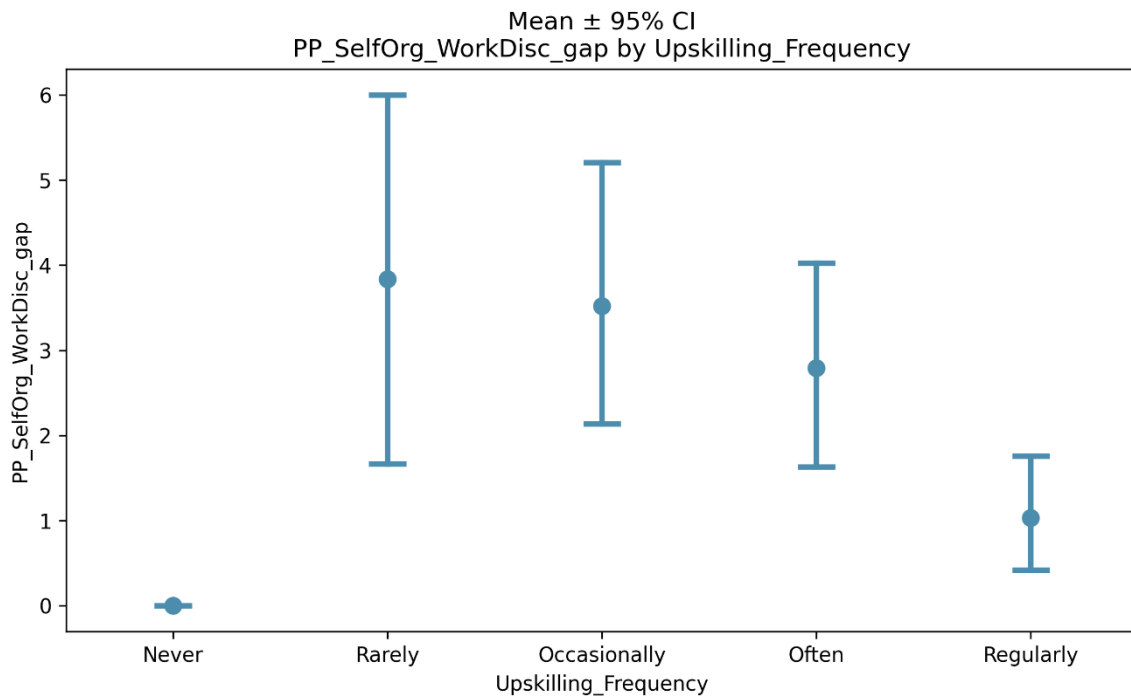


Figure 72. Mean competency gap (self-organization and work discipline) by upskilling frequency with 95% confidence intervals among Romanian freelancers (N = 108).

3. Never vs. Regularly

- Mean gap (Never): 0.00
- Mean gap (Regularly): 1.03
- Mean difference: -1.03
- $p = 0.0460$

These results indicate that freelancers who **never engage in upskilling** exhibit significantly **lower reported gaps** in *self-organization and work discipline* compared to those who upskill at least occasionally.

Borderline and non-significant contrasts

- **Occasionally vs. Regularly** shows a near-significant difference ($p = 0.058$), suggesting a tendency toward lower gaps among those who upskill regularly.
- All remaining contrasts are non-significant ($p > 0.05$).

Interpretation

At first glance, the finding that freelancers who **never upskill report lower gaps** may appear counterintuitive. However, this pattern likely reflects lower perceived performance standards or limited awareness of competence requirements among non-learning individuals. In contrast, freelancers who engage in learning activities may develop greater awareness of professional expectations, leading to more critical self-assessment and higher perceived gaps.

The results therefore suggest that upskilling is associated not only with competence development, but also with **increased self-reflection and benchmarking against higher standards**.

The near-significant contrast between *Occasionally* and *Regularly* further supports a gradient effect, where more frequent learning is linked to improved alignment over time.

Conclusion

The Welch ANOVA and Games-Howell post-hoc analysis provide strong evidence that upskilling frequency is a major determinant of self-organization and work discipline competence gaps, with a large practical impact. The results are primarily driven by contrasts involving freelancers who never engage in learning activities.

These findings highlight the importance of interpreting competence gaps in light of self-awareness and evaluative standards, and they support the promotion of structured, continuous upskilling as a means to foster both skill development and reflective professional practice.

Competence: Right Prioritization and Task Management

Differences in the competence gap related to *task prioritization and work planning*, defined as the ability to organize tasks, set priorities effectively, and manage competing professional demands, were examined across levels of upskilling frequency. The competence gap reflects the mismatch between the perceived importance of prioritization skills and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a highly significant effect of upskilling frequency on this competence gap (Welch's $F = 14.70$, $p < 0.001$).

The associated effect size was large ($\eta^2 = 0.68$), indicating that learning frequency explains a substantial proportion of variance in task prioritization gaps, with strong practical relevance.

Post-hoc Analysis (Games–Howell)

To identify specific differences between upskilling groups, Games–Howell post-hoc tests were conducted.

Significant pairwise differences

Three statistically significant contrasts were identified:

1. Never vs. Occasionally
 - Mean gap (Never): 0.00
 - Mean gap (Occasionally): 3.59
 - Mean difference: -3.59
 - $p = 0.0007$
2. Never vs. Often
 - Mean gap (Never): 0.00
 - Mean gap (Often): 2.95
 - Mean difference: -2.95
 - $p = 0.0002$

3. Never vs. Regularly

- Mean gap (Never): 0.00
- Mean gap (Regularly): 1.18
- Mean difference: -1.18
- $p = 0.0246$

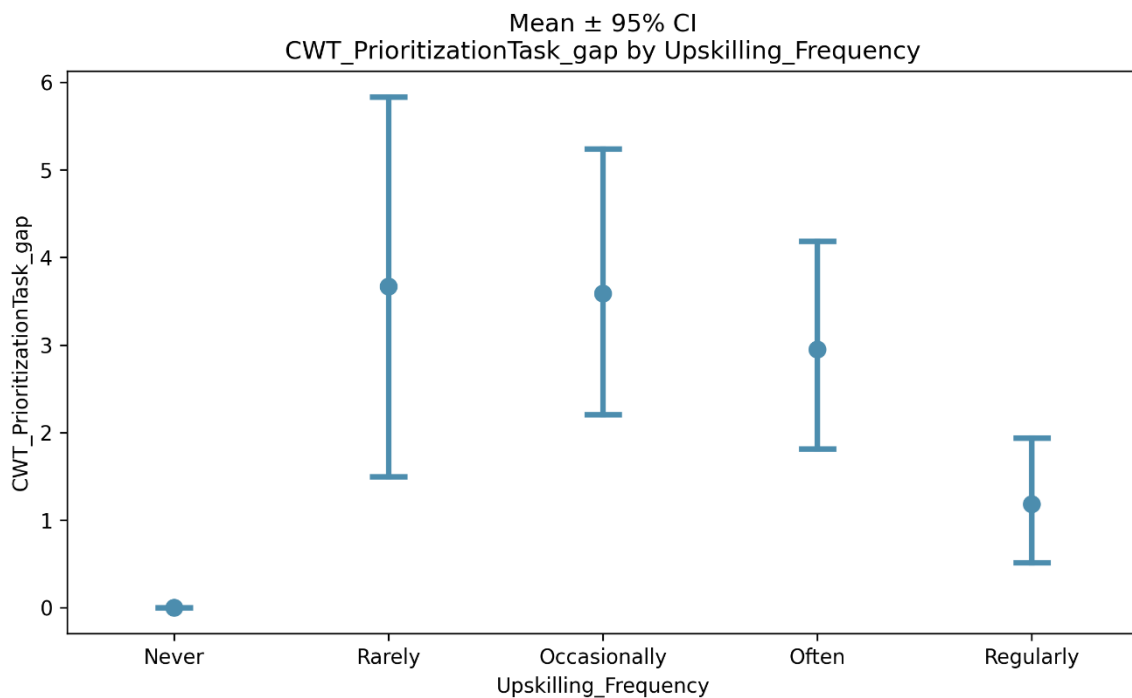


Figure 73. Mean competency gap (task prioritization and work planning) by upskilling frequency with 95% confidence intervals among Romanian freelancers (N = 108).

These results indicate that freelancers who **never engage in upskilling** report significantly **lower perceived gaps** in task prioritization compared to those who upskill at least occasionally.

Borderline and non-significant contrasts

- **Occasionally vs. Regularly** approaches significance ($p = 0.059$), suggesting a tendency toward improved alignment among regular learners.
- All remaining comparisons are non-significant ($p > 0.05$).

Interpretation

Similar to the pattern observed for self-organization and work discipline, freelancers who **never engage in learning activities** report the smallest task prioritization gaps. This pattern likely reflects **lower awareness of professional standards and performance benchmarks**, rather than objectively superior competence.

In contrast, freelancers who participate in upskilling appear to develop greater sensitivity to task management demands, leading to more critical self-evaluations and higher reported gaps.

The near-significant difference between *Occasionally* and *Regularly* further suggests a gradual improvement in prioritization competences with sustained learning engagement.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide strong evidence that upskilling frequency is a major determinant of competence gaps in task prioritization and work planning, with a large practical impact. The results are mainly driven by contrasts involving freelancers who never engage in learning activities.

These findings support the promotion of continuous, structured upskilling programs aimed at strengthening task management skills and reflective professional practices.

Competence: Ability to Use Cloud-based Project Management Tools

Differences in the competence gap related to *cloud-based project management*, defined as the ability to plan, coordinate, and manage projects using cloud platforms and digital collaboration infrastructures—were examined across levels of upskilling frequency. The competence gap reflects the mismatch between the perceived importance of cloud project management skills and freelancers' self-assessed proficiency.

As the assumption of homogeneity of variances was violated, a Welch ANOVA was applied. The analysis revealed a highly significant effect of upskilling frequency on this competence gap (Welch's $F = 7.05$, $p < 0.001$).

The associated effect size was large ($\eta^2 = 0.51$), indicating that learning frequency explains a substantial proportion of variance in cloud project management competence gaps, with strong practical relevance.

Post-hoc Analysis (Games–Howell)

To identify specific differences between upskilling groups, Games–Howell post-hoc tests were conducted.

Significant pairwise differences

Two statistically significant contrasts were identified:

1. Never vs. Occasionally

- Mean gap (Never): 0.00
- Mean gap (Occasionally): 2.79
- Mean difference: -2.79
- $p = 0.017$

2. Never vs. Often

- Mean gap (Never): 0.00
- Mean gap (Often): 1.05
- Mean difference: -1.05
- $p = 0.040$

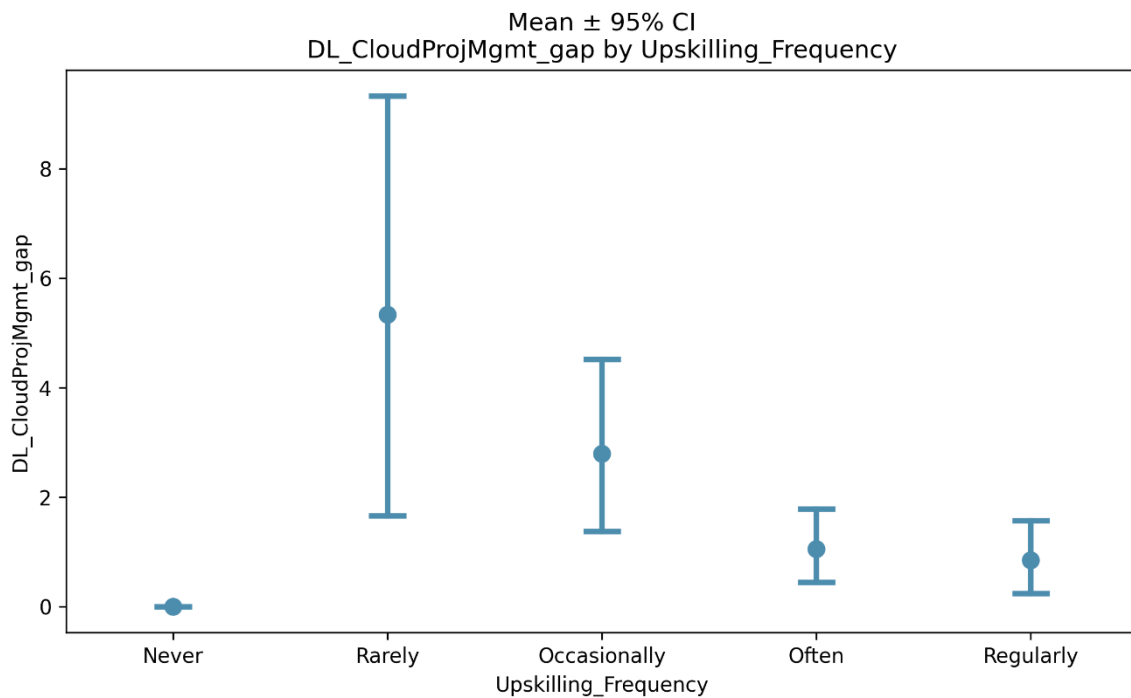


Figure 74. Mean competency gap (cloud-based project management) by upskilling frequency with 95% confidence intervals among Romanian freelancers (N = 108).

