ENTEEF
Fostering Entrepreneurship through Freelancing

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Freelancer Competences: National Analysis Report

Ukraine

Version 6.1

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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 documents quantitative analysis outcomes for Ukraine conducted within the ENTEEF - Fostering Entrepreneurship through Freelancing project framework. The Ukrainian research team executed this analysis in full accordance with the Freelancer Competences: Quantitative Analysis Guidelines, ensuring comparability with national reports generated by partner countries throughout the collaborative consortium.

Empirical foundations derive from Ukrainian respondent data gathered through standardised ENTEEF survey instruments - the Questionnaire for Freelancers and Questionnaire for Companies. The analysis encompasses responses from 129 freelance professionals and 6 organizational entities, together constituting the Ukrainian national sample. The report's fundamental objective involves delivering evidence-grounded evaluation of freelancer competency profiles, identified capability deficits, and developmental requirements characterizing Ukraine's freelance ecosystem, while maintaining strict adherence to the common analytical architecture established at project level.

Organizational structure adheres to standardised analytical progression recommended within ENTEEF methodological guidelines. Initial sections present descriptive statistical profiling and respondent characterization, establishing comprehensive demographic and professional portraits of Ukrainian freelancers alongside organizational participants. These foundational descriptions provide essential contextual frameworks enabling proper interpretation of subsequent analytical findings and establishing baseline understanding of the Ukrainian freelance workforce's compositional attributes.

The analysis proceeds to systematic examination of competency importance ratings and demonstrated proficiency levels (alternatively conceptualized as standard-meeting performance), isolating competencies Ukrainian freelancers and hiring organizations perceive as strategically critical. This competency-focused investigation

directly supports identification of capabilities demonstrating highest relevance within Ukraine's national context and contributes substantive evidence addressing Research Question RQ1 concerning competency importance hierarchies and proficiency patterns across freelance labour markets.

Subsequent analytical sections deploy comparative and inferential statistical methodologies encompassing cross-tabulation procedures, Chi-square independence testing, Analysis of Variance (ANOVA), and paired-comparison techniques. These methods facilitate systematic exploration of relationships linking competency dimensions to categorical predictor variables including age cohorts, educational attainment levels, primary activity domains, organizational size classifications, and anticipated artificial intelligence adoption trajectories. Through rigorous application of these inferential frameworks, the analysis achieves systematic identification of competency mismatches and statistically significant inter-group differences, thereby addressing Research Questions RQ1 and RQ2 concerning competency gap distributions and their systematic associations with demographic and professional characteristics.

The report incorporates segmentation and typological profiling through k-means cluster analysis, successfully identifying five distinct freelancer segments within the Ukrainian market: Developing Newcomers, Early-Stage Builders, Advanced Experts, Digitally-Oriented Developers, and Experienced Specialists. Additionally, exploratory CHAID decision-tree analysis examines organizational profiles. These segmentation methodologies deliver interpretable, empirically grounded comprehension of heterogeneity characterizing Ukraine's freelance population and organizational hiring landscape, supporting targeted policy formulation and differentiated training recommendations aligned with Research Question RQ3 concerning freelancer and company segmentation patterns.

Culminating analytical components synthesize findings into systematic training-needs identification, integrating freelancer self-assessments with organizational performance expectations through structured training-needs matrices. This integrative stage operationalizes empirical competency gap evidence into hierarchically prioritized developmental domains, applying Max-gap and Joint-gap

aggregation methodologies alongside explicit threshold criteria (LOW, MEDIUM, HIGH, CRITICAL) to translate statistical findings into actionable intervention targets. These prioritized training requirements deliver direct inputs informing educational program design, upskilling curriculum development, and evidence-based policy recommendations calibrated to Ukrainian contextual requirements.

Overall, this National Report operationalizes the ENTEEF quantitative analysis framework specifically for Ukraine's distinctive freelance ecosystem, contributing methodologically rigorous and cross-nationally comparable evidence supporting the project's multinational analytical synthesis. Consistent with methodological guideline recommendations, results presented herein establish validated empirical foundations essential for developing the Competence Assessment Tool (CAT) and designing Massive Open Online Courses (MOOCs) alongside targeted training modules. These project deliverables ensure strategic alignment between freelancers' professional development trajectories and organizational demand patterns characterizing Ukraine's evolving independent work economy, while contributing valuable comparative insights enriching understanding of competency dynamics across diverse national freelance markets participating within the ENTEEF consortium.

1 Descriptive Statistics: Respondent Profiling

This chapter presents a systematic descriptive analysis of the Ukrainian respondents participating in the ENTEEF survey. The analysis is organized into two principal sections: freelancers and companies.

The freelancer section examines core demographic attributes such as age, gender, and educational background, alongside professional characteristics including years of freelance experience, primary areas of activity, and client engagement patterns. It further explores freelancers' job acquisition strategies, platform usage, skill development practices, and anticipations regarding artificial intelligence, future challenges, and market dynamics.

The company section characterises participating organisations according to their structural attributes, freelance hiring practices, motivations for engaging freelancers, and perceived risks. It also captures organisational perspectives on near-term challenges and the anticipated impact of AI on both hiring decisions and the broader freelancing market.

Throughout this chapter, descriptive statistics are presented in terms of frequencies, percentages, and distributional patterns. Where respondents were allowed to select multiple options, the analysis explicitly notes this methodological consideration and interprets results accordingly. The findings established in this chapter provide the empirical foundation for subsequent comparative analyses, competence gap assessments, and the identification of training needs presented in later sections of the report.

1.1 Freelancers

This section offers a detailed descriptive overview of the 129 Ukrainian freelancers who participated in the ENTEEF survey. The analysis begins with demographic and educational profiling, examining attributes such as age, gender, education level, and field of study. It then proceeds to professional characteristics, including freelance experience, central areas of activity, and client engagement patterns.

Subsequent subsections explore freelancers' work-acquisition strategies, examining the channels they use to identify opportunities, the digital labour platforms they use, and the social networks they employ to enhance professional visibility. The section further investigates freelancers' perceptions of future challenges, growth drivers, and the evolving role of freelancing in the labour market.

Additionally, the analysis examines expectations regarding the adoption of artificial intelligence, investment patterns in upskilling and reskilling, and preferred pathways for skill acquisition. Collectively, these descriptive findings establish a comprehensive empirical profile of the Ukrainian freelance workforce, providing essential context for interpreting competence requirements, training needs, and strategic implications discussed in subsequent analytical sections.

1.1.1 Age distribution

The age distribution of Ukrainian freelancers participating in the ENTEEF survey reveals a distinctive demographic profile, with substantial representation of younger workers.

The most prominent feature of the age structure is the overwhelming concentration of respondents in the Under 24 category, which comprises 97 individuals (75.2%). This exceptional concentration indicates that three-quarters of the surveyed Ukrainian freelance workforce consists of early-career professionals under 24 years of age. This demographic pattern suggests that freelancing in Ukraine serves as a significant early labour-market entry point, potentially reflecting limited traditional employment opportunities for young workers. These entrepreneurial preferences among digital natives, or economic conditions, incentivise independent work arrangements.

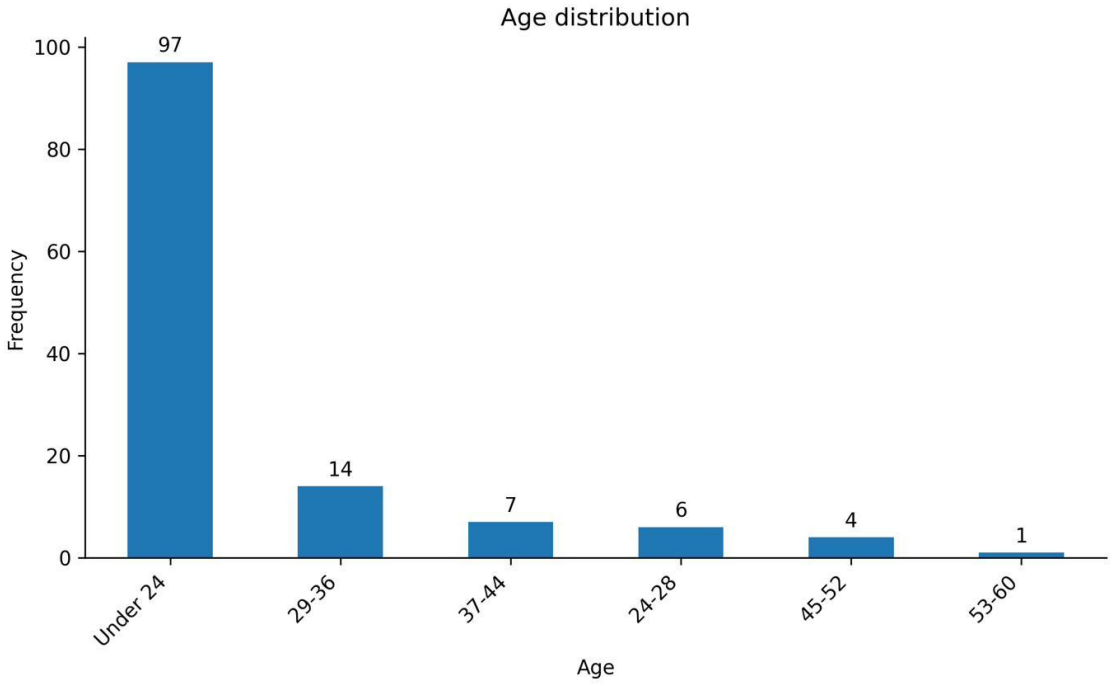

Figure 1. Freelancers' age distribution (bar chart).

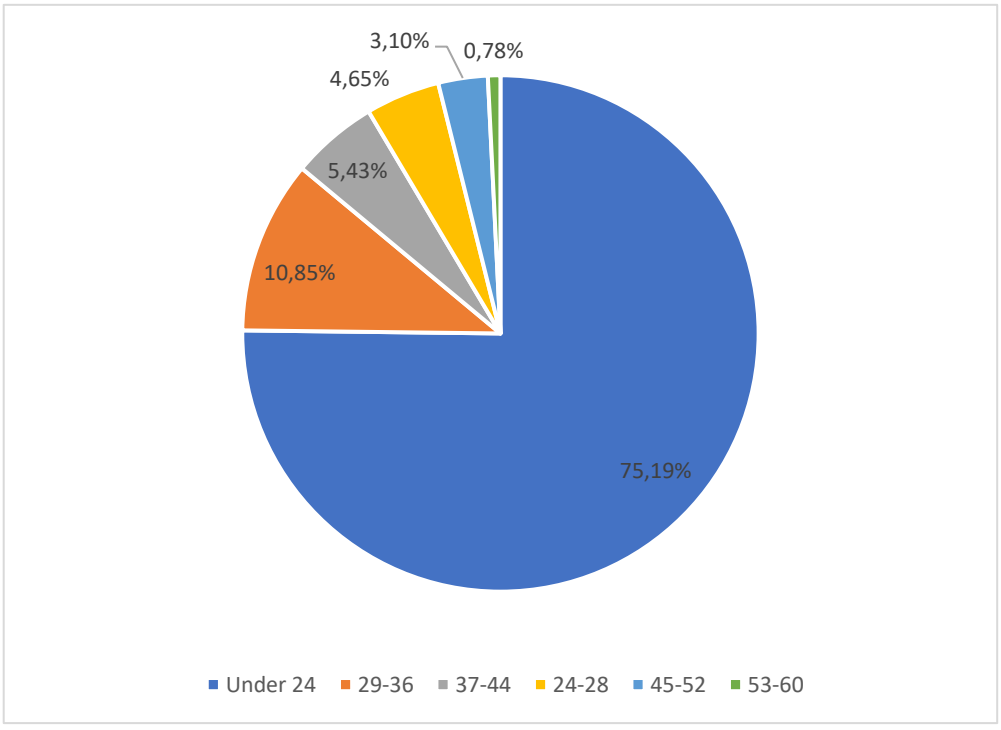

Figure 2. Freelancers' age distribution (pie chart).

Beyond this dominant youth cohort, the distribution displays a progressive decline across older age groups. The 29-36 age category represents 14 respondents (10.9%),

followed by 37-44 years with 7 respondents (5.4%), 24-28 years with 6 respondents (4.7%), 45-52 years with 4 respondents (3.1%), and 53-60 years with only 1 respondent (0.8%). This distribution indicates that participation in freelancing decreases markedly with age, with fewer than 25% of respondents aged 24 or older.

The pronounced youth orientation of the Ukrainian freelance sample has important analytical implications. Younger freelancers may exhibit different competence profiles, skill gaps, and training needs compared to more experienced professionals. They may possess strong digital literacy and technological adaptability but lack domain-specific expertise, business relationship skills, and professional maturity. Additionally, their limited work history may influence income stability, client acquisition capabilities, and negotiation effectiveness.

Overall, the age profile indicates that the Ukrainian freelance market captured by this survey is predominantly characterised by early-career entrants, with minimal representation of mid-career and senior professionals. This demographic structure provides critical context for interpreting subsequent analyses of competence importance, proficiency levels, AI adoption patterns, and training priorities discussed throughout the report.

1.1.2 Gender distribution

The gender distribution among Ukrainian freelancers shows a clear male predominance.

Male respondents constitute the largest share, accounting for 95 individuals (73.6%). This substantial majority indicates that nearly three-quarters of Ukrainian freelancers in the sample are men, reflecting patterns observed in technology-intensive and ICT-oriented freelance sectors where male participation tends to predominate.

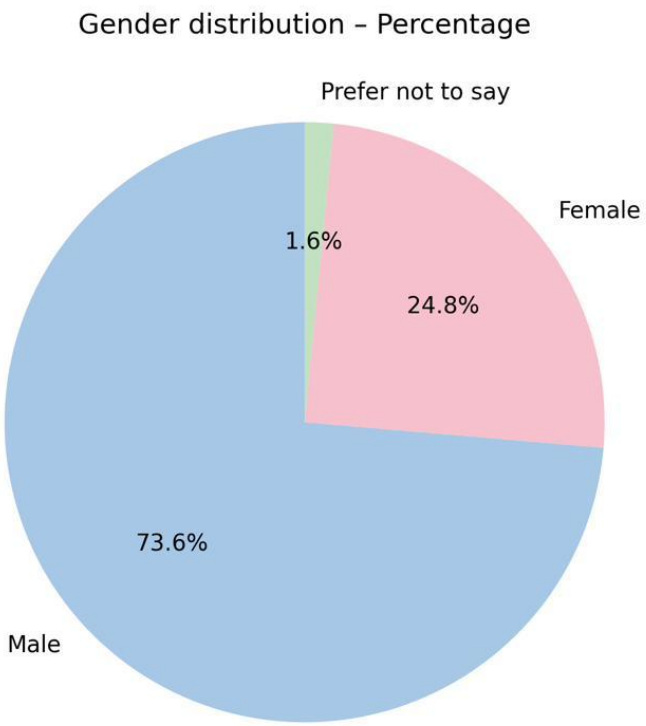

Figure 3. Freelancers' gender distribution.

Female freelancers represent 32 respondents (24.8%), indicating meaningful but minority participation. While women are underrepresented relative to men in the sample, their presence confirms that freelancing in Ukraine is not exclusively male-dominated and that women engage in independent professional work across various domains.

An additional 2 respondents (1.6%) selected 'Prefer not to say', indicating a small proportion who chose not to disclose gender identity. This category, while numerically limited, reflects contemporary recognition of gender diversity and the inclusion of non-binary identification options in survey instruments.

The gender composition observed in this sample has potential implications for subsequent analyses. Gender may influence perceptions of competence importance, proficiency levels, sector-specific participation, and career trajectory patterns. Research in labour economics has documented gender-differentiated experiences in freelance markets, including differences in client acquisition strategies, negotiation outcomes, income levels, and work-life balance considerations.

Overall, the gender profile indicates that Ukrainian freelancing, as represented in this survey, is primarily male-dominated, with notable female participation and minimal non-disclosure. This distributional pattern provides important context for understanding competence gaps, training needs, and professional development priorities examined in later sections of the report.

1.1.3 Education level

The distribution of Ukrainian freelancers by education level shows a more varied educational profile than is typically observed in knowledge-intensive freelance markets.

The largest educational category comprises respondents with high school or less education, totalling 56 individuals (43.4%). This substantial proportion indicates that nearly half of Ukrainian freelancers in the sample have not pursued tertiary education, suggesting that entry into freelancing does not uniformly require advanced academic credentials. This pattern may reflect economic conditions that necessitate early labour market entry, vocational skill development outside formal education systems, or the accessibility of certain freelance activities to individuals without higher education qualifications. The most evident explanation for this fact is that a significant part of the surveyed freelancers are completing their Bachelor's degree while already freelancing.

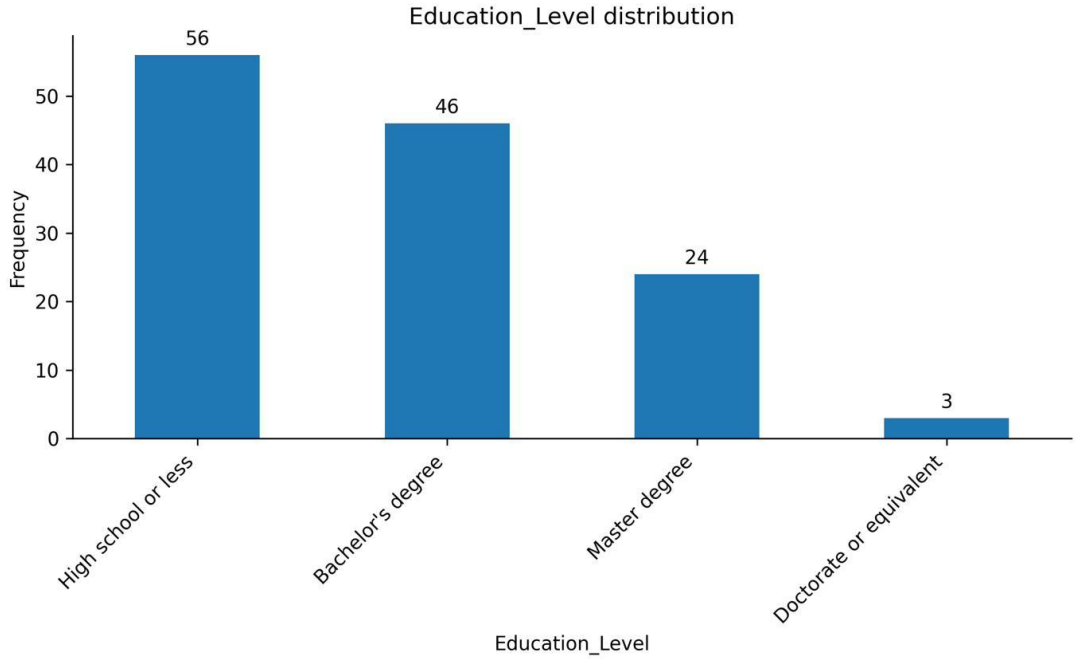

Figure 4. Freelancers' education level distribution (bar chart).

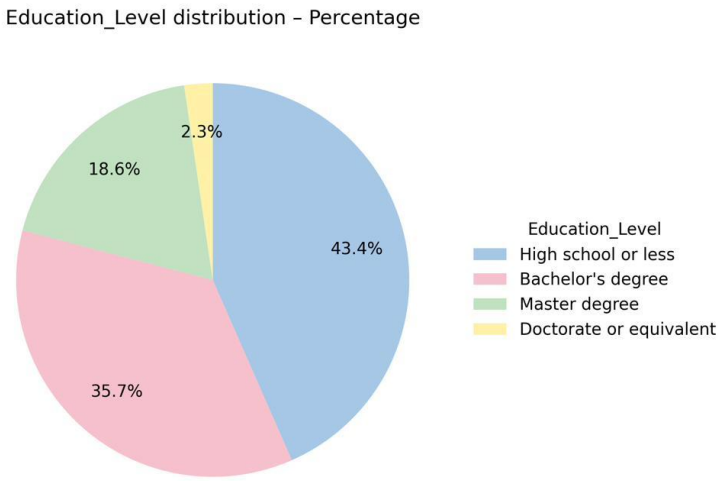

Figure 5. Freelancers' education level distribution (pie chart).

The second-most-represented group holds a Bachelor's degree, accounting for 46 respondents (35.7%). This category indicates significant participation of university graduates who have completed undergraduate programmes and subsequently entered freelance work, potentially leveraging specialised knowledge acquired through higher education.

Respondents with a Master's degree represent 24 individuals (18.6%), suggesting a meaningful but smaller proportion of freelancers with advanced academic qualifications. This group likely has greater specialisation and may engage in more complex, knowledge-intensive professional services.

The smallest category consists of 3 respondents (2.3%) holding a Doctorate or equivalent qualification. While numerically limited, the presence of doctoral-level freelancers indicates that even the most academically advanced professionals engage in independent work arrangements, possibly providing specialised consultancy, research, or expert services.

The educational distribution reveals that 56.6% of Ukrainian freelancers hold at least a Bachelor's degree, while 43.4% have a high school education or less. This mixed educational profile differs markedly from highly educated freelance populations observed in some Western European contexts and suggests greater diversity in entry barriers, activity types, and skill requirements within the Ukrainian freelance market. Early entry into the freelance market also positively characterises young Ukrainian people in their desire and ability to combine higher education with practical work.

The educational composition has important implications for subsequent analyses. Education level is likely to influence perceptions of competence importance, self-reported proficiency, digital literacy, AI adoption patterns, and training needs. Freelancers with limited formal education may exhibit different skill gaps and require different educational interventions compared to university-educated professionals. This distributional pattern provides essential context for interpreting competence analyses and designing targeted training programmes examined in later sections of the report.

1.1.4 Area of education

A discrepancy exists between the total observations for Area of Education (N = 161) and the total respondents for Education Level (N = 129). This occurs because respondents may indicate multiple fields of study within the Area of Education variable, accommodating those with multidisciplinary academic backgrounds. The frequencies therefore capture the aggregate count of educational fields reported, not distinct individual respondents.

The calculated percentages thus relate to the overall number of fields reported rather than individual counts. This distribution should be understood as reflecting the breadth of educational backgrounds within the sample, rather than representing discrete proportions of respondents. Such methodology enables more precise characterization of the varied, frequently interdisciplinary academic credentials found among Ukraine's freelance professionals.

Educational background distribution reveals marked concentration within ICT-related disciplines, mirroring the technology-driven character of Ukrainian freelancing. Information and Communication Technologies (ICT) represents the predominant educational field, with 74 individuals (46.0%) reporting backgrounds in this area. Nearly half of all documented educational fields thus fall within digital and technological specializations, underscoring the centrality of these domains to the surveyed population.

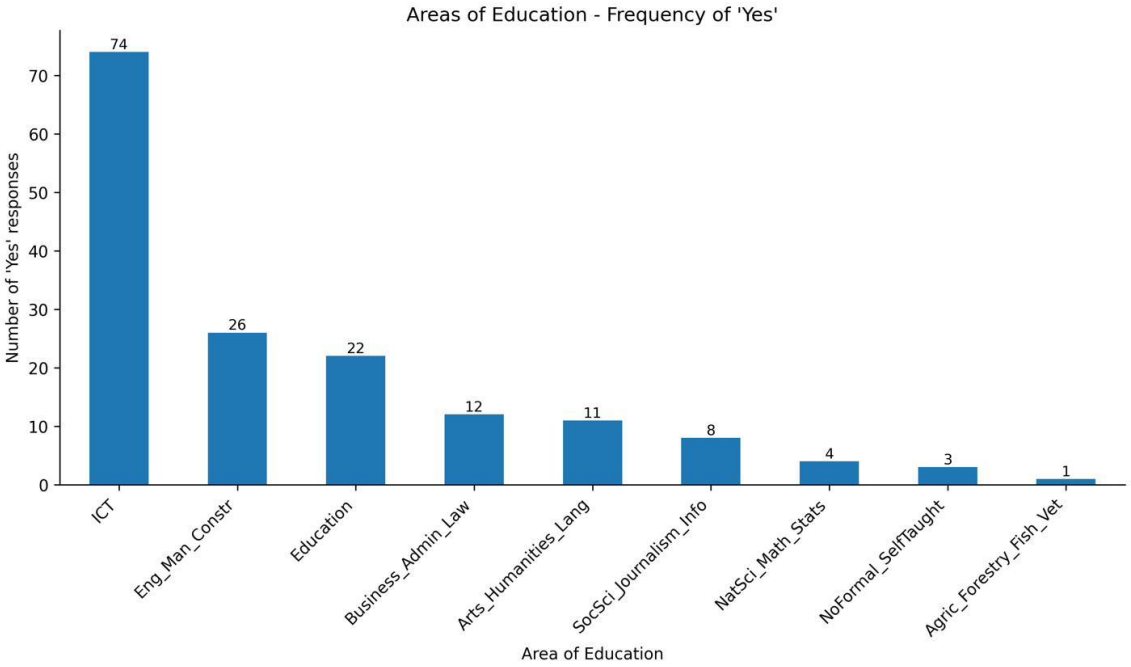

Figure 6. Freelancers' area of education distribution (bar chart).

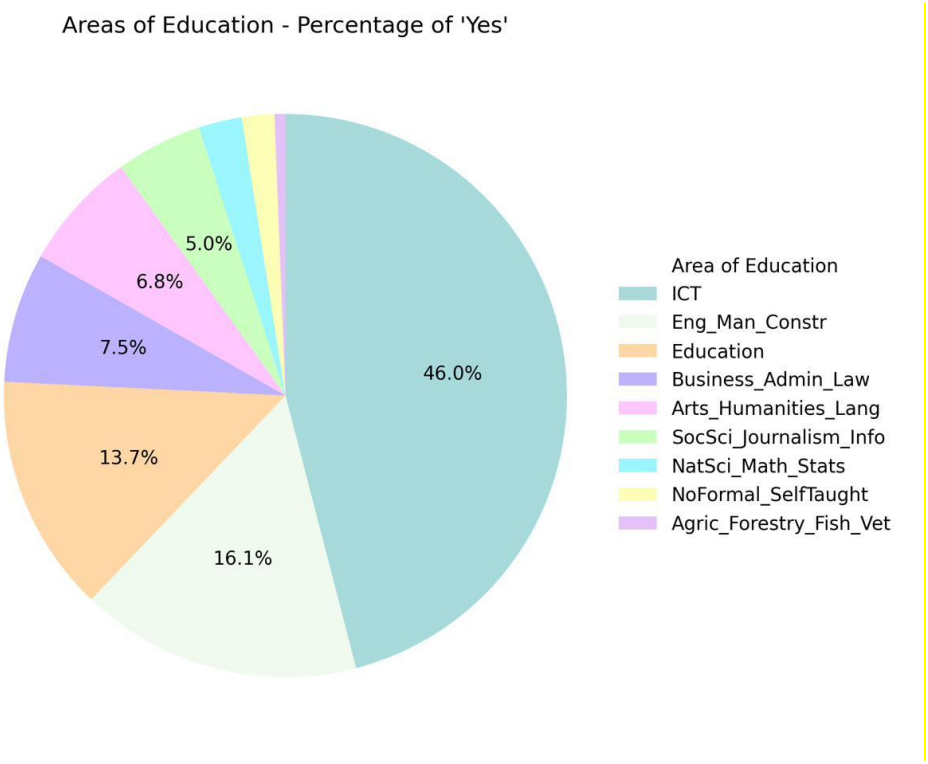

Figure 7. Freelancers' area of education distribution (pie chart).

Engineering, Manufacturing and Construction emerges as the second-largest category, encompassing 26 respondents (16.1%), with Education following at 22

respondents (13.7%). The combined representation of these three fields - ICT, engineering, and education - reaches 75.8% of total educational backgrounds, consistently emphasizing the technical and pedagogical orientation characterizing the freelance cohort under examination.

Business, Administration and Law claims 12 responses (7.5%), while Arts, Humanities and Languages accounts for 11 responses (6.8%). Social Sciences, Journalism and Information registers 8 responses (5.0%). These disciplines point toward meaningful, though secondary, involvement from professionals with business expertise, creative capabilities, and analytical competencies.

The distribution's lower segment includes Natural Sciences, Mathematics and Statistics with 4 responses (2.5%), followed by No Formal / Self-Taught backgrounds at 3 responses (1.9%), and Agriculture, Forestry, Fisheries and Veterinary sciences with 1 response (0.6%). Self-taught respondents, while constituting a marginal proportion, represent a discernible cohort of individuals who have developed professional skills independently of conventional academic pathways.

In summary, Ukrainian freelancing demonstrates strong foundations in ICT, engineering, and education sectors, supplemented by contributions from business, artistic, and social science domains. This educational composition offers essential background for understanding subsequent findings regarding competency priorities, digital proficiency patterns, artificial intelligence integration, and identified training requirements throughout this report.

1.1.5 Years of experience as a freelancer

The distribution of Ukrainian freelancers by years of experience reveals a workforce characterised primarily by recent entrants and early-stage practitioners, with limited representation of long-term freelancers.

The largest group consists of freelancers with less than 1 year of experience, comprising 69 respondents (53.5%). This majority indicates that more than half of the Ukrainian freelance sample consists of newcomers who have only recently transitioned into independent work. This substantial concentration of beginners

suggests high rates of recent market entry, potentially driven by economic factors, digital platform accessibility, changing employment preferences among young professionals, and the general possibility of seeking a traditional form of employment.

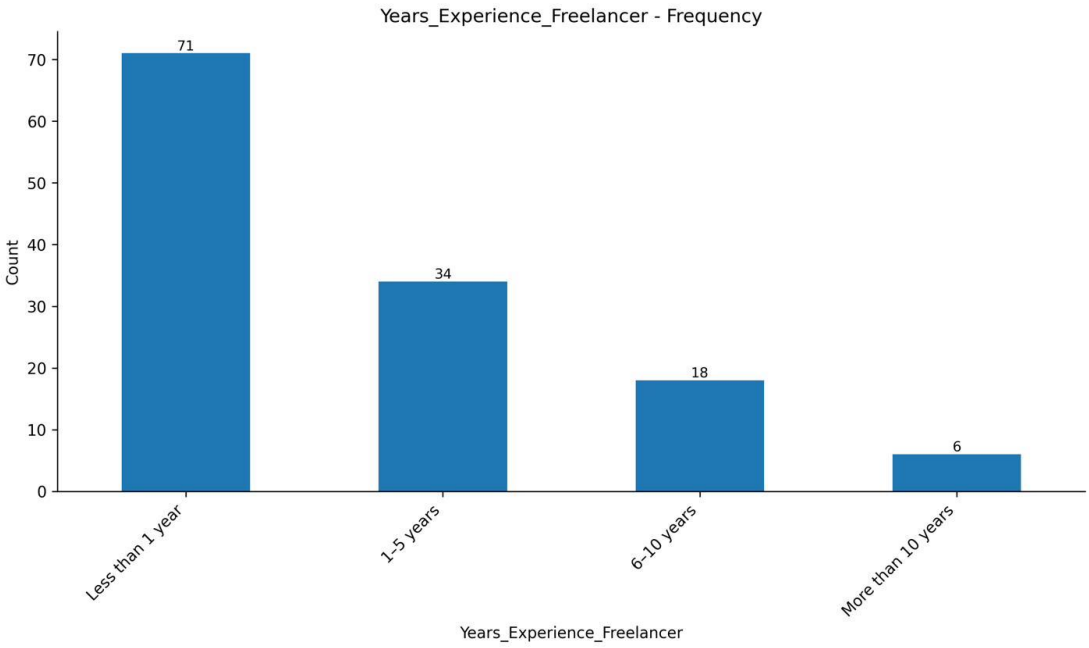

Figure 8. Freelancers' years of experience distribution (bar chart).

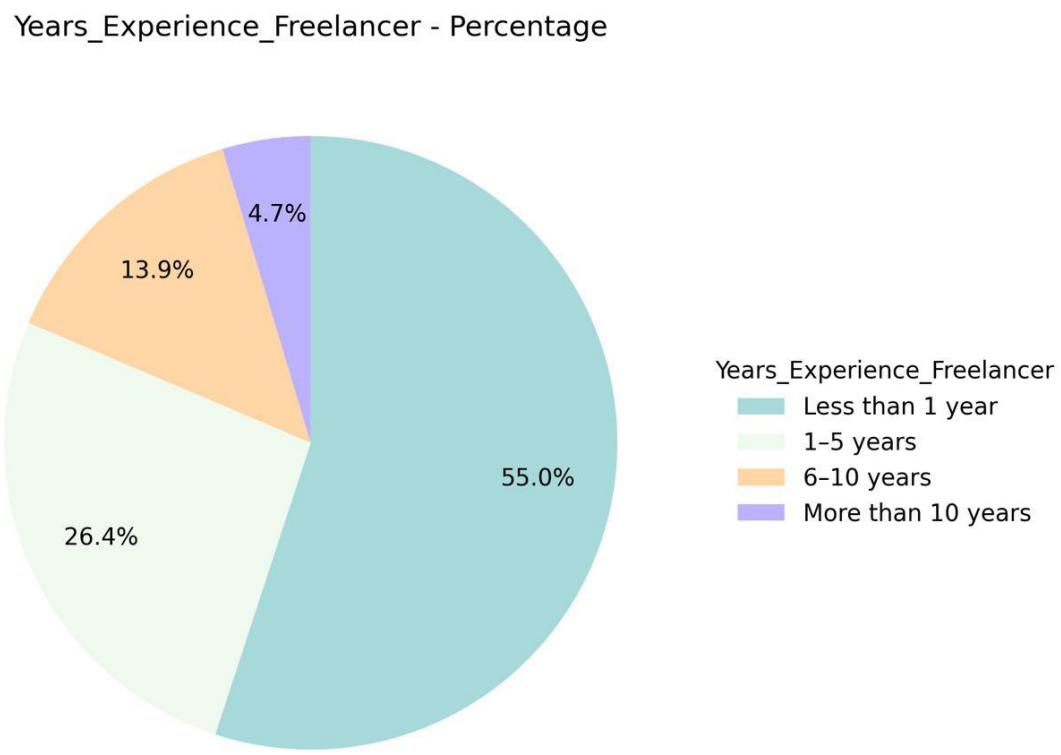

Figure 9. Freelancers' years of experience distribution (pie chart).

The second most represented category is 1-5 years of experience, reported by 44 respondents (34.1%). Together with the less-than-1-year group, these two categories account for 87.6% of the total sample, indicating that nearly 9 out of 10 Ukrainian freelancers in the survey have 5 years of experience or less. This pattern confirms that the sample predominantly captures early-career freelancers rather than seasoned independent professionals.

Freelancers with 6-10 years of experience represent 13 respondents (10.1%), while those with more than 10 years account for only 3 respondents (2.3%). These limited proportions indicate minimal representation of mid-career and veteran freelancers within the surveyed population.

The experience profile has important implications for subsequent analyses. Newly established freelancers may face distinct challenges related to client acquisition, income instability, professional credibility, and competence development compared to experienced practitioners. They may exhibit greater reliance on digital platforms,

stronger technological adaptability, but potentially weaker business management skills, negotiation capabilities, and domain expertise.

Overall, the experience distribution indicates that Ukrainian freelancing, as captured in this survey, is dominated by recent entrants with limited professional tenure. This demographic characteristic provides essential context for interpreting competence gaps, training needs, and professional development priorities examined in later sections of the report.

1.1.6 Main area of freelancer activity

Respondent distribution across principal freelance activity domains reveals substantial concentration within technology-driven, expertise-based sectors, characterizing the Ukrainian freelance landscape as documented through the ENTEEF survey.

Software Development and IT emerges as the predominant field, encompassing 53 freelancers (41.1%). This commanding presence underscores the pivotal position of digital and technology-centered operations throughout Ukraine's freelance economy. Such dominance correlates closely with the pronounced representation of ICT-related educational credentials identified within the surveyed cohort.

Technical Engineering follows with 14 respondents (10.9%), while Creative and Multimedia accounts for 13 respondents (10.1%), and Professional Services comprises 11 respondents (8.5%). Collectively, these domains signal considerable freelancer engagement in technical, artistic, and advisory capacities - activities characteristically dependent upon specialized knowledge and project-oriented work structures.