These results indicate that freelancers who **never engage in upskilling** report significantly **lower perceived gaps** in cloud-based project management compared to those who upskill occasionally or often.

Interpretation

As observed in other upskilling-related analyses, freelancers who **never engage in learning activities** tend to report the smallest competence gaps. This pattern likely reflects **lower awareness of professional standards and technological requirements**, rather than objectively superior skills.

Freelancers who participate in upskilling, particularly at occasional and frequent levels, appear to develop greater awareness of cloud-based project management demands, resulting in more critical self-assessments and higher reported gaps.

The absence of significant differences involving the *Rarely* category may be due to high within-group variability and small subgroup sizes, which reduce statistical power under variance-robust testing.

Conclusion

The Welch ANOVA and Games–Howell post-hoc analysis provide strong evidence that upskilling frequency significantly influences competence gaps in cloud-based project management, with a large practical impact. The results are primarily driven by contrasts involving freelancers who never engage in learning activities.

These findings support the promotion of continuous digital project management training, emphasizing not only technical platform use but also structured workflow coordination in cloud environments.

4.1.4.1 Competence: Use of AI Tools in Professional Activities

Differences in the competence gap related to the *use of AI tools*, defined as the ability to effectively select, apply, and integrate artificial intelligence tools into professional workflows, were examined across levels of upskilling frequency. The competence gap reflects the mismatch between the perceived importance of AI tool usage and freelancers' self-assessed proficiency.

Because the assumption of homogeneity of variances was satisfied, a one-way ANOVA was applied. The analysis revealed a statistically significant effect of upskilling frequency on this competence gap ($F = 4.48, p = 0.002$).

The associated effect size was large ($\eta^2 = 0.15$), indicating that learning frequency explains a meaningful proportion of variance in AI-related competence gaps.

Post-hoc Analysis (Tukey's HSD)

To identify specific group differences, Tukey's Honest Significant Difference (HSD) test was conducted.

Significant pairwise differences

Three statistically significant contrasts were identified (Group1 vs. Group2):

1. Occasionally vs. Rarely
 - Mean difference = +5.01
 - $p = 0.029$

2. Often vs. Rarely

- Mean difference = +5.04
- $p = 0.023$

3. Rarely vs. Regularly

- Mean difference = -6.73
- $p = 0.001$

(Mean differences are reported as *Group1 - Group2*.)

These results indicate that freelancers who **rarely engage in upskilling** exhibit significantly **higher AI tools competence gaps** compared to those who upskill occasionally, often, or regularly.

Interpretation

The post-hoc results reveal a clear threshold effect of upskilling frequency on AI-related competence gaps. Freelancers who upskill rarely stand out as particularly vulnerable, exhibiting substantially larger mismatches between AI tool requirements and perceived proficiency.

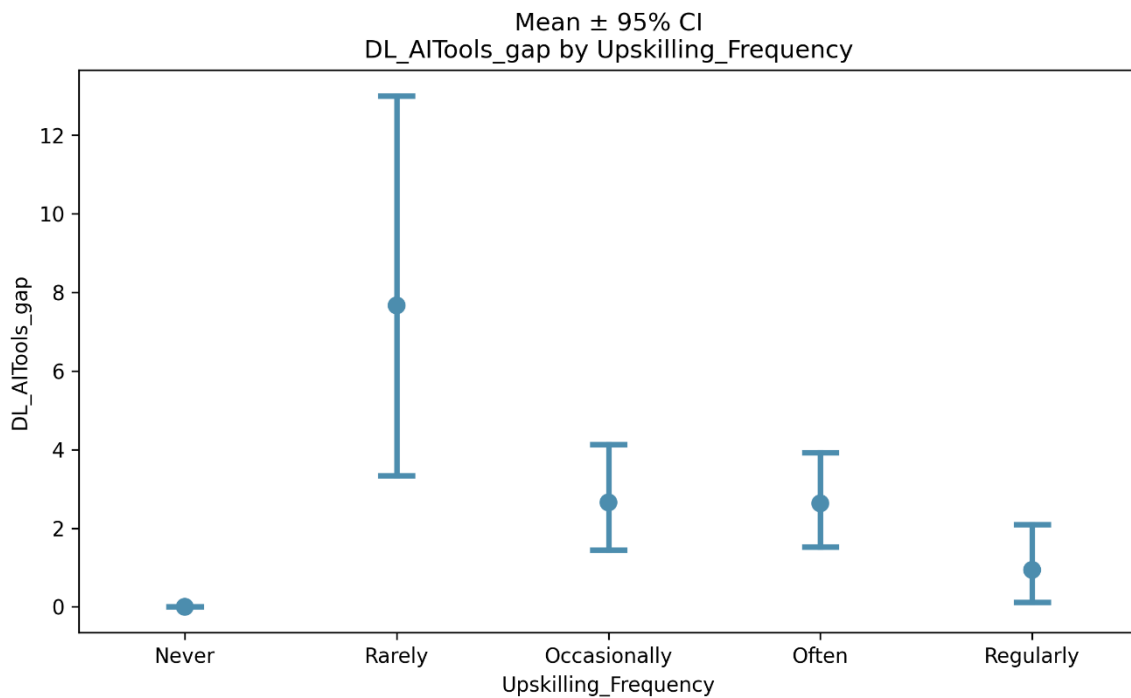


Figure 75. Mean competency gap (use of AI tools) by upskilling frequency with 95% confidence intervals among Romanian freelancers (N = 108).

In contrast, freelancers who engage in learning activities at least occasionally show significantly better alignment, suggesting that even moderate engagement in upskilling contributes meaningfully to reducing AI-related gaps.

Notably, the absence of significant contrasts involving the *Never* group may reflect small sample sizes and high variability within this category.

Conclusion

The ANOVA and Tukey HSD analyses provide strong evidence that upskilling frequency significantly influences competence gaps in AI tools usage, with a meaningful practical impact. The results are mainly driven by the elevated gaps observed among freelancers who rarely engage in learning activities.

These findings support the promotion of regular, hands-on AI training initiatives, particularly targeting freelancers with low engagement in continuous learning.

4.2 Concluding Interpretation

Overall, the analysis of group mean differences in competency gaps reveals a consistent and meaningful pattern: freelancers' perceived mismatches between competence importance and proficiency are strongly shaped by career stage, educational background, professional domain, and engagement in continuous learning. Across most examined variables, statistically significant differences are accompanied by large effect sizes, indicating that these disparities are not merely technical artifacts but reflect substantial, practice-relevant inequalities in skill alignment.

Age and education level emerge as key structural factors. Younger freelancers and those with Bachelor's-level education tend to report higher gaps in relational, experiential, and digital-evaluation competences, suggesting transitional phases in professional development where formal preparation and practical demands are not yet fully aligned. In contrast, more mature and highly educated freelancers show stronger competence alignment, reflecting cumulative learning and professional consolidation.

Professional domain also plays a central role. Freelancers in construction and manual trades generally display lower gaps in relational and organizational competences, likely due to structured work routines and stable client networks. Conversely, freelancers in IT, creative, and knowledge-intensive fields consistently report higher gaps in self-organization, communication clarity, and digital information assessment, reflecting the fragmented, cognitively demanding, and highly mediated nature of their work environments (their work happens mostly through digital platforms and tools, not through direct personal contact).

Upskilling frequency represents one of the strongest determinants of competence gaps. For most self-management and digital competences, freelancers who never engage in learning activities report the lowest gaps, while those who upskill more frequently report higher ones. This counterintuitive pattern suggests that learning engagement increases awareness of professional standards and promotes more critical self-assessment. In the case of AI tools, however, a clearer functional effect is observed: freelancers who rarely upskill exhibit the highest gaps, indicating concrete skill deficits rather than merely heightened awareness.

Taken together, these findings indicate that competence gaps among freelancers are shaped by both objective skill development processes and subjective evaluative standards. Higher gaps often reflect increased professional awareness rather than lower actual competence, while persistently high gaps in technologically intensive areas (notably AI and cloud-based management) point to genuine training needs.

From a policy and intervention perspective, the results support a differentiated approach to capacity building. Early-career and Bachelor's-level freelancers would benefit from structured mentoring and experience-based learning. Digital and IT-oriented professionals require targeted support in self-regulation and communication. Finally, sustained and accessible upskilling pathways, particularly in AI and digital project management, are essential to reduce critical competence gaps and to foster reflective, adaptive professional practice.

In conclusion, the observed group differences highlight that competence development in freelancing is a dynamic, context-dependent process. Effective training and support strategies should therefore be tailored to career stage, educational background, professional domain, and learning engagement, rather than relying on uniform, one-size-fits-all interventions.

5 Gap Analysis (Paired t-tests)

This section presents the results of the competence gap analysis based on paired *t*-tests, conducted to assess within-respondent differences between **perceived competence importance** and **self-reported proficiency**. The analysis focuses exclusively on freelancers, as the corresponding dataset for companies is limited to only eight observations, which is insufficient to support reliable inferential statistics and effect size estimation. Consequently, paired comparisons involving company data were excluded from this section to avoid statistically unstable or misleading conclusions.

5.1 Interpretation of paired mean differences between importance and proficiency ratings of competences by categorical variables

Paired *t*-tests are applied to **subsamples defined by categorical variables** such as demographic characteristics, work patterns, and upskilling behaviour. For each competence, paired comparisons are therefore performed within homogeneous subgroups, corresponding to the levels of the respective categorical variables. This approach enables the identification of competence gaps that may be systematically associated with specific respondent profiles, rather than being uniformly distributed across the entire freelancer population.

To ensure both statistical validity and substantive relevance, the analysis was restricted to results meeting **two cumulative criteria**. First, **only statistically significant tests were retained** ($p < 0.05$), indicating the presence of a non-random difference between paired measurements. Second, only results with **Cohen's $d \geq 0.80$** were considered, corresponding to **large or very large effect sizes**, and thus reflecting competence gaps of practical importance rather than merely statistical detectability.

In addition, a **minimum sample size threshold of $N \geq 15$ paired observations** were applied. This criterion is grounded in standard statistical power considerations. For paired *t*-tests, a sample size of approximately 15 observations is required to achieve adequate statistical power (≈ 0.80) to detect large effects (Cohen's $d \approx 0.80$) at a conventional significance level of $\alpha = 0.05$ (Cohen, 1988; Lakens, 2013). Results based on smaller sample sizes were excluded, as effect size estimates and *p*-values derived from very small *N* are known to be unstable and prone to overestimation.

By jointly applying thresholds for **statistical significance, effect size magnitude, and minimum sample size**, the gap analysis prioritizes competences for which evidence of mismatch between importance and proficiency is both statistically robust and meaningful for training design and policy interpretation.

Detailed outputs are provided in the following table:

Competence Variable	Category	Level	N	Mean Prof.	Mean Imp.	Mean Gap	t	p	Cohen's d
Negotiation (CWT)	Gender	Female	42	3.57	4.45	4.45	-5.486	0.0000	0.85
Negotiation (CWT)	Upskilling_Frequency	Regularly	33	3.48	4.33	4.09	-5.188	0.0000	0.90
Negotiation (CWT)	Age	24-28	21	3.43	4.24	3.86	-4.560	0.0002	1.00
Negotiation (CWT)	AI_Use_Future	Occasionally	21	3.57	4.33	3.62	-4.544	0.0002	0.99
PrioritizationTask (CWT)	Gender	Female	42	4.05	4.74	3.48	-6.256	0.0000	0.97
PrioritizationTask (CWT)	Age	45-52	21	4.14	4.67	2.48	-4.690	0.0001	1.02
PrioritizationTask (CWT)	AI_Use_Future	Occasionally	21	4.14	4.71	2.81	-4.382	0.0003	0.96
SelfPromo_Brand (CWT)	Education_Level	Master degree	52	3.40	4.23	3.81	-6.056	0.0000	0.84
SelfPromo_Brand (CWT)	AI_Use_Future	Regularly	50	3.36	4.18	3.84	-6.025	0.0000	0.85
SelfPromo_Brand (CWT)	Upskilling_Frequency	Occasionally	29	3.07	4.14	4.93	-5.235	0.0000	0.97
AITools (DL)	Years_Experience_Freelancer	More than 10 years	24	3.38	4.17	3.67	-4.389	0.0002	0.90
Formal_Reg (PP)	AI_Use_Future	Often	26	3.54	4.19	2.96	-4.183	0.0003	0.82
Pers_Fin (PP)	Education_Level	Bachelor's degree	27	3.89	4.56	3.22	-5.099	0.0000	0.98
SelfOrg_WorkDisc (PP)	Education_Level	Doctorate or equivalent	22	3.91	4.64	3.77	-4.125	0.0005	0.88

Table 3. Results of paired-samples t-tests comparing perceived proficiency and importance across competencies within subgroup levels of demographic characteristics, work patterns, and upskilling behaviour among Romanian freelancers (N varies by subgroup).

5.1.1 Paired *t*-test Analysis – Negotiation Skills (Female Freelancers)

A paired *t*-test was conducted to examine whether a statistically significant difference exists between **perceived importance** and **self-reported proficiency** in **Negotiation skills** among **female freelancers**.

The analysis is based on **42 paired observations**, exceeding the recommended minimum sample size ($N \geq 15$) required to reliably detect large effects in paired designs. The mean proficiency score for negotiation skills was 3.57, whereas the corresponding mean importance score was notably higher (4.45), indicating that respondents assign greater importance to this competence than their current level of proficiency.

The difference between the two paired means was found to be statistically significant, $t(41) = -5.486$, $p < 0.001$, leading to the rejection of the null hypothesis of equal importance and proficiency ratings. This result provides clear evidence of a systematic mismatch between how important negotiation skills are perceived to be and how proficient respondents feel in this area.

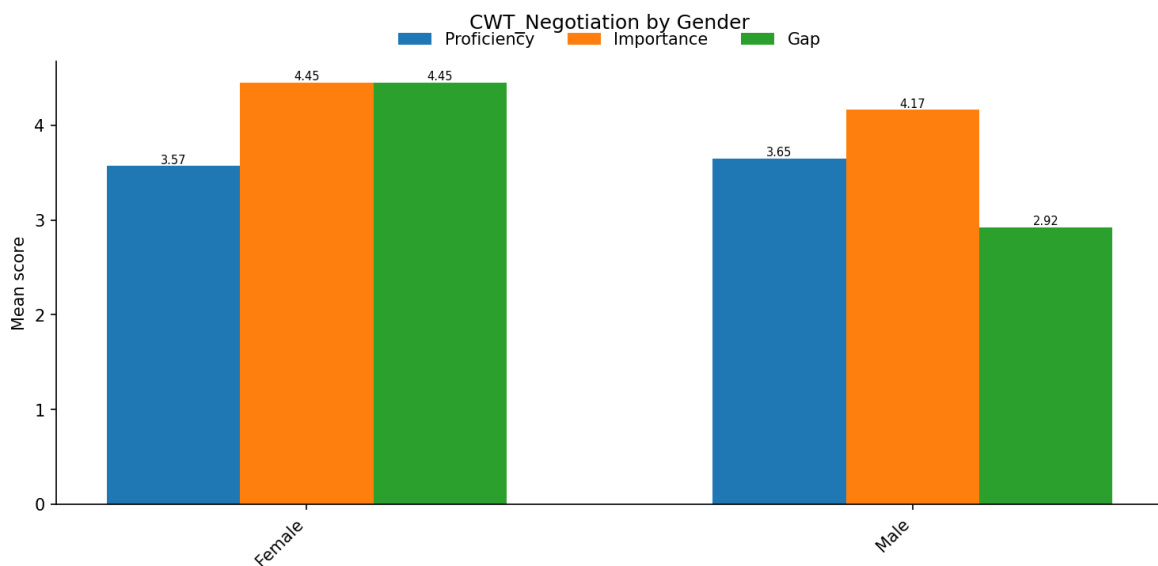


Figure 76. Mean proficiency, importance, and gap scores for Negotiation skills by gender.

The magnitude of this difference is further supported by **Cohen's $d = 0.85$** , which

corresponds to a **large / very large effect size**. This indicates that the observed difference is not only statistically reliable but also substantial in practical terms.

Taken together, these findings highlight **Negotiation skills** as a critical competence area requiring targeted upskilling among female freelancers. The combination of a high perceived importance, a significantly lower self-assessed proficiency, and a large effect size suggests that interventions aimed at strengthening negotiation capabilities could yield meaningful improvements in freelancers' professional outcomes.

5.1.2 Paired *t*-test Analysis – Negotiation Skills (Regularly Upskilling Freelancers)

Among freelancers who engage **regularly in upskilling**, the mean importance rating for **Negotiation skills** (4.33) is substantially higher than the corresponding mean self-assessed proficiency (3.48). This difference is statistically significant, $t(32) = -5.188$, $p < 0.001$, and is associated with a **large / very large effect size** (Cohen's $d = 0.90$).

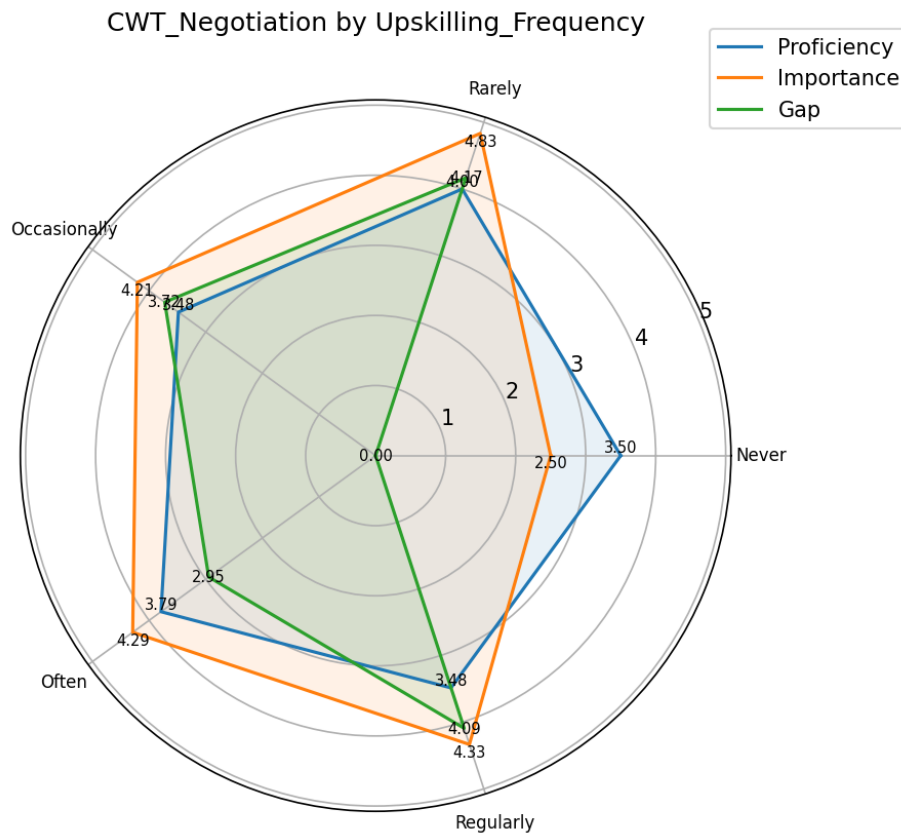


Figure 77. Mean proficiency, importance, and gap scores for Negotiation skills by upskilling frequency.

These results indicate a pronounced competence gap in negotiation skills within this subgroup, suggesting that, despite ongoing upskilling efforts, negotiation remains a priority area for further targeted training.

5.1.3 Paired t-test Analysis – Negotiation Skills (Age 24–28)

Among freelancers aged **24–28**, the mean importance rating for **Negotiation skills (4.24)** is substantially higher than the corresponding mean self-assessed proficiency (**3.43**). This difference is statistically significant, $t(20) = -4.560$, $p < 0.001$, and is associated with a **very large effect size** (Cohen’s $d = 1.00$).

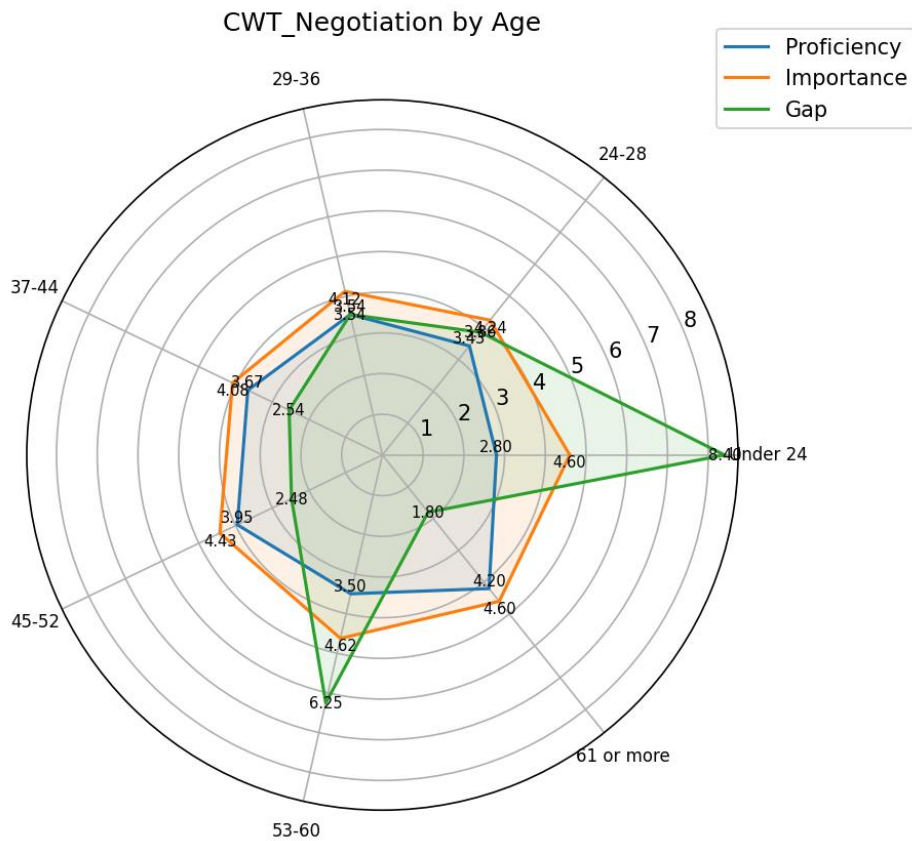


Figure 78. Mean proficiency, importance, and gap scores for Negotiation skills by age group.

These results indicate a pronounced competence gap in negotiation skills within this age group, suggesting that younger freelancers perceive negotiation as highly important but do not yet feel sufficiently prepared in this area. Consequently, negotiation skills represent a priority target for early-career training and mentoring interventions aimed at strengthening professional autonomy and market positioning.

5.1.4 Paired t-test Analysis – Negotiation Skills (Occasional Future AI Users)

Among freelancers who report **occasional future use of AI tools**, the mean importance rating for **Negotiation skills (4.33)** is substantially higher than the corresponding mean self-assessed proficiency (**3.57**). This difference is **statistically significant**, $t(20) = -4.544$, $p < 0.001$, and is associated with a **very large effect size** (Cohen’s $d = 0.99$).

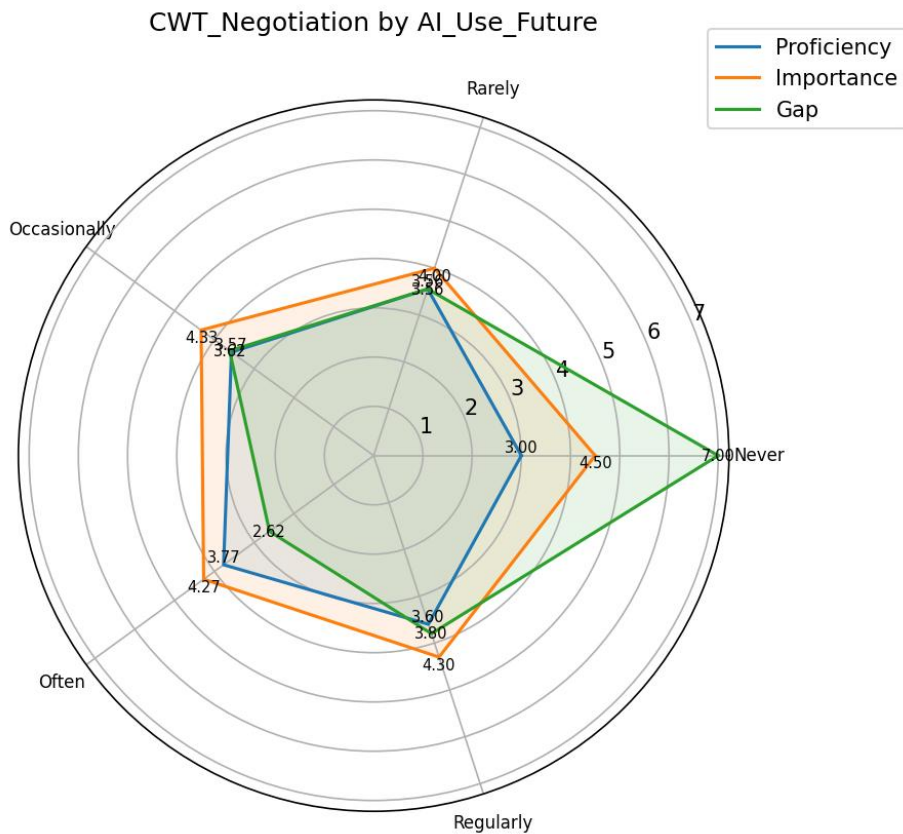


Figure 79. Mean proficiency, importance, and gap scores for Negotiation skills by expected future AI use.