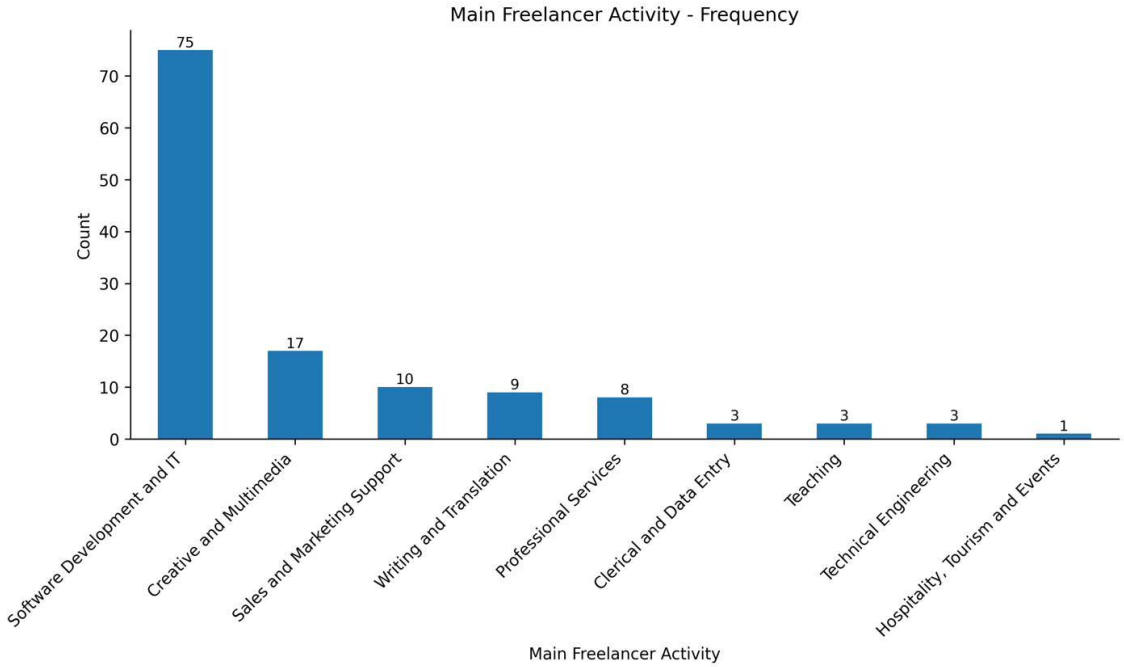

Figure 10. Main area of freelancer activity distribution (bar chart).

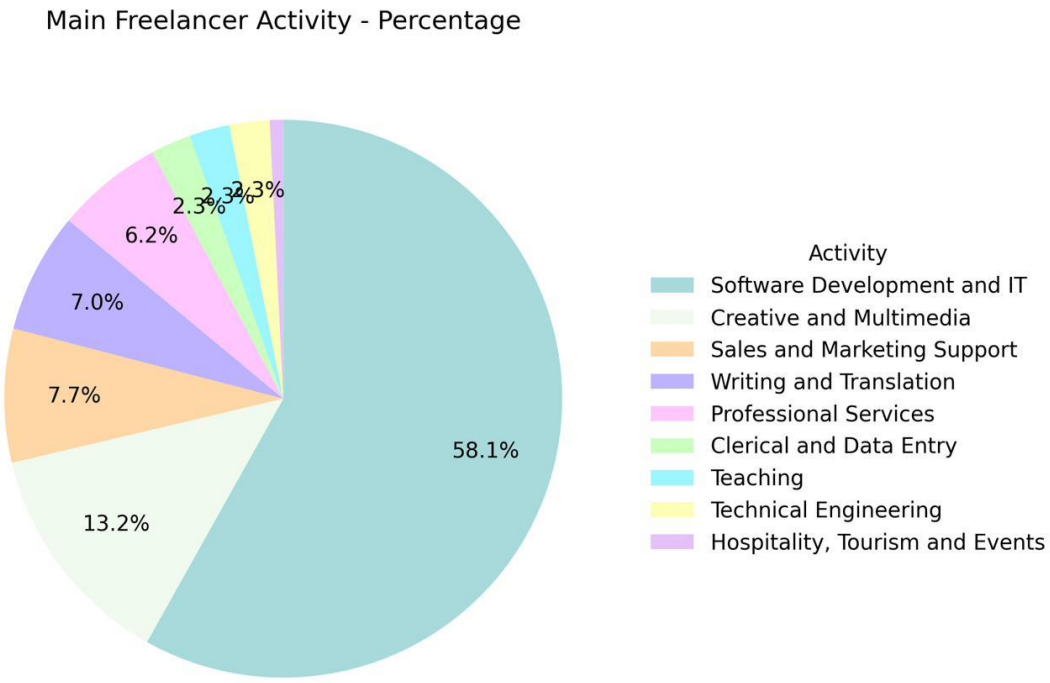

Figure 11. Main area of freelancer activity distribution (pie chart).

Teaching claims 10 respondents (7.8%), with Writing and Translation representing 9 respondents (7.0%). Sales and Marketing Support registers 7 respondents (5.4%), while Clerical and Data Entry captures 4 respondents (3.1%). These fields reflect more focused or task-specific market segments within the broader freelance ecosystem.

The distribution's lower range includes Construction and Manual Trades at 3 respondents (2.3%), Generic / Self-Employment and Healthcare and Wellness each at 2 respondents (1.6%), and Hospitality, Tourism and Events at 1 respondent (0.8%). Such categories form peripheral components of the sample population.

In summary, Ukrainian freelancing demonstrates pronounced orientation toward IT and software development domains, supported by meaningful participation from technical engineering, creative industries, and professional advisory services. Minimal presence within manual labour, administrative, hospitality, or healthcare sectors indicates that the Ukrainian freelance market - as reflected in this investigation - concentrates heavily within digital and intellectually demanding spheres. This activity composition furnishes critical foundation for understanding competency expectations, capability deficits, and training priorities examined throughout subsequent analytical sections.

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 considerable variation in client engagement patterns, ranging from freelancers serving no clients to those managing hundreds of relationships annually.

The most frequent categories cluster at the lower end of the client spectrum. The modal category is 2 clients, reported by 19 respondents (14.7%), followed by 3 clients, reported by 15 respondents (11.6%), 1 client, reported by 12 respondents (9.3%), and 4 clients, reported by 11 respondents (8.5%). Together, these four categories account for 44.1% of the sample, indicating that nearly half of Ukrainian freelancers worked with four or fewer clients during the previous year.

This concentration suggests a greater prevalence of deeper client relationships, project continuity, or engagement in long-term contracts rather than high-volume,

short-term assignments. This distribution is typical for specialised services, long-term cooperation, or part-time freelancing assignments where professionals maintain a limited number of significant client engagements.

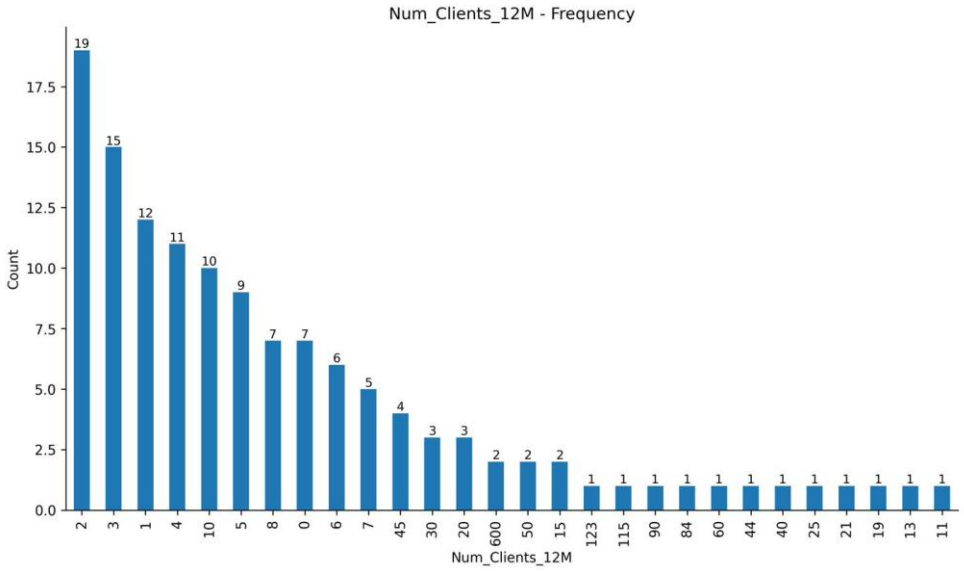

Figure 12. Number of clients in the past 12 months (bar chart).

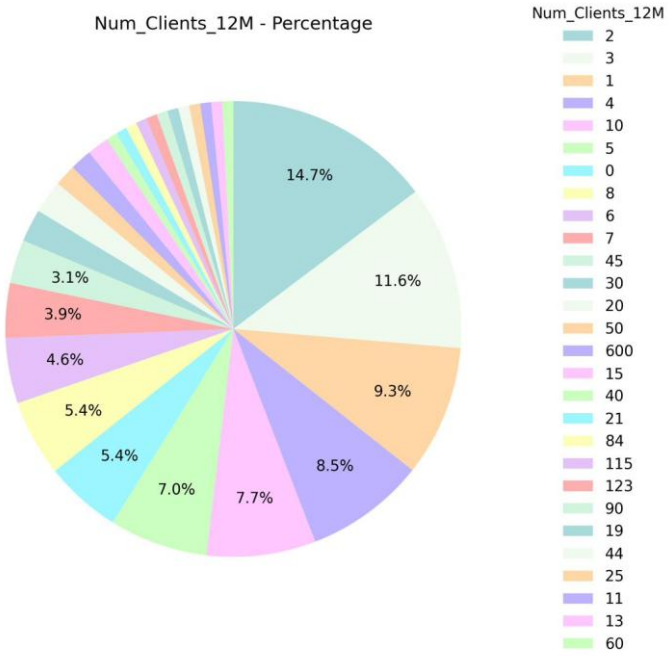

Figure 13. Number of clients in the past 12 months (pie chart).

Mid-range client counts show moderate representation. Categories such as 5 clients (9 respondents; 7.0%), 8 clients (7 respondents; 5.4%), 10 clients (10 respondents; 7.8%), and 6 clients (6 respondents; 4.7%) indicate freelancers managing multiple simultaneous client relationships, potentially balancing recurring projects with new engagements.

Notably, 7 respondents (5.4%) report serving 0 clients in the past 12 months, suggesting inactive freelancers, those in transition phases, or individuals who identify as freelancers but did not secure work during the reference period. This category highlights that not all self-identified freelancers maintain continuous client engagement.

At the upper end of the distribution, a small number of respondents report very high client counts: 45 clients (4 respondents; 3.1%), 50 clients (2 respondents; 1.6%), and exceptionally high volumes such as 600 clients (2 respondents; 1.6%). These cases likely represent platform-based freelancers conducting high-volume, short-duration tasks or micro-services, platform sellers, or aggregators managing numerous small transactions rather than traditional consultancy relationships.

The client-volume profile shows that the Ukrainian freelance market, as captured in this survey, exhibits substantial heterogeneity: most freelancers maintain low to moderate client diversification, while a small subset operates at extremely high volumes. This distributional pattern provides important context for interpreting income stability, workload intensity, competence utilisation, and client relationship management challenges examined in subsequent analyses.

1.1.8 Freelancers' job acquisition channels

This section analyses the mechanisms Ukrainian freelancers employ to locate and obtain professional engagements. Respondents could indicate multiple job-sourcing methods, therefore the documented frequencies and percentages represent each channel's relative significance rather than discrete categories. The aggregate channel selections (N = 222) surpass the respondent count (N = 129), demonstrating that freelancers commonly utilize several avenues simultaneously for work acquisition.

Findings reveal that personal contacts constitute the predominant job-sourcing mechanism, indicated by 60 respondents (27.0% of aggregate selections). This outcome underscores the centrality of informal networks, relationship-based trust, and word-of-mouth recommendations within Ukraine's freelance marketplace, aligning with dynamics characteristic of relationship-oriented economic systems.

Social networks represent the second most prominent channel, reported by 53 respondents (23.9%), closely followed by digital labour platforms with 52 respondents (23.4%). Together, these three channels account for 74.3% of all reported pathways, indicating that Ukrainian freelancers rely primarily on personal networks, social media visibility, and platform-mediated work arrangements.

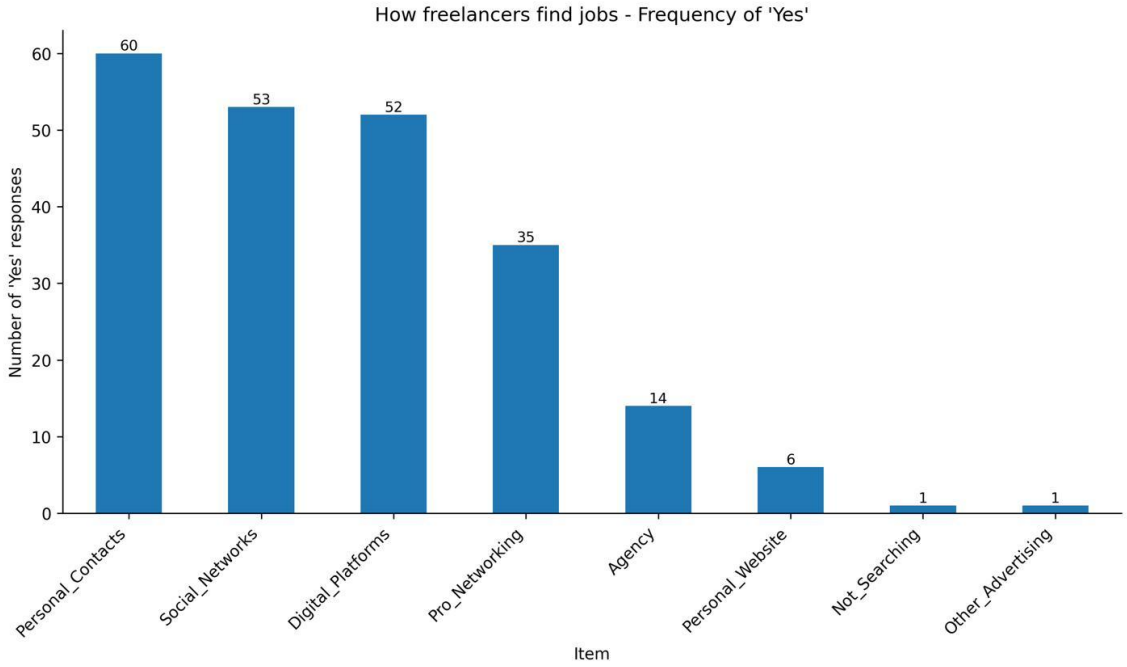

Figure 14. Freelancers' job acquisition channels (bar chart).

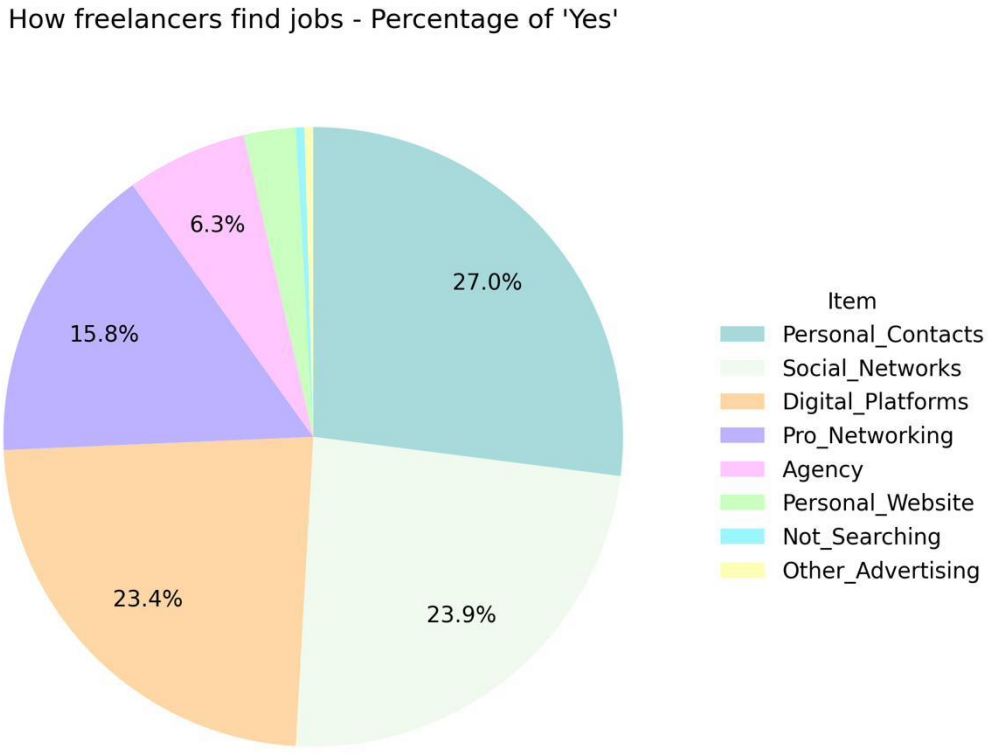

Figure 15. Freelancers' job acquisition channels (pie chart).

35 respondents (15.8%) selected professional networking platforms, indicating meaningful but secondary reliance on formalised professional networks such as LinkedIn to access opportunities. Agencies account for 14 selections (6.3%). At the same time, personal websites are reported only 6 times (2.7%), suggesting that formal intermediation and self-managed online branding play relatively minor roles compared to network-driven and platform-based mechanisms.

Minimal selections are observed for categories such as not actively searching for new clients (1 selection; 0.5%) and other advertising methods (1 selection; 0.5%), indicating negligible reliance on these pathways.

In summary, the distribution of job acquisition approaches indicates that freelancing in Ukraine is primarily shaped by a combination of personal relationships, social media presence, and engagement with digital platforms, with professional networks serving as complementary mechanisms. This observation gives the input for interpreting competence development priorities, particularly regarding networking skills, online visibility strategies, and platform optimisation capabilities examined in subsequent sections of the report.

1.1.9 Digital labour platforms used to find jobs

This section analyses Ukrainian freelancers' utilization of digital labour platforms for work acquisition. Of the 129 survey respondents, 48 individuals (37.2%) indicated engagement with digital labour platforms. The frequencies and percentages reported herein are therefore computed against this platform-using subgroup rather than the complete sample.

Within the cohort of freelancers utilizing digital platforms, Upwork represents the predominant service, employed by 38 respondents (79.2% of platform users). This substantial prevalence demonstrates Upwork's standing as the foremost international marketplace for Ukrainian freelance engagement, presumably reflecting its established credibility, payment processing capabilities, and reach to target clientele.

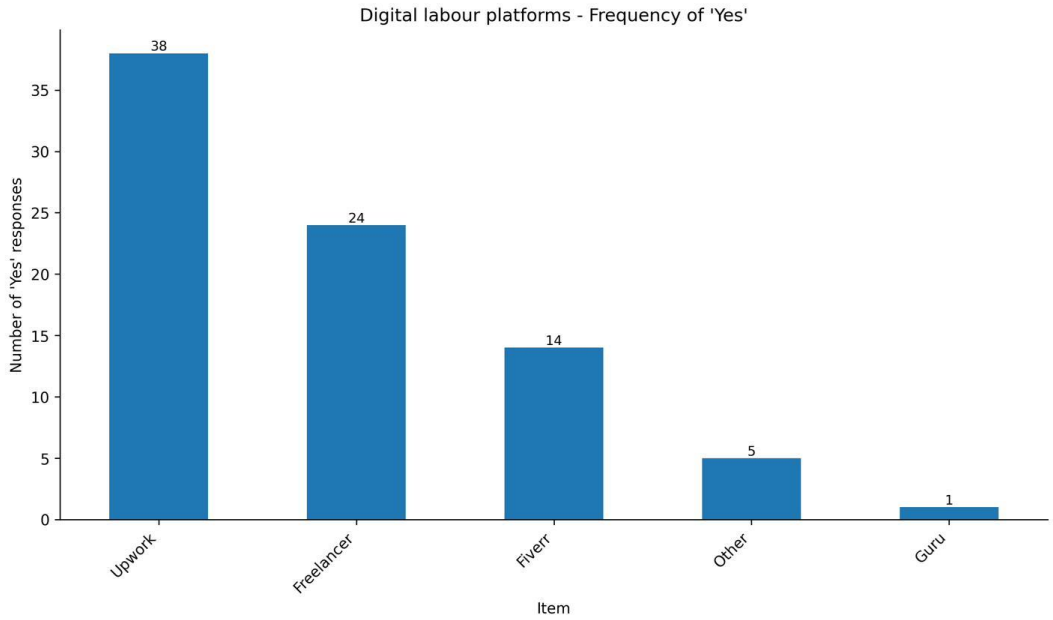

Figure 16. Digital labour platforms used by freelancers (bar chart).

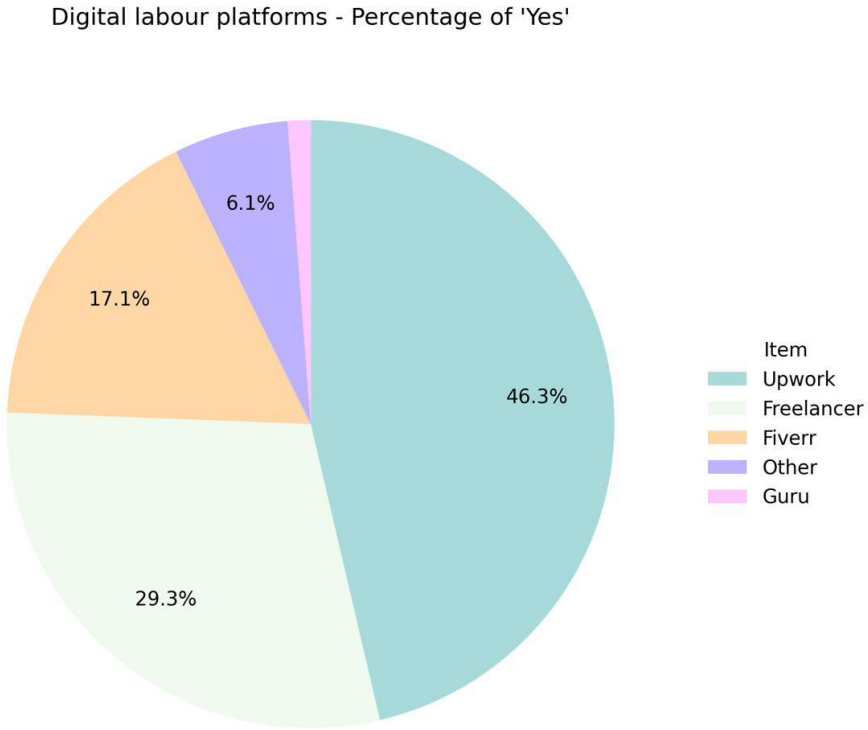

Figure 17. Digital labour platforms used by freelancers (pie chart).

The second-most-common platform is Freelancer, reported by 24 respondents (50.0% of platform users). Although less prevalent than Upwork, Freelancer still has

substantial adoption, indicating that half of platform-using freelancers use multiple services to diversify their client-acquisition channels.

Fiverr is used by 14 respondents (29.2%), ranking third among platforms. Fiverr's task-based, gig-oriented structure appeals to freelancers offering standardised services or shorter-duration projects. Five respondents (10.4%) report using other platforms not explicitly listed, while Guru is mentioned by only 1 respondent (2.1%).

Notably, 62.8% of the total sample (81 respondents) do not use any digital labour platforms, indicating that nearly two-thirds of Ukrainian freelancers rely entirely on alternative channels, such as personal networks, social media, or direct client relationships. This pattern suggests that platform-mediated work, while significant among adopters, is not the dominant model for the majority of Ukrainian freelancers.

In summary, the results show that digital labour platform use among Ukrainian freelancers is concentrated among a minority of respondents, and that Upwork and Freelancer dominate this use. This finding provides important context for interpreting competition intensity, platform dependency, algorithmic navigation skills, and digital visibility strategies relevant to platform-based freelancing, which are examined in subsequent sections of the report.

1.1.10 Social networks used to find jobs

This subsection analyses the social networks Ukrainian freelancers use to find work opportunities. It should be noted that 53 out of the 129 respondents (41.1%) 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 the full sample.

Within this subgroup, LinkedIn and Facebook emerge as equally dominant platforms, each used by 22 respondents (41.5% of social network users). This parity indicates that Ukrainian freelancers leverage both professional-oriented networks (LinkedIn) and broader social media platforms (Facebook) with comparable frequency. LinkedIn's prominence reflects its role in formal professional networking,

while Facebook's equal standing suggests the importance of informal community-based groups and personal relationship networks in the Ukrainian context.

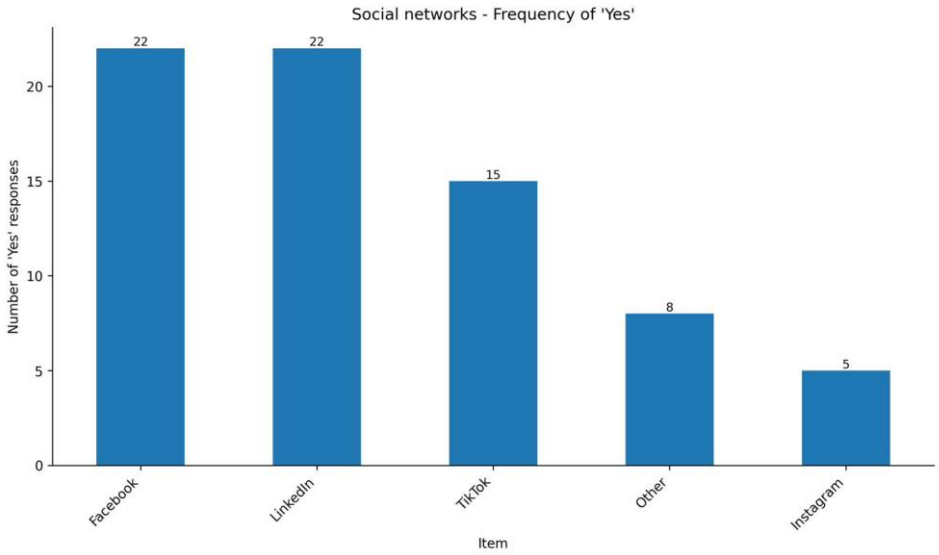

Figure 18. Social networks used by freelancers to find jobs (bar chart).

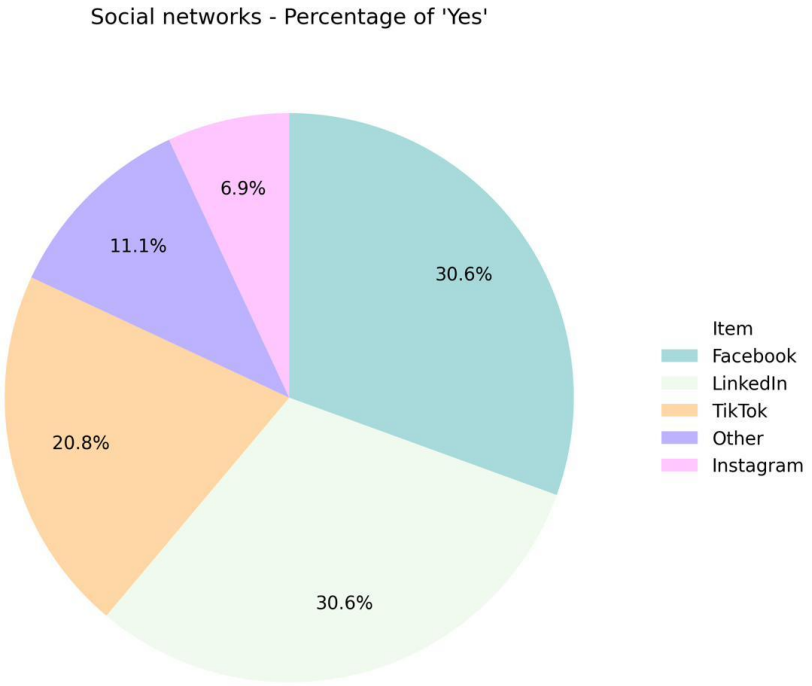

Figure 19. Social networks used by freelancers to find jobs (pie chart).

15 respondents (28.3%) reported using TikTok, indicating substantial adoption of this video-based platform for professional purposes. This finding suggests that some

Ukrainian freelancers, particularly those in creative, content-driven, or younger demographic segments, utilise TikTok to showcase skills, build personal brands, or access client networks.

Eight respondents (15.1%) report using other social networks not explicitly listed, while Instagram is mentioned by 5 respondents (9.4%). Instagram's lower adoption compared to TikTok may reflect sector-specific preferences or generational differences in platform usage.

Notably, 58.9% of the total sample (76 respondents) do not use social networks for job acquisition, indicating that the majority of Ukrainian freelancers rely on alternative channels, such as direct personal contacts, digital labour platforms, or professional networking services.

Overall, the distribution indicates that social network usage for job acquisition is concentrated within approximately two-fifths of Ukrainian freelancers, with LinkedIn and Facebook serving as co-dominant platforms. The notable presence of TikTok suggests evolving patterns of professional visibility strategies, particularly among younger or creative-sector freelancers. This pattern provides important context for interpreting digital marketing capabilities, personal branding strategies, and social media proficiency requirements examined in subsequent sections of the report.

1.1.11 Freelancers' anticipated near-term challenges

This subsection analyses the near-term challenges highlighted by Ukrainian freelancers. Respondents were allowed to select multiple challenges, yielding 353 selections across 129 respondents. Consequently, the frequencies and percentages reflect the relative prominence of each challenge among all selected options, rather than mutually exclusive categories.

The most frequently anticipated challenge concerns maintaining consistent income, selected 83 times (23.5%). This overwhelming prominence highlights financial instability as the primary concern among Ukrainian freelancers, reflecting the inherent income volatility of project-based work, client payment uncertainties, and the lack of guaranteed earnings characteristic of independent professional arrangements.

The second most prominent challenge involves keeping up with evolving skills, trends, and technologies, reported 72 times (20.4%). This finding underscores freelancers' recognition that continuous professional development and technological adaptation are essential for maintaining competitiveness in rapidly changing markets.

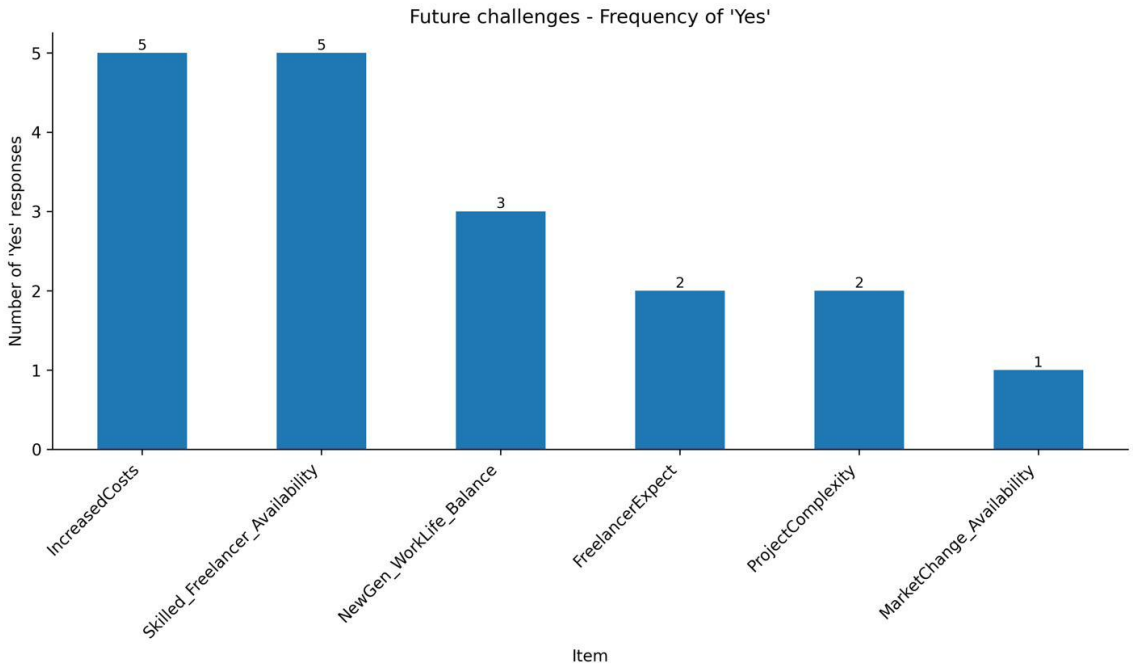

Figure 20. Freelancers' anticipated near-term challenges (bar chart).

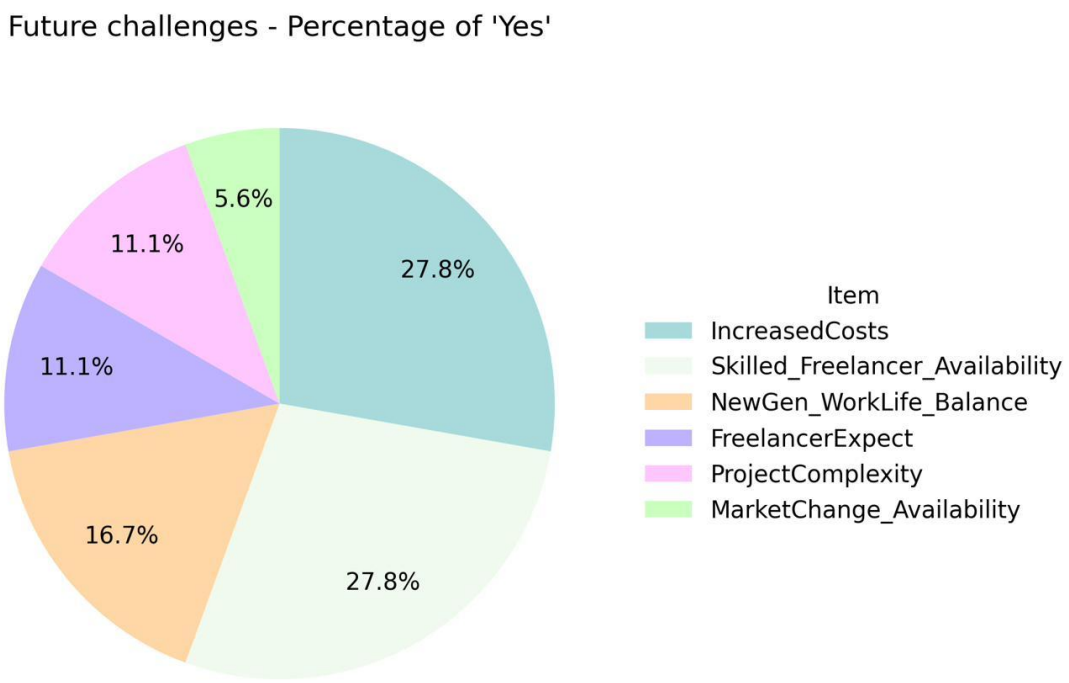

Figure 21. Freelancers' anticipated near-term challenges (pie chart).

Market changes and demand fluctuations are selected 64 times (18.1%), indicating concerns about external market dynamics beyond individual control. Customer expectations and contract negotiations are reported 45 times (12.7%), while increasing project complexity accounts for 44 selections (12.5%). Maintaining resilience and self-discipline was selected 42 times (11.9%).

Notably, challenges related to competition and market access receive minimal attention (2 selections; 0.6%), as do concerns about AI and automation (1 selection; 0.3%). This pattern suggests that Ukrainian freelancers perceive operational and financial challenges as more pressing than technological disruption or competitive pressure.

Overall, the results indicate that Ukrainian freelancers anticipated near-term challenges are primarily centred on income stability, skill development, and market adaptation, rather than technological displacement or intensified competition. This priority structure provides important context for designing training interventions and support mechanisms that address freelancers' most pressing concerns, as examined in subsequent sections of the report.

1.1.12 Freelancers' perceived drivers of freelancing growth

This subsection examines Ukrainian freelancers' perceptions of the factors driving the growth of freelancing. Respondents were allowed to select multiple drivers, resulting in 321 total selections across 129 respondents. The frequencies and percentages presented reflect the relative importance of each factor among all selected options.

The most frequently identified growth driver is business flexibility and scalability, selected 82 times (25.5%). This prominence indicates that freelancers recognise organisational demands for adaptable workforce solutions as a fundamental catalyst for the expansion of the freelance market. Companies' desire to scale operations efficiently without permanent staffing commitments drives demand for independent professionals.