These findings indicate a pronounced competence gap in negotiation skills within this subgroup, suggesting that freelancers who anticipate limited future engagement with AI technologies perceive negotiation as highly important but do not yet feel sufficiently prepared in this area. This highlights negotiation skills as a priority target for targeted upskilling initiatives, particularly in the context of emerging digital and AI-supported work environments.

5.1.5 Paired t-test Analysis – Task Prioritization Skills (Female Freelancers)

Among **female freelancers**, the mean importance rating for **Task Prioritization skills (4.74)** is markedly higher than the corresponding mean self-assessed proficiency (**4.05**). This difference is statistically significant, $t(41) = -6.256, p < 0.001$, and is associated with a **very large effect size** (Cohen's $d = 0.97$).

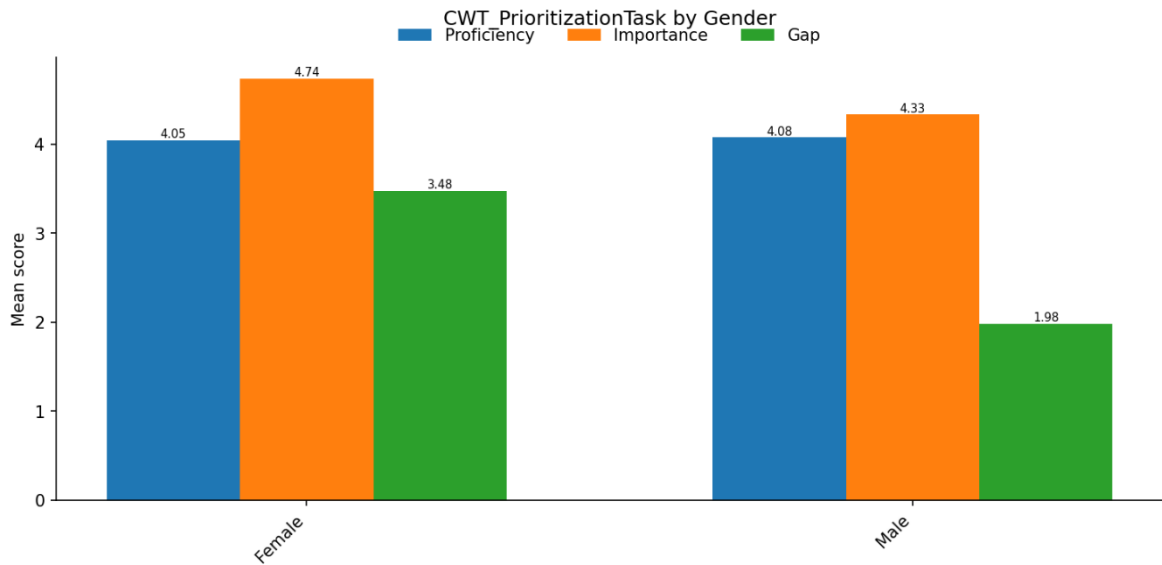


Figure 80. Mean proficiency, importance, and gap scores for Prioritization Task by gender.

These results indicate a pronounced competence gap in task prioritization within this subgroup, suggesting that female freelancers perceive effective workload prioritization as highly important but do not yet feel sufficiently confident in their ability to manage competing professional demands. Consequently, task prioritization emerges as a priority area for targeted training and time-management interventions aimed at enhancing productivity and work–life balance.

5.1.6 Paired t-test Analysis – Task Prioritization Skills (Age 45-52)

Among freelancers aged **45-52**, the mean importance rating for **Task Prioritization skills (4.67)** is substantially higher than the corresponding mean self-assessed proficiency (**4.14**). This difference is statistically significant, $t(20) = -4.690, p < 0.001$, and is associated with a **very large effect size** (Cohen’s $d = 1.02$).

These findings indicate a pronounced competence gap in task prioritization within this age group, suggesting that mid-career and senior freelancers perceive effective workload management as highly important but do not yet feel fully confident in their ability to prioritize tasks under complex professional conditions. Accordingly, task prioritization represents a priority target for advanced productivity and self-management training tailored to experienced freelancers.

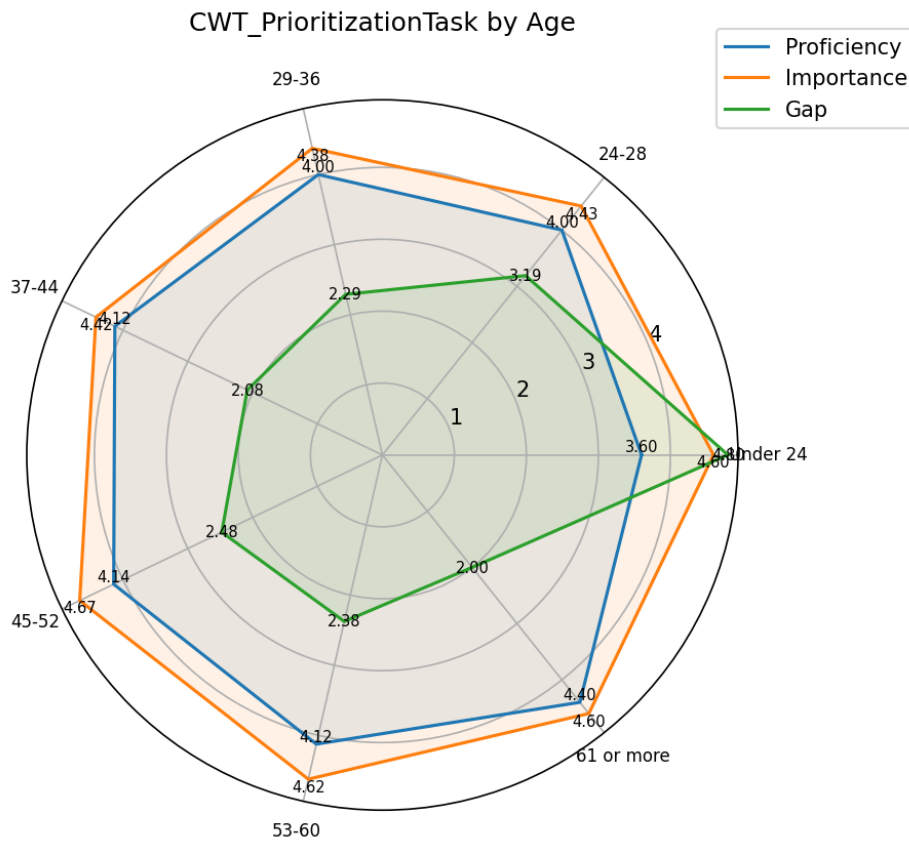


Figure 81. Mean proficiency, importance, and gap scores for Prioritization Task across age groups.

5.1.7 Paired t-test Analysis – Task Prioritization Skills (Occasional Future AI Users)

Among freelancers who report **occasional future use of AI tools**, the mean importance rating for **Task Prioritization skills (4.71)** is substantially higher than the corresponding mean self-assessed proficiency (**4.14**). This difference is statistically significant, $t(20) = -4.382$, $p < 0.001$, and is associated with a **very large effect size** (Cohen's $d = 0.96$).

These results indicate a pronounced competence gap in task prioritization within this subgroup, suggesting that freelancers who anticipate limited future engagement with AI technologies perceive effective workload management as highly important but do not yet feel sufficiently supported by digital tools in this area. Accordingly, task prioritization emerges as a priority target for targeted upskilling initiatives, particularly in relation to AI-supported planning and productivity solutions.

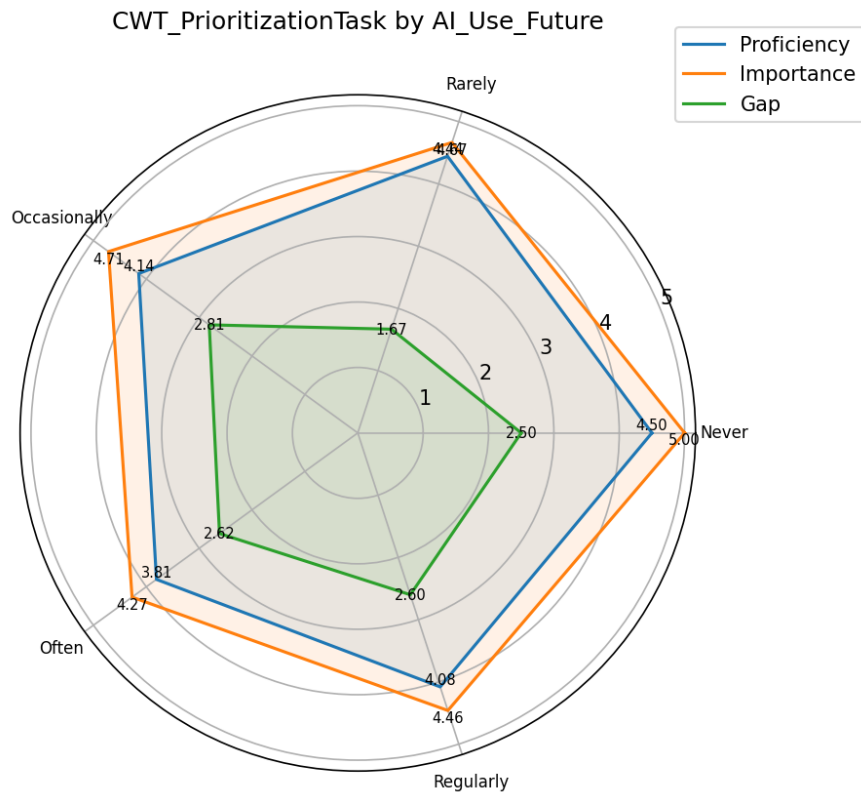


Figure 82. Mean proficiency, importance, and gap scores for Prioritization Task across levels of expected future AI use.

5.1.8 Paired t-test Analysis – Self-Promotion and Personal Branding Skills (Master’s Degree Holders)

Among freelancers holding a **Master’s degree**, the mean importance rating for **Self-promotion and personal branding skills (4.23)** is substantially higher than the corresponding mean self-assessed proficiency (**3.40**). This difference is statistically significant, $t(51) = -6.056, p < 0.001$, and is associated with a **large / very large effect size** (Cohen’s $d = 0.84$).

These findings indicate a pronounced competence gap in self-promotion and personal branding within this educational group, suggesting that highly educated freelancers recognize the strategic importance of visibility, reputation management, and market positioning but do not yet feel sufficiently confident in applying these skills in practice. Consequently, self-promotion and branding emerge as a priority area for targeted professional development initiatives, particularly those focused on digital marketing, portfolio development, and client acquisition strategies.

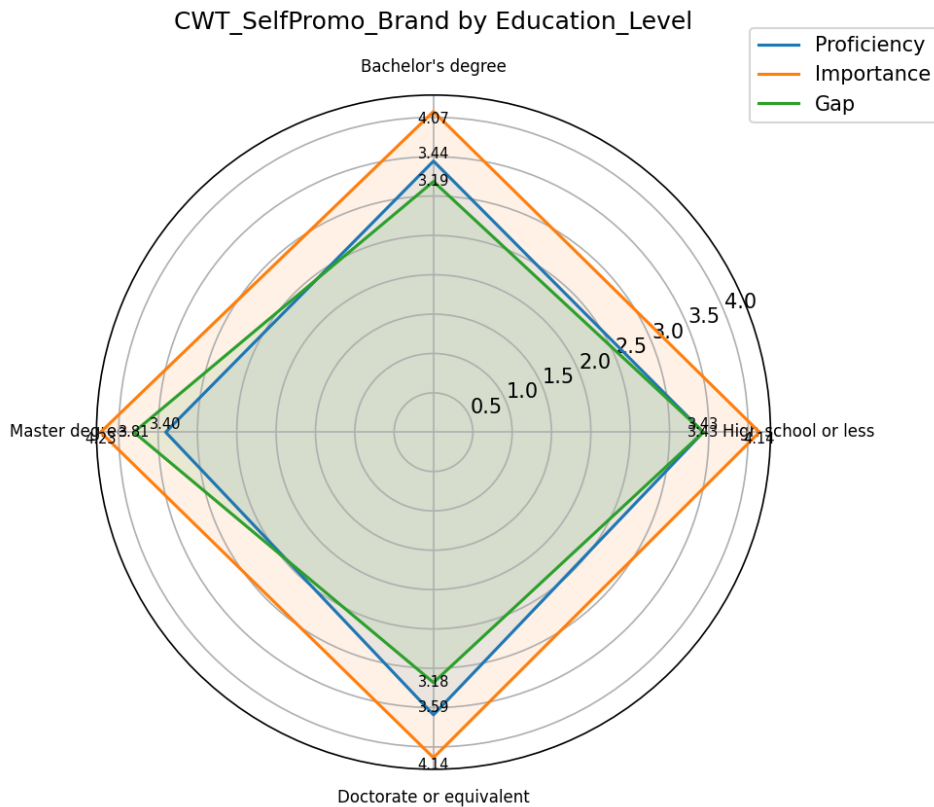


Figure 83. Mean proficiency, importance, and gap scores for Self-promotion and personal branding by education level.

5.1.9 Paired t-test Analysis – Self-Promotion and Personal Branding Skills (Regular Future AI Users)

Among freelancers who report **regular future use of AI tools**, the mean importance rating for **Self-promotion and personal branding skills (4.18)** is substantially higher than the corresponding mean self-assessed proficiency (**3.36**). This difference is statistically significant, $t(49) = -6.025$, $p < 0.001$, and is associated with a **large / very large effect size** (Cohen's $d = 0.85$).

These findings indicate a pronounced competence gap in self-promotion and personal branding within this subgroup, suggesting that freelancers who anticipate intensive engagement with AI technologies recognize the importance of personal visibility and market positioning but do not yet feel fully equipped to leverage these skills effectively. Accordingly, self-promotion and branding emerge as a priority area for targeted upskilling initiatives, particularly in relation to AI-supported marketing, portfolio development, and client outreach strategies.

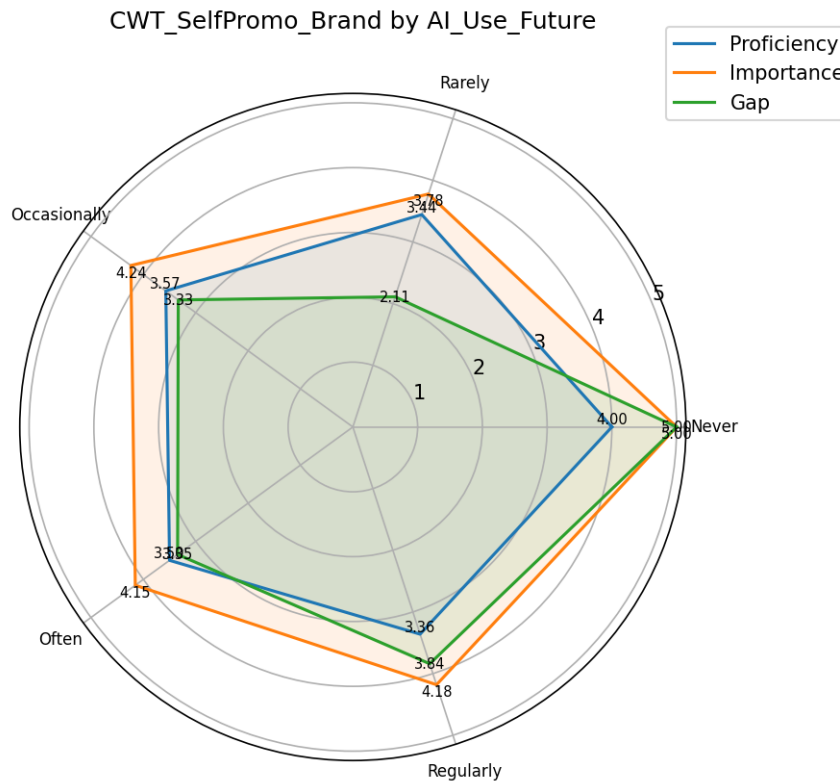


Figure 84. Mean proficiency, importance, and gap scores for Self-promotion and personal branding by future AI use frequency.

5.1.10 Paired t-test Analysis – Self-Promotion and Personal Branding Skills (Occasional Upskilling Freelancers)

Among freelancers who engage in **occasional upskilling activities**, the mean importance rating for **Self-promotion and personal branding skills (4.14)** is substantially higher than the corresponding mean self-assessed proficiency (**3.07**). This difference is statistically significant, $t(28) = -5.235$, $p < 0.001$, and is associated with a **very large effect size** (Cohen's $d = 0.97$).

These findings indicate a pronounced competence gap in self-promotion and personal branding within this subgroup, suggesting that freelancers who upskill only sporadically recognize the importance of personal visibility and market positioning but do not yet feel sufficiently prepared to apply these skills in practice. Consequently, self-promotion and branding emerge as a priority area for targeted professional development initiatives, particularly those aimed at strengthening marketing capabilities and client acquisition strategies.

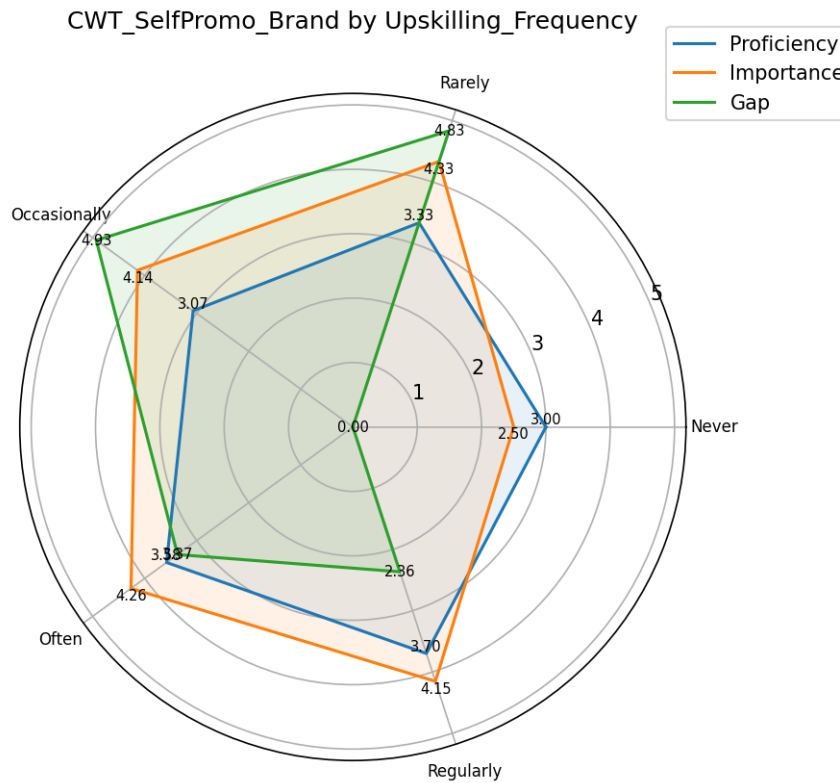


Figure 85. Mean proficiency, importance, and gap scores for Self-promotion and personal branding by upskilling frequency.

5.1.11 Paired t-test Analysis – Use of AI Tools (More than 10 Years of Freelance Experience)

Among freelancers with **more than 10 years of professional experience**, the mean importance rating for **Use of AI Tools (4.17)** is substantially higher than the corresponding mean self-assessed proficiency (**3.38**). This difference is statistically significant, $t(23) = -4.389, p < 0.001$, and is associated with a **large / very large effect size** (Cohen’s $d = 0.90$).

These findings indicate a pronounced competence gap in the effective use of AI tools within this highly experienced subgroup, suggesting that senior freelancers recognize the growing importance of AI-supported solutions but do not yet feel fully prepared to integrate these technologies into their professional workflows. Accordingly, AI tool usage emerges as a priority area for targeted upskilling initiatives, particularly those focused on practical adoption, workflow integration, and advanced digital literacy for experienced practitioners.

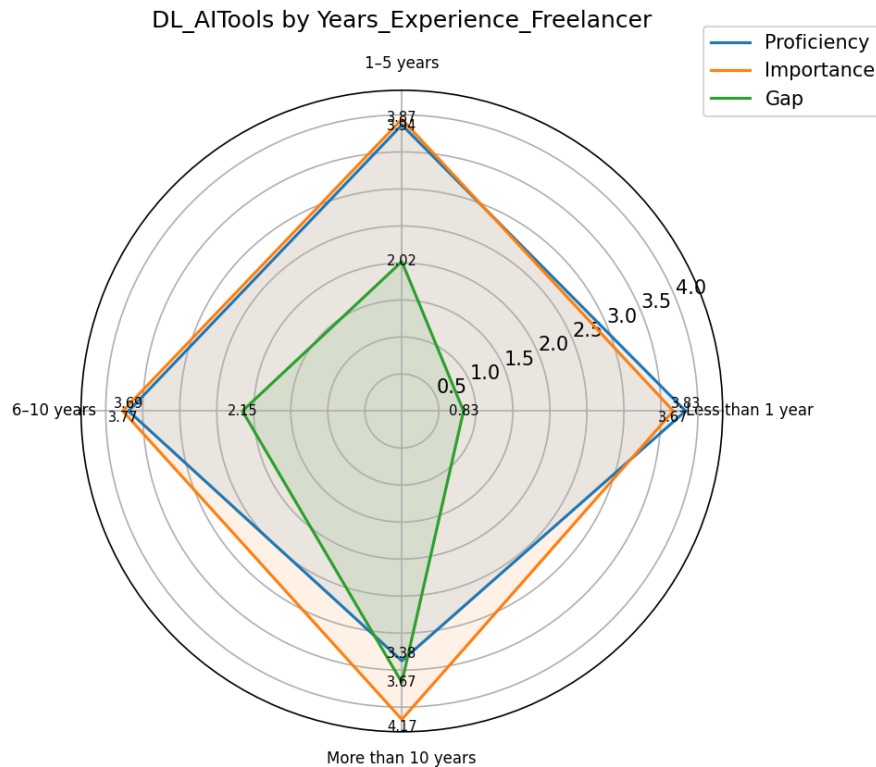


Figure 86. Mean proficiency, importance, and gap scores for Use of AI tools by years of experience as a freelancer.

5.1.12 Paired t-test Analysis – Knowledge of Formal and Regulatory Requirements (Frequent Future AI Users)

Among freelancers who report **frequent future use of AI tools**, the mean importance rating for **knowledge of formal and regulatory requirements (4.19)** is substantially higher than the corresponding mean self-assessed proficiency (**3.54**). This difference is statistically significant, $t(25) = -4.183$, $p < 0.001$, and is associated with a **large / very large effect size** (Cohen’s $d = 0.82$).

These findings indicate a pronounced competence gap in regulatory and formal compliance within this subgroup, suggesting that freelancers who anticipate intensive engagement with AI technologies recognize the importance of operating within appropriate legal and administrative frameworks but do not yet feel sufficiently confident in navigating these requirements. Consequently, regulatory knowledge emerges as a priority area for targeted training initiatives, particularly in relation to digital contracting, data protection, and platform-based work environments.

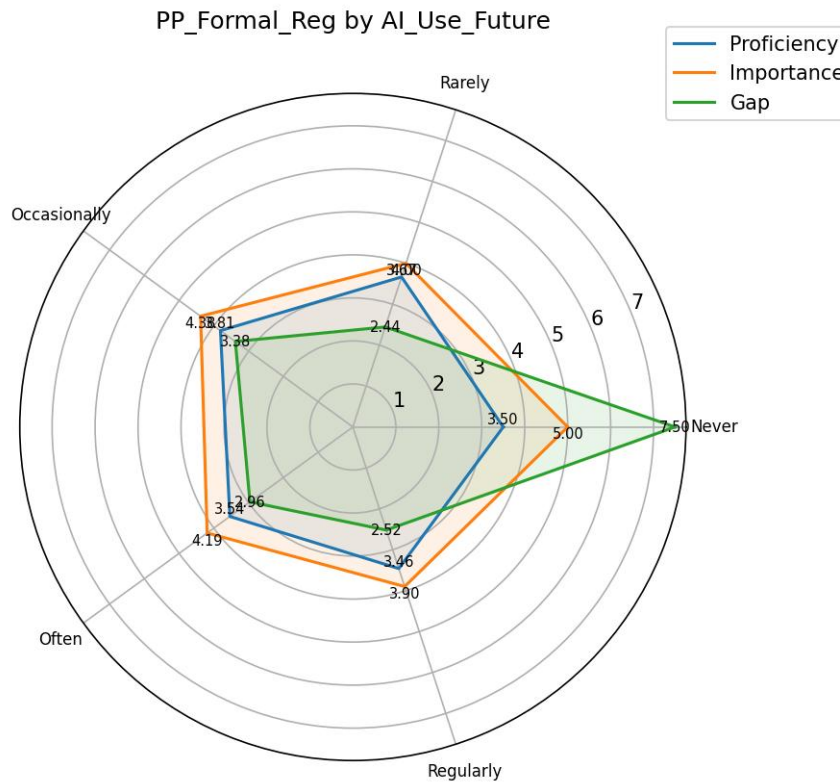


Figure 87. Mean proficiency, importance, and gap scores for formal regulatory compliance by future AI use frequency.