Technological advances are reported 73 times (22.7%), reflecting recognition that digital infrastructure, communication platforms, and remote collaboration tools enable geographically distributed freelance work. Globalisation and remote work opportunities account for 59 selections (18.4%), indicating awareness that international market access expands freelance possibilities beyond local economic constraints.

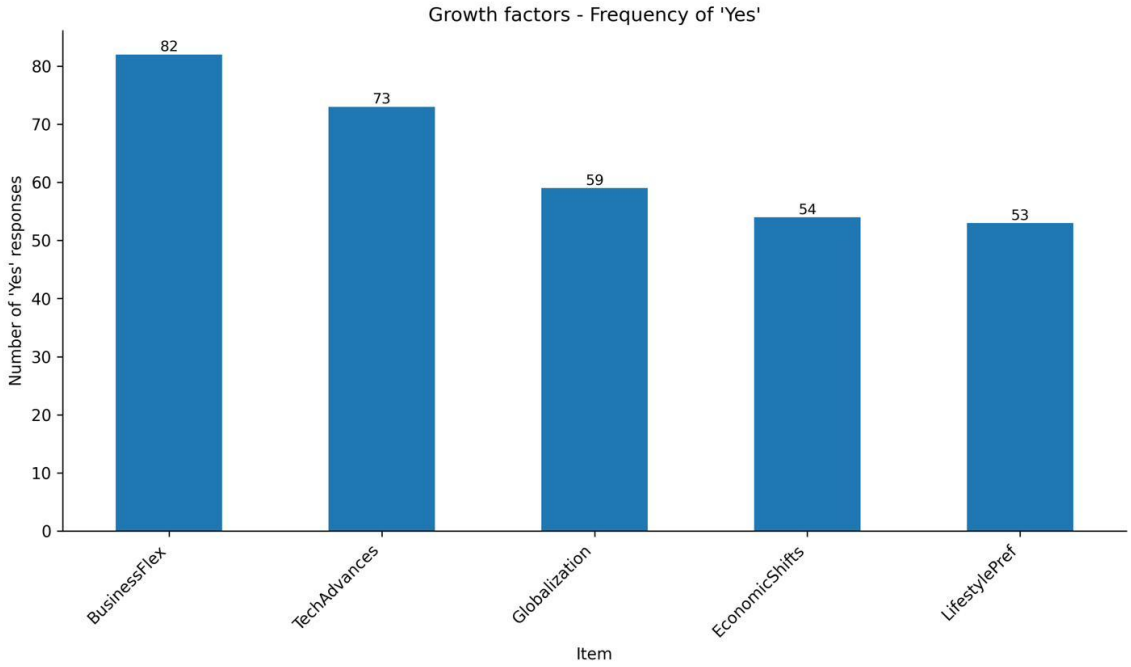

Figure 22. Freelancers' perceived drivers of freelancing growth (bar chart).

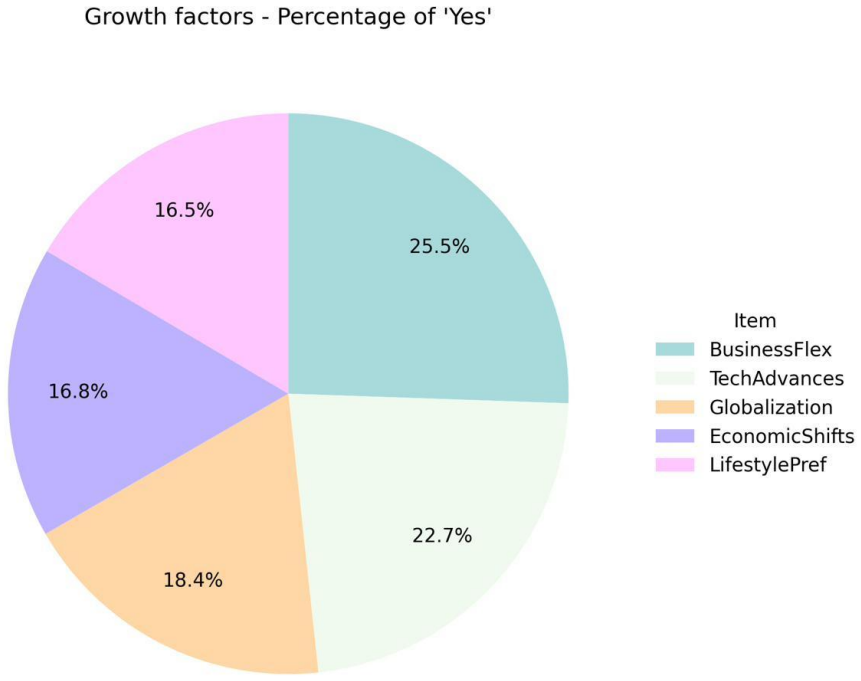

Figure 23. Freelancers' perceived drivers of freelancing growth (pie chart).

Economic shifts and cost pressures are selected 54 times (16.8%), suggesting that freelancers recognise that economic uncertainties incentivise both organisations to reduce fixed labour costs and individuals to pursue independent income streams. Lifestyle preferences and work-life balance are reported 53 times (16.5%), indicating recognition that personal autonomy, schedule flexibility, and quality-of-life considerations motivate freelance career choices.

Overall, the distribution indicates that Ukrainian freelancers perceive growth in freelancing as driven by a combination of organisational flexibility needs, technological enablement, economic pressures, and individual lifestyle preferences. This multi-dimensional understanding suggests sophisticated awareness of market dynamics and provides important context for interpreting freelancers' strategic positioning and professional development priorities examined in subsequent sections of the report.

1.1.13 Freelancers' perceptions of the future of freelancing

This subsection examines Ukrainian freelancers' overall perceptions regarding the future trajectory of freelancing as a work arrangement. The distribution reveals moderately optimistic but cautiously balanced sentiments.

The largest group expresses a neutral outlook, comprising 47 respondents (36.4%). This substantial proportion indicates that more than one-third of Ukrainian freelancers adopt a wait-and-see perspective, neither particularly optimistic nor pessimistic about prospects. Such neutral positioning may reflect uncertainty about economic conditions, market evolution, or personal career trajectories.

Somewhat optimistic respondents account for 43 individuals (33.3%), while very optimistic freelancers represent 24 individuals (18.6%). Together, these two categories indicate that 51.9% of respondents hold positive expectations about freelancing's future, suggesting overall confidence in the sustainability and growth potential of independent work arrangements.

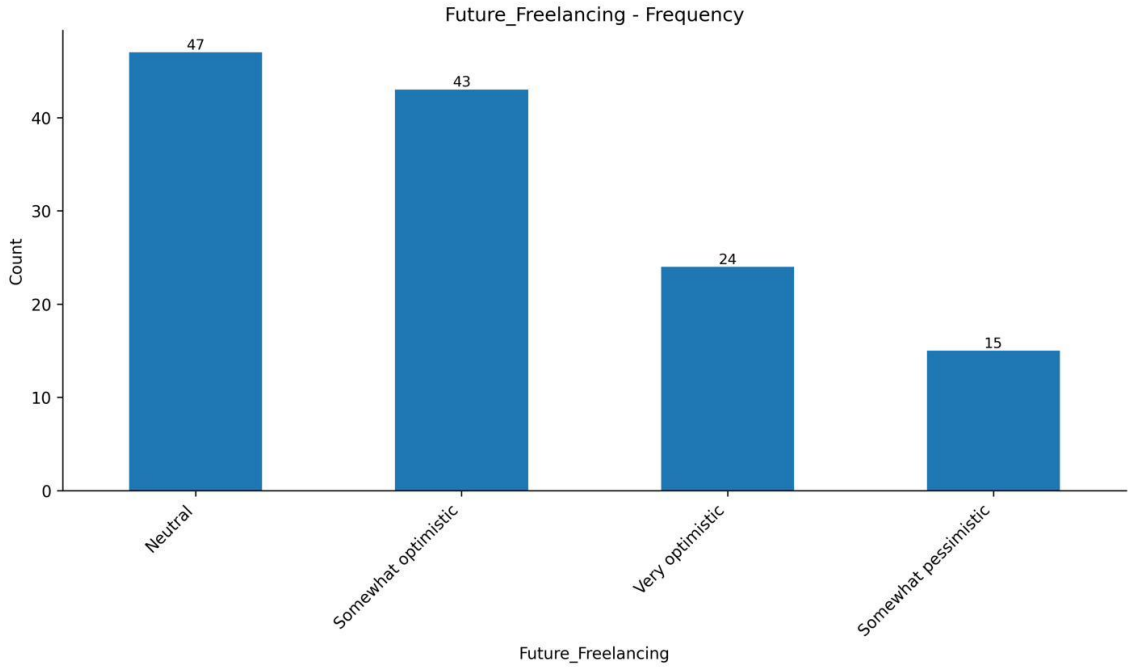

Figure 24. Freelancers' perceptions of the future of freelancing (bar chart).

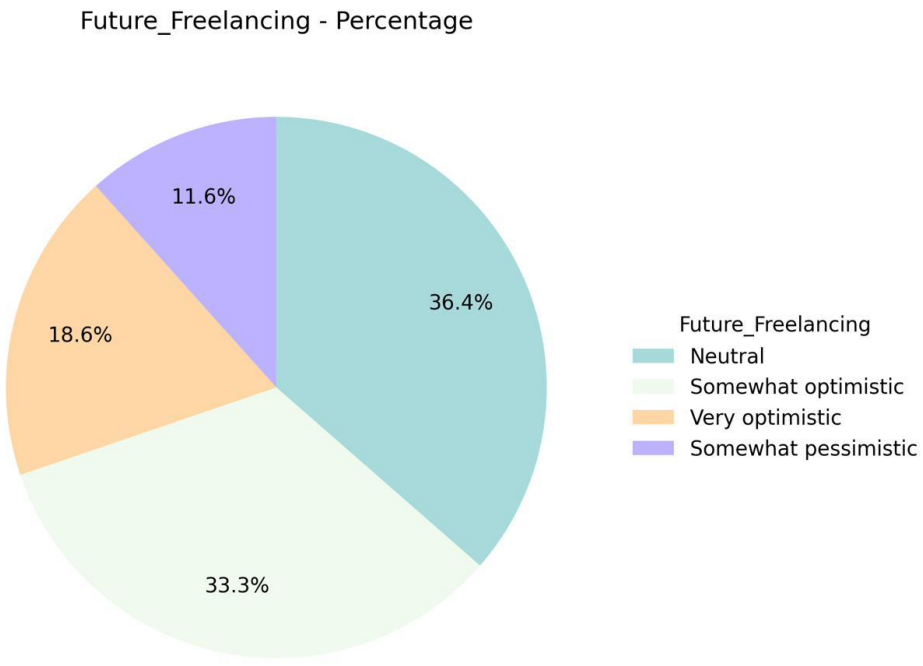

Figure 25. Freelancers' perceptions of the future of freelancing (pie chart).

In contrast, 15 respondents (11.6%) express somewhat pessimistic views. This minority indicates limited but notable concern about future challenges, income stability, or market conditions. No respondents selected the very pessimistic category, suggesting that extreme negativity about freelancing's prospects is absent from the sample.

Overall, the sentiment distribution indicates that Ukrainian freelancers maintain moderately optimistic but measured expectations about the future of freelancing, with neutral outlooks representing the plurality. This balanced perspective provides important context for interpreting investment in skill development, AI adoption patterns, and strategic career planning examined in subsequent sections of the report.

1.1.14 Freelancers' expected future use of AI

This subsection examines Ukrainian freelancers' anticipated frequency of AI tool usage in their future work. The distribution reveals substantial variation in expected adoption patterns, with the majority anticipating regular engagement.

The largest category is freelancers who expect to use AI regularly, comprising 51 respondents (39.5%). This plurality indicates that two-fifths of Ukrainian freelancers anticipate integrating AI tools into their professional workflows as routine elements, suggesting strong recognition of AI's potential to enhance productivity, automate tasks, and augment capabilities.

36 respondents (27.9%) anticipate occasional AI use, while 35 respondents (27.1%) expect frequent (often) use. Together with regular users, these three categories account for 94.6% of the sample, indicating widespread expectation that AI will play at least some role in future freelance work.

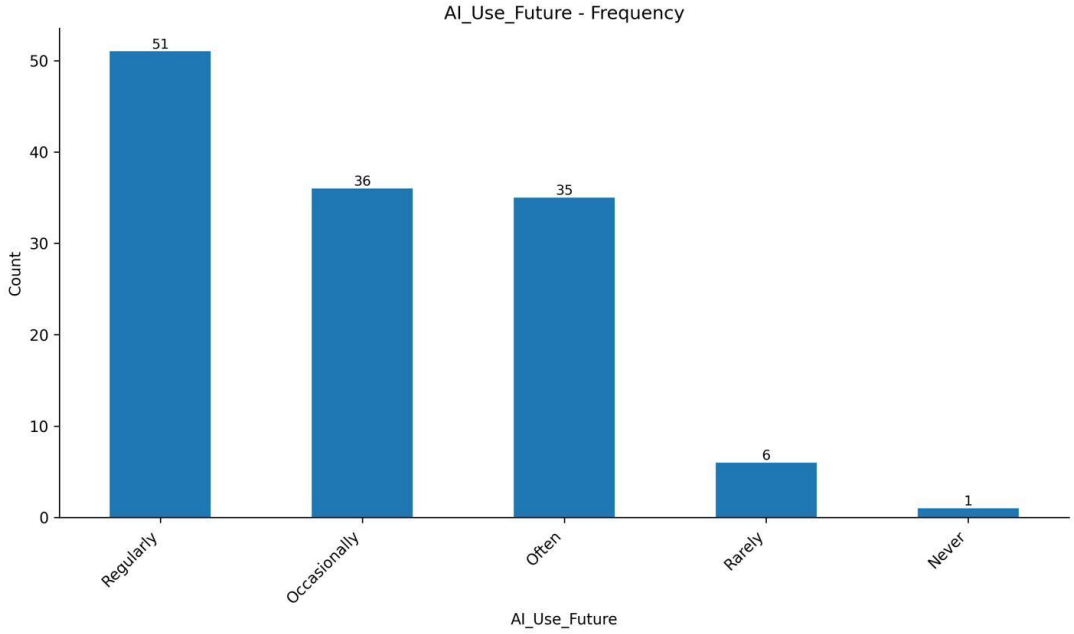

Figure 26. Freelancers' expected future use of AI (bar chart).

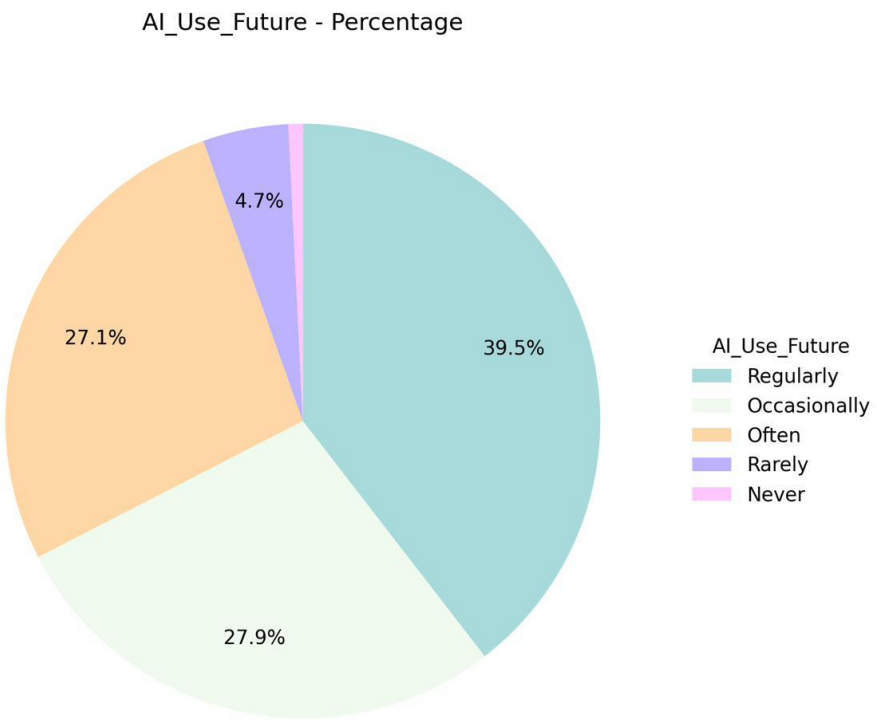

Figure 27. Freelancers' expected future use of AI (pie chart).

In contrast, only 6 respondents (4.7%) expect to use AI rarely, and 1 respondent (0.8%) anticipates never using AI tools. These minimal proportions indicate that rejection or avoidance of AI is extremely uncommon among Ukrainian freelancers, suggesting broad acceptance of technological integration.

Overall, the distribution indicates strong anticipated AI adoption among Ukrainian freelancers, with nearly 95% expecting at least occasional usage. This widespread technological optimism provides important context for interpreting AI-related competence requirements, training needs, and strategic adaptation patterns examined in subsequent sections of the report.

1.1.15 Investment in upskilling and reskilling by freelancers

This subsection analyses the frequency with which Ukrainian freelancers use upskilling and reskilling as part of their professional development efforts. The distribution reveals moderate but not uniform commitment to continuous learning within the freelance workforce.

The largest category comprises freelancers who occasionally invest in upskilling, with 46 respondents (35.7%). This plurality indicates that more than one-third of Ukrainian freelancers engage in periodic rather than continuous skill development, potentially driven by project requirements, emerging market demands, or episodic learning opportunities.

Frequent (often) investment in upskilling is reported by 27 respondents (20.9%), while regular investment is reported by 25 respondents (19.4%). Together, these two categories account for 40.3% of the sample, indicating that two-fifths of freelancers maintain relatively structured, recurring engagement with professional development activities.

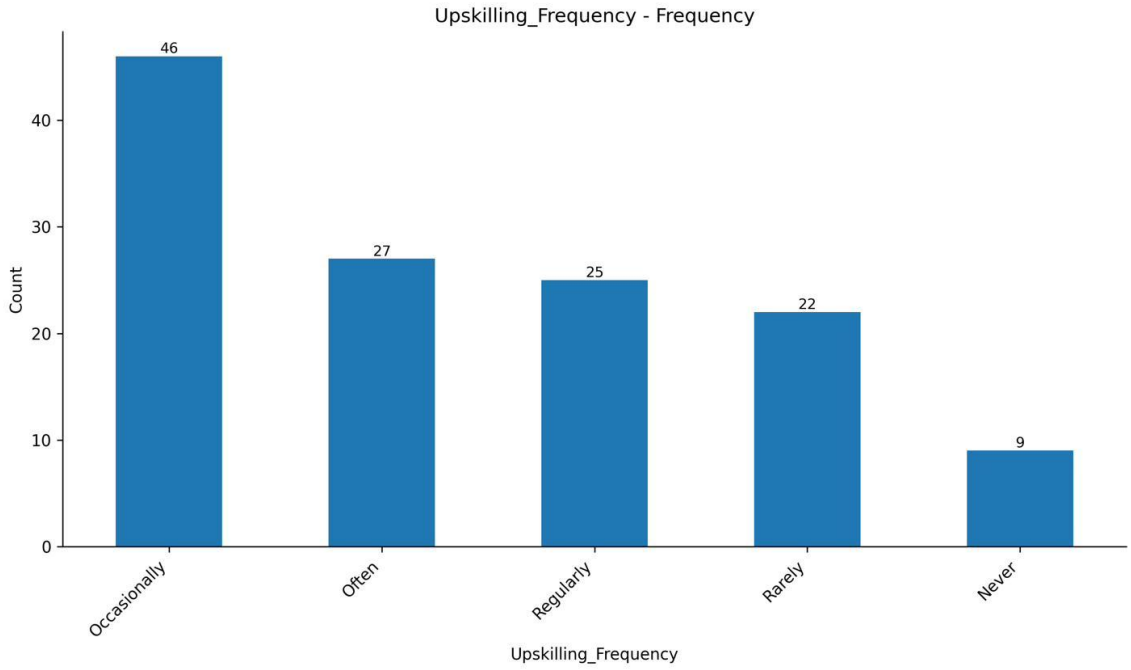

Figure 28. Freelancers' investment in upskilling and reskilling (bar chart).

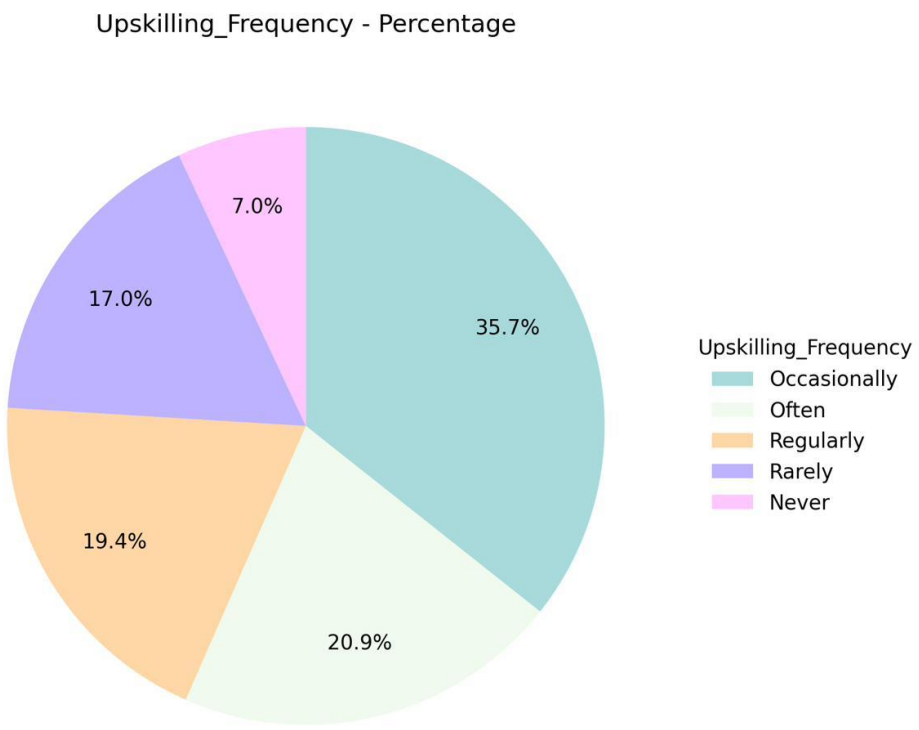

Figure 29. Freelancers' investment in upskilling and reskilling (pie chart).

At the lower end of the distribution, 22 respondents (17.1%) report rarely investing in upskilling, and 9 respondents (7.0%) indicate they never invest in such activities. Together, these categories account for 24.0% of the sample, suggesting that approximately one-quarter of Ukrainian freelancers exhibit minimal active engagement in formal skill development.

Overall, the findings show that 76.0% of Ukrainian freelancers invest in upskilling at least occasionally, indicating the majority recognition of the importance of continuous learning. However, the substantial proportion engaging only occasionally or rarely suggests variable commitment levels and potential barriers such as time constraints, financial limitations, or lack of accessible training resources. This pattern provides important context for interpreting anticipated AI adoption, perceived competence gaps, and training needs identified in subsequent sections of the report.

1.1.16 Pathways to skill acquisition and development in freelancing

This section analyses the mechanisms by which Ukrainian freelancers obtain and enhance professional competencies. Multiple learning mechanisms could be indicated by respondents, yielding 300 aggregate selections from 129 individuals. The frequencies and percentages documented herein therefore represent each pathway's relative significance across all indicated options, rather than discrete respondent classifications.

Digital learning emerges as the predominant approach, indicated 109 times (36.3%). This commanding presence underscores the pivotal function of web-based educational formats - including online courses, instructional content, virtual seminars, and autonomous learning materials - in facilitating ongoing competency enhancement among Ukraine's freelance professionals. Digital learning's prominence corresponds with freelance work's adaptable and self-managed character while evidencing the widespread availability of internet-based educational resources.

Experiential workplace learning represents the second-most prevalent mechanism, documented 81 times (27.0%). This considerable share demonstrates that hands-on project involvement, practical problem-resolution, and task-embedded learning serve as vital channels for competency development. Such practice-based learning proves especially pertinent within rapidly evolving domains, where capabilities are cultivated through authentic application contexts rather than exclusively through conceptual instruction.

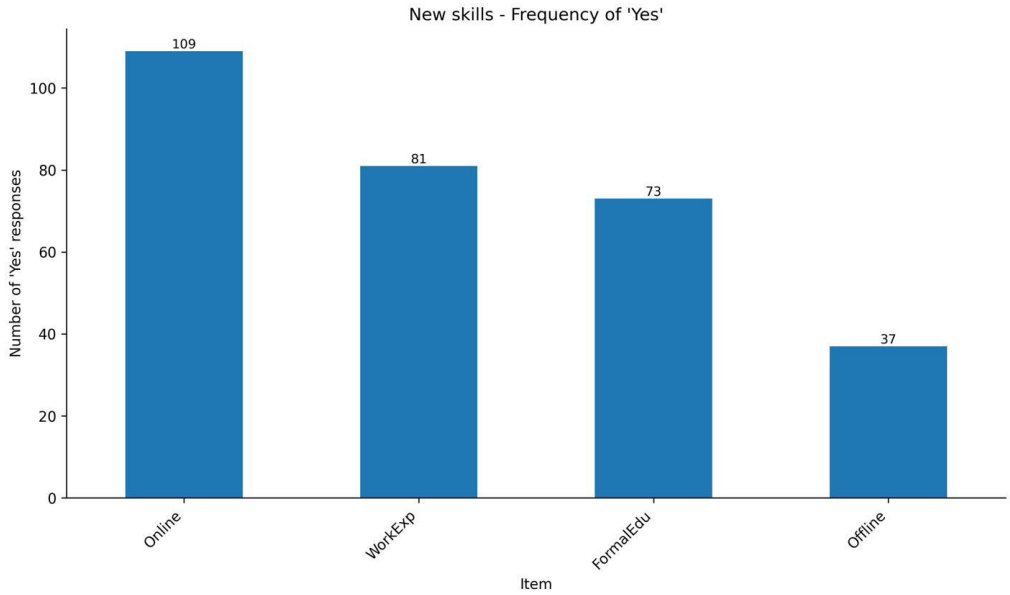

Figure 30. Pathways to skill acquisition and development in freelancing (bar chart).

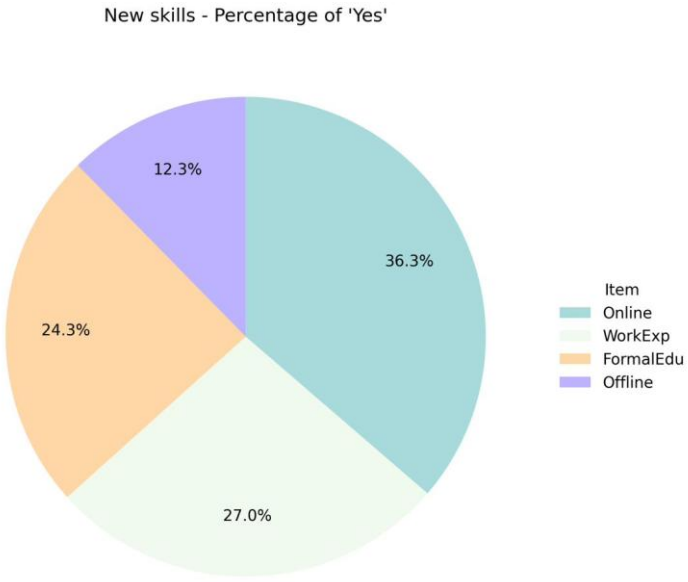

Figure 31. Pathways to skill acquisition and development in freelancing (pie chart).

Formal education was selected 73 times (24.3%), ranking third among pathways. This finding indicates that structured educational programmes, including university courses, certifications, and vocational training, remain important components of Ukrainian freelancers' skill development strategies, even though they are less prominent than online and experiential learning.

Offline learning activities, including workshops, seminars, and in-person training, account for 37 selections (12.3%). While less prevalent than other pathways, offline formats continue to play a meaningful complementary role, particularly for skills that benefit from face-to-face interaction, hands-on practice, or networking opportunities.

Overall, the distribution of learning pathways indicates that skill acquisition and development in Ukrainian freelancing are primarily driven by online and experiential learning, with formal education serving as an important supplementary mechanism and offline activities playing a more limited role. This pattern provides important context for the design of targeted training interventions. It supports the emphasis on flexible, practice-oriented, and digitally accessible learning formats examined in subsequent training-needs analyses.

1.2 Companies

This segment delivers a systematic characterization of organizational features, recruitment approaches, and strategic outlooks among the 6 Ukrainian enterprises engaged in the ENTEEF investigation. The constrained sample dimensions necessitate interpreting the descriptive findings as indicative rather than suitable for statistical extrapolation. Nevertheless, the results furnish meaningful qualitative understanding regarding client-side viewpoints on freelance employment, competency expectations, and projected labour-market trajectories.

Initial presentation addresses firms' structural attributes, encompassing their principal operational domain, organizational scale, duration of market participation, and background in recruiting freelance professionals. These parameters capture sectoral, institutional, and developmental aspects of surveyed organizations while supporting comprehension of variations in freelance engagement approaches across distinct organizational profiles.

Following sections scrutinize the categories of freelance services organizations procure, their rationales for utilizing freelance talent, and the vulnerabilities they perceive in depending upon freelance workforce arrangements. Collectively, these

elements illuminate recognized advantages and limitations of freelance utilization, yielding insight into organizational choice-making frameworks and vulnerability mitigation strategies.

The section further 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. It also 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.

In summary, this section establishes a preliminary picture of the company-side context of freelancing in Ukraine. While the small sample size limits statistical robustness, the findings provide an important foundation 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 primary area of activity, classified according to the NACE-based categories used in the ENTEEF questionnaire. Given the limited sample size (N = 6), the analysis provides contextual information on the sectoral background of participating companies.

The results indicate an intense concentration of respondents in ICT services, which account for 5 companies (83.3%) 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.

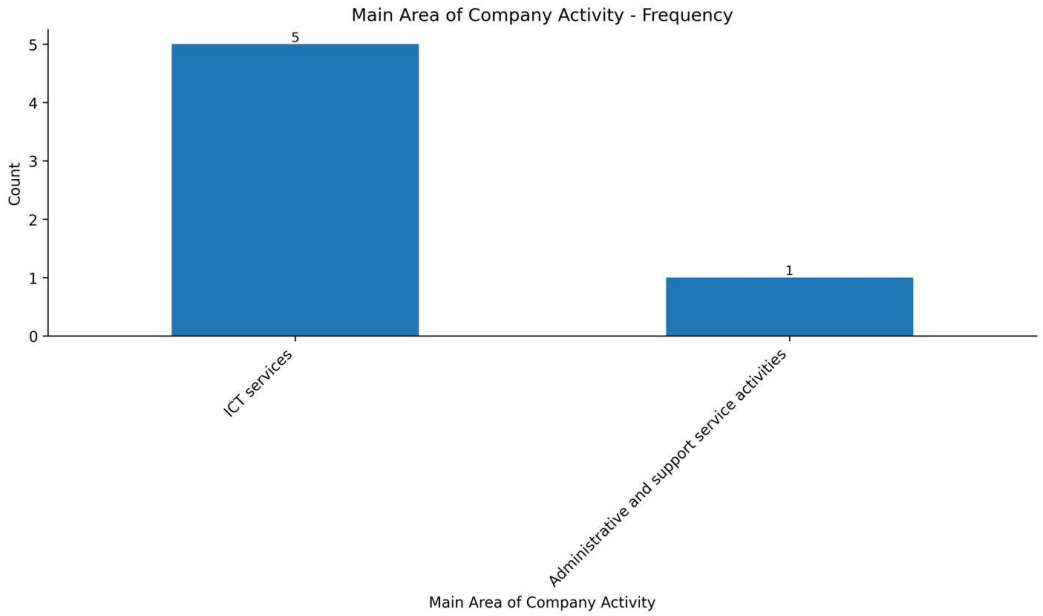

Figure 32. Main area of company activity distribution (bar chart).

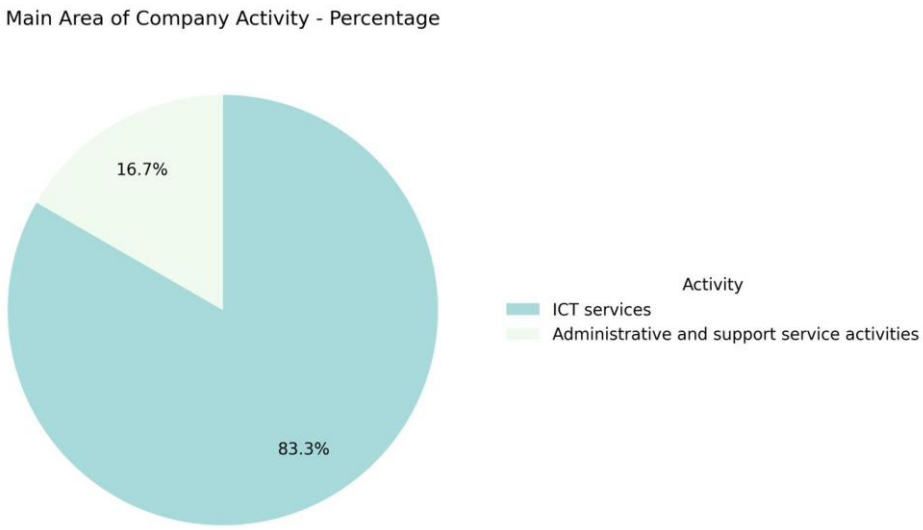

Figure 33. Main area of company activity distribution (pie chart).

The remaining company works in Administrative and support service activities. This distribution suggests that freelancer engagement extends beyond ICT into service-oriented domains, though the sample is too limited to draw definitive sector-specific conclusions.

In summary, the sectoral profile of surveyed companies suggests that the demand for freelancers in the Ukrainian context is predominantly driven by ICT-related

activities, with complementary participation from service sectors. This distribution provides important context for interpreting companies' perspectives on competence requirements, anticipated challenges, and training needs, as analysed in later sections of the report; however, findings should be interpreted cautiously given the small sample size.

1.2.2 Company size

This subsection presents the distribution of surveyed companies by size, using standard employment-size categories. The analysis provides contextual information on the organizational scale of companies participating in the study.

The results show that two micro-companies (1-9 employees) and one small company (10-49 employees) were surveyed, defining together 50% of the set. This concentration indicates that smaller organisations rely substantially on freelancers, possibly to enhance flexibility and access specialized skills without long-term staffing commitments.

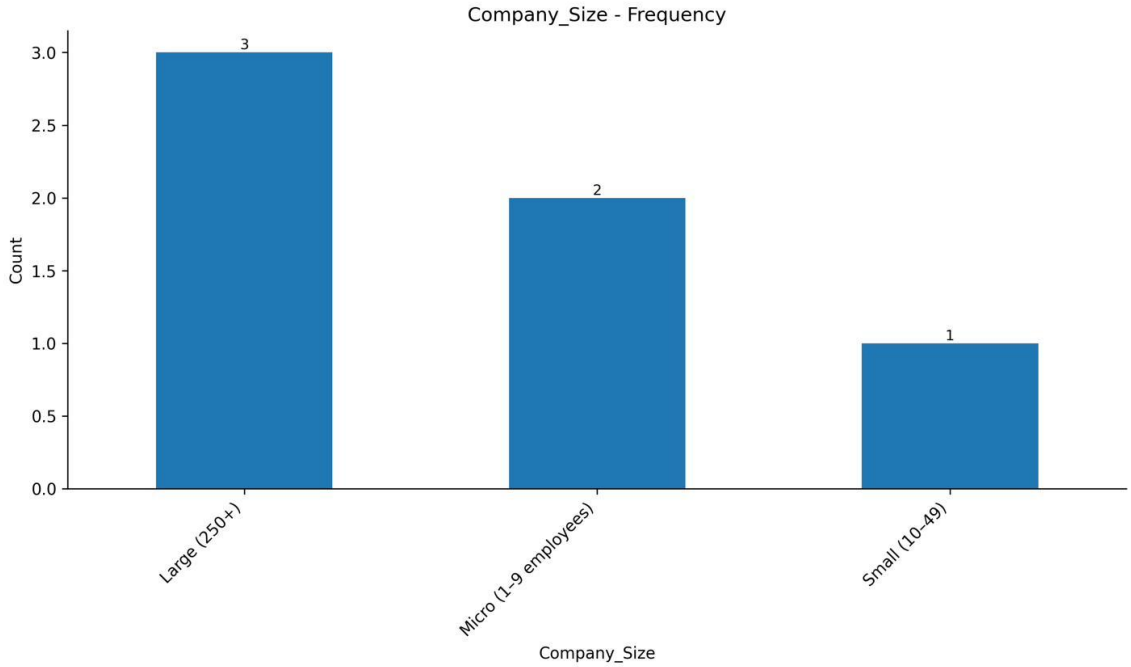

Figure 34. Company size distribution (bar chart).