5.1.13 Paired t-test Analysis – Personal Financial Management Skills (Bachelor’s Degree Holders)

Among freelancers holding a **Bachelor’s degree**, the mean importance rating for **personal financial management skills (4.56)** is substantially higher than the corresponding mean self-assessed proficiency (**3.89**). This difference is statistically significant, $t(26) = -5.099$, $p < 0.001$, and is associated with a **very large effect size** (Cohen’s $d = 0.98$).

These findings indicate a pronounced competence gap in personal financial management within this educational group, suggesting that freelancers with undergraduate qualifications recognize the importance of effective budgeting, income planning, and financial risk management but do not yet feel fully confident in applying these skills in practice. Consequently, personal finance competences emerge as a priority area for targeted financial literacy and business sustainability training initiatives.

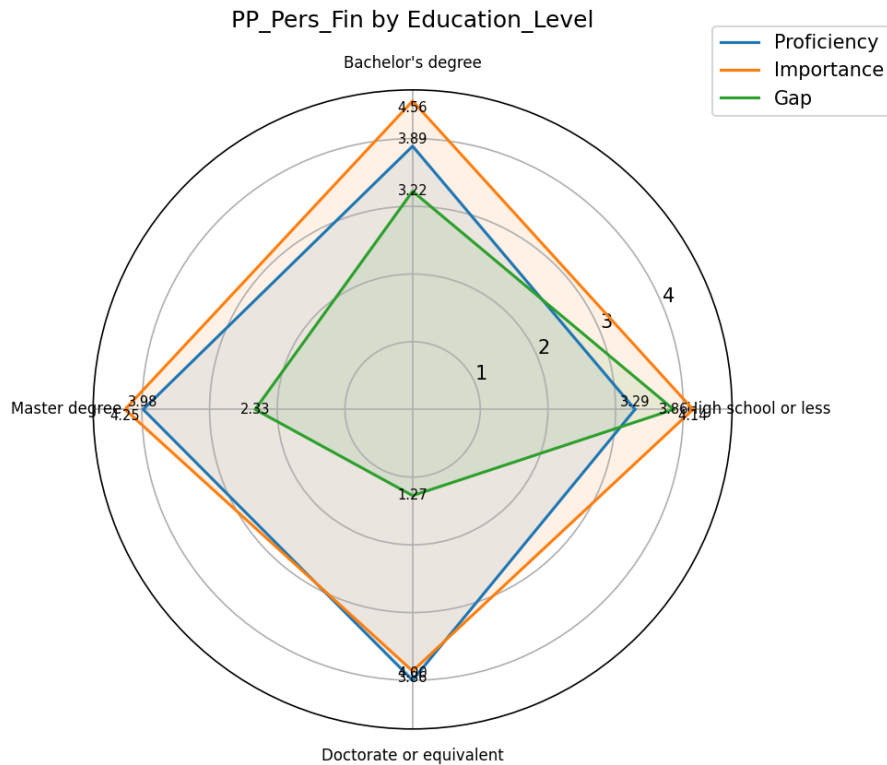


Figure 88. Mean proficiency, importance, and gap scores for personal financial management by education level.

5.1.14 Paired t-test Analysis – Self-Organization and Work Discipline Skills (Doctorate Holders)

Among freelancers holding a **Doctorate or equivalent degree**, the mean importance rating for **self-organization and work discipline skills (4.64)** is substantially higher than the corresponding mean self-assessed proficiency (**3.91**). This difference is statistically significant, $t(21) = -4.125$, $p < 0.001$, and is associated with a **large / very large effect size** (Cohen's $d = 0.88$).

These findings indicate a pronounced competence gap in self-organization and work discipline within this highly educated subgroup, suggesting that advanced academic training does not necessarily translate into optimal self-management practices in freelance contexts. Consequently, self-organization and work discipline emerge as a priority area for targeted professional development initiatives, particularly those focused on productivity systems, workload planning, and sustainable work routines.

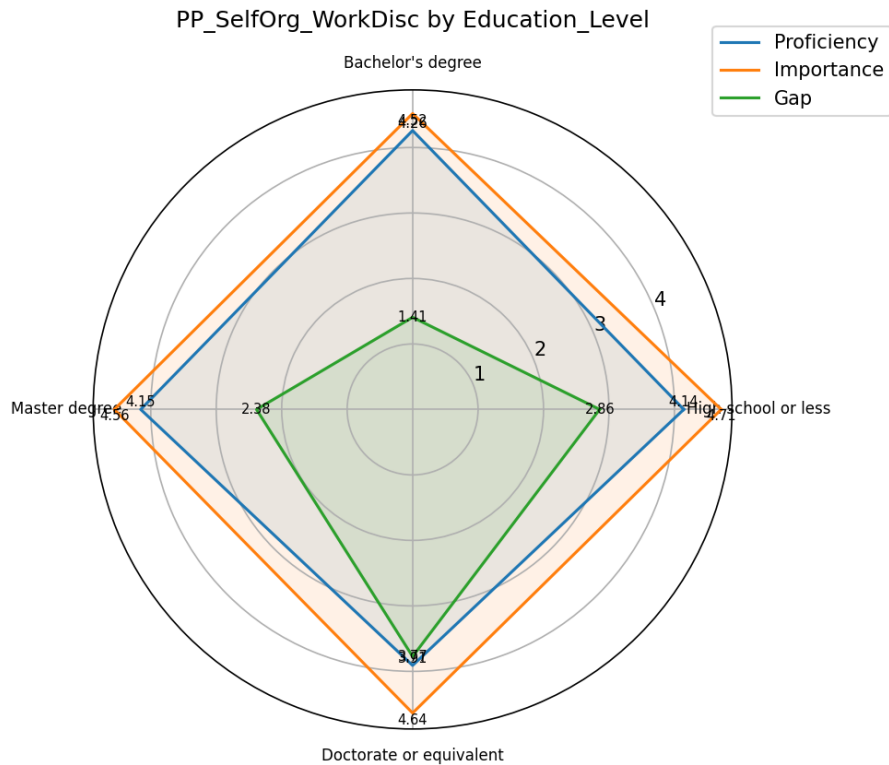


Figure 89. Mean proficiency, importance, and gap scores for self-organization and work discipline by education level.

5.1.15 Synthesis of Competence Gap Patterns

The paired t-test analysis reveals a coherent and systematic pattern of competence gaps across demographic, educational, professional, and learning-related subgroups. By focusing exclusively on statistically significant results with large effect sizes and adequate sample sizes, the analysis identifies priority areas where perceived importance consistently exceeds self-assessed proficiency in a substantial and practically meaningful way.

Across multiple subgroup profiles, communication-related competences, particularly negotiation, task prioritization, and self-promotion, emerge as the most persistent and pronounced gaps. These competences gaps appear repeatedly among women, younger freelancers, mid-career professionals, and individuals with moderate engagement in AI and upskilling activities. This indicates that market-facing and self-management skills represent structural vulnerabilities in freelance careers, regardless of experience level or formal qualification.

Educational background plays a differentiated role in shaping competence gaps. Bachelor's and Master's degree holders exhibit strong gaps in personal financial management and personal branding, respectively, suggesting that formal education provides limited preparation for the entrepreneurial and commercial dimensions of freelancing. At the same time, doctoral-level freelancers report substantial gaps in self-organization and work discipline, highlighting that advanced academic training does not automatically translate into effective independent work practices.

Career stage and professional trajectory are also central determinants. Younger freelancers (24–28) display very large gaps in negotiation skills, reflecting early-career challenges in client interaction and value negotiation. Conversely, highly experienced freelancers (more than 10 years) report pronounced gaps in AI tool usage, indicating difficulties in adapting established work routines to rapidly evolving digital technologies. These findings point to different vulnerability profiles at distinct career stages.

Engagement with digital technologies and future-oriented work practices further differentiates competence patterns. Freelancers who anticipate occasional or regular use of AI tools consistently report high gaps in negotiation, prioritization, branding, and regulatory knowledge. This suggests that technological transition is accompanied by increased awareness of complementary non-technical skills, such as compliance, communication, and strategic positioning, which are necessary for effective AI-supported work.

Upskilling behaviour represents a critical moderating factor. Freelancers who engage only occasionally in learning activities show particularly strong gaps in self-promotion and branding, while those with limited or irregular learning engagement display weaker alignment between perceived demands and capabilities. In contrast, regular learners demonstrate heightened sensitivity to performance standards, reflected in high, but potentially more realistic, gap assessments. This pattern indicates that learning engagement enhances reflective self-evaluation alongside skill development.

Taken together, the synthesis indicates that competence gaps among freelancers are not isolated deficiencies, but interconnected challenges related to professional

autonomy, market positioning, digital adaptation, and self-regulation. The most critical gaps are concentrated in transversal competences that support sustainable freelance careers: negotiation, prioritization, branding, financial management, and digital tool integration.

From a strategic perspective, these results support the design of modular, profile-sensitive training pathways. Early-career freelancers require support in negotiation and client management; mid-career professionals benefit from advanced productivity and branding training; senior freelancers need targeted digital and AI integration programs; and academically trained freelancers require structured support in entrepreneurial and self-management skills.

In conclusion, the paired gap analysis demonstrates that effective freelancer development depends less on isolated technical training and more on integrated competence ecosystems that combine communication, self-management, digital literacy, and business-oriented skills. Sustainable upskilling policies should therefore prioritize cross-cutting competences and adapt interventions to distinct career and learning profiles, rather than relying on uniform training models.

5.2 Global Gap Analysis (Paired *t*-tests)

This section presents the results of the competence gap analysis based on paired *t*-tests conducted at the global level on the freelancer dataset. The analysis examines within-respondent differences between perceived importance and self-reported proficiency for each competence, with the aim of identifying systematic mismatches between how important a competence is considered and how it is currently mastered.

Paired *t*-tests were applied to the full sample of freelancers to assess whether the mean difference between importance and proficiency ratings for each competence differs significantly from zero. To ensure that the reported findings are both statistically reliable and substantively meaningful, the interpretation of results is restricted to competences that meet **two cumulative criteria**. First, **only statistically significant paired comparisons are considered** ($p < 0.05$). Second, only results with **Cohen's $d \geq 0.50$** are retained, corresponding to **medium to large effect sizes** and

indicating competence gaps of practical relevance rather than merely statistical detectability.

By combining **statistical significance** testing with **effect size thresholds**, this global analysis prioritizes competences for which evidence of mismatch between importance and proficiency is both robust and meaningful for training needs identification and policy-oriented interpretation.

Detailed outputs are provided in the following table:

Competence Variable	N	Mean Prof.	Mean Imp.	Mean Gap	t	p	Cohen's d
SelfPromo_Brand (CWT)	108	3.45	4.17	3.50	-7.239	0.0000	0.70
Negotiation (CWT)	108	3.62	4.28	3.52	-6.919	0.0000	0.67
SelfOrg_WorkDisc (PP)	108	4.13	4.57	2.45	-5.605	0.0000	0.54
ClarityExpr (CWT)	108	4.16	4.59	2.53	-5.493	0.0000	0.53
Formal_Reg (PP)	108	3.56	4.09	2.88	-5.293	0.0000	0.51

Table 4. Global competence gap analysis for freelancers based on paired t-tests (N = 108), comparing mean self-reported proficiency and perceived importance across competencies.

5.2.1 Negotiation skills

This competence exhibits the **largest discrepancy** between importance and proficiency. Freelancers rate negotiation as highly important, while self-assessed proficiency remains notably lower. The difference is **highly significant** ($p < 0.001$) and associated with a **medium-to-large effect size** (Cohen's $d \approx 0.67$), indicating a robust and practically meaningful gap.

5.2.2 Self-promotion and personal branding

A similarly pronounced gap is observed for self-promotion and branding skills. The large t -statistic and very small p -value ($p < 0.001$), combined with a **medium-to-large effect size** ($d \approx 0.70$), suggest that freelancers recognize the strategic importance of visibility and positioning but feel insufficiently prepared in this area.

5.2.3 Understanding formal regulations

Formal regulatory knowledge (e.g., contracts, taxation, legal obligations) shows a substantial and statistically significant difference between importance and proficiency.

The effect size ($d \approx 0.51$) indicates a **moderate practical gap**, highlighting regulatory competence as a key structural weakness in the freelancer ecosystem.

5.2.4 Clarity of expression and communication

Clear and effective expression shows a strong and statistically robust difference between importance and proficiency. With a **moderate effect size** ($d \approx 0.53$), this competence emerges as a transversal skill requiring further development across freelancer profiles.

5.2.5 Self-organization and work discipline

Self-organization and work discipline also display a marked gap, supported by a highly significant paired *t*-test and a **moderate effect size** ($d \approx 0.54$). This suggests that autonomy in freelance work amplifies the need for stronger self-regulatory skills.

5.2.6 Synthesis

Overall, the global paired *t*-test analysis reveals that the most pronounced competence gaps among freelancers are concentrated in **business-oriented, self-management, and communication-related skills**, rather than in purely technical areas. Competences such as **negotiation, self-promotion, and regulatory understanding** consistently rank highest, combining strong statistical evidence with meaningful effect sizes.

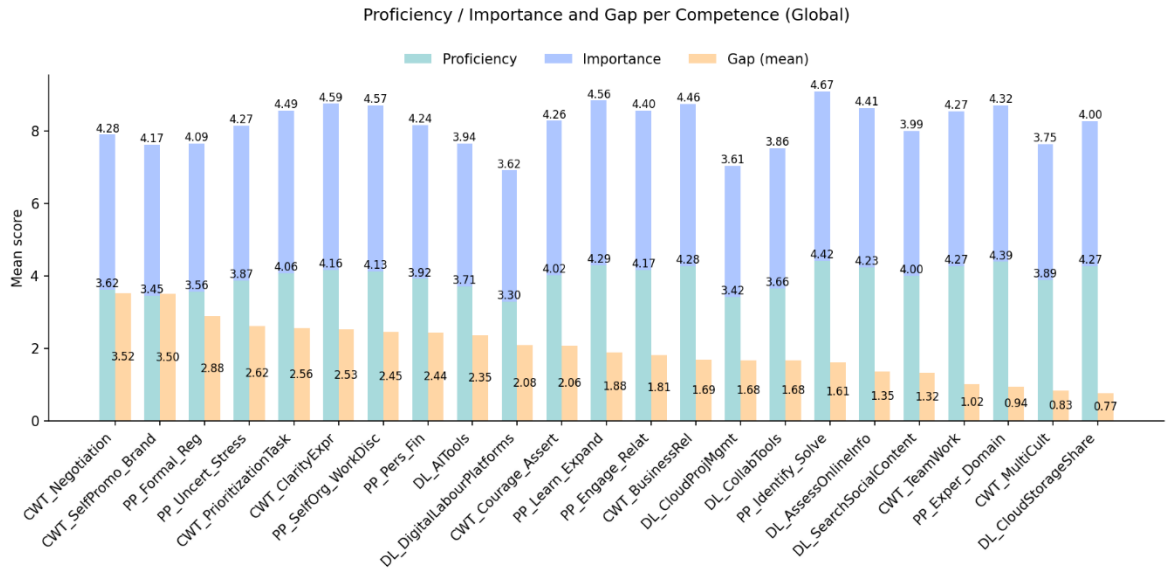


Figure 90. Mean self-reported proficiency, perceived importance, and corresponding competence gap scores across all competencies at the global level (freelancer dataset, N = 108).

To support the interpretation of the global gap analysis, the following radar chart is used to visualize the magnitude of mean gaps across key competences.

By displaying all selected competences on a common scale, the radar chart facilitates the identification of relative gap intensities, making it easier to distinguish competences with particularly pronounced mismatches from those with more moderate differences. This visual representation complements the paired *t*-test results by emphasizing the pattern and distribution of global mean gaps, rather than individual statistical parameters, and thereby supports a more intuitive comparison of training priorities at the global level.

These findings provide a robust empirical basis for prioritizing training interventions at the systemic level, particularly those aimed at strengthening freelancers' capacity to negotiate, position themselves in the market, manage uncertainty, and operate effectively within regulatory and platform-based environments.

Mean Gaps (Global)

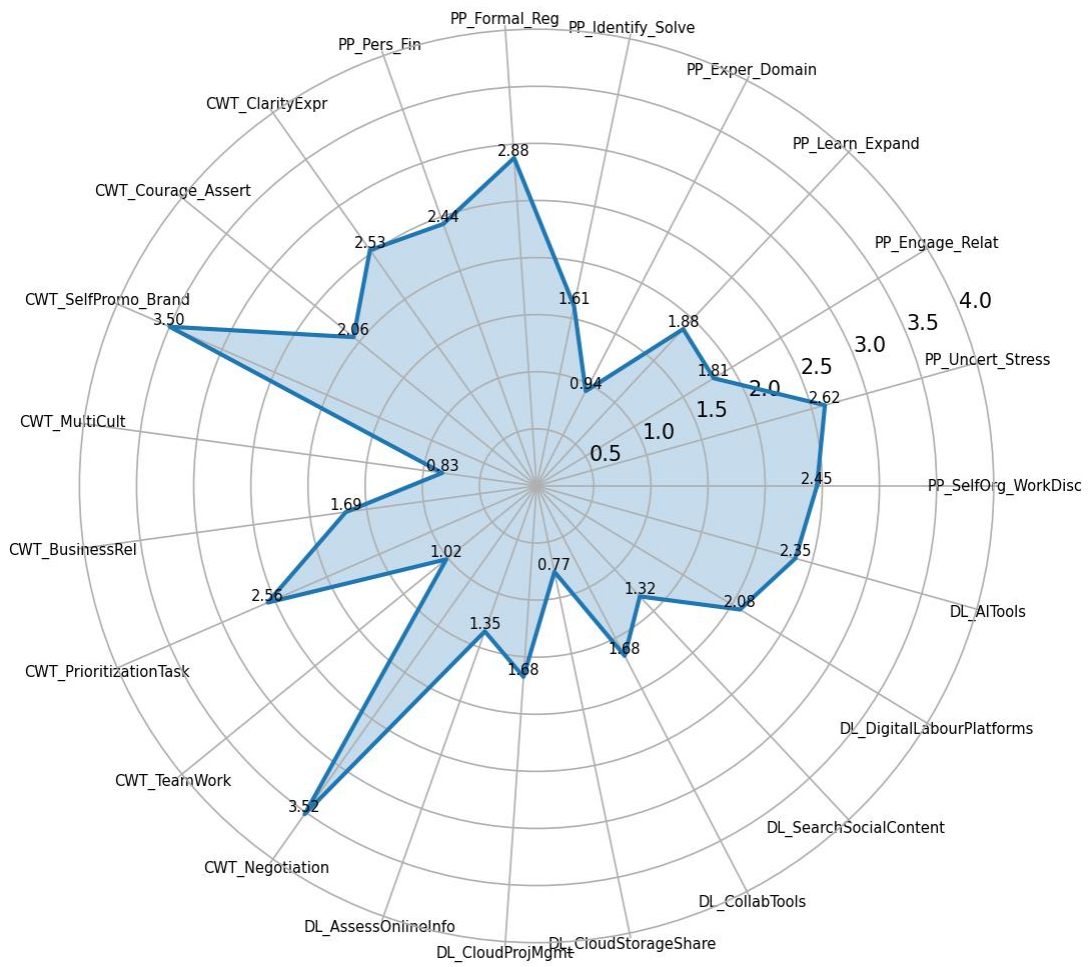


Figure 91. Mean competence gap scores across all competencies at the global level (freelancer dataset, N = 108).

6 Segmentation and Profile Analysis (k-means and CHAID)

6.1 Cluster analysis for freelancer typologies

A k-means cluster analysis was conducted to identify latent freelancer typologies based on self-assessed competence proficiency variables, domain experience, freelance experience, AI orientation, and upskilling behaviour. The categorical variable *Main area of freelancer activity* was excluded to ensure that clusters reflect competence, experience, and technology-adoption patterns rather than occupational labels.

Ordinal variables for AI use and upskilling frequency were mapped onto a five-point scale (Never-Regularly), while freelance experience categories were converted to approximate numeric values (<1 year = 0.5; 1–5 years = 3; 6–10 years = 8; >10 years = 12.5). All variables were standardized (z-scores) prior to clustering.

Based on interpretability and internal validity diagnostics, a five-cluster solution (k = 5) was retained.

6.1.1 Internal validity of clusters

The Calinski-Harabasz index was used to assess cluster separation, with higher values indicating more distinct and compact freelancer profiles. Also, the Davies-Bouldin index was employed to evaluate cluster compactness and separation, with lower values indicating better-defined freelancer typologies.

Metric	Value	Direction	What it rewards
Calinski–Harabasz	10.34	Higher is better	Separation between clusters
Davies–Bouldin	2.54	Lower is better	Compact, non-overlapping clusters

Table 5. Cluster validity metrics for the freelancer segmentation model. The Calinski–Harabasz index (CH = 10.34) and Davies–Bouldin index (DB = 2.54) are used to evaluate cluster quality.

The selected five-cluster solution achieved a favourable balance between cluster separation and compactness, as indicated by a comparatively high Calinski–Harabasz value and a low Davies–Bouldin index. Together with the substantive interpretability of the resulting freelancer profiles, these metrics support the robustness of the identified typology.

The following figure visualizes cluster profiles using a radar chart.

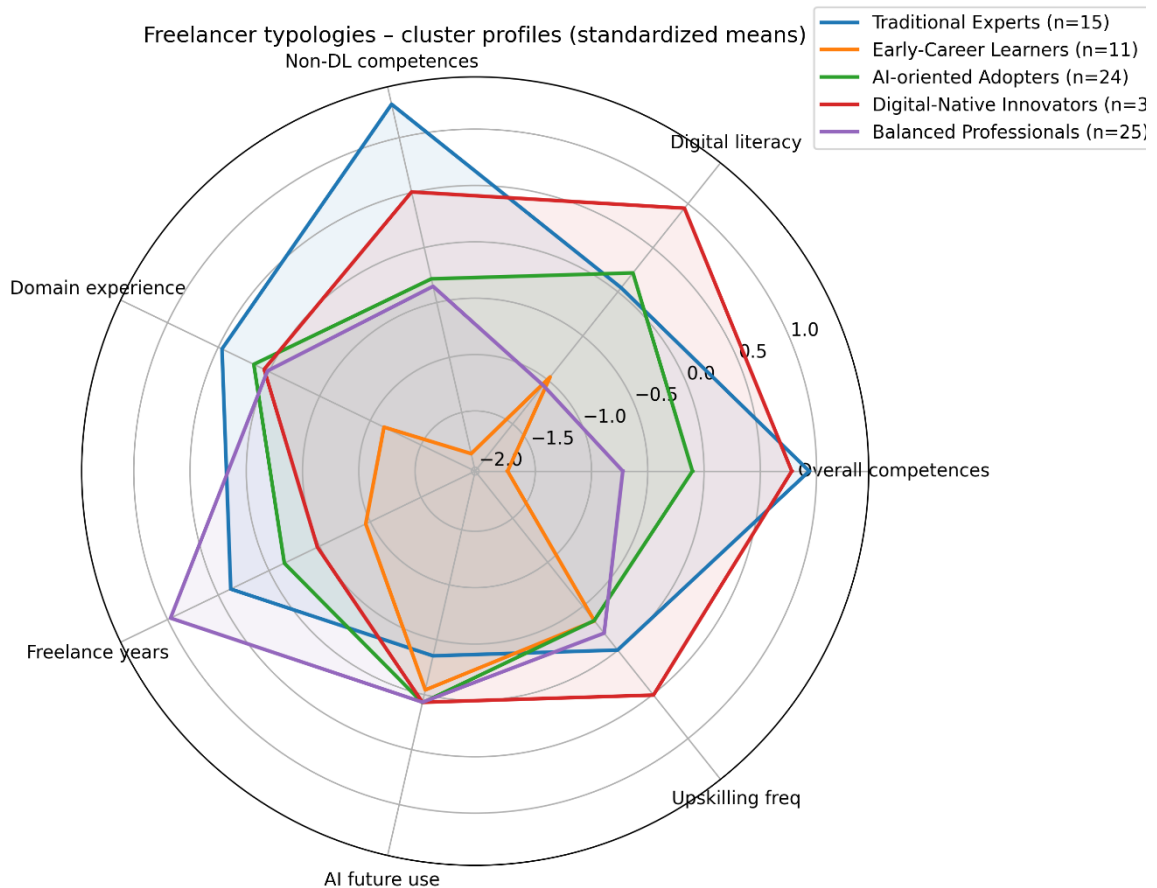


Figure 92. Freelancer typologies based on cluster analysis (standardized means).

6.1.2 Cluster profiles

Cluster 1 – *Traditional Experts* (n = 15; 13.9%)

Freelancers in this cluster exhibit high domain-specific and non-digital competence proficiency and substantial freelance experience, but comparatively lower digital literacy and AI adoption. Upskilling activity is moderate. This profile reflects experienced professionals who rely primarily on accumulated expertise and established work practices rather than emerging digital or AI-based tools.