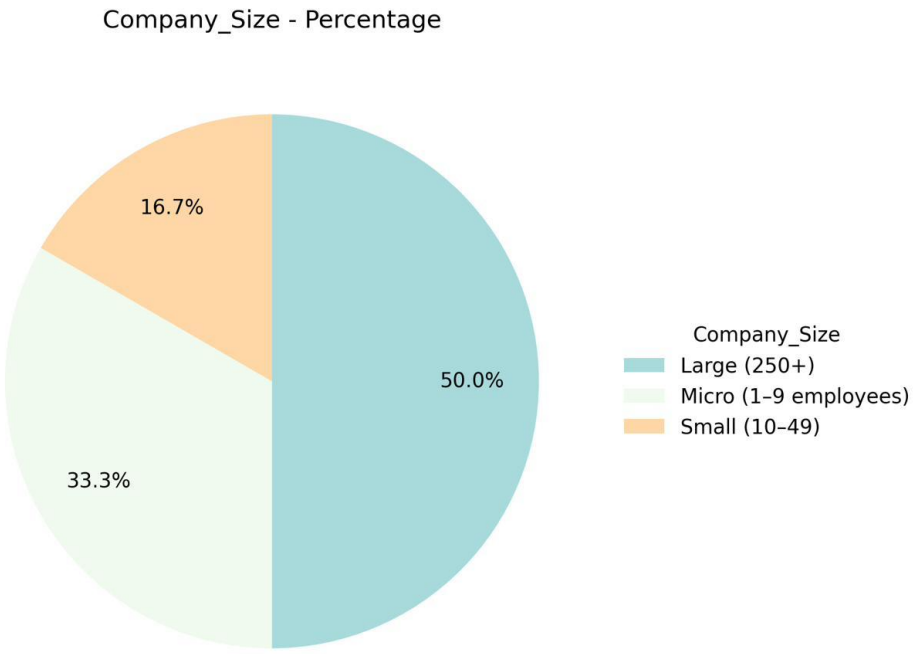

Figure 35. Company size distribution (pie chart).

Large companies (250+ employees) are each represented by 3 companies (50%). Their presence 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 Ukrainian context, as captured in this survey, involves organisations across the entire size spectrum, with a slight predominance of smaller enterprises. This distribution provides context for interpreting companies' hiring motivations, perceived risks, and anticipated challenges, though the small sample size necessitates cautious interpretation.

1.2.3 Years active on the market

This subsection presents the distribution of surveyed companies by the number of years they have been active on the market, indicating organisational maturity and market experience.

The results show considerable variation in market presence company report 5 years on the market, respectively (16.7% each), indicating relatively young firm. One company reports 31 years of activity, reflecting middle-term-standing market participation. Additional companies report 23, 16, and 10 years of market presence. And one company is active for 57 years.

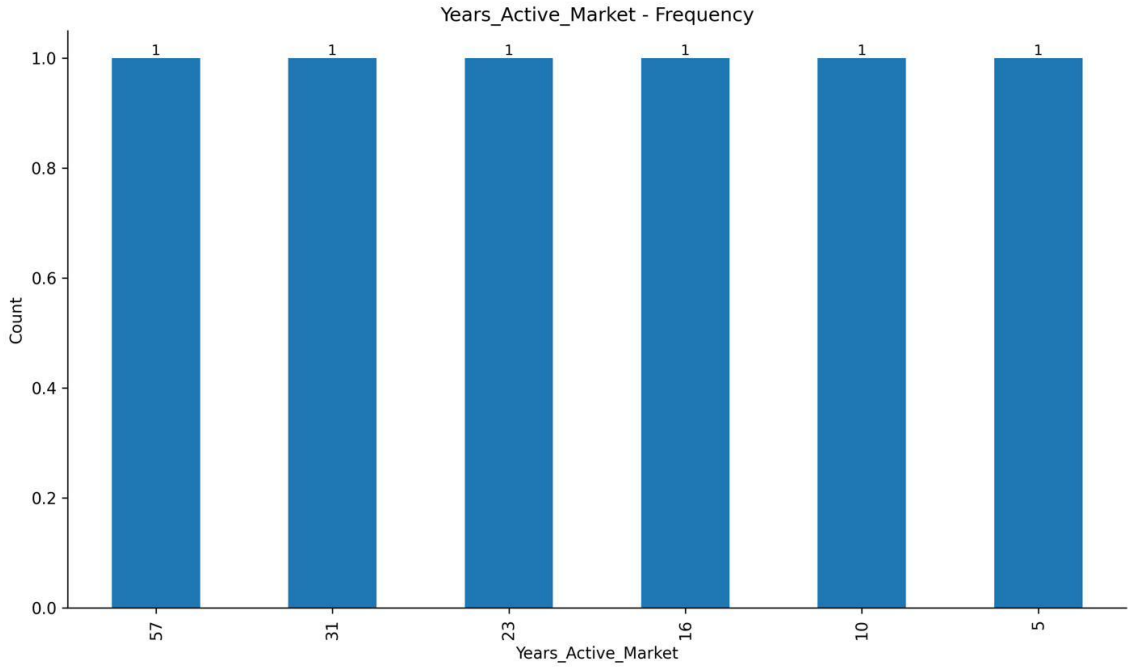

Figure 36. Companies' years active on the market (bar chart).

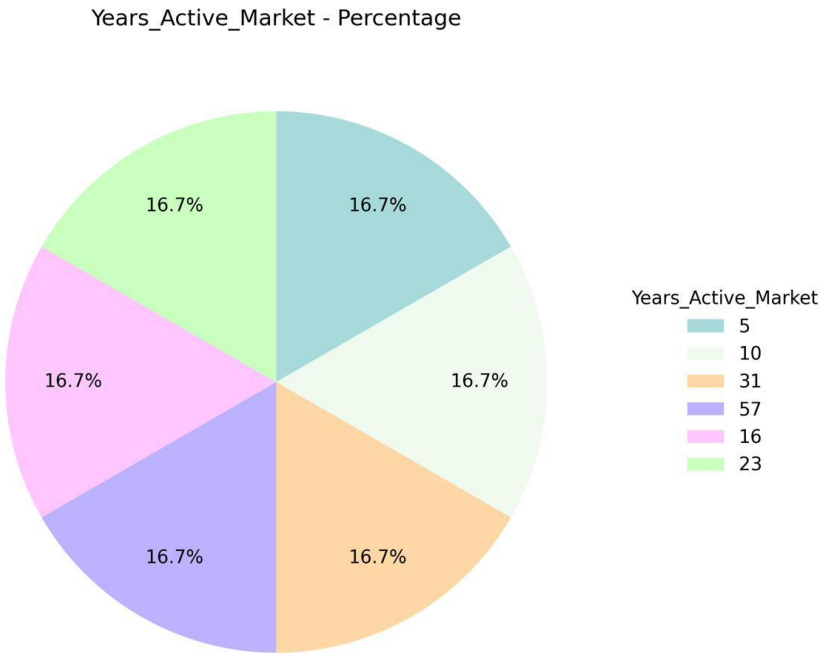

Figure 37. Companies' years active on the market (pie chart).

The range of 5 to 57 years suggests a mix of established and comparatively younger firms in the sample, indicating that companies at different maturity stages engage freelancers. This diversity provides context for interpreting varied approaches to

freelancer engagement, competence requirements, and anticipated challenges, though the limited sample size prevents definitive generalizations.

1.2.4 Years of freelancer hiring

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

The results indicate substantial variation in the hiring experience of freelancers. Some companies report hiring freelancers for 20, 23 and 30 years, respectively, indicating very long-standing practices. Additional companies report 10, 8, and 3 years of experience.

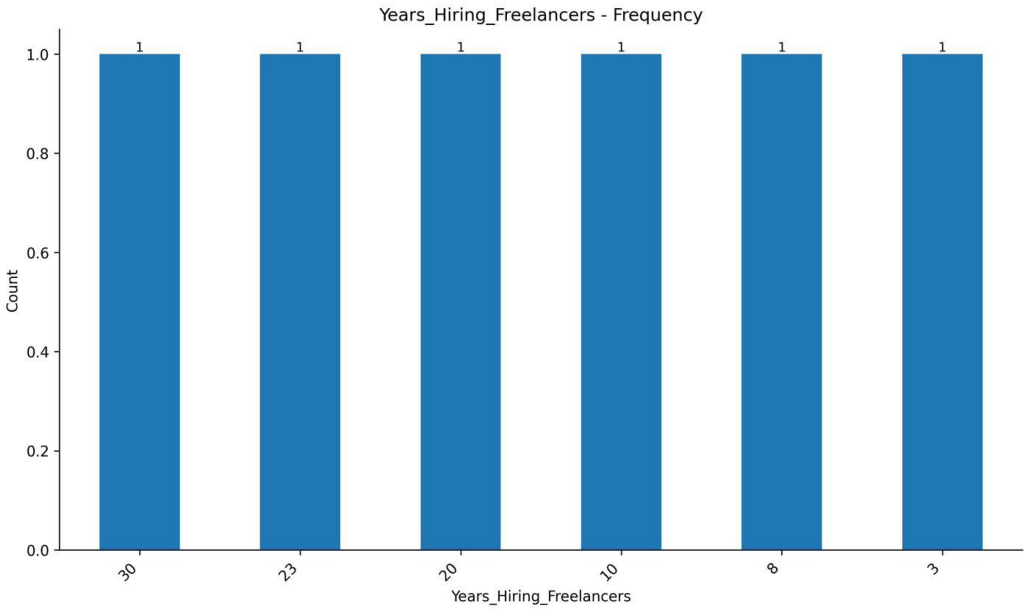

Figure 38. Companies' years of freelancer hiring (bar chart).

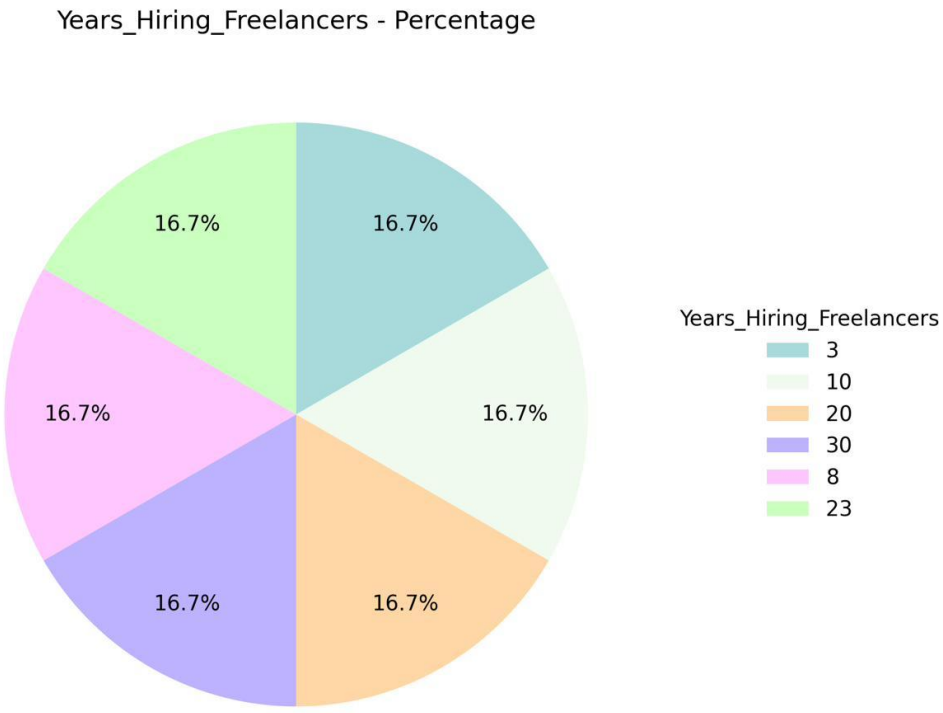

Figure 39. Companies' years of freelancer hiring (pie chart).

This range of 3 to 30 years suggests that the surveyed companies include both organisations with long-standing experience in hiring freelancers and those that have more recently adopted freelance arrangements. This variation provides context for

interpreting companies' motivations, expectations, and challenges, though definitive conclusions are limited by sample size.

1.2.5 Type of freelance services hired

This subsection presents the types of freelance services hired by the surveyed companies. Respondents were allowed to select multiple types of freelance services, yielding 16 selections across 6 companies. Consequently, the reported frequencies and percentages reflect the relative distribution of hired service types.

The most frequently reported types of freelance services are Software Development and IT, selected by 5 companies (31.2% of selections). This dominance indicates that companies primarily rely on freelancers to access technical skills supporting core business activities, particularly in digital domains.

Creative and Multimedia services are selected by 4 companies (25.0%), while Writing and Translation accounts for 3 selections (18.8%). Professional Services is reported by 2 companies (12.5%). Clerical and Data Entry and Teaching and Training are each selected once (6.2%).

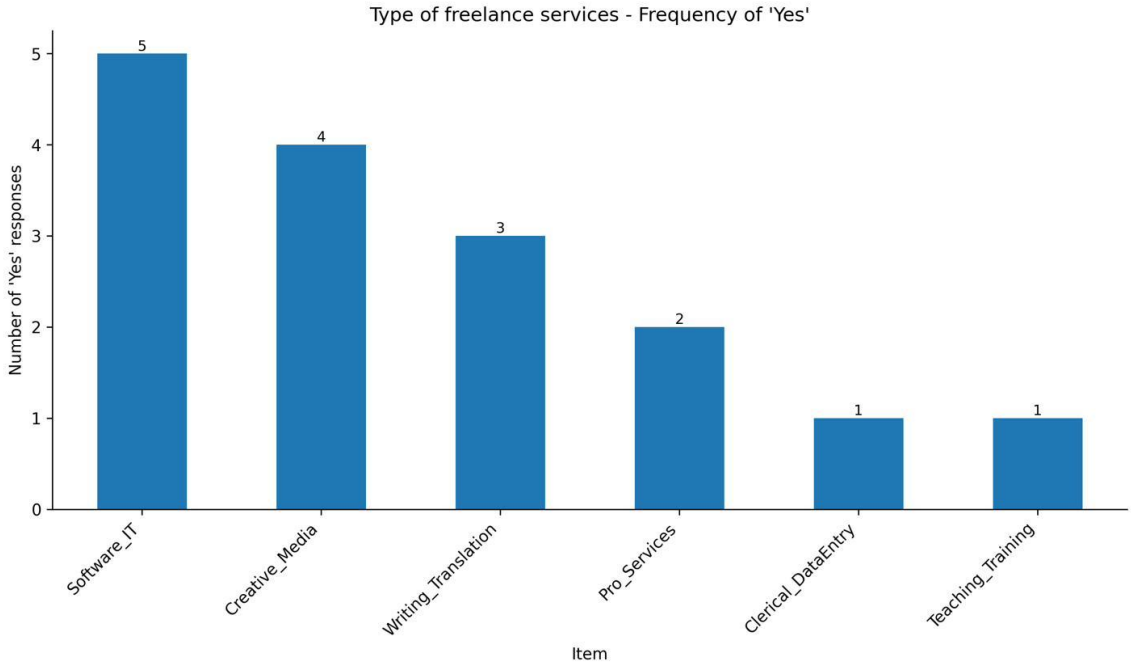

Figure 40. Types of freelance services hired by companies (bar chart).

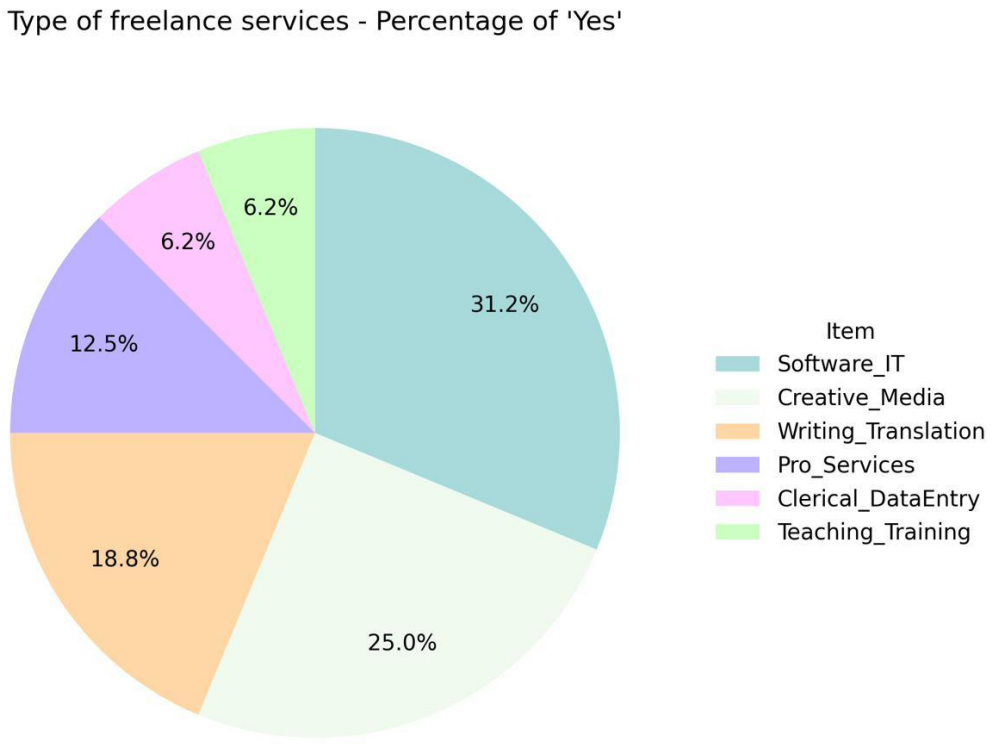

Figure 41. Types of freelance services hired by companies (pie chart).

Overall, the distribution indicates that, among the surveyed companies, freelancer engagement is primarily focused on IT, creative, and specialised professional services. Given the small number of participating companies, these findings should be interpreted as indicative rather than representative.

1.2.6 Motivations for hiring freelancers

This subsection examines the motivations that drive companies to hire freelancers. Respondents were allowed to select multiple motivations, yielding 17 selections in total. The reported frequencies reflect the relative importance of different motivations.

The most frequently reported motivations are cost-effectiveness and access to specialised skills, each selected 5 times (29.4% of selections). This co-dominance indicates that companies engage freelancers both to optimise labour costs and to obtain expertise not readily available in-house.

Flexibility in scaling the workforce is reported 4 times (23.5%), reflecting organisational desire to adjust capacity according to project demands. Legal or organisational structure considerations account for 2 selections (11.8%), while faster project delivery is reported in 1 selection (5.9%).

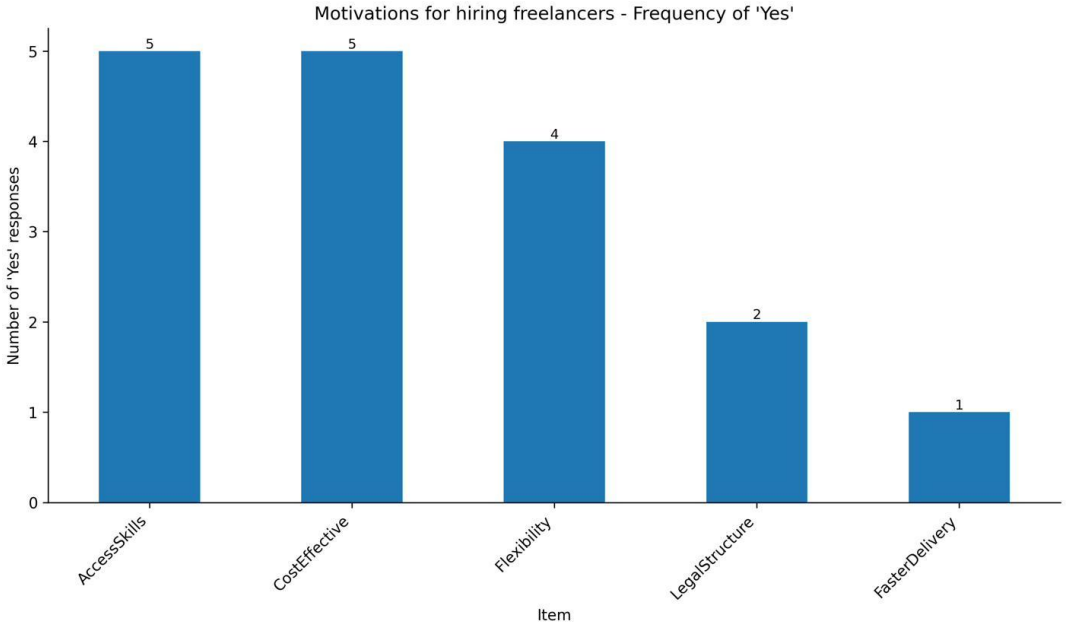

Figure 42. Companies' motivations for hiring freelancers (bar chart).

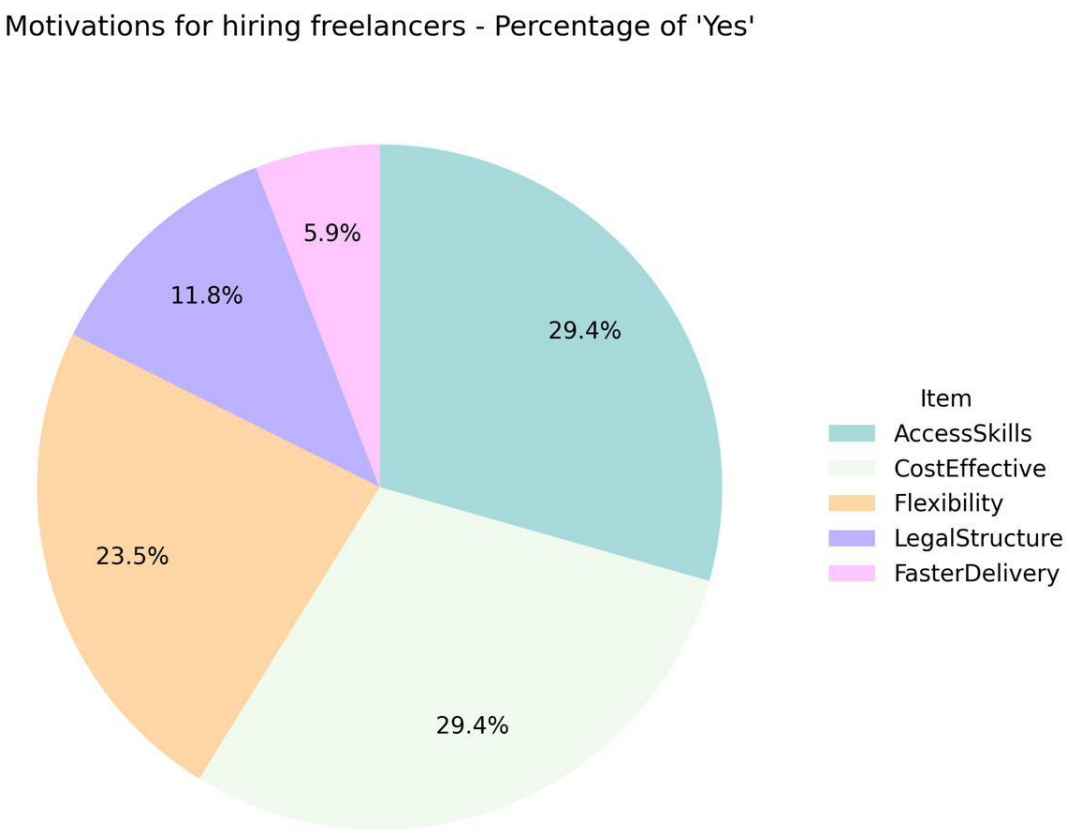

Figure 43. Companies' motivations for hiring freelancers (pie chart).

Overall, the distribution indicates that companies' motivations for hiring freelancers are primarily centred on accessing specialised skills and achieving cost-effectiveness, with flexibility serving as an important complementary driver. These findings provide context for understanding organisational perspectives on freelancer value propositions.

1.2.7 Risks of relying on freelancers

This subsection examines the risks companies associate with relying on freelancers. Respondents were allowed to select multiple risks, resulting in 20 total selections. The reported frequencies reflect the relative prominence of different risk perceptions.

The most frequently reported risk concerns delays and unreliability, selected 5 times (25.0% of selections). This prominence highlights companies' primary concern about freelancers' capacity to meet deadlines and deliver consistently.

Unavailability when needed is reported 4 times (20.0%), while lack of control and transparency accounts for 3 selections (15.0%). Integration and communication challenges, quality and rework issues, and intellectual property concerns are each reported twice (10.0%). Data leakage and tax/labour law violations are each selected once (5.0%).

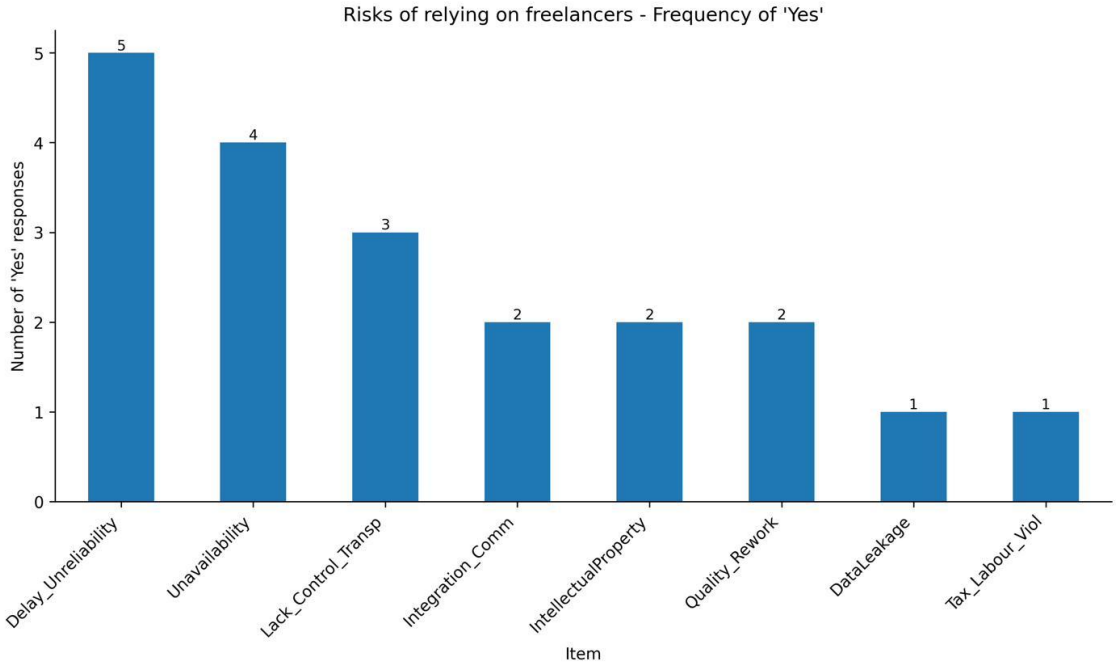

Figure 44. Companies' perceived risks of relying on freelancers (bar chart).

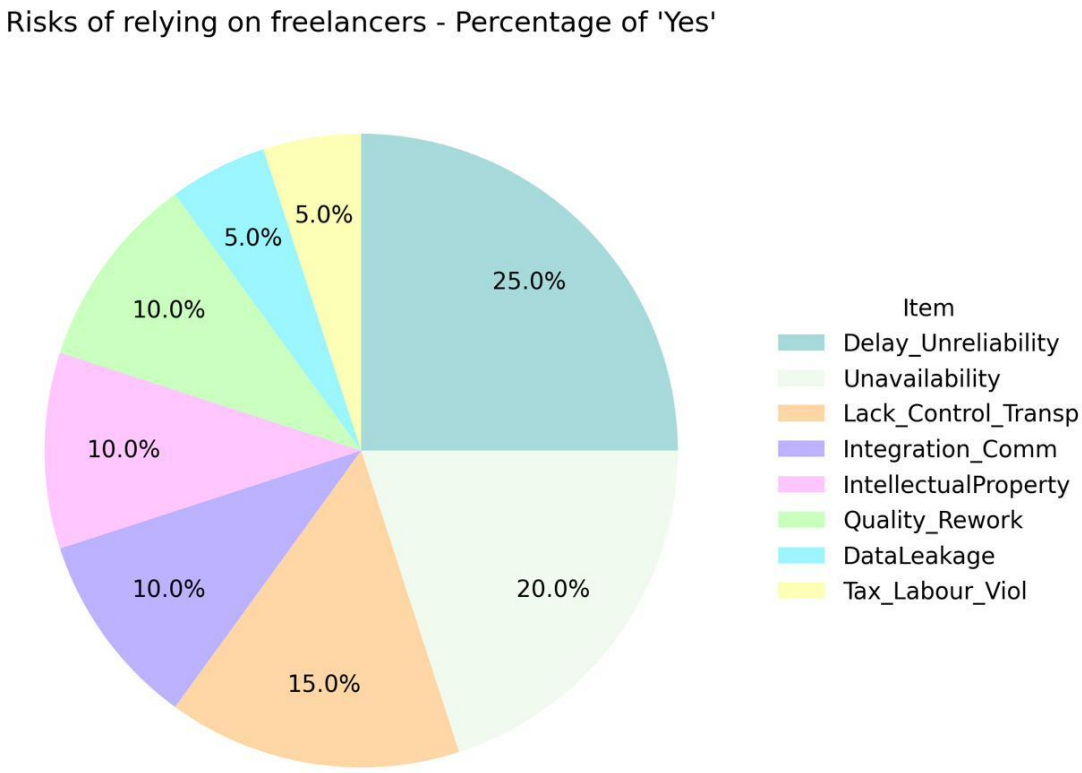

Figure 45. Companies' perceived risks of relying on freelancers (pie chart).

Overall, the distribution indicates that companies' risk perceptions are primarily centred on operational reliability, availability, and control issues rather than legal or security concerns. These findings provide important context for understanding organisational constraints and decision-making processes related to freelancer engagement.

1.2.8 Companies' anticipated near-term challenges

This subsection examines the near-term challenges companies anticipate in their engagement with freelancers. Respondents were allowed to select multiple challenges, yielding 18 selections in total.

The most frequently anticipated challenges are increased costs and the availability of skilled freelancers, each selected 5 times (27.8% of selections). This co-dominance highlights companies' concerns about both rising freelancer rates and difficulties accessing adequately qualified talent.

New generation work-life balance expectations are reported 3 times (16.7%), while freelancer expectations and project complexity are each selected twice (11.1%). Market changes affecting availability account for 1 selection (5.6%).

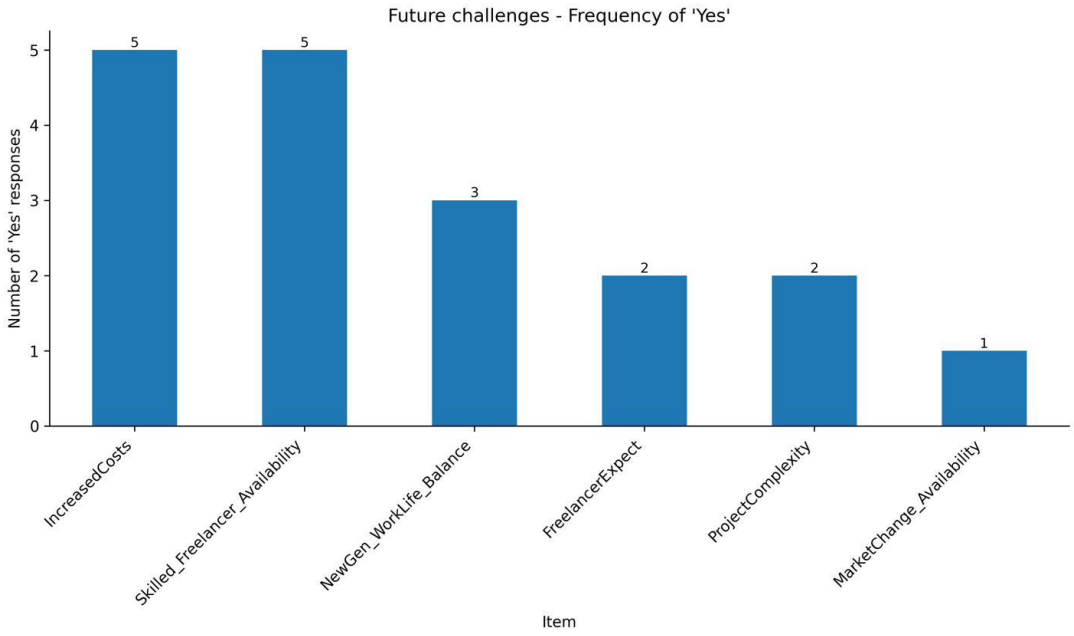

Figure 46. Companies' anticipated near-term challenges (bar chart).

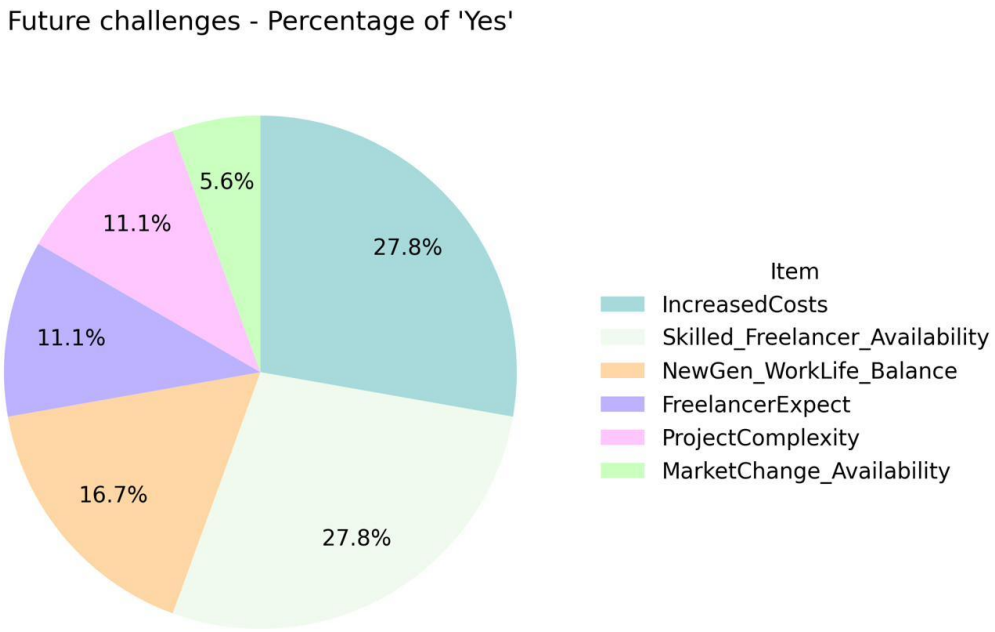

Figure 47. Companies' anticipated near-term challenges (pie chart).

Overall, the results suggest that companies' anticipated challenges are primarily centred on cost pressures and talent availability rather than operational or technical issues. Given the limited sample size, these findings should be interpreted cautiously, yet they nonetheless provide valuable qualitative context.

1.2.9 Perceived influence of AI on freelancer hiring

This subsection examines companies' perceptions regarding how artificial intelligence (AI) is expected to influence their future hiring of freelancers.

The results indicate that 3 companies (50.0%) expect no effect from AI on their hiring practices for freelancers. This suggests that half of the respondents view AI primarily as a complementary tool that does not fundamentally alter their reliance on freelance labour.

Two companies (33.3%) anticipate hiring fewer freelancers due to AI adoption, suggesting a perception that AI can serve as a substitute for specific freelance tasks. One company (16.7%) expects to hire more freelancers, potentially reflecting the expectation that AI will increase demand for specialised skills.

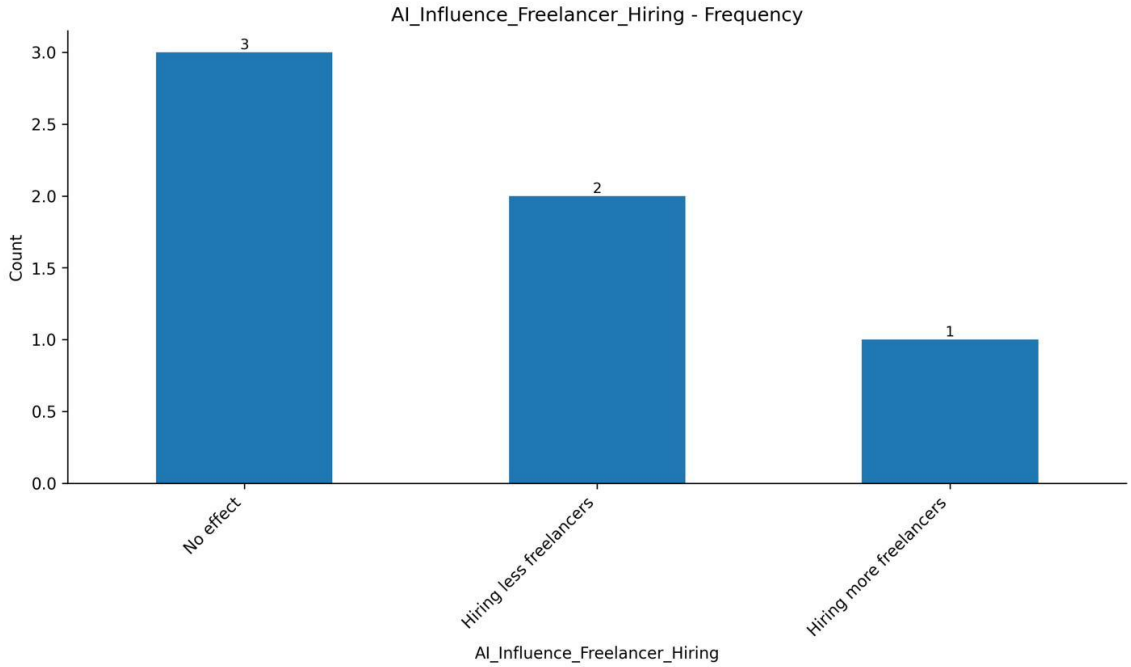

Figure 48. Perceived influence of AI on freelancer hiring (bar chart).

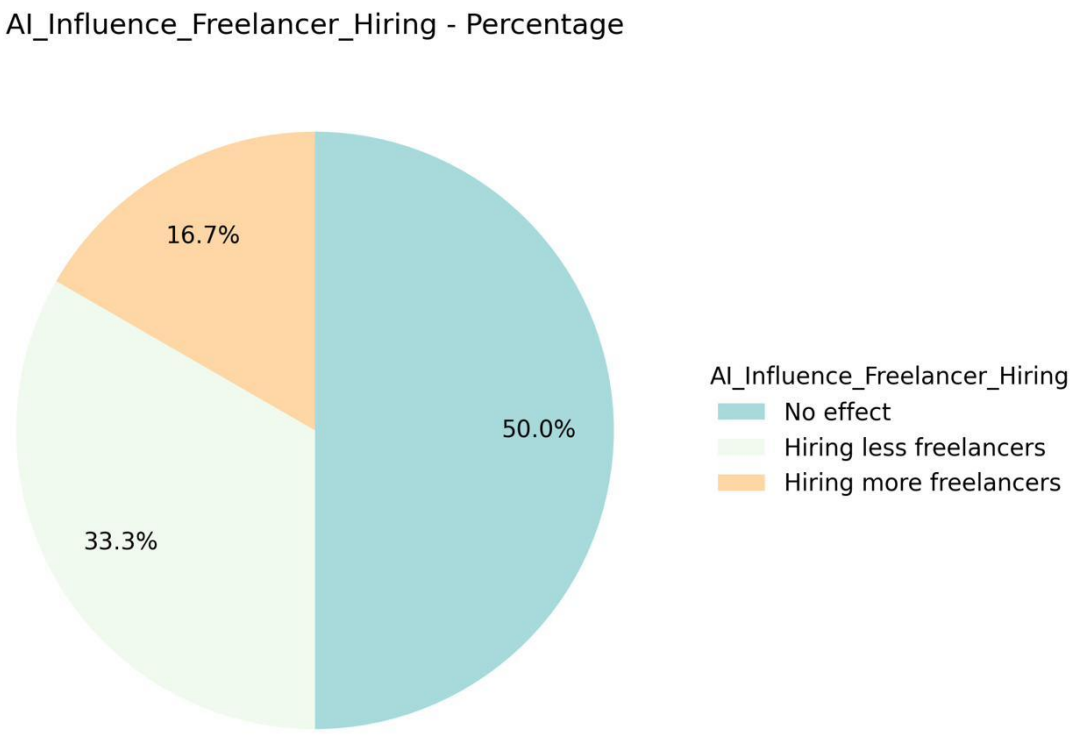

Figure 49. Perceived influence of AI on freelancer hiring (pie chart).

Overall, the findings indicate heterogeneous perceptions, with no single dominant expectation. Given the small sample size, these results should be interpreted as

indicative rather than definitive, but they provide valuable insight into diverse organisational perspectives on AI's impact on freelancer 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 broader freelancing market. Respondents were allowed to select multiple perceived effects, resulting in 10 total selections.

The results show balanced distribution across multiple perceived impacts. Automation of routine tasks, faster project delivery expectations, new AI-driven service opportunities, and shrinking freelance opportunities are each reported twice (20.0% of selections). Increased demand for AI skills and no noticeable influence are each selected once (10.0%).

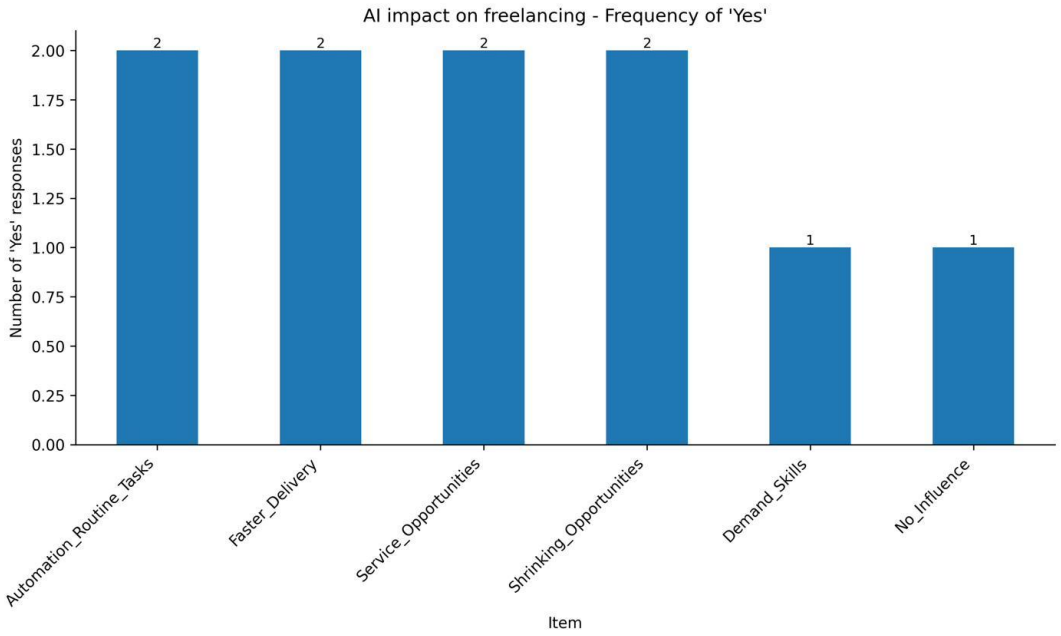

Figure 50. Perceived impact of AI technology on the freelancing market (bar chart).

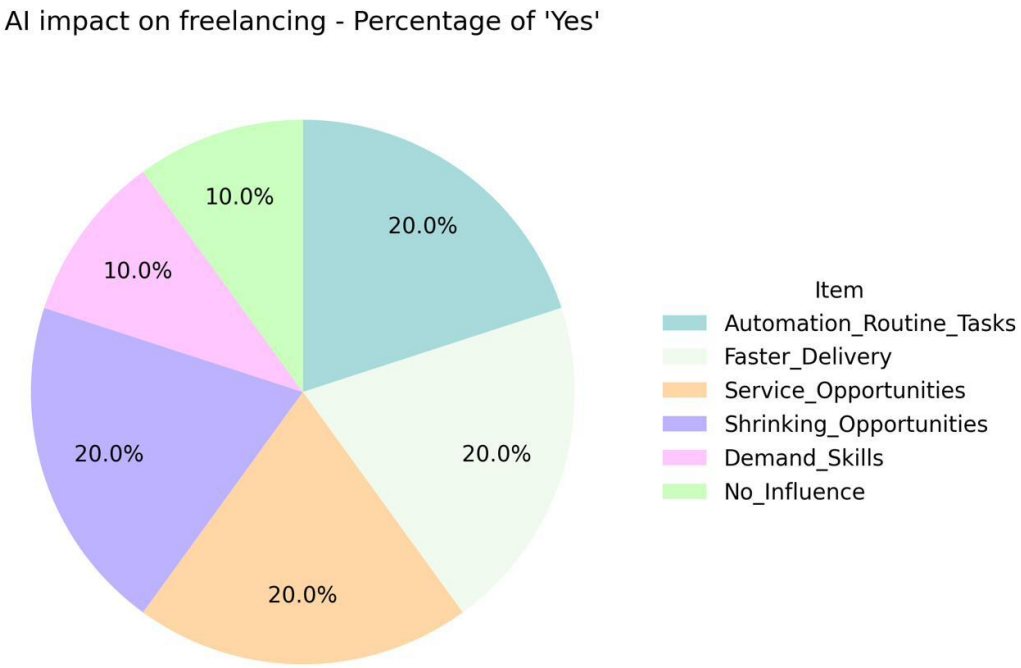

Figure 51. Perceived impact of AI technology on the freelancing market (pie chart).

The even distribution across diverse impacts suggests that companies hold varied and nuanced perceptions of AI's market-level effects, recognising both opportunities and challenges. Given the limited sample size, these findings should be interpreted with

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

This descriptive statistics chapter has established a comprehensive empirical profile of Ukrainian freelancers and companies participating in the ENTEEF survey. The findings reveal distinctive characteristics of the Ukrainian freelance market, including a youth-dominated demographic structure, a mixed educational profile, a strong ICT orientation, and widespread anticipated AI adoption. The small-company sample provides valuable qualitative insights despite its limited statistical generalizability. These descriptive foundations support subsequent analytical sections examining competence gaps, training needs, and strategic development priorities.

2 Competency Analysis: Importance and Proficiency

2.1 Freelancers

2.1.1 Top-ranked competencies by importance across age groups

This subsection presents an analysis of the competencies that Ukrainian freelancers consider most important, disaggregated by age group. The examination reveals both consistent cross-generational priorities and age-specific emphases that reflect varying career stages and professional orientations.

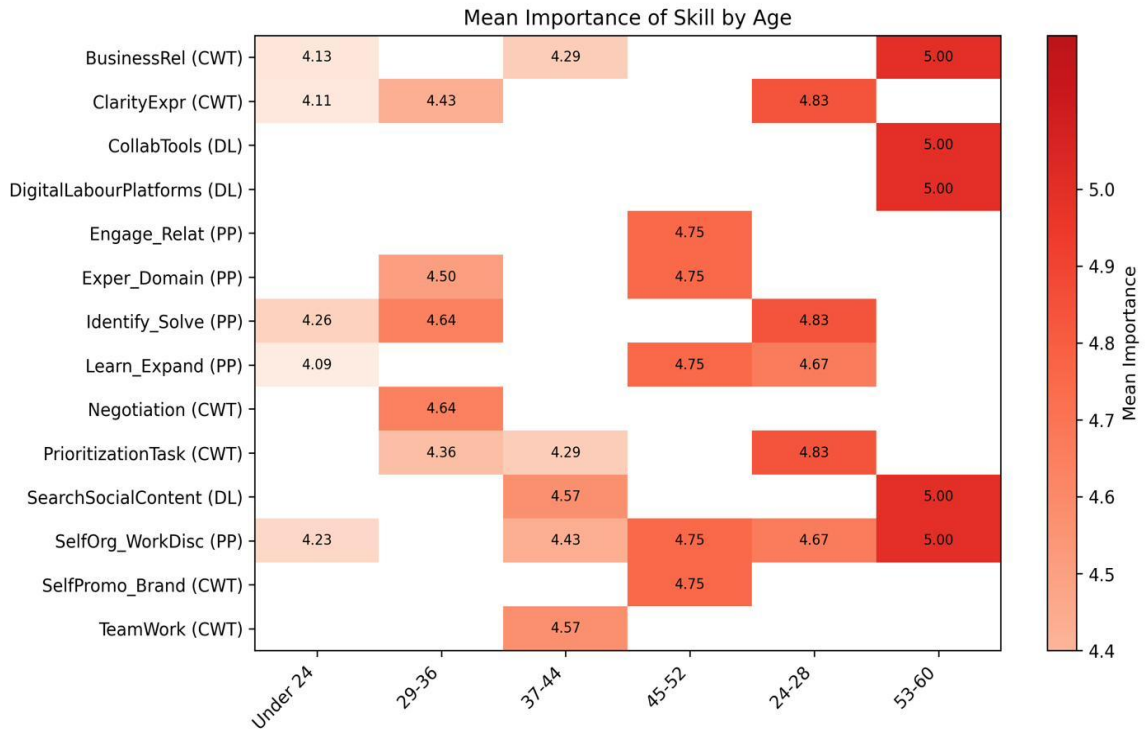

Figure 52. Top 5 competencies by importance across freelancer age groups.

Under 24

The youngest cohort of Ukrainian freelancers, representing the overwhelming majority of respondents (75.2%), demonstrates clear priorities focused on foundational professional competencies. Problem identification and solving ranks highest (mean importance = 4.26), closely followed by self-organisation and work discipline (mean = 4.23). These priorities reflect the developmental challenges faced by early-career freelancers who must establish reliable work practices while building their professional reputations.

The emphasis on maintaining good relationships in business collaborations (mean = 4.13) and on clarity of expression when communicating (mean = 4.11) highlights young freelancers' recognition that interpersonal and communication competencies are essential for successful market entry and client acquisition. Learning and skill expansion (mean = 4.09) completes the top five, indicating awareness of the need for continuous development in rapidly evolving professional environments.

24-28

Freelancers in the 24-28 age bracket exhibit notably elevated importance ratings across all top competencies, with several reaching very high levels (mean = 4.83). Problem identification and solving shares the top position with clarity of expression and communication and task prioritisation, all achieving identical importance scores. This pattern suggests an intensified focus on operational excellence as freelancers transition from initial market exploration to more structured professional practice.

Self-organisation and work discipline (mean = 4.67) and learning and skill expansion (mean = 4.67) round out the priorities for this age group, indicating that early-career consolidation demands both reliable self-management and continued capability building. The uniformly high ratings suggest that this cohort perceives multiple competencies as simultaneously critical for advancing their freelance careers.

29-36

The 29-36 age group presents a distinctive competency profile in which problem identification and solving rank at the top, along with negotiation skills (both at a mean = 4.64). This emergence of negotiation as a priority competency marks a significant shift from younger cohorts. It reflects the growing importance of commercial acumen as freelancers establish more substantial client relationships and project portfolios.

Domain-specific expertise and practical experience rank third (mean = 4.50), followed by clarity of expression (mean = 4.43) and task prioritisation (mean = 4.36). This configuration suggests that mid-career freelancers increasingly value specialised knowledge alongside communication and organisational competencies, consistent with professionalisation and market differentiation strategies.

37-44

Among freelancers aged 37-44, a notable shift in competency prioritisation occurs. Use of search engines, social media, and content platforms and teamwork ability jointly occupy the highest position (mean = 4.57), departing from the problem-solving emphasis observed in younger groups. This transition may reflect changing work modalities, including more collaborative project structures and increased reliance on digital research and networking tools.

Self-organisation and work discipline remain prominent (mean = 4.43), while task prioritisation and the ability to maintain good relationships in business collaboration share fourth place (mean = 4.29). The competency profile for this age group suggests a mature approach to freelance work that balances operational efficiency with relational and digital capabilities.

45-52

Freelancers in the 45-52 age bracket demonstrate remarkably elevated and uniform importance ratings, with five competencies achieving identical very high scores (mean = 4.75). Self-organisation and work discipline, engaging and maintaining professional relationships, learning and skill development, domain-specific expertise and practical experience, and self-promotion and personal branding all rank at the top.

This convergence of high ratings across diverse competency areas suggests that experienced freelancers recognise the multi-dimensional nature of sustained professional success. The inclusion of self-promotion and personal branding among the highest-rated competencies indicates growing awareness of market visibility and positioning requirements at later career stages.

53-60

The oldest age group in the sample exhibits the highest importance ratings (mean = 5.00) for several competencies, including self-organisation and work discipline, the ability to maintain good relationships in business collaboration, the use of digital labour platforms, search engines, social media and content platforms, and digital collaboration tools. This emphasis on digital competencies alongside self-management and relational skills suggests that senior freelancers strongly value technology proficiency as integral to contemporary professional practice.

Cross-Age Synthesis

Analysis across age groups reveals several consistent patterns. Problem identification and solving, as well as self-organisation and work discipline, are core competencies valued throughout freelance careers. However, clear developmental trajectories emerge: younger freelancers emphasise foundational problem-solving and learning capabilities, mid-career professionals increasingly prioritise negotiation and domain expertise, while senior freelancers place greater weight on digital proficiency, relational competencies, and market positioning. These patterns provide valuable guidance for designing age-appropriate training interventions and competency development pathways.

2.1.2 Top-Ranked Competencies by Importance across Gender

This subsection examines how competency importance ratings differ between male and female Ukrainian freelancers, identifying both shared priorities and gender-specific emphases in perceived skill relevance.

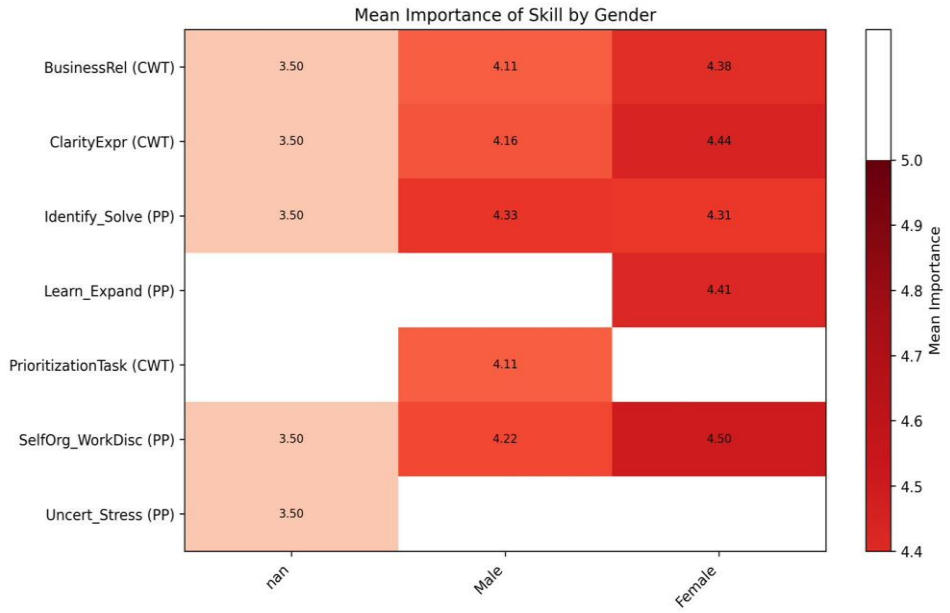

Figure 53. Top 5 competencies by importance across freelancer gender.

Male Freelancers

Male freelancers in Ukraine identify problem identification and solving as their highest-priority competency (mean = 4.33), reflecting a strong orientation toward analytical thinking and solution-focused approaches. Self-organisation and work discipline rank second (mean = 4.22), emphasising the value placed on autonomous work management and structured professional practice.

The remaining top competencies include clarity of expression when communicating (mean = 4.16), task prioritisation (mean = 4.11), and the ability to maintain strong relationships in business collaboration (mean = 4.11). This configuration suggests that male freelancers prioritise a combination of cognitive problem-solving, operational efficiency, and effective professional communication.

Female Freelancers

Female freelancers demonstrate a distinct priority structure, with self-organisation and work discipline receiving the highest importance rating (mean = 4.50). Clarity of expression while communicating ranks second (mean = 4.44), followed by learning and continuous skill expansion (mean = 4.41). This pattern indicates a strong emphasis on disciplined self-management, effective communication, and ongoing professional development.

The ability to maintain good relationships in business collaborations (mean = 4.38) and to identify and solve problems (mean = 4.31) complete the top five competencies for female freelancers. While problem-solving remains important, its lower ranking among male respondents suggests differing orientations toward the core demands of freelance work.

Gender-Based Synthesis

Cross-gender comparison reveals both convergence and divergence in competency priorities. Both genders include problem identification and solving, self-organisation and work discipline, clarity of expression, and maintaining business relationships among their top competencies. However, male freelancers place greater emphasis on analytical problem-solving, while female freelancers prioritise self-discipline, communication clarity, and continuous learning. These distinctions provide important context for understanding gender-specific competency development needs and for designing appropriately targeted training interventions.

2.1.3 Top-Ranked Competencies by Importance across Education Levels

This subsection analyses competency importance patterns across different educational attainment levels among Ukrainian freelancers, examining how formal qualifications relate to perceived skill priorities.

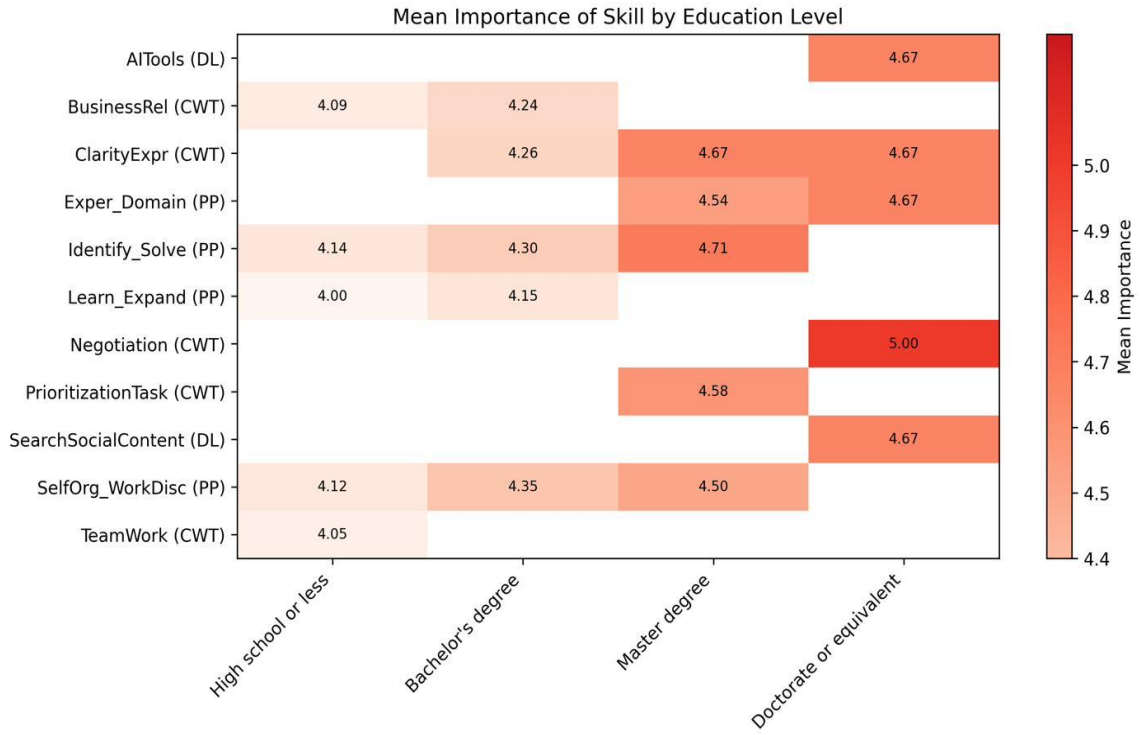

Figure 54. Top 5 competencies by importance across freelancer education levels.

High School or Less

Freelancers with a high school education or less identify problem identification and solving (mean = 4.14) as their most important competency, followed closely by self-organisation and work discipline (mean = 4.13). The ability to keep good relationships in business collaboration (mean = 4.09) and teamwork (mean = 4.05) rank third and fourth, respectively, while learning and skill expansion (mean = 4.00) completes the top five.

This competency profile emphasises both analytical capabilities and interpersonal skills, suggesting that freelancers with lower formal educational attainment recognise the importance of building strong collaborative relationships alongside core problem-solving abilities. The emphasis on teamwork may reflect work contexts where collaboration compensates for more limited formal credentials.

Bachelor's Degree

Among freelancers with a bachelor's degree, self-organisation and work discipline are the highest-rated competencies (mean = 4.35), followed by problem identification and solving (mean = 4.30). Clarity of expression while communicating (mean = 4.26),

maintaining good business relationships (mean = 4.24), and learning and skill expansion (mean = 4.15) round out the top five.

This profile reflects a balanced emphasis on autonomous work management, analytical capabilities, and communication effectiveness. The configuration suggests that bachelor's degree holders perceive freelance success as requiring strong operational discipline alongside traditional cognitive and interpersonal competencies.

Master's Degree

Freelancers with master's degrees demonstrate notably elevated importance ratings. Problem identification and solving achieves the highest score (mean = 4.71), followed by clarity of expression (mean = 4.67) and task prioritisation (mean = 4.58). Domain-specific expertise and practical experience (mean = 4.54) and self-organisation and work discipline (mean = 4.50) complete the top five.

The prominence of domain expertise among master's degree holders distinguishes their profile from lower education levels and reflects expectations of specialised knowledge application consistent with advanced education. The overall elevation of importance ratings suggests heightened professional expectations among this cohort.

Doctorate or Equivalent

Doctoral-level freelancers present a distinctive competency profile, with negotiation skills achieving the maximum importance rating (mean = 5.00). This is followed by the use of AI tools (mean = 4.67), search engines and social media platforms (mean = 4.67), domain-specific expertise (mean = 4.67), and clarity of expression (mean = 4.67).

The emphasis on negotiation skills at the highest educational level suggests that doctoral freelancers engage in complex professional arrangements that require sophisticated commercial competencies. The prominence of AI tools among top priorities suggests heightened awareness of emerging technologies among highly educated practitioners, potentially reflecting research-oriented or innovation-focused work contexts.

Cross-Education Synthesis

Education level analysis reveals progressive differentiation in competency priorities. Lower education levels emphasise foundational problem-solving and relational

competencies, while higher education levels increasingly prioritise specialised expertise, negotiation capabilities, and advanced digital tools. Notably, importance ratings tend to increase with educational attainment, suggesting that more highly educated freelancers hold elevated expectations across competency domains. These patterns inform the design of education-sensitive training strategies and curriculum development.

2.1.4 Top-ranked competencies by importance across years of experience as a freelancer

This subsection analyses how competency priorities evolve across different experience levels, from newcomers to highly experienced practitioners in the Ukrainian freelance market.

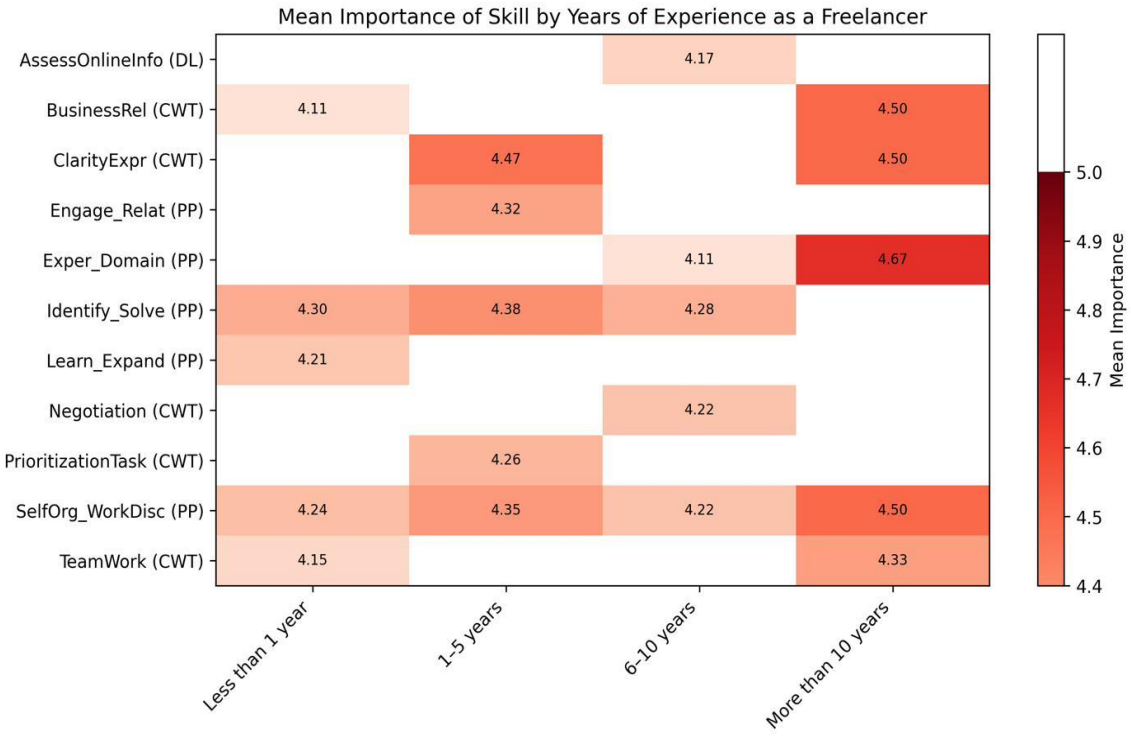

Figure 55. Top 5 competencies by importance across years of freelance experience.

Less than 1 Year

Entry-level freelancers prioritise problem identification and solving (mean = 4.30) and self-organisation and work discipline (mean = 4.24) as their most important competencies. Learning and skill expansion ranks third (mean = 4.21), followed by teamwork (mean = 4.15) and maintaining good business relationships (mean = 4.11).

This profile reflects the developmental priorities of newcomers who must simultaneously build analytical capabilities, establish disciplined work habits, and develop both individual and collaborative competencies. The emphasis on continuous learning suggests an awareness of the need to expand capabilities rapidly during the market-entry phase.

1-5 Years

Freelancers with 1-5 years of experience show a distinctive shift, with greater clarity in communication, achieving the highest importance rating (mean = 4.47). Problem identification and solving (mean = 4.38), self-organisation and work discipline (mean = 4.35), engaging and maintaining professional relationships (mean = 4.32), and task prioritisation (mean = 4.26) complete the top five.

Elevating communication clarity to the top position suggests that early- to mid-career freelancers increasingly recognise effective client communication as central to professional success. The strong emphasis on relational competencies alongside operational skills reflects the transition from initial market entry to more established professional practice.

6-10 Years

Mid-career freelancers with 6-10 years of experience place problem identification and solving at the top (mean = 4.28), followed by self-organisation, work discipline, and negotiation skills, all of which are equally important (mean = 4.22). Critical assessment of online information (mean = 4.17) and domain-specific expertise (mean = 4.11) round out the top five.

The emergence of negotiation skills among top priorities marks a significant development at this experience level, suggesting that established freelancers increasingly engage in complex commercial negotiations. The appearance of critical information assessment reflects growing reliance on digital research and information evaluation in professional practice.

More than 10 Years

Highly experienced freelancers demonstrate a distinctive priority structure, with domain-specific expertise and practical experience achieving the highest importance rating (mean = 4.67). Self-organisation and work discipline, clarity of expression, and maintaining good

business relationships share the second position (mean = 4.50), while teamwork ranks fifth (mean = 4.33).

The prominence of domain expertise among veteran freelancers reflects the centrality of specialised knowledge to sustained professional success. The convergence of multiple competencies at the second rank suggests that experienced practitioners perceive success as dependent on a balanced combination of self-management, communication, and relational capabilities alongside deep professional expertise.

Cross-Experience Synthesis

Experience-based analysis reveals clear developmental progressions in competency priorities. Entry-level freelancers focus on foundational problem-solving and learning capabilities; early-career practitioners emphasise communication and relationship-building; mid-career professionals increasingly value negotiation and information assessment skills, while veterans prioritise deep domain expertise alongside balanced operational competencies. These trajectories provide essential guidance for designing experience-appropriate professional development programmes.

2.1.5 Top-ranked competencies by importance across main freelancer activity

This subsection examines the competencies that Ukrainian freelancers consider most important, disaggregated by their primary professional domain. The analysis reveals how different types of freelance work impose distinct competency requirements.

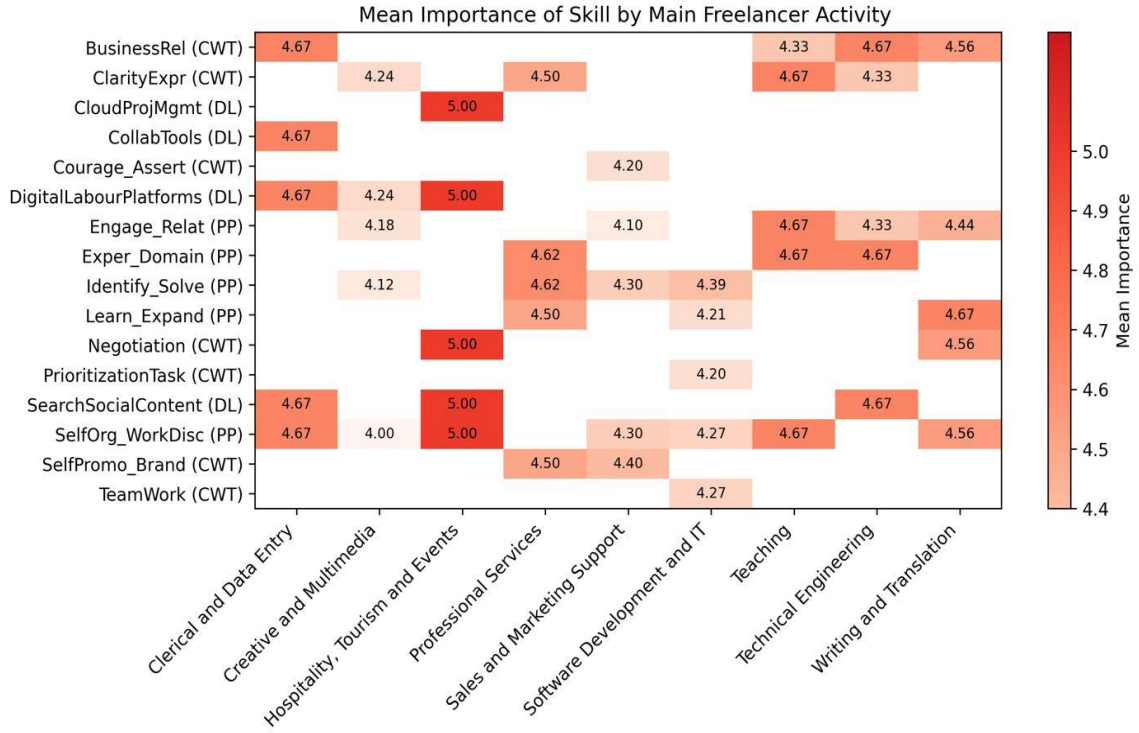

Figure 56. Top 5 competencies by importance across main freelancer activity.

Software Development and IT

Freelancers in Software Development and IT, representing the largest professional category in the Ukrainian sample, prioritise problem identification and solving (mean = 4.39) as their most important competency. Self-organisation, work discipline, and teamwork rank second (mean = 4.27), followed by learning and skill expansion (mean = 4.21) and task prioritisation (mean = 4.20).