- Very high overall competence (4.38)
- Highest non-digital competences (4.63)
- Highest domain experience (4.73)
- High freelance experience (7.7 years)
- Lower AI orientation (3.67) than other advanced clusters

- Moderate upskilling (3.87)

Cluster 2 – *Early-Career Learners* (n = 11; 10.2%)

This cluster is characterized by lower overall competence proficiency, limited freelance experience, and moderate levels of AI interest and upskilling. Members of this group appear to be in an early or transitional career stage, actively building skills but not yet exhibiting strong specialization or technological leadership.

- Lowest overall competence (3.17)
- Lowest domain experience (3.55)
- Very low freelance experience (2.32 years)
- Moderate AI interest (4.00) but skills still developing
- Upskilling present but not intensive (3.55)

Cluster 3 – *AI-oriented Adopters* (n = 24; 22.2%)

Freelancers in this group demonstrate high digital literacy and the strongest orientation toward future AI use, combined with medium-to-high overall competence proficiency. Freelance experience is typically moderate. This profile represents freelancers who actively integrate AI and advanced digital tools into their professional activities, even if they do not yet have the longest experience or the highest domain specialization.

- High digital literacy (3.94)
- High AI future use (4.13)
- Moderate-to-high overall competence (3.91)
- Medium freelance experience (5.56 years)
- Upskilling moderate (3.54)

Cluster 4 – *Digital-Native Innovators* (n = 33; 30.6%)

This cluster shows the highest levels of overall competence proficiency and digital literacy, together with frequent upskilling and strong AI orientation. Freelancers in this

group combine advanced skills with continuous learning and openness to technological innovation, positioning them at the forefront of digital transformation in freelancing.

- Highest digital literacy (4.43)
- Very high overall competence (4.31)
- High non-digital competences (4.26)
- Highest upskilling frequency (4.36)
- Strong AI orientation (4.12)
- Moderate experience (4.24 years)

Cluster 5 – *Balanced Professionals* (n = 25; 23.1%)

The fifth cluster represents freelancers with consistently moderate-to-high scores across all dimensions, without extreme values on any single indicator. They show solid overall competence, adequate digital literacy, moderate AI adoption, stable upskilling behaviour, and mid-range freelance experience. This profile can be interpreted as well-established, pragmatically skilled professionals who maintain a balanced skill set and adopt new technologies selectively rather than aggressively.

- Moderate overall competence (3.63)
- Lower digital literacy (3.09) than clusters 3–4
- Very high freelance experience (10.1 years)
- Strong domain experience (4.40)
- Strong AI orientation (4.12)
- Moderate upskilling (3.68)

6.1.3 Synthesis and Interpretation of Cluster Profiles

The following table presents the main characteristics of the identified clusters.

Cluster	Assigned profile	Key characteristics
Cluster 1	Traditional Experts	High domain experience, strong non-digital competences, lower AI use
Cluster 2	Early-Career Learners	Low experience, lower overall competences, moderate upskilling
Cluster 3	AI-oriented Adopters	High AI future use, strong digital literacy, medium experience
Cluster 4	Digital-Native Innovators	Highest digital competences and upskilling frequency
Cluster 5	Balanced Professionals	Moderate-to-high competences across all dimensions, stable experience, pragmatic AI adoption

Table 6. Overview of freelancer cluster profiles and their key characteristics.

Although both Traditional Experts and Balanced Professionals exhibit relatively high competence levels, they differ fundamentally in their adaptation strategies. Traditional Experts rely predominantly on accumulated domain expertise and established work practices, with limited engagement in AI technologies and lower digital intensity. In contrast, Balanced Professionals display a more evenly distributed competence profile, combining solid domain knowledge with selective AI adoption. This distinction suggests that Balanced Professionals represent a pragmatically adaptive segment, whereas Traditional Experts embody experience-driven specialization.

6.2 CHAID decision-tree segmentation for companies

6.2.1 CHAID Method

Chi-square Automatic Interaction Detection (CHAID) is a decision-tree technique that identifies statistically significant associations between a categorical dependent variable and multiple explanatory variables using chi-square (χ^2) tests of independence. The method recursively partitions the data into homogeneous segments by selecting, at each step, the predictor with the strongest significant relationship to the outcome, allowing multi-way splits and automatic merging of non-

distinct categories. CHAID is particularly suited to survey data and exploratory segmentation analyses where interpretability is essential.

6.2.2 Variables Used

Dependent variable

- *Availability of freelancers with required competences (CH_Skilled_Freelancer_Availability),*

This variable captures whether organizations anticipate difficulties in accessing adequately skilled freelance workers in the near future.

Explanatory variables

- Organizational characteristics (activity area, company size, market experience, market scope, ownership)
- Freelance engagement characteristics (years of hiring freelancers, number hired in the last 12 months)
- Motivations for hiring freelancers (MH_*)
- Types of freelance services used (TFS_*)
- Perceived risks of relying on freelancers (RSK_*)
- Future challenges related to freelancing (CH_*)
- Perceived impact of AI on freelancing and hiring decisions (AI_*)

All explanatory variables were treated as categorical; continuous measures were discretized prior to analysis to meet CHAID requirements.

6.2.3 Practical Interpretation of CHAID-Based Segmentation

The CHAID model selected MH_CostEffective (motivation: cost effectiveness of hiring freelancers) as the first and strongest splitter for Romanian companies.

Therefore, among the tested explanatory variables, perceived cost-effectiveness appears to be the most influential factor associated with the challenge of *availability of freelancers with the required competences* in Romania.

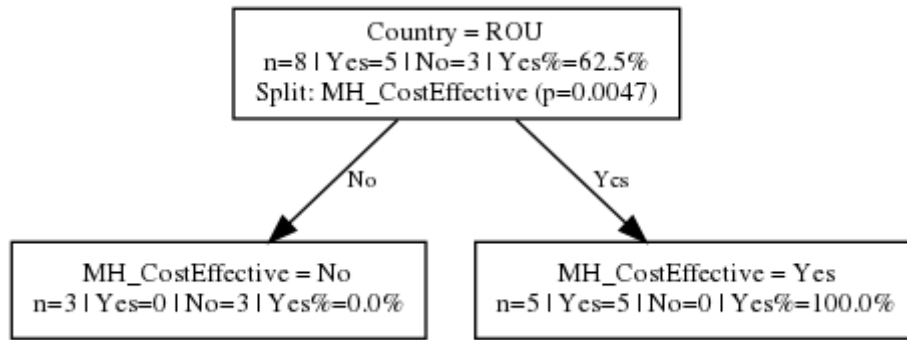


Figure 93. CHAID decision tree for Romanian companies, with MH_CostEffective (cost-effectiveness motivation) as the primary splitting variable.

Segment A - MH_CostEffective = Yes

- n = 5
- Yes_Rate_% = 100%

Interpretation: All companies that consider freelancers cost-effective also expect future difficulties in finding sufficiently skilled freelancers.

Segment B - MH_CostEffective = No

- n = 3
- Yes_Rate_% = 0%

Interpretation: Companies that do not see freelancers as cost-effective do not report as a future challenge the *availability of freelancers with the required competences*.

6.2.4 Conclusions from the CHAID Analysis

Romanian companies that are highly motivated to hire freelancers for cost-efficiency reasons expect increasing difficulties in accessing freelancers who possess the necessary skills.

This suggests an emerging tension between cost efficiency and skill availability, whereby highly skilled freelancers are expected to become increasingly scarce or expensive. Consequently, availability challenges reflect anticipated increases in marginal hiring costs rather than a lack of freelancers per se.

The CHAID results indicate that firms currently benefiting from the cost effectiveness of freelancers are also the most aware of impending shortages in affordable, highly skilled freelance talent.

7 Identifying Training Needs

This section outlines the approach used to identify and prioritise training needs by jointly analysing competence gap scores at both the freelancer and company levels. Training needs are derived from aggregated gap measures that capture mismatches between perceived importance and current proficiency. Two complementary aggregation methods are applied: the **Max-gap** approach, which reflects the highest unmet need observed on either side of the market, and the **Joint-gap** approach, which highlights competencies where gaps are simultaneously present among freelancers and companies.

Training priorities are classified using explicit threshold values on the aggregated gap scale: **LOW** (gap < 2.0), **MEDIUM** (2.0 ≤ gap < 3.0), **HIGH** (3.0 ≤ gap < 4.0), and **CRITICAL** (gap ≥ 4.0). This classification ensure a transparent and reproducible mapping from measured gap scores to actionable training priority levels, to support evidence-based decisions for training design, upskilling strategies, and policy interventions.

Only competencies classified with **HIGH** or **CRITICAL** training priority, according to the established gap thresholds, were retained for further consideration. This filtering ensures that the analysis focuses exclusively on areas where training interventions are most urgently required, reflecting substantial or severe mismatches between importance and proficiency.

From the training needs matrix, built at the competency level, the following competencies were identified as requiring a **HIGH** level of training intervention:

1. Ability to keep good relationships in business collaboration (CWT)
2. Clarity of expression while communicating with others (CWT)
3. Negotiation skills (CWT)
4. Self-promotion and personal branding (CWT)
5. Ability to work in a team (CWT)

6. Ability to use cloud-based project management tool (DL)
7. Use of cloud storage and file-sharing tools (DL)
8. Use of digital collaboration tools (DL)
9. Knowledge of and compliance with formal regulations (PP)

These competencies exhibit substantial gaps between perceived importance and current proficiency among freelancers, indicating priority areas for targeted training and upskilling initiatives.

A special emphasis is placed on the **Use of AI tools** (DL) competence, for which a **CRITICAL** level of training need has been identified. This result indicates a pronounced skills deficit in relation to the growing importance of AI-enabled tools in professional practice, positioning AI-related upskilling as a top priority for targeted training programmes and curriculum development.

At the **competency class (group) level**, the aggregation of individual competency gap scores indicates that training needs are present at a **MEDIUM** priority level for all three classes:

- Communication – Work in a Team (CWT)
- Digital Literacy Skills (DL)
- Personal Profile (PP)

This result suggests that, while several specific competencies within these classes exhibit **HIGH** or **CRITICAL** training needs, the overall, aggregated gap at the class level is moderate. Consequently, these competency classes require structured and systematic training interventions, but with prioritisation and intensity guided by the specific high- and critical-gap competencies identified at the individual level.

Conclusions

This national analysis provides a comprehensive and evidence-based assessment of freelancer competences, skill gaps, and training needs in Romania, grounded in a rigorous and standardised quantitative framework developed within the ENTEEF project. By systematically combining freelancer and company perspectives, the report offers a balanced view of both supply-side capabilities and demand-side expectations in the Romanian freelance ecosystem.

The findings consistently indicate that Romanian freelancers operate in a highly knowledge-intensive and digitally oriented market, dominated by ICT, professional services, and creative activities. Core competences such as problem identification and solving, self-organisation and work discipline, communication clarity, and continuous learning are perceived as critically important across demographic groups, education levels, experience stages, and areas of activity. However, despite their high perceived relevance, several of these competences exhibit substantial importance-proficiency gaps, signalling persistent challenges in translating awareness into effective mastery.

Inferential analyses further reveal that competence gaps are not uniformly distributed, but vary systematically by age, education, experience, AI usage, and organisational context. Segmentation results confirm the heterogeneity of both freelancers and companies, highlighting distinct profiles with differentiated competence needs and challenges. In particular, companies express growing concern regarding access to freelancers with adequate skills, while freelancers anticipate increasing pressure to upskill in response to market changes, technological advances, and evolving client expectations.

The training-needs analysis translates these empirical gaps into actionable priorities by applying transparent aggregation rules and explicit thresholds. At the individual competence level, several communication, digital collaboration, cloud-related, regulatory, and self-promotion competences are identified as requiring HIGH or CRITICAL training intervention. Notably, the use of AI tools emerges as a critical

training priority, reflecting a pronounced mismatch between rapidly increasing importance and insufficient current proficiency. At the aggregated competency-class level, Communication – Work in a Team, Digital Literacy Skills, and Personal Profile, all display MEDIUM training needs, indicating structurally relevant but internally differentiated areas where targeted interventions should focus on the most severe underlying gaps.

Overall, the results underscore the necessity of targeted, evidence-based training strategies that address both transversal and specialised competence deficits. The Romanian findings provide a robust empirical foundation for the development of the Competence Assessment Tool (CAT), MOOCs, and tailored upskilling pathways.

By clearly linking statistical evidence to prioritised training needs, this report supports informed decision-making for educators, policymakers, and stakeholders seeking to strengthen the alignment between freelancers' competences and companies' evolving demands in the Romanian freelance economy.

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