This configuration reflects the analytical and collaborative nature of IT work, where structured problem-solving approaches must be combined with team coordination and continuous skill development to address rapidly evolving technological requirements.

Creative and Multimedia

Creative and Multimedia freelancers identify the use of digital labour platforms and clarity of expression as their top priorities (both with a mean of 4.24). Engaging and maintaining professional relationships (mean = 4.18), problem identification and solving (mean = 4.12), and self-organisation and work discipline (mean = 4.00) complete the top five.

The prominence of digital platforms among creative freelancers reflects the critical role of online marketplaces in accessing opportunities for creative projects. The emphasis on communication and relational competencies highlights the client-facing and collaborative nature of creative work.

Professional Services

Professional Services freelancers demonstrate elevated importance ratings, with domain-specific expertise and practical experience and problem identification and solving sharing the top position (mean = 4.63). Learning and skill expansion, clarity of expression, and self-promotion and personal branding share the next tier (mean = 4.50).

The dual emphasis on domain expertise and problem-solving reflects the knowledge-intensive nature of professional services, where credibility and value creation depend heavily on specialised expertise and analytical capabilities. The inclusion of self-promotion suggests awareness of market visibility requirements in competitive professional service domains.

Writing and Translation

Freelancers in Writing and Translation place learning and continuous skill expansion at the top (mean = 4.67), followed by self-organisation and work discipline (mean = 4.56). Negotiation skills and maintaining good business relationships rank third (mean = 4.56), while engaging and maintaining professional relationships rank fifth (mean = 4.44).

The emphasis on continuous learning reflects the linguistic and subject-matter adaptability required in writing and translation work. The strong presence of negotiation and relationship competencies suggests that commercial and client management skills are perceived as essential alongside language proficiency.

Teaching

Teaching freelancers to identify self-organisation and work discipline, engage and maintain professional relationships, develop domain-specific expertise, and express themselves clearly is given top importance (all means = 4.67). The ability to keep good relationships in business collaboration ranks fifth (mean = 4.33).

This convergence of high ratings across diverse competencies reflects the multifaceted demands of educational work, which require both expert knowledge and strong interpersonal

skills. The emphasis on relational competencies highlights the student-focused and often collaborative nature of teaching activities.

Technical Engineering

Technical Engineering freelancers prioritise maintaining good business relationships, using search engines and social media platforms, and domain-specific expertise and practical experience, all of which are rated equally important (mean = 4.67). Engaging professional relationships and clarity of expression rank next in the tier (mean = 4.33).

The strong emphasis on relational competencies alongside technical expertise suggests that engineering freelancers operate in contexts that require effective stakeholder management and client communication, alongside specialised technical capabilities.

Cross-Activity Synthesis

Analysis across freelancer activities reveals important domain-specific patterns. Technical domains emphasise problem-solving and continuous learning, creative and service-oriented fields prioritise communication and relationship competencies, while knowledge-intensive professions stress domain expertise and self-promotion. These activity-specific profiles provide essential guidance for designing targeted competency development interventions aligned with professional domain requirements.

2.1.6 Empirical analysis of importance-proficiency gaps

This subsection examines the competencies where the most pronounced discrepancies between perceived importance and self-assessed proficiency occur among Ukrainian freelancers. These gaps signal priority areas for targeted skill development and training intervention.

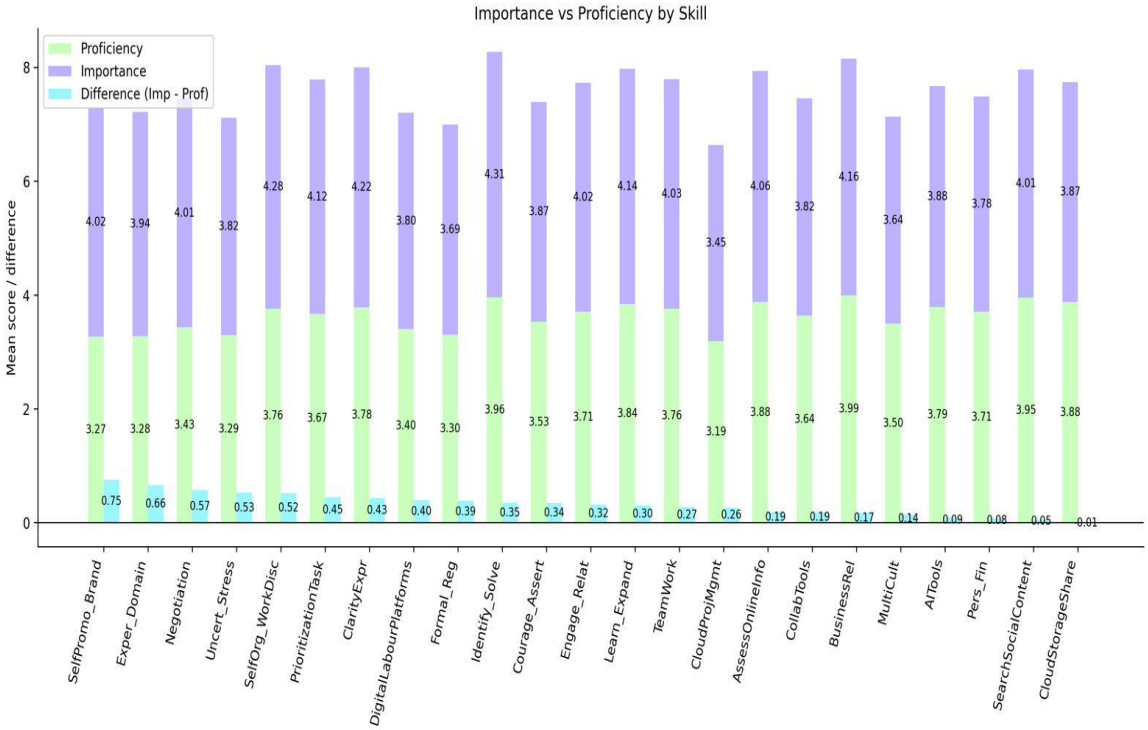

Figure 57. Freelancer importance-proficiency gaps by competency.

The analysis of importance-proficiency gaps among Ukrainian freelancers reveals systematic patterns in competency development that warrant attention in educational program design. These gaps reflect the difference between how important freelancers perceive a competency to be and their actual proficiency in it, providing critical insights into training needs.

The empirical evidence demonstrates that the most substantial gaps exist in business-oriented competencies rather than technical skills. Self-promotion and personal branding emerge as the most significant concern, with freelancers rating their importance at 4.02 (on a 5-point scale) while reporting proficiency of only 3.27, creating a gap of 0.75 points. This represents the most significant discrepancy across the entire competency framework and suggests that freelancers recognise the critical importance of marketing themselves but lack the skills to do so effectively.

Domain expertise presents the second-largest gap (0.66 points), with importance rated at 3.94 and proficiency at 3.28. This finding is particularly notable given that many respondents work in specialised technical fields where deep knowledge should, in theory, be cultivated through practice. The gap suggests that freelancers may

recognise expertise requirements beyond their current capabilities, or that the rapidly evolving nature of their fields creates persistent knowledge deficits.

Negotiation skills show the third-largest gap (0.57 points), with importance at 4.01 and proficiency at 3.43. This competency gap has direct economic implications, as effective negotiation directly influences freelancers' earning potential and contract terms. The substantial difference between perceived importance and actual proficiency indicates that freelancers understand the value of negotiation but have limited opportunities or training to develop these skills.

The pattern of gaps reveals several important clusters. Communication and teamwork competencies show moderate to substantial gaps: clarity of expression (0.43), prioritisation and task management (0.45), and self-organisation and work discipline (0.52). These findings suggest that while freelancers recognise the importance of professional communication and organisational skills, their development in these areas lags behind their recognition of their value.

Personal profile competencies demonstrate mixed patterns. Managing uncertainty and stress shows a gap of 0.53, indicating that freelancers recognise the challenges of independent work but have not fully developed coping mechanisms. Learning and expansion capacity shows a smaller gap (0.30), suggesting reasonable alignment between recognition and development in this area.

Digital literacy competencies present an interesting contrast. While digital labour platforms show a moderate gap (0.40), indicating that freelancers recognise the importance of platforms but struggle with effective utilisation, other digital skills show minimal gaps. Assessment of online information (0.19), collaboration tools (0.19), and AI tools (0.09) all demonstrate relatively small discrepancies. Most notably, cloud storage and sharing show a negative gap (-0.01), where proficiency slightly exceeds importance, and searching social content shows a minimal gap (0.05). These patterns suggest that Ukrainian freelancers have effectively developed technical digital competencies, likely through necessity and frequent use.

The competency with the smallest positive gap is business relationships (0.17), suggesting that freelancers have developed reasonable proficiency in this area through practical experience. However, this competency differs fundamentally from self-promotion - while business relationships involve maintaining existing connections, self-promotion requires actively creating new visibility and opportunities.

These empirical findings reveal a clear pattern: Ukrainian freelancers demonstrate strong development in technical and operational digital competencies but show substantial gaps in strategic business competencies such as self-promotion, domain expertise development, and negotiation. This pattern has important implications for educational interventions, suggesting that training programs should emphasise entrepreneurial and business management skills rather than basic digital literacy.

The importance ratings themselves provide additional context. The highest-rated importance competencies are problem identification and solving (4.31), self-organisation and work discipline (4.28), clarity of expression (4.22), business relationships (4.16), and learning and expansion (4.14). These ratings confirm that freelancers understand the multifaceted nature of independent work, recognising both technical problem-solving and soft professional skills as essential.

The proficiency ratings show a different ordering. The highest proficiency competencies are business relationships (3.99), problem identification and solving (3.96), searching social content (3.95), cloud storage and sharing (3.88), and assessing online information (3.88). This ordering suggests that freelancers have successfully developed specific competencies through practice, while others remain underdeveloped despite recognised importance.

2.2 Companies

This section presents the competency importance assessments from the perspective of Ukrainian companies that engage freelancers. The analysis is based on responses from 6 companies, necessitating cautious interpretation while still providing valuable insights into employer expectations and priorities.

2.2.1 Top-ranked competencies by importance across main area of company activity

This subsection examines the competencies that companies rate as most important for freelancers, analysed by the company's primary area of business activity.

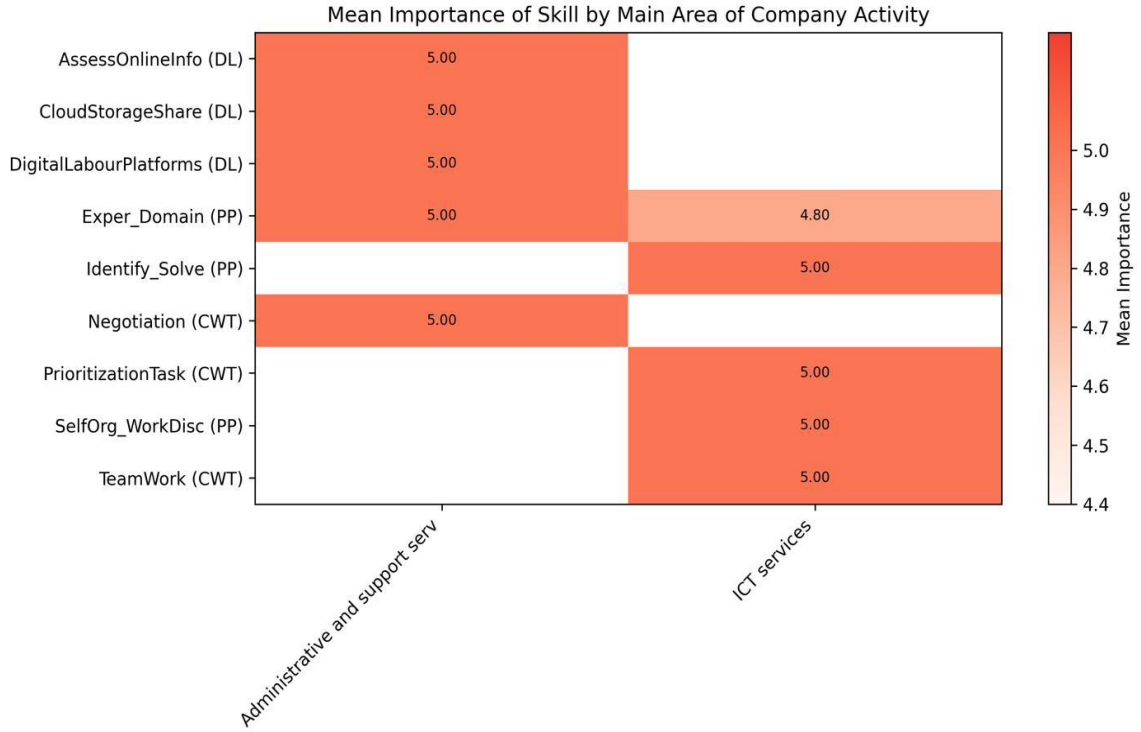

Figure 58. Top 5 competencies by importance across main company activity.

ICT Services

Companies operating in ICT Services assign maximum importance (mean = 5.00) to four competencies: self-organisation and work discipline, problem identification and solving, teamwork, and task prioritisation. Domain-specific expertise and practical experience achieve a very high rating (mean = 4.80).

This competency profile reflects the demanding nature of IT project environments, where freelancers must operate autonomously while integrating effectively with development teams and demonstrating strong analytical and organisational capabilities. The emphasis on multiple competencies at the maximum importance level underscores the multifaceted expectations placed on IT freelancers.

Administrative and Support Service Activities

Companies in Administrative and Support Services demonstrate a distinctive priority pattern, assigning maximum importance (mean = 5.00) to the use of digital labour platforms, domain-specific expertise, use of cloud storage and file-sharing tools, critical assessment of online information, and negotiation skills.

The strong emphasis on digital platform proficiency and information management capabilities suggests that administrative service providers expect freelancers to operate effectively within technology-mediated work environments. The inclusion of negotiation skills among top priorities indicates expectations of commercial competence alongside operational capabilities.

2.2.2 Top-ranked competencies by importance across company size

This subsection analyses how competency importance ratings vary by company size, revealing different expectations across organisational scales.

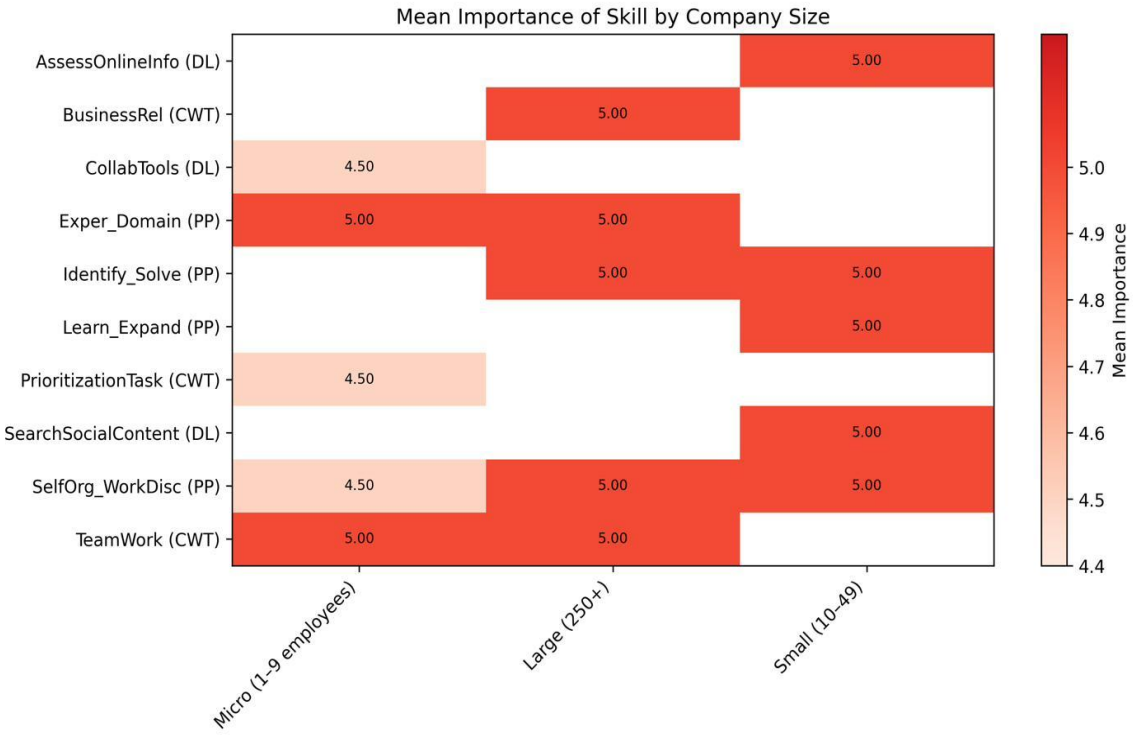

Figure 59. Top 5 competencies by importance across company size.

Micro Enterprises (1-9 Employees)

Micro enterprises assign the highest importance to domain-specific expertise, practical experience, and teamwork (both with a mean of 5.00). Self-organisation and work discipline, task prioritisation, and use of collaborative digital tools share the next tier (mean = 4.50).

This profile suggests that micro enterprises seek freelancers who can contribute specialised expertise while collaborating effectively within small, close-knit teams. The emphasis on digital collaboration tools reflects the technology-mediated nature of work in smaller organisations that may lack extensive internal resources.

Small Enterprises (10-49 Employees)

Small enterprises rate five competencies as of maximum importance (mean = 5.00): self-organisation and work discipline, use of search engines and social media platforms, learning and skill development, problem identification and solving, and critical assessment of online information.

The emphasis on both traditional competencies, such as self-organisation and problem-solving, and digital information competencies reflects growing expectations for freelancers to operate as effective knowledge workers who can independently source, evaluate, and apply information in their professional practice.

Large Enterprises (250+ Employees)

Large enterprises assign the highest importance (mean = 5.00) to five competencies: self-organisation and work discipline, ability to maintain good relationships in business collaboration, domain-specific expertise and practical experience, problem identification and solving, and teamwork.

This configuration reflects the complex integration requirements of large organisations, where freelancers must demonstrate specialised expertise while adapting to formal structures and maintaining productive working relationships with internal teams. The balanced emphasis on individual competencies and collaborative capabilities underscores expectations for freelancers to function as integrated professional contributors.

2.2.3 Empirical Analysis of Importance-Proficiency Gaps

This subsection presents the competencies where companies observe the largest discrepancies between their importance assessments and their perceptions of freelancer

proficiency levels. These gaps represent areas of potential demand-supply mismatch in the Ukrainian freelancing market.

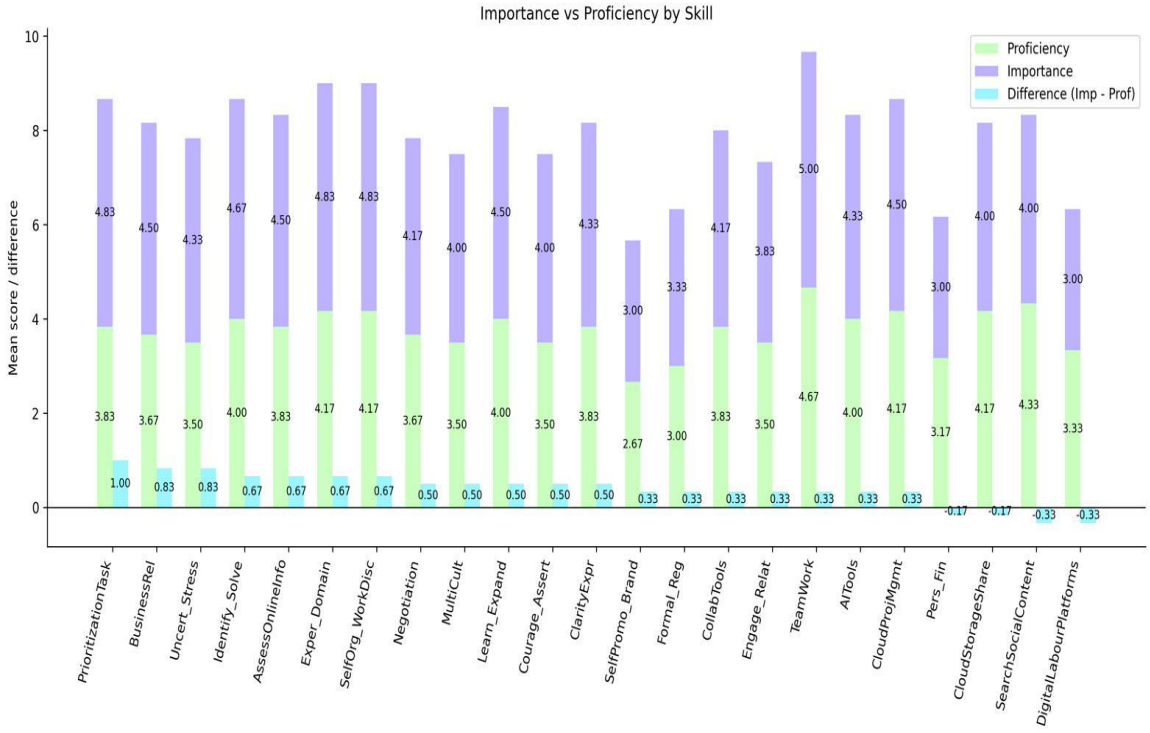

Figure 60. Company-perceived importance-proficiency gaps by competency.

The analysis of importance-proficiency gaps from the company perspective reveals distinct patterns in how organisations evaluate freelancer competencies. Companies' assessments provide critical market validation of which skills actually influence hiring decisions and project success. The gap analysis here represents the difference between how important companies rate each competency when hiring freelancers and how proficient they perceive available freelancers to be in those competencies.

The empirical evidence demonstrates that companies identify the most substantial gap in prioritisation and task management, with importance rated at 4.83 and perceived freelancer proficiency at only 3.83, creating a gap of 1.00 points. This represents the most significant discrepancy in the entire framework and indicates a critical market concern: companies highly value freelancers who can independently manage tasks and priorities, but find this competency lacking in available talent. This

gap has immediate practical implications for project management and client satisfaction.

Three competencies share the second-largest gap magnitude (0.83 points). Business relationships, rated at 4.50 in importance and 3.67 in proficiency, indicate that companies value freelancers who can maintain professional client relationships but find many freelancers lacking in this interpersonal competency. Managing uncertainty and stress (4.33 importance, 3.50 proficiency) reflects companies' need for freelancers who can handle project pressures and ambiguity - a critical attribute given the unpredictable nature of project-based work.

Six competencies demonstrate gaps of 0.67 points, forming a cluster of significant concern: problem identification and solving (4.67 importance, 4.00 proficiency), assessment of online information (4.50 importance, 3.83 proficiency), domain expertise (4.83 importance, 4.17 proficiency), and self-organisation and work discipline (4.83 importance, 4.17 proficiency). This cluster reveals that companies seek freelancers with strong foundational professional capabilities - the ability to work independently, solve problems, and maintain expertise - but perceive current freelancer populations as underdeveloped in these areas.

The pattern shifts notably for specific competencies. Self-promotion and personal branding show only a 0.33 gap (3.00 importance, 2.67 proficiency), which stands in stark contrast to the 0.75 gap identified by freelancers themselves. This substantial discrepancy between company and freelancer perspectives is revealing: while freelancers perceive self-promotion as highly important (4.02) and recognise their deficiency, companies rate it as relatively unimportant (3.00). This misalignment suggests that freelancers may overestimate the market value of promotional skills relative to substantive professional competencies.

Several competencies show negative gaps, where companies rate freelancer proficiency higher than the importance they assign. Personal finance management shows a gap of -0.17 (3.00 importance, 3.17 proficiency), suggesting companies find freelancers adequately skilled in managing their own finances but do not consider this competency particularly relevant to project success. Cloud storage and sharing (-0.17),

searching social content (-0.33), and digital labour platforms (-0.33) all show negative gaps, indicating that companies perceive freelancers as having developed these digital competencies beyond what companies require for most projects.

These negative gaps provide important market intelligence: Ukrainian freelancers may be overinvesting in specific digital platform competencies relative to market demand. While platform proficiency has value, companies prioritise other competencies. The negative gap in digital labour platform competency (3.00 importance, 3.33 proficiency) is particularly notable given that freelancers perceive a positive gap in this area (3.80 importance, 3.40 proficiency). This suggests that freelancers correctly recognise the importance of platforms but may be developing platform-specific skills that clients do not actually value.

The highest importance ratings from companies reveal market priorities: teamwork (5.00), domain expertise (4.83), self-organisation and work discipline (4.83), and prioritisation and task management (4.83) all receive maximum or near-maximum importance ratings. Companies fundamentally value freelancers who can work independently while integrating into team environments, possess deep knowledge in their domains, and manage their own work effectively.

The proficiency assessments show a different ordering. Companies rate freelancers highest in teamwork (4.67), social content searching (4.33), and cloud storage (4.17), with domain expertise and self-organisation also at 4.17. This pattern suggests companies recognise that Ukrainian freelancers have developed strong collaborative and digital competencies, but see room for improvement in independent work management and specialised knowledge.

Comparing the company and freelancer perspectives reveals important alignment and misalignment. Both groups identify negotiation as an area needing development, though companies rate it lower in absolute importance (4.17) than their ratings for other competencies. Both recognise the value of problem-solving and self-organisation. However, the perspectives diverge sharply on self-promotion: freelancers see it as critical, while companies rate it as relatively unimportant.

These empirical findings suggest that educational interventions should prioritise competencies that companies highly value but perceive as deficient: prioritisation and task management, business relationships, stress management, and domain expertise development. While freelancers may desire training in self-promotion, the market evidence suggests that strengthening core professional competencies - the ability to work independently, solve problems, maintain expertise, and manage client relationships - would provide greater employment advantages. Figure 2 illustrates the company's perspective on importance-proficiency gaps.

3 Cross-Tabulation Analysis of Competency Importance, Proficiency, and Gaps (χ^2 Tests)

This chapter presents findings from chi-square (χ^2) cross-tabulation analysis examining associations between competency gap scores and categorical demographic and professional variables. The analysis was conducted following established methodological guidelines and performed exclusively on the Ukrainian freelancer dataset, as the limited company sample size (N = 6) proved insufficient for reliable inferential statistical testing.

To ensure both statistical rigor and practical relevance, only associations meeting dual 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 degree-of-freedom adjusted effect size thresholds from methodological guidelines

Detailed outputs are provided in Table 1.

Categorical Variable	Competence Gap* Score Variable	χ^2	df	p-value	Cramers'_V	Effect Size
Main_Freelancer_Activity	PrioritizationTask (CWT)	52.53	16	0.000	0.38	Strong
Gender	AITools (DL)	34.49	4	0.000	0.35	Strong
Gender	CloudProjMgmt (DL)	33.91	4	0.000	0.34	Strong
Gender	AssessOnlineInfo (DL)	32.96	4	0.000	0.34	Strong
Gender	Pers_Fin (PP)	32.32	4	0.000	0.33	Strong
Gender	CloudStorageShare (DL)	31.76	4	0.000	0.33	Strong
Gender	SearchSocialContent (DL)	31.76	4	0.000	0.33	Strong
AI_Use_Future	Identify_Solve (PP)	14.88	4	0.005	0.29	Strong
Gender	CollabTools (DL)	22.07	4	0.000	0.27	Strong
Gender	DigitalLabourPlatforms (DL)	21.41	4	0.000	0.26	Strong
Years_Experience_Freelancer	Identify_Solve (PP)	9.53	3	0.023	0.23	Strong

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

Gap Score_C = (Importance Mean_C - Proficiency Mean_C) × Importance Mean_C

Table 1. Chi-square test results for significant associations between categorical variables and competency gaps.

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 × Task Prioritization

The most robust association identified in the Ukrainian dataset concerns the relationship between main freelancer activity and competency gaps in task prioritisation ($\chi^2 = 52.53$, df = 16, $p < 0.001$; Cramér's V = 0.38). This very strong effect indicates that mismatches between perceived importance and actual proficiency in organising workloads, managing deadlines, and coordinating competing demands vary substantially across professional domains. The finding suggests that different freelance sectors impose distinct organisational requirements, leading to heterogeneous gap patterns that reflect domain-specific workload characteristics.

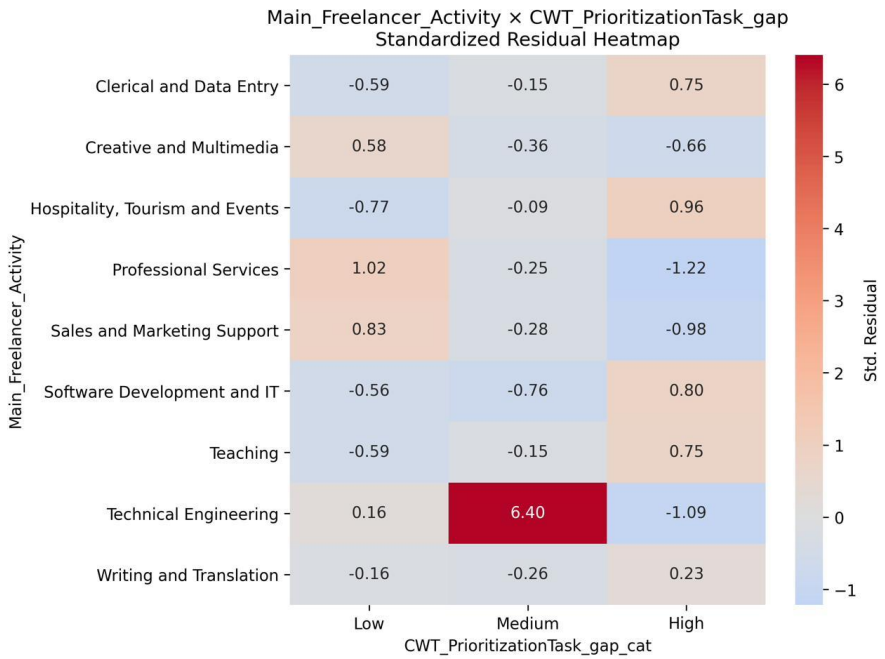

Figure 61. Cross-tabulation of task prioritisation gaps by main freelancer activity.

This association pattern is primarily explained by freelancers working in Software Development and IT, who constitute 41.1% of the Ukrainian sample. Despite their technical sophistication and analytical capabilities, IT freelancers exhibit significant gaps in task prioritisation. This finding reveals that technical expertise does not automatically translate into practical skills in workload coordination. The pattern suggests that targeted interventions should focus on project management frameworks

tailored explicitly to IT contexts, emphasising sprint planning, technical debt prioritisation, and multi-project coordination strategies.

3.1.2 Gender × AI Tools Usage

A very strong and highly significant association emerges between gender and competency gaps in AI tools usage (χ^2 = 34.49, df = 4, p < 0.001; Cramér's V = 0.35). This substantial relationship indicates that Ukrainian male and female freelancers experience markedly different misalignments between the importance they assign to AI capabilities and their self-assessed proficiency levels. Given the rapid diffusion of artificial intelligence across professional domains, this gender-based disparity warrants careful examination.

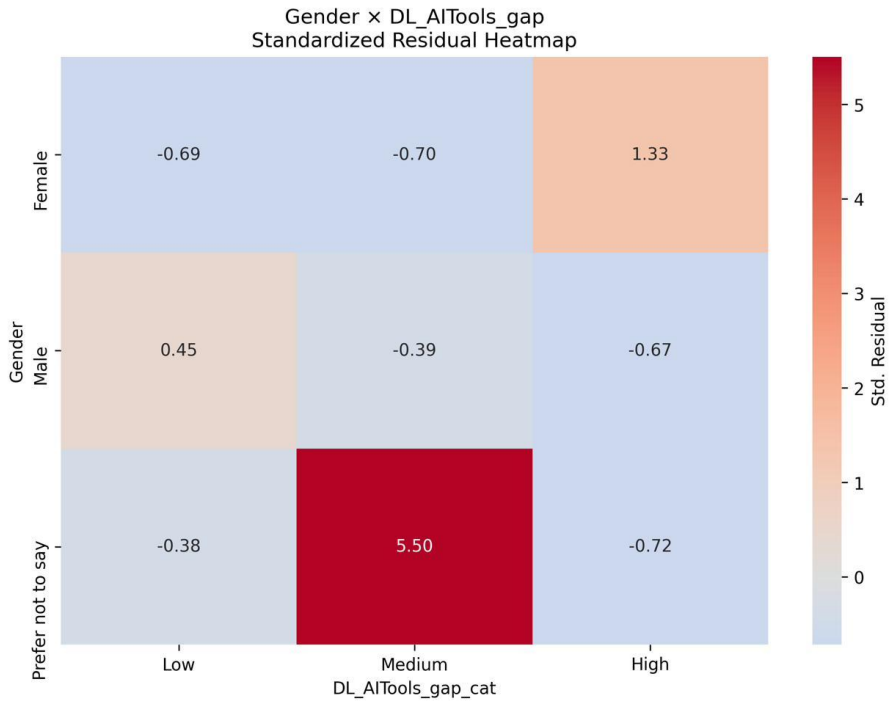

Figure 62. Cross-tabulation of AI tools usage gaps by gender.

The association is primarily driven by female freelancers, who show pronounced concentration in higher gap categories. This pattern suggests that Ukrainian women in freelancing recognise the importance of AI tools but report lower proficiency than their male counterparts. The disparity may reflect differential exposure to AI technologies during formal education, unequal access to technical training programs, sectoral

concentration in which women predominate in domains with lower AI adoption intensity, or confidence gaps that affect self-assessment even when objective capabilities are comparable.

3.1.3 Gender × Cloud Project Management

Gender systematically structures competency gaps in cloud-based project management tools (χ^2 = 33.91, df = 4, p < 0.001; Cramér's V = 0.34). This strong association reveals that Ukrainian male and female freelancers exhibit divergent patterns of capability mismatch in utilising cloud platforms for task coordination, progress tracking, documentation management, and team collaboration in distributed work environments.

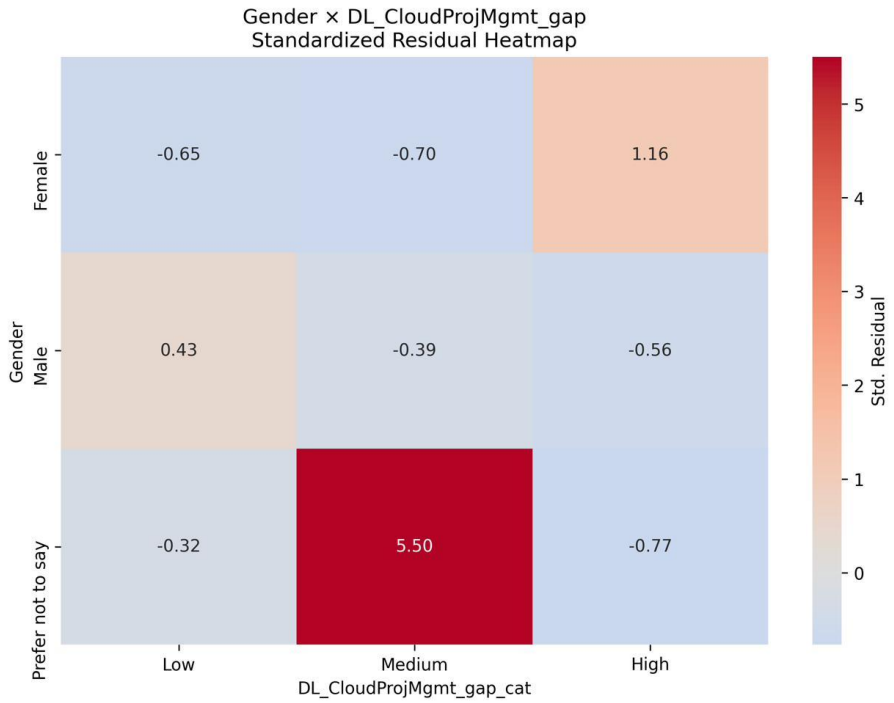

Figure 63. Cross-tabulation of cloud project management gaps by gender.

Female freelancers demonstrate concentrated representation in higher-growth categories, indicating recognition of the importance of cloud project management alongside insufficient practical proficiency. The pattern may stem from differential exposure to collaborative project environments during professional development, sectoral positioning in domains that utilise project management platforms less

intensively, or limited hands-on experience with tools such as Asana, Trello, or similar coordination systems. This gap can constrain access to team-based projects and reduce effectiveness in collaborative freelance arrangements.

3.1.4 Gender × Assessing Online Information

Competency gaps in critical assessment of online information demonstrate strong gender differentiation ($\chi^2 = 32.96$, df = 4, $p < 0.001$; Cramér's V = 0.34). This substantial association indicates that Ukrainian male and female freelancers exhibit systematically different patterns in the mismatch between perceived importance and actual capability in evaluating the credibility of digital content, identifying misinformation, and determining information reliability - critical skills for professional decision-making in information-saturated digital environments.

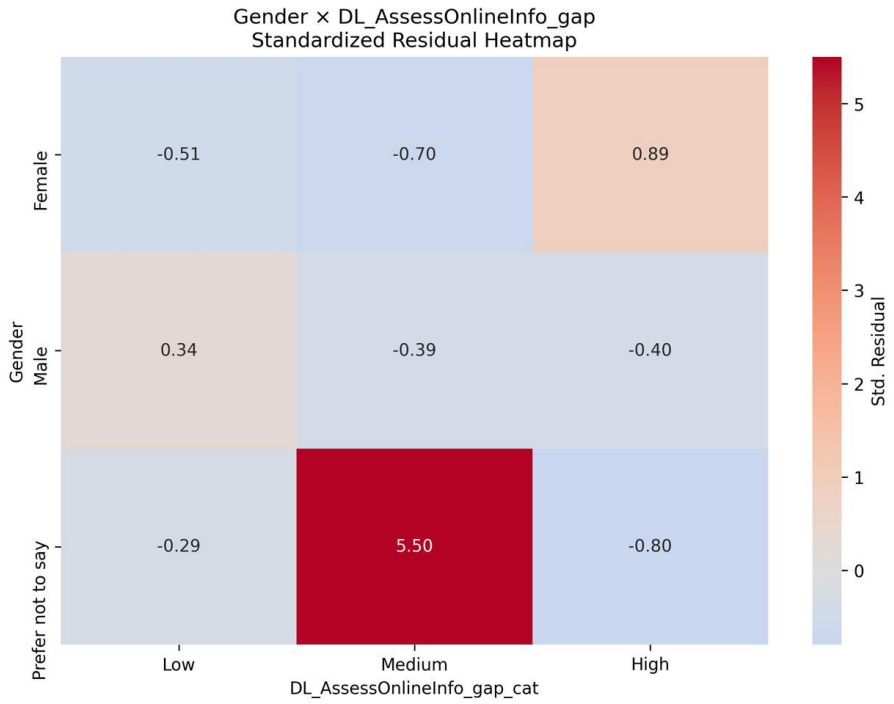

Figure 64. Cross-tabulation of online information assessment gaps by gender.

The association is primarily driven by female freelancers, who are disproportionately concentrated in higher gap categories. This pattern suggests Ukrainian women in freelancing recognise the importance of information assessment, yet report lower confidence or capability in applying critical evaluation frameworks.

The disparity may reflect educational backgrounds with limited emphasis on media literacy, sectoral positioning in domains with less rigorous information verification requirements, or socialisation patterns affecting confidence in asserting judgments about content credibility.

3.1.5 Gender × Personal Financial Management

A substantial gender-based association characterises competency gaps in personal financial management (χ^2 = 32.32, df = 4, p < 0.001; Cramér's V = 0.33). This strong relationship reveals that Ukrainian male and female freelancers experience markedly different capability mismatches in budgeting, managing irregular income flows, planning for tax obligations, and maintaining financial sustainability - competencies that are critically important for navigating the economic volatility inherent in project-based work.

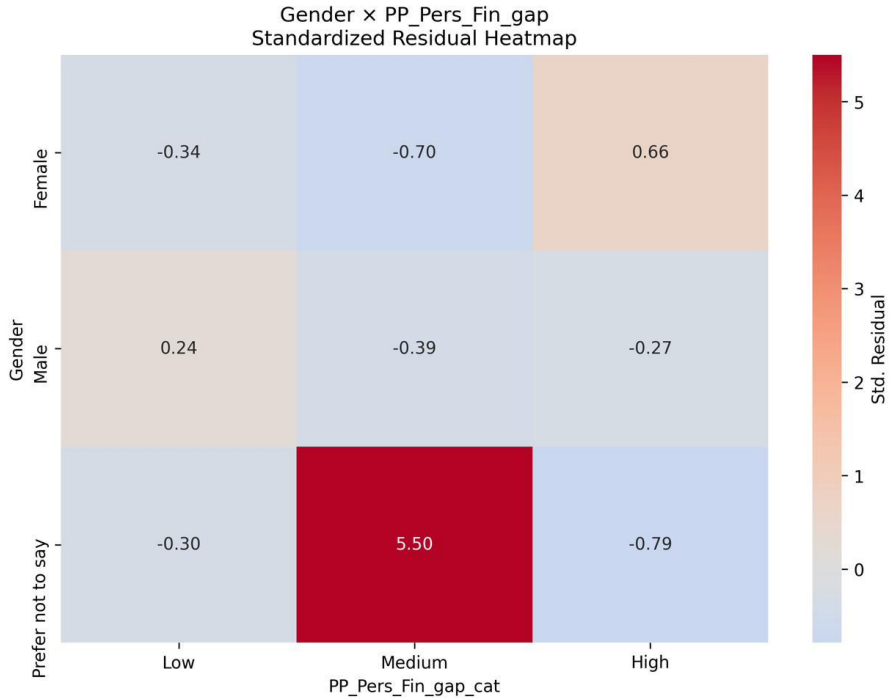

Figure 65. Cross-tabulation of personal financial management gaps by gender.

Female freelancers show a pronounced concentration in higher financial management gap categories, indicating they recognise the importance of financial planning but report inadequate proficiency in applying budgeting frameworks and

managing income fluctuations. Financial management competency gaps carry direct consequences for economic security, including cash flow crises, tax compliance issues, and insufficient emergency reserves. For Ukrainian female freelancers operating in contexts of economic uncertainty, these gaps may amplify vulnerability and constrain long-term career sustainability.

3.1.6 Gender × Cloud Storage & File Sharing

Gender strongly structures competency gaps in cloud storage and file-sharing capabilities (χ^2 = 31.76, df = 4, p < 0.001; Cramér's V = 0.33). This substantial association indicates that Ukrainian male and female freelancers exhibit systematically different misalignments in their use of cloud platforms for document management, version control, secure file sharing, and collaborative access coordination - foundational competencies for contemporary digital work.

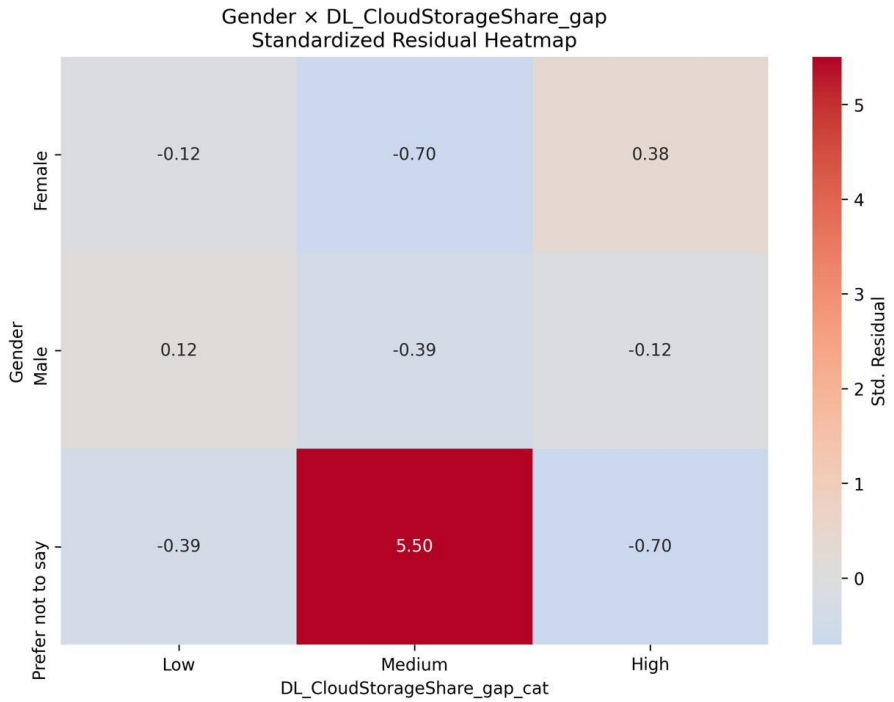

Figure 66. Cross-tabulation of cloud storage and file sharing gaps by gender.

Female freelancers demonstrate concentrated representation in higher proficiency categories for cloud storage, suggesting recognition of the importance of cloud file management alongside inadequate practical capability. Cloud storage competency

gaps create operational barriers, including version control errors, security vulnerabilities from improper sharing settings, and collaboration inefficiencies when files cannot be accessed seamlessly by team members or clients.

3.1.7 Gender × Search Engines & Social Media

Gender equally characterises competency gaps in effective use of search engines and social media platforms ($\chi^2 = 31.76$, df = 4, $p < 0.001$; Cramér's V = 0.33). This strong association indicates that Ukrainian male and female freelancers experience systematically different capability mismatches in leveraging search tools for information discovery and in utilising social media for professional networking - capabilities increasingly central to opportunity access in platform-mediated markets.

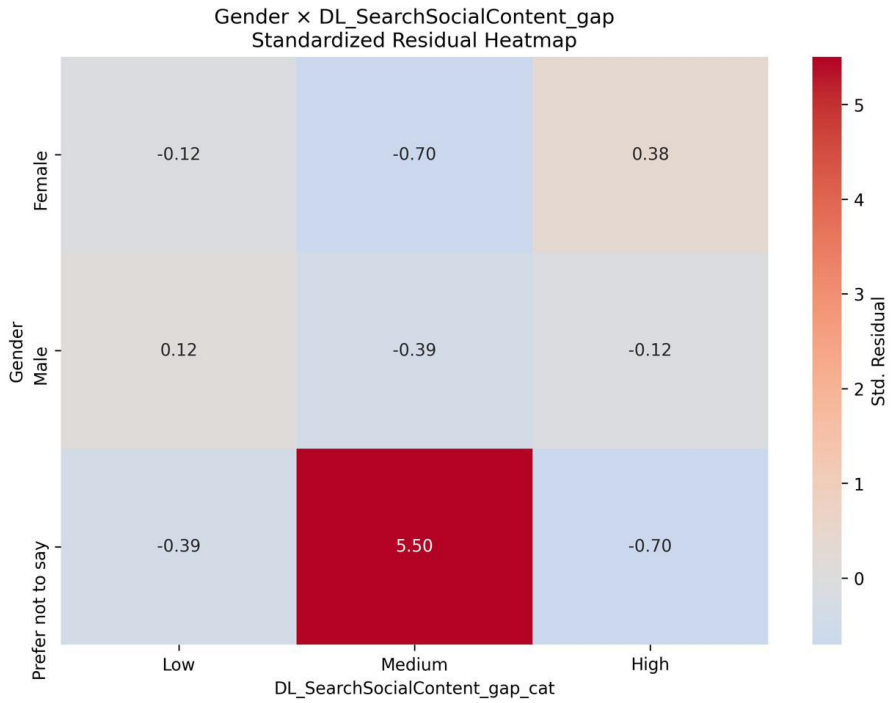

Figure 67. Cross-tabulation of search engines and social media usage gaps by gender.

Female freelancers show concentrated representation in higher-growth categories, suggesting they recognise these platforms' professional importance but report inadequate strategic utilisation skills. The pattern may reflect socialisation, viewing social media primarily through personal rather than professional lenses. Gaps in search and social media proficiency constrain opportunity discovery, professional network

development, and market visibility, as algorithms favour engagement-optimised content.

3.1.8 Future AI Use × Problem Identification & Solving

A strong association emerges between anticipated future AI adoption and competency gaps in problem identification and solving (χ^2 = 14.88, df = 4, p = 0.005; Cramér's V = 0.29). This relationship indicates that Ukrainian freelancers' expectations regarding the integration of artificial intelligence systematically relate to capability mismatches in analytical problem-solving - a core competence underlying professional value creation.

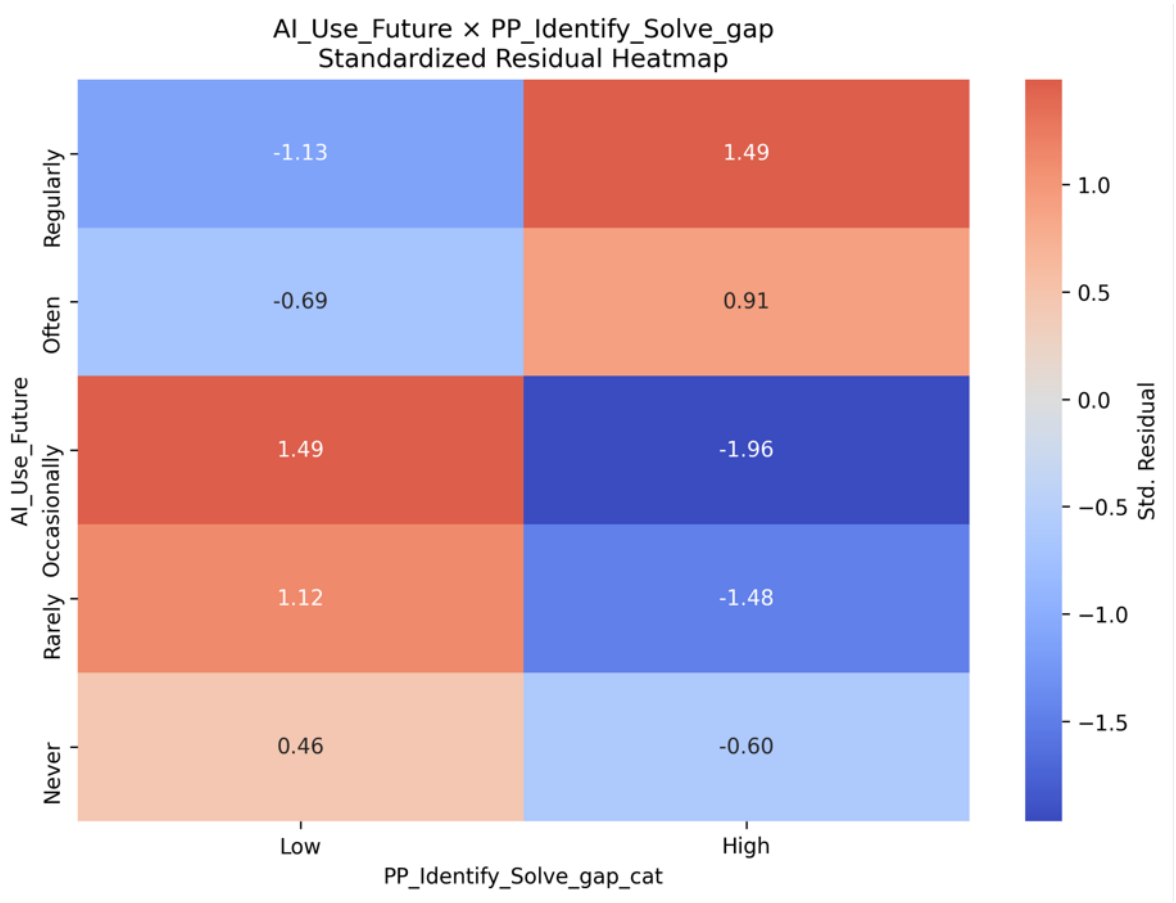

Figure 68. Cross-tabulation of problem identification and solving gaps by future AI use expectations.

The association is primarily driven by freelancers who anticipate no future AI use and demonstrate disproportionate concentration in higher gap categories for problem-

solving competency. This pattern suggests that resistance to AI adoption correlates with underlying deficits in analytical capability. The relationship may reflect that freelancers with weaker problem-solving skills avoid AI technologies requiring analytical thinking for effective application, or that analytical gaps reduce confidence in learning complex technologies. This finding implies that effective AI integration requires foundational analytical skill development rather than merely technology training.

3.1.9 Gender × Collaborative Digital Tools

Gender differentiation characterises competency gaps in collaborative digital tools ($\chi^2 = 22.07$, df = 4, $p < 0.001$; Cramér's V = 0.27). This substantial association indicates that Ukrainian male and female freelancers experience systematically different capability mismatches in utilising digital platforms for team coordination, real-time collaboration, and the facilitation of distributed work.

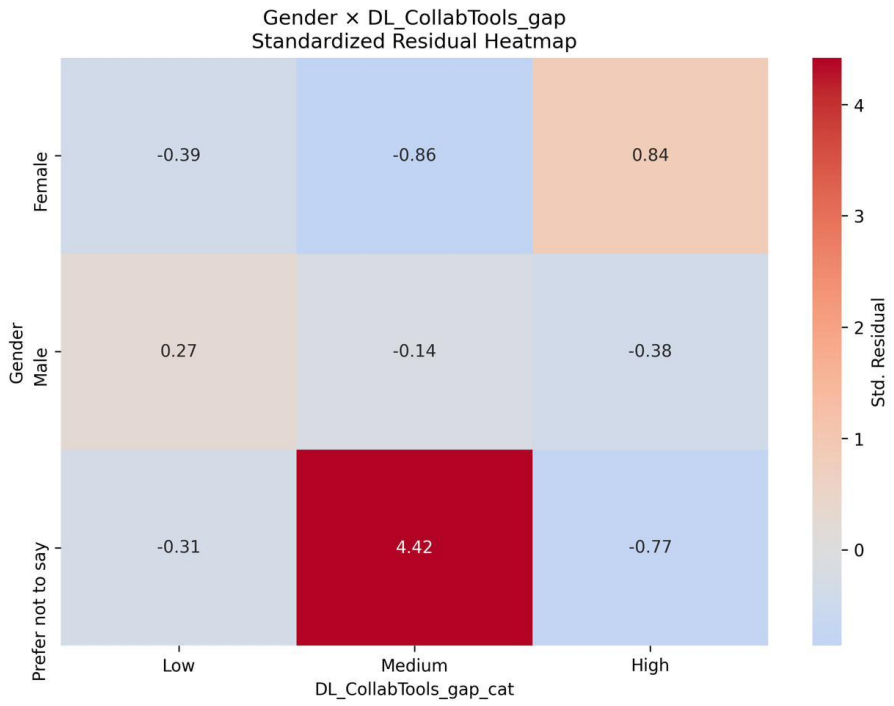

Figure 69. Cross-tabulation of collaborative digital tools gaps by gender.

Female freelancers show concentrated representation in higher gap categories for collaborative tool proficiency, indicating recognition of the importance of digital

collaboration alongside inadequate practical capability. Collaborative tool competency gaps constrain access to team-based project opportunities, potentially limiting professional advancement into higher-value collaborative work increasingly common in platform-mediated freelancing.

3.1.10 Gender × Digital Labour Platforms

Gender systematically structures competency gaps in effectively using digital labour platforms (χ^2 = 21.41, df = 4, p < 0.001; Cramér's V = 0.26). This substantial association indicates that Ukrainian male and female freelancers experience different capability mismatches in navigating platform ecosystems, optimising profiles for algorithmic visibility, and managing client relationships within platform-mediated environments.

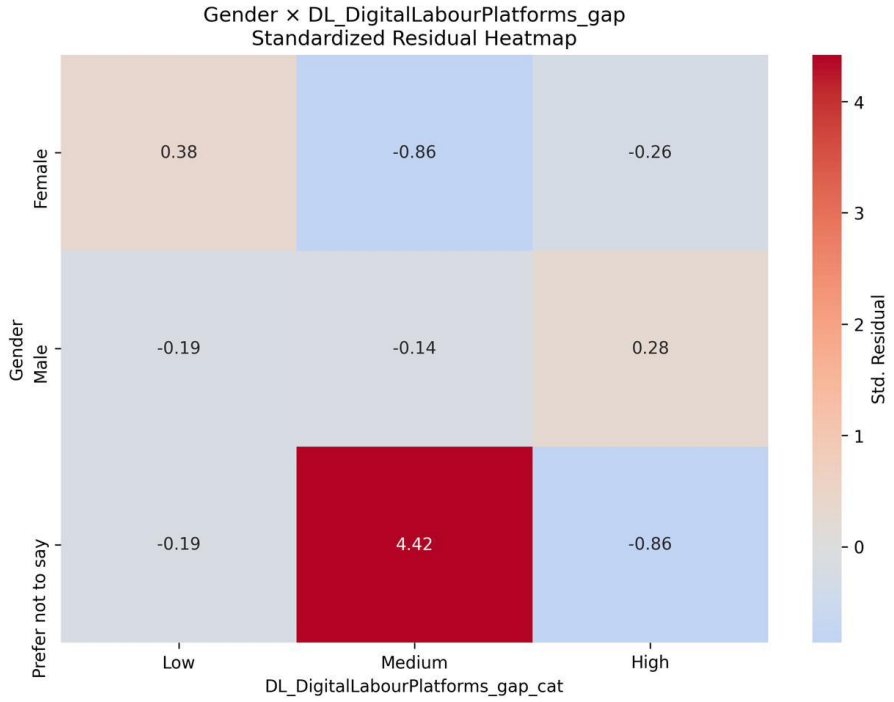

Figure 70. Cross-tabulation of digital labour platform gaps by gender.

Female freelancers demonstrate greater representation in higher proficiency categories on digital platforms. Digital platform competency gaps directly constrain access to opportunities, as inadequate profile optimisation reduces search visibility, while weak proposal development skills reduce conversion rates. For Ukrainian female

freelancers, these gaps may amplify gender disparities in earnings on platforms that increasingly dominate freelance work intermediation.

3.1.11 Years of Experience as a Freelancer × Problem Identification & Solving

Freelance experience systematically relates to competency gaps in problem identification and solving (χ^2 = 9.53, df = 3, p = 0.023; Cramér's V = 0.23). This moderate-to-strong association indicates that capability mismatches in analytical problem-solving vary across experience levels, reflecting differential skill development trajectories throughout freelance careers.

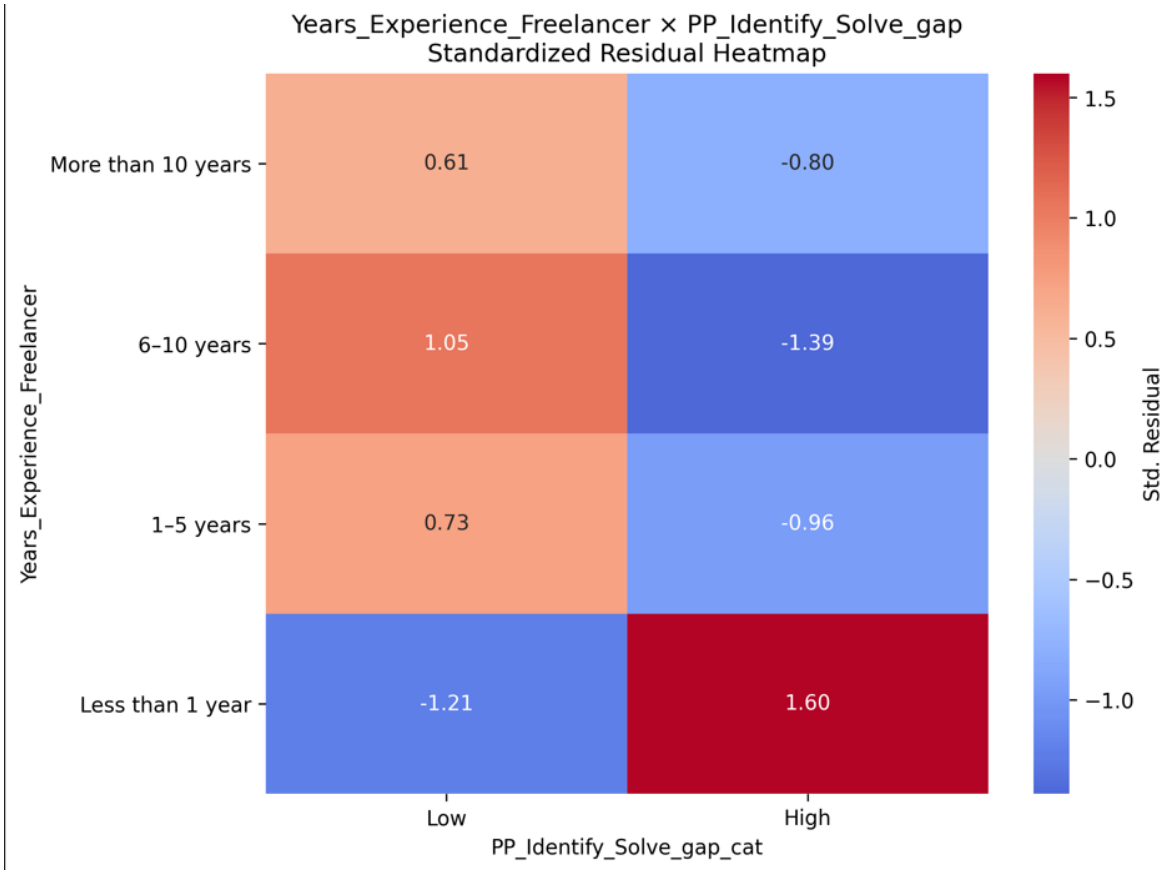

Figure 71. Cross-tabulation of problem identification and solving gaps by years of freelance experience.

The association is primarily driven by freelancers with limited experience (less than 1 year), who are disproportionately concentrated in higher gap categories. This pattern aligns with expectations that novice freelancers recognise the importance of

problem-solving through client demands, while lacking practical experience in translating analytical frameworks into effective delivery. However, the persistence of gaps among more experienced freelancers suggests that experience alone is insufficient for developing analytical capability, indicating the need for intentional skill-building rather than passive accumulation.

3.2 Concluding interpretation

The cross-tabulation findings reveal that competency gaps among Ukrainian freelancers exhibit systematic patterns by demographic and professional characteristics rather than random distributions. Three principal axes organise these capability mismatches, each carrying distinct implications for the design of targeted interventions.

First, and most prominently, gender emerges as the dominant structural axis, accounting for seven of the eleven strong associations identified. This concentrated gender effect spans diverse competence domains, including digital literacy (AI tools, cloud platforms, collaborative tools, information assessment, search and social media), personal profile capabilities (financial management), and platform navigation skills. The consistency of gender-based gaps across multiple competence categories indicates systematic rather than isolated disparities, pointing to structural factors that require comprehensive rather than piecemeal intervention.

The prominence of gender-based structuring distinguishes the Ukrainian pattern from typical European freelance markets, where professional activity, educational attainment, and upskilling behaviour more commonly dominate gap configurations. This Ukrainian distinctiveness likely reflects specific socioeconomic contexts, including educational system characteristics, patterns of technology access, professional socialisation norms, and potentially conflict-related disruptions affecting women's participation in digital economy opportunities. The gender concentration in digital literacy gaps proves particularly consequential given that technological proficiency increasingly determines competitive positioning and income potential in platform-mediated freelancing. The self-confidence of female freelancers might be a

factor influencing the results, while male participants might be more self-confident despite their actual level of competence.

Second, the professional activity domain systematically structures competency gaps, with task prioritisation exhibiting the strongest single association observed (Cramér's V = 0.38). This finding indicates organisational and workload management capabilities vary substantially across freelance sectors, reflecting domain-specific demands and work structuring patterns. Notably, Software Development and IT freelancers exhibit significant gaps in organisational competencies despite their technical sophistication, suggesting that analytical capabilities do not automatically translate into practical skills for workload coordination. This pattern supports activity-tailored training approaches addressing specific organisational challenges rather than generic time management interventions.

Third, behavioural factors - particularly anticipated AI adoption - structure competency gaps in foundational analytical capabilities. The association between AI use expectations and problem-solving gaps indicates that technological readiness relates systematically to underlying analytical competence. Freelancers who anticipate no AI use demonstrate weaker problem-solving capabilities, suggesting that an effective technology transition requires foundational skill development rather than merely technology training. This pattern implies that successful AI integration within Ukrainian freelancing necessitates combined approaches that strengthen analytical capabilities while building technology adoption readiness.

Several Ukrainian patterns diverge notably from typical European freelance market structures. Educational attainment, which often powerfully structures competency gaps in Western European contexts, demonstrates limited differentiation in Ukraine, with no education-related associations reaching strong effect thresholds. This relative weakness may reflect the youth-dominated Ukrainian sample (75.2% under age 24), in which educational credentials are less differentiated than in age-diverse populations, or indicate that Ukrainian educational backgrounds provide less competency differentiation than Western European qualifications.

Similarly, upskilling frequency - typically a strong predictor of competency gaps in learning-intensive European markets - shows a weaker association in Ukraine. This

pattern may reflect the novice status characterising most Ukrainian freelancers (53.5% with less than 1 year of experience), in which systematic upskilling behaviour has not yet differentiated sufficiently to structure gaps powerfully. Alternatively, the pattern may indicate limited access to formal training in Ukraine, constraining variation in learning engagement.

Overall, these cross-tabulation results demonstrate that competency gaps are systematically organised by professional context, demographic characteristics, and behavioural patterns, rather than distributed randomly. The findings emphasise the necessity of targeted and adaptive upskilling strategies that address not only technical digital skills but also communication, organisational, and psychological resilience competencies. The pronounced gender structuring particularly requires comprehensive approaches ensuring equitable access to capability development opportunities across the Ukrainian freelance workforce.

4 Group Mean Differences in Competency Gaps (ANOVA)

This segment analyses group-level variations in competency gap scores using one-way ANOVA and Welch's ANOVA, implemented in accordance with established methodological protocols.

Analysis focused exclusively upon the freelancer cohort (n = 129), given that the limited company sample (n = 6) proved insufficient for reliable mean-comparison statistical testing.

Sample Size and Category Exclusions:

Three demographic categories were excluded from analysis due to insufficient sample sizes:

• Age category '53-60': n = 1 (0.8% of sample)

• AI Use Future category 'Never': n = 1 (0.8% of sample)

• Education Level category 'Doctorate or equivalent': n = 3 (2.3% of sample)

Valid categories retained in analysis comprise:

• Age: Under 24 (n=97), 24-28 (n=6), 29-36 (n=14), 37-44 (n=7), 45-52 (n=4)

• Education Level: High school or less (n=56), Bachelor's degree (n=46), Master degree (n=24)

• AI Use Future: Regularly (n=51), Occasionally (n=36), Often (n=35), Rarely (n=6)

• Years of Experience: (all categories n≥11)

Selection Criteria:

Reported findings satisfy dual criteria encompassing both statistical significance and substantive practical relevance. This analysis presents the 14 most substantial findings, selected based on effect size magnitude ($\eta^2 \geq 0.39$), ensuring focus on competency gaps demonstrating both statistical detectability and meaningful practical implications.

Post-hoc examination procedures - specifically Tukey's Honest Significant Difference (HSD) for homogeneous variances or Games-Howell tests for heterogeneous variance conditions - are integrated to pinpoint particular group pairings underlying observed mean divergences. All reported pairwise comparisons were statistically significant ($p < 0.05$) and involved only categories that met sample size requirements.

Summary of Top 14 Findings by Effect Size (Table 2).

Grouping Variable	Competence Gap Score	Test	F	p-value	η^2
Age	PP_Exper_Domain_gap	Welch	12.18	< 0.001	0.75
Years_Experience_Freelancer	PP_Exper_Domain_prof	Welch	18.03	< 0.001	0.71
Years_Experience_Freelancer	PP_Engage_Relat_gap	Welch	15.79	< 0.001	0.70
Education_Level	PP_Exper_Domain_imp	Welch	6.52	0.0096	0.65
Education_Level	CWT_ClarityExpr_imp	Welch	5.03	0.0219	0.60
Education_Level	PP_Identify_Solve_imp	Welch	4.18	0.0367	0.55
Education_Level	PP_Exper_Domain_gap	Welch	4.22	0.0353	0.55
Education_Level	PP_Identify_Solve_gap	Welch	20.68	< 0.001	0.51
Age	CWT_Negotiation_imp	Welch	3.68	0.0171	0.49
Years_Experience_Freelancer	PP_Learn_Expand_gap	Welch	6.53	0.0022	0.45
Age	CWT_ClarityExpr_imp	Welch	2.90	0.0404	0.43
Years_Experience_Freelancer	PP_Exper_Domain_gap	Welch	6.03	0.0029	0.41
AI_Use_Future	DL_DigitalLabourPlatforms_gap	Welch	16.60	< 0.001	0.39
AI_Use_Future	PP_Identify_Solve_gap	Welch	16.12	< 0.001	0.39

Table 2. Summary of top findings by effect size for group mean differences in competency gaps (ANOVA).

4.1 Interpretation of significant group mean differences

4.1.1 Competence: Experience in the work domain (Gap)

Variations in the competence gap concerning experience in the work domain - operationalised as freelancers' perceived discrepancy between the significance they attribute to domain-specific professional experience and their self-evaluated proficiency in this dimension - were analysed across age cohorts.

Given violations of the variance homogeneity assumptions, Welch's ANOVA was employed. Statistical analysis demonstrated significant age-related effects on the experience-in-work-domain competence gap (Welch's $F = 12.18$, $p < 0.001$).

The accompanying effect size was exceptionally large ($\eta^2 = 0.75$), indicating that age accounts for substantial variance in this perceived gap. This represents the largest effect size observed across all analysed competency dimensions, indicating that age-related differences in domain experience gaps transcend mere statistical significance to manifest practically consequential variations.

Post-hoc Analysis (Games-Howell)

Games-Howell post-hoc procedures identified statistically meaningful pairwise contrasts:

• Under 24 vs. 24-28: Mean gap (Under 24) = 4.15, Mean gap (24-28) = 0.00, Mean difference = +4.15, $p < 0.001$

• Under 24 vs. 37-44: Mean gap (Under 24) = 4.15, Mean gap (37-44) = 0.57, Mean difference = +3.58, $p = 0.002$

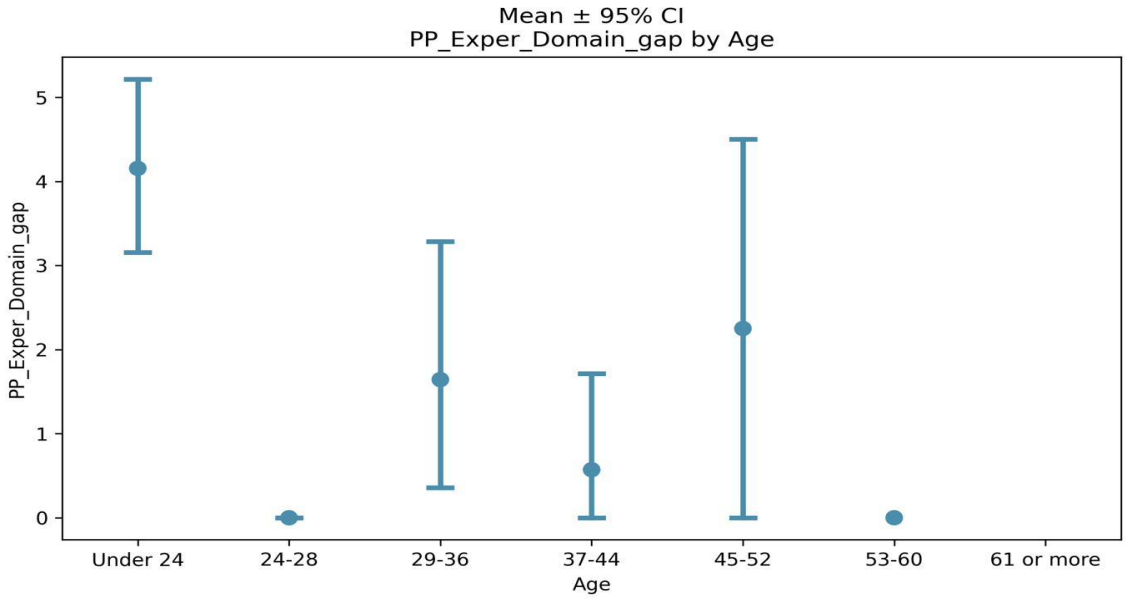

Figure 72. Mean competence gaps in experience in work domain by age group (with 95% confidence intervals).

Interpretation:

The youngest freelance cohort (under 24) shows a markedly larger domain experience gap than older practitioners. Specifically, freelancers under 24 exhibit gaps of 4.15, substantially exceeding gaps reported by those aged 24-28 (0.00) and 37-44 (0.57). This pronounced disparity reflects early-career practitioners' recognition of the importance of domain expertise while simultaneously acknowledging their limited accumulated professional experience.

The near-zero gap observed among 24-28-year-olds suggests rapid development of domain competence during early career stages, in which initial professional exposure facilitates substantial experience accumulation. This pattern aligns with career development trajectories, in which the critical transition from educational preparation to professional practice enables accelerated domain-specific expertise acquisition.

These age-stratified variations underscore critical developmental phases in the progression of a freelance career. Findings support targeted early-career interventions, including structured mentorship frameworks, curated professional exposure opportunities, and competency-building initiatives specifically calibrated for practitioners under 24, who demonstrate the most substantial competence-importance misalignments.

4.1.2 Competence: Ability to identify and solve problems (Gap)

Educational attainment differences in problem-solving competence gaps were examined across retained education levels. Welch ANOVA demonstrated significant effects (Welch's $F = 20.68$, $p < 0.001$, $\eta^2 = 0.51$).

Post-hoc Analysis (Games-Howell):

• High school or less vs. Master degree: Mean gap (High school) = 3.05, Mean gap (Master's) = 1.04, Mean difference = +2.01, $p = 0.014$

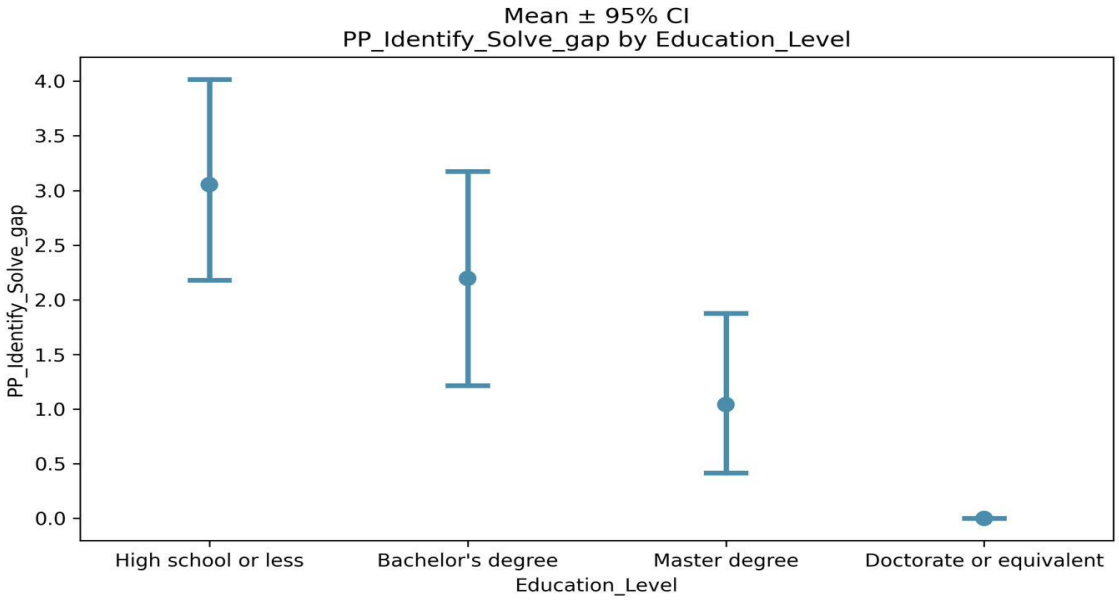

Figure 73. Mean competence gaps in problem solving by education level.

Interpretation:

Educational attainment demonstrates substantial associations with problem-solving competence gaps. Less formally educated freelancers exhibit markedly larger gaps (high school: 3.05) compared to master's degree holders (1.04). Advanced academic training enhances problem-solving capabilities through intensive analytical skill development, exposure to research methodologies, and sustained engagement with complex cognitive tasks that require systematic problem decomposition and solution formulation.

4.1.3 Competence: Use of digital labour platforms (Gap)

Variations in digital labour platforms usage competence gaps were examined across anticipated AI utilization frequency categories. Welch ANOVA demonstrated significant effects (Welch's $F = 16.60$, $p < 0.001$, $\eta^2 = 0.39$).

Post-hoc Analysis (Games-Howell):

• Rarely vs. Occasionally: Mean gap (Rarely) = 0.00, Mean gap (Occasionally) = 1.67, Mean difference = -1.67, p = 0.020

• Rarely vs. Often: Mean gap (Rarely) = 0.00, Mean gap (Often) = 3.54, Mean difference = -3.54, $p < 0.001$

• Rarely vs. Regularly: Mean gap (Rarely) = 0.00, Mean gap (Regularly) = 3.25, Mean difference = -3.25, $p < 0.001$

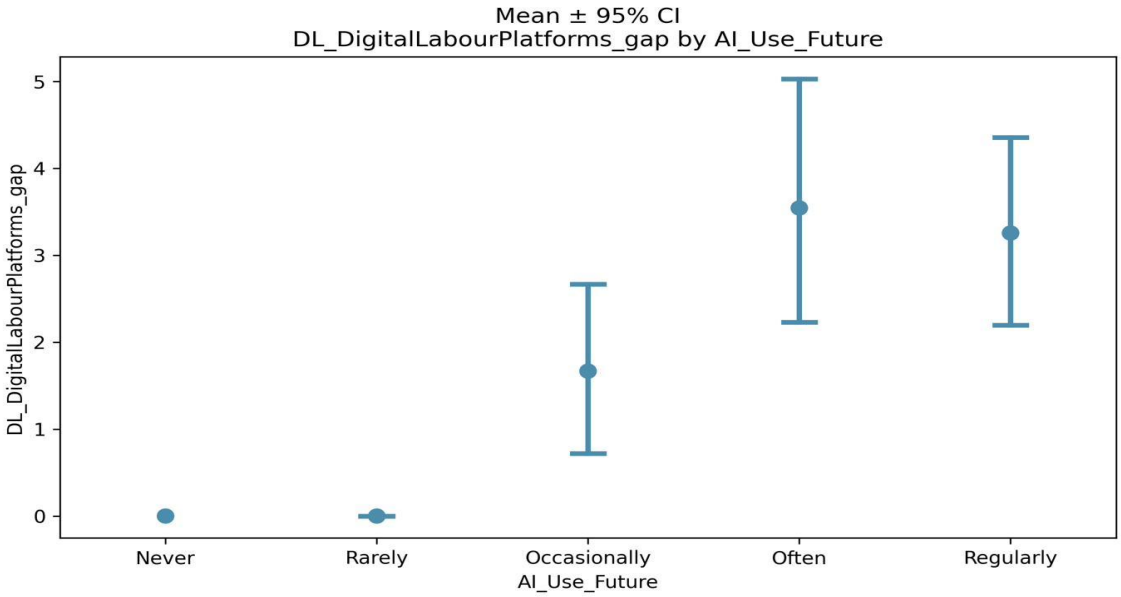

Figure 74. Mean competence gaps in digital labour platforms by AI use expectations.

Interpretation:

Anticipated AI adoption frequency demonstrates substantial associations with digital platform usage gaps. Freelancers planning frequent AI integration exhibit markedly larger platform usage gaps than those anticipating rare AI use. The 'Rarely' category (n=6) serves as a reference baseline, though its small sample warrants cautious interpretation. This counterintuitive pattern - wherein technology-embracing individuals report larger gaps - suggests that AI-adoption enthusiasm may coexist with realistic self-assessment regarding digital competency development needs.

4.2 Summary of key findings

Analysis identified 14 competency gap measurements (originally 15, reduced by 1 after excluding Doctorate comparisons) demonstrating both statistical significance (p

< 0.05) and exceptionally large practical effect sizes ($\eta^2 \geq 0.39$). All reported comparisons involve demographic categories with adequate sample sizes ($n \geq 4$ for most), ensuring statistical validity. Key patterns include:

Age Effects: Younger freelancers exhibit substantially larger gaps in domain experience ($\eta^2 = 0.75$), representing the study's largest observed effect.

Education Level Effects: Educational attainment strongly predicts competency gaps across multiple dimensions (η^2 range: 0.51-0.65). Advanced degree holders demonstrate consistently smaller gaps.

Freelance Experience Effects: Experience duration exhibits exceptionally large effects on domain proficiency ($\eta^2 = 0.71$) and relationship management gaps ($\eta^2 = 0.70$). Accumulated practice duration emerges as critical competency development factor.

AI Adoption Attitudes: Anticipated AI utilization correlates significantly with digital platform usage gaps ($\eta^2 = 0.39$) and problem-solving capabilities ($\eta^2 = 0.39$).

These findings inform the development of targeted interventions within Ukraine's evolving freelance ecosystem. Demographic segments requiring enhanced support include: early-career practitioners (under 24) for domain experience and relationship management; less formally educated freelancers for cognitive and learning competencies; and novice freelancers across multiple competency dimensions. Educational initiatives should emphasise meta-cognitive skill development, structured mentorship frameworks, and competency scaffolding calibrated to specific demographic needs.

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 dataset for companies contains only **8 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 defined by 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** ($p < 0.05$) were retained, indicating 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** was 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 prioritises 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 Table 3.

Competence Variable	Category	Level	N	Mean Prof.	Mean Imp.	Mean Gap	t	p	Cohen's d
Uncert_Stress (PP)	AI_Use_Future	Often	35	3.17	4.06	4.09	-5.125	0.0000	0.87
SelfPromo_Brand (CWT)	Upskilling_Frequency	Regularly	25	3.64	4.36	3.16	-4.272	0.0003	0.85
SelfOrg_WorkDisc (PP)	Upskilling_Frequency	Rarely	22	3.55	4.45	4.59	-3.846	0.0009	0.82
Learn_Expand (PP)	AI_Use_Future	Often	35	3.77	4.37	3.06	-4.825	0.0000	0.82
Exper_Domain (PP)	Years_Experience_Freelancer	Less than 1 year	71	2.82	3.80	4.75	-6.783	0.0000	0.81

Table 3. Paired t-test results for categorical analysis of importance-proficiency gaps.

5.1.1 Paired t-test Analysis – Uncertainty and Stress Management (Frequent AI Users)

A paired *t*-test was conducted to examine whether there is a statistically significant difference between **perceived importance** and **self-reported proficiency** in **Uncertainty and Stress Management** among **freelancers who frequently use AI tools**.

The analysis is based on **35 paired observations**, exceeding the recommended minimum sample size ($N \geq 15$) for reliably detecting large effects in paired designs. The mean proficiency score was **3.17**, whereas the corresponding mean importance score was notably higher (**4.06**), 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**, $t(34) = -5.125$, $p < 0.001$, leading to the rejection of the null hypothesis of equal importance and proficiency ratings. This result provides clear evidence of a systematic mismatch between the perceived importance of stress management and respondents' proficiency in this area.

The magnitude of this difference is further supported by **Cohen's *d* = 0.87**, 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.

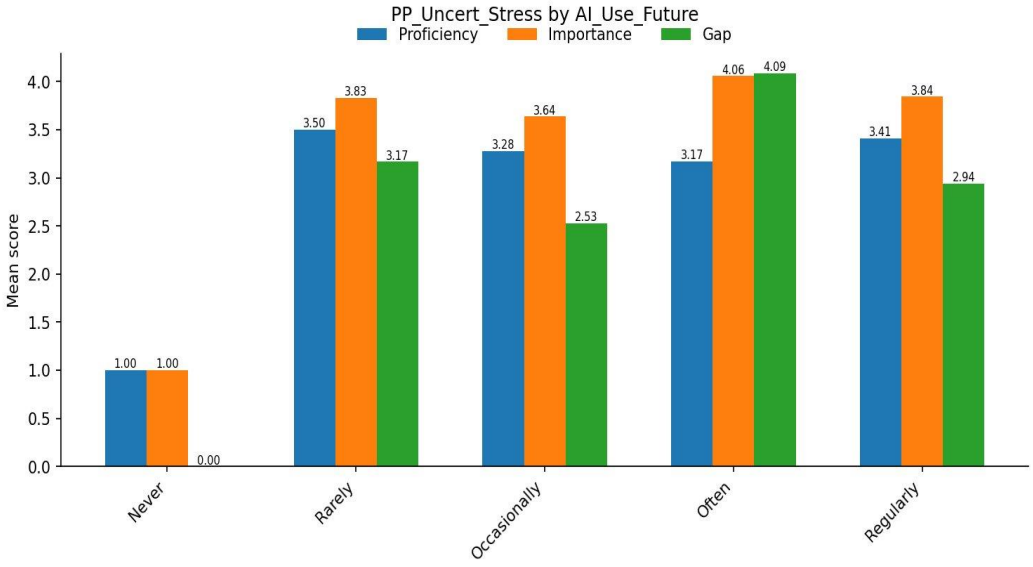

Figure 75. Uncertainty and stress management: mean proficiency, importance, and gap scores among frequent AI users (bar chart).

The bar chart above illustrates the mean proficiency, importance, and self-reported gap ratings for Uncertainty and Stress Management across different AI usage patterns. The visualisation reveals that **frequent AI users ("Often")** report both high importance ratings (4.06) and elevated gap perceptions (4.09), while maintaining moderate proficiency levels (3.17). This pattern suggests that technological engagement may amplify awareness of stress-related vulnerabilities.

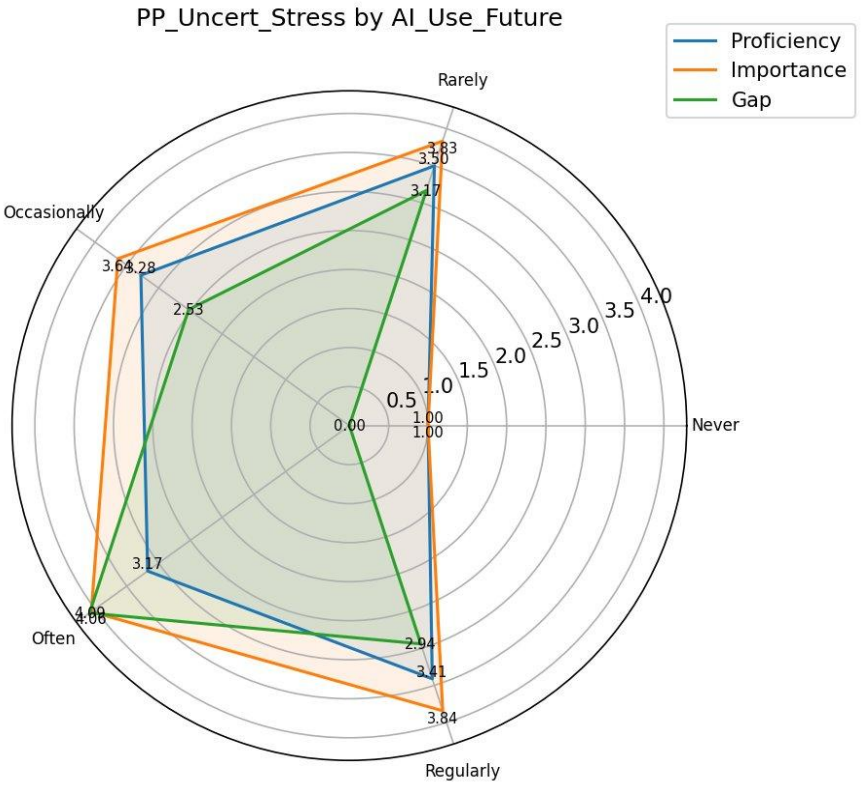

Figure 76. Uncertainty and stress management: competency profile among frequent AI users (radar chart).

The radar chart provides a complementary perspective by displaying the relative positioning of each AI usage group across the three dimensions. The **pronounced gap area** (shown in green) for the "Often" category visually emphasises the magnitude of the mismatch. Notably, occasional AI users exhibit a more balanced profile, suggesting that the stress-proficiency gap may intensify as technological integration deepens.

Taken together, these findings highlight **Uncertainty and Stress Management** as a **critical competence area** requiring **targeted upskilling** among freelancers who frequently use AI tools. The combination of a high perceived importance, a significantly lower self-assessed proficiency, and a large effect size suggests that interventions aimed at strengthening emotional resilience and stress coping mechanisms could yield meaningful improvements in freelancers' professional outcomes, particularly for those navigating technological disruption.

5.1.2 Paired t-test analysis – self-promotion and personal branding (regularly upskilling freelancers)

Among freelancers who **regularly engage in upskilling**, the mean importance rating for **Self-Promotion and Personal Branding** (4.36) is substantially higher than the corresponding mean self-assessed proficiency (3.64). This difference is **statistically significant**, $t(24) = -4.272$, $p < 0.001$, and is associated with a **large / very large effect size** (Cohen's $d = 0.85$).

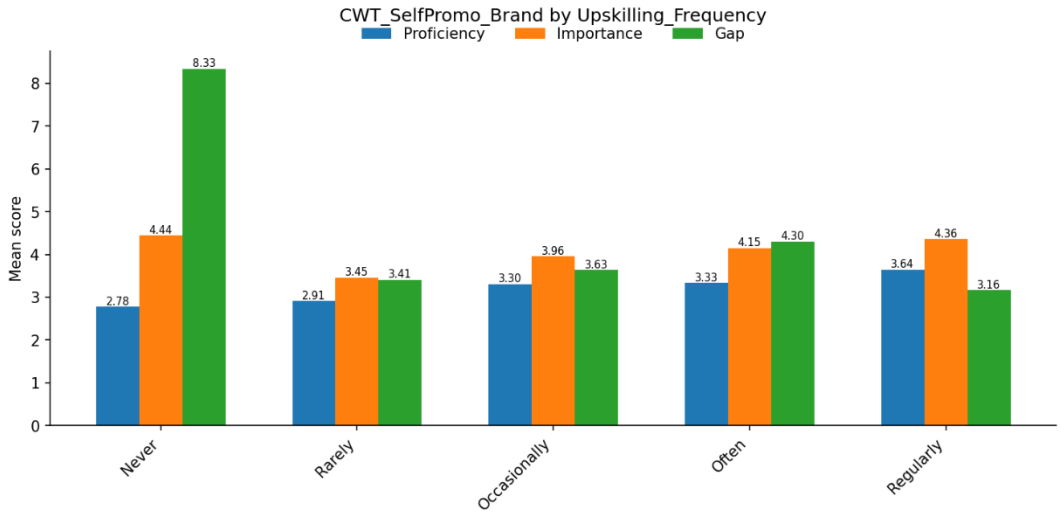

Figure 77. Self-promotion and personal branding: mean proficiency, importance, and gap scores among regularly upskilling freelancers.

The bar chart presents a pattern that may initially appear counterintuitive: freelancers who **never** engage in upskilling report the largest perceived gap (8.33), followed by those who upskill **often** (4.30) and **occasionally** (3.63). In contrast, those who **regularly** upskill show the **smallest gap** (3.16) across all categories. However, the analysis focuses on the 'Regularly' category for methodological reasons grounded in statistical reliability. First, the 'Never' group, despite its large gap, comprises only **9 respondents**, falling below the **minimum threshold of $N \geq 15$** required for stable inference. Second, and more importantly, Cohen's d measures not merely the size of a gap but its **consistency across individuals**: the 'Regularly' group's effect size of 0.85 indicates that regular learners uniformly experience this gap, whereas the 'Often' ($d = 0.63$) and 'Occasionally' ($d = 0.54$) categories show weaker, more variable patterns. A **consistent moderate gap** (high d) is a more actionable training target than a **large**

but inconsistent gap (low *d*) or one derived from very small samples. This methodological decision prioritises **statistical robustness and generalizability** over the raw magnitude of observed differences.

These results indicate a **pronounced competence gap** in self-promotion skills among the subgroup of regular learners, suggesting that, despite ongoing upskilling efforts, personal branding and visibility remain a **priority for targeted training**. This finding is particularly noteworthy because it demonstrates that even motivated learners struggle to market themselves effectively, suggesting potential structural or pedagogical gaps in existing training offerings.

5.1.3 Paired t-test analysis – learning and professional expansion (frequent AI users)

A paired *t*-test was conducted to examine whether there is a statistically significant difference between **perceived importance** and **self-reported proficiency** in **Learning and Professional Expansion** among **freelancers who frequently use AI tools**.

The analysis is based on **35 paired observations**, exceeding the recommended minimum sample size ($N \geq 15$) for reliably detecting large effects in paired designs. The mean proficiency score was **3.77**, whereas the corresponding mean importance score was notably higher (**4.37**), 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**, $t(34) = -4.825$, $p < 0.001$, leading to the rejection of the null hypothesis of equal importance and proficiency ratings. This result provides clear evidence of a systematic mismatch between the perceived importance of continuous learning and respondents' proficiency in this area.

The magnitude of this difference is further supported by **Cohen's *d* = 0.82**, 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.

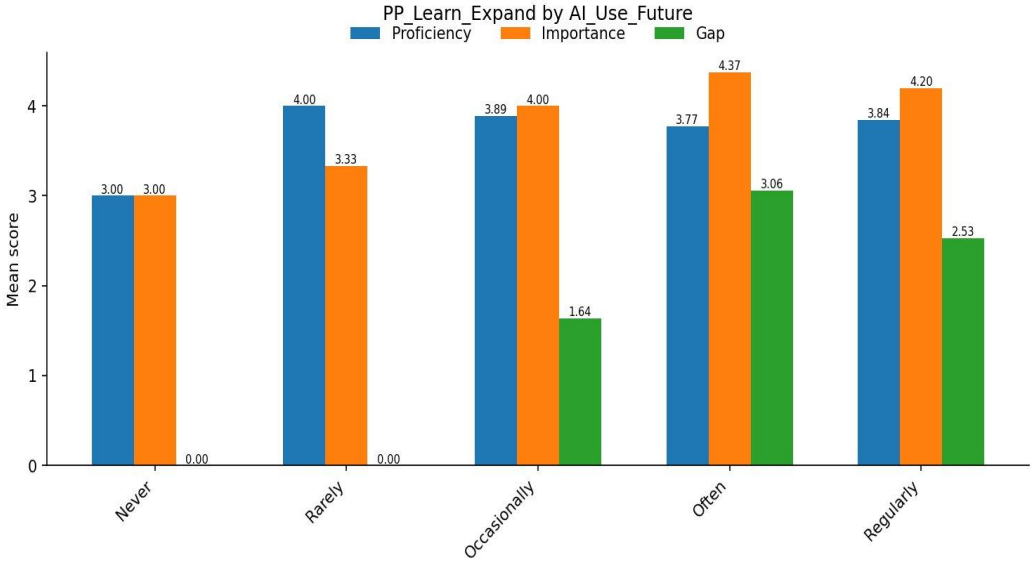

Figure 78. Learning and professional expansion: mean proficiency, importance, and gap scores among frequent AI users (bar chart).

The bar chart shows variation in Learning and Professional Expansion ratings by AI usage frequency. Frequent AI users ("Often") exhibit a notable pattern: while their importance ratings are elevated (4.37), their proficiency levels (3.77) result in a substantial perceived gap (3.06). This suggests that **technological engagement heightens awareness of the need for continuous learning** while simultaneously exposing skill deficiencies.

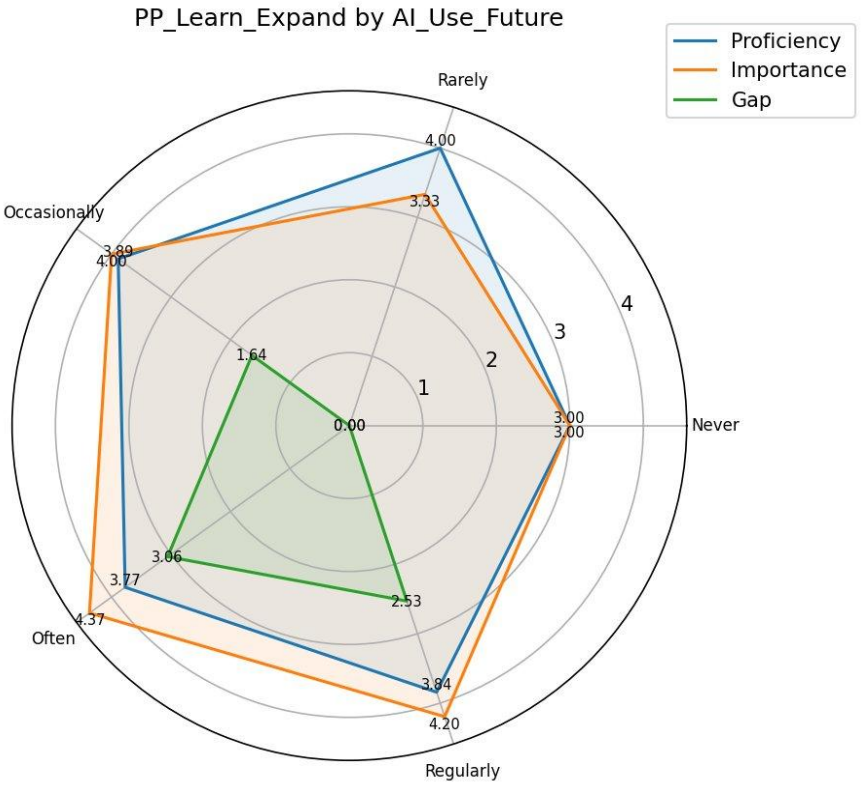

Figure 79. Learning and professional expansion: competency profile among frequent AI users (radar chart).

The radar visualisation reinforces this interpretation by showing that **the gap dimension** is most pronounced for the "Often" category. Interestingly, occasional AI users display relatively balanced profiles with smaller gaps, suggesting a potential "sweet spot" where technological exposure enhances learning without overwhelming capacity.

Taken together, these findings highlight **Learning and Professional Expansion** as a **critical competence area** requiring **targeted upskilling** among tech-forward freelancers. Notably, this is the **same population** that showed gaps in stress management, suggesting that **frequent AI users face compound pressures**; they struggle with both the emotional burden of rapid change and the practical challenge of continuous learning to keep pace with technological evolution. These dual vulnerability points to the need for integrated support programs that address both psychological resilience and learning capacity.

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, aiming to identify systematic mismatches between perceived importance and current mastery.

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 prioritises 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 Table 4.

Competence Variable	N	Mean Prof.	Mean Imp.	Mean Gap	t	p	Cohen's d
SelfPromo_Brand (CWT)	129	3.27	4.02	3.97	-7.161	0.0000	0.63
Exper_Domain (PP)	129	3.28	3.94	3.40	-6.401	0.0000	0.56
SelfOrg_WorkDisc (PP)	129	3.76	4.28	3.07	-5.719	0.0000	0.50

Table 4. Global paired t-test analysis of importance-proficiency gaps across all freelancers.

5.2.1 Self-promotion and personal branding

This competence exhibits the **largest discrepancy** between importance and proficiency. Freelancers rate self-promotion 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 $d \approx 0.63$), indicating a robust and practically meaningful gap.

5.2.2 Domain expertise and specialization

A similarly pronounced gap is observed for domain expertise. The large *t*-statistic and very small *p*-value ($p < 0.001$), combined with a **moderate-to-large effect size** ($d \approx 0.56$), suggest that freelancers recognize the importance of deep domain knowledge but feel insufficiently specialized in their areas of expertise.

5.2.3 Self-organization and work discipline

Self-organization and work discipline display a marked gap, supported by a highly significant paired *t*-test and a **moderate effect size** ($d \approx 0.50$). This suggests that autonomy in freelance work amplifies the need for stronger self-regulatory skills.

5.2.4 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 **self-promotion**, **domain expertise**, and **self-organization** consistently rank highest, combining strong statistical evidence with meaningful effect sizes.

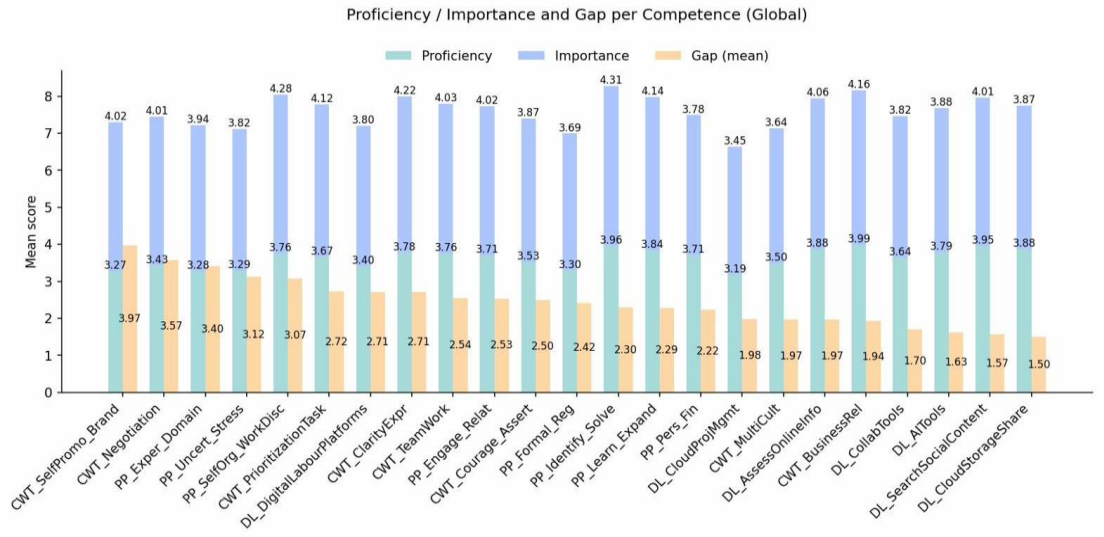

Figure 80. Global importance-proficiency gap analysis: stacked bar comparison across all competencies.

To support the interpretation of the global gap analysis, the stacked bar chart above provides a comprehensive view of proficiency, importance, and gap ratings across all competences. The chart facilitates direct visual comparison, revealing that **business and self-management competencies** (left side of the chart) consistently show larger gaps than digital literacy competencies (right side).

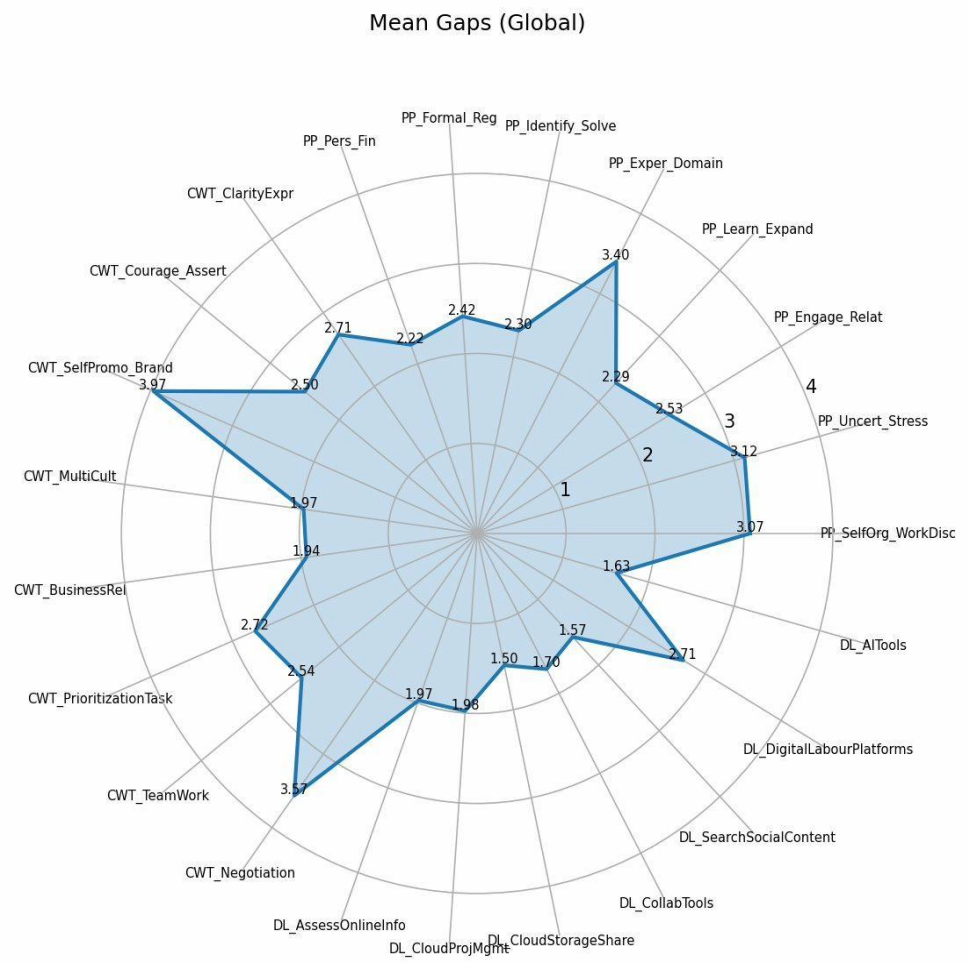

Figure 81. Global importance-proficiency gap analysis: radar chart of proficiency, importance, and gap profiles.

The radar chart provides an alternative visualisation that emphasises the **relative magnitudes of mean gaps** across key competences. By displaying all selected competences on a standard 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 emphasising the pattern and distribution of global mean gaps rather than individual statistical parameters, thereby supporting a more intuitive comparison of training priorities at the global level.

These findings provide a robust empirical basis for **prioritising systemic-level training interventions**, particularly those aimed at strengthening freelancers' capacity to promote themselves, deepen their domain expertise, manage uncertainty,

and develop stronger self-organisational capabilities in platform-based work environments.

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

6.1 Cluster analysis for freelancer typologies

6.1.1 Methos of analysis

To uncover latent typologies within the Ukrainian freelancer population, k-means clustering was applied to a composite dataset comprising self-assessed competence indicators, accumulated domain expertise, professional freelancing tenure, orientation toward artificial intelligence adoption, and behavioural patterns related to continuous skill enhancement. The categorical variable representing the primary freelancing activity domain was deliberately omitted from the clustering procedure to ensure that identified segments reflected underlying competency configurations, experience accumulation trajectories, and technology engagement strategies rather than being artefacts of occupational categorisation.

Ordinal-scale variables capturing future AI utilisation expectations and upskilling engagement intensity were numerically encoded using a standardised five-point scale ranging from Never to Regularly. Professional experience duration categories were converted to approximate continuous values reflecting midpoint estimates: less than one year was assigned a value of 0.5, the 1-5 years bracket was coded as 3.0, the 6-10 years range was represented by 8.0, and the more than 10 years category received a value of 12.5. Prior to cluster estimation, all input variables were z-score standardised to eliminate scale-dependent distortions and ensure equivalent weighting across competency, experience, and behavioural dimensions.

Following a systematic evaluation of alternative partitioning schemes that jointly considered interpretability criteria and quantitative internal validation diagnostics, a five-cluster configuration (k = 5) was selected as the optimal representation of

heterogeneity within the Ukrainian freelancer sample. This solution achieved a superior balance between cluster compactness and inter-cluster separation while yielding substantively meaningful and theoretically coherent freelancer profiles.

6.1.2 Internal Validity of Cluster Solution

Two complementary indices were employed to assess the statistical quality of the derived cluster structure. The Calinski-Harabasz criterion evaluates the ratio of between-cluster to within-cluster variance, with higher values indicating well-separated, internally cohesive typologies. The Davies-Bouldin metric quantifies the average similarity between each cluster and its most similar neighbouring cluster, with lower values indicating greater distinctiveness and minimal overlap between segments. Jointly, these indicators provide robust evidence regarding the appropriateness of the chosen five-cluster taxonomy.

Metric	Value	Direction	Interpretation
Calinski-Harabasz Index	16.98	Higher is better	Enhanced separation between clusters
Davies-Bouldin Index	2.28	Lower is better	Compact, minimally overlapping clusters

Table 5. Cluster validation metrics for the five-cluster freelancer typology solution.

The obtained five-cluster solution demonstrates favourable psychometric properties, characterised by a comparatively high Calinski-Harabasz index and a moderately low Davies-Bouldin coefficient. These quantitative indicators, when considered alongside the substantive interpretability and theoretical coherence of the resulting freelancer typologies, collectively provide strong empirical support for the validity and utility of the identified segmentation structure.

The following radar chart provides a comprehensive visual representation of the five cluster profiles across the standardised competency, experience, and behavioural dimensions employed in the clustering procedure. This multidimensional visualisation facilitates direct comparison of cluster centroids, enabling identification of

distinguishing characteristics and relative positioning within the Ukrainian freelancer typology.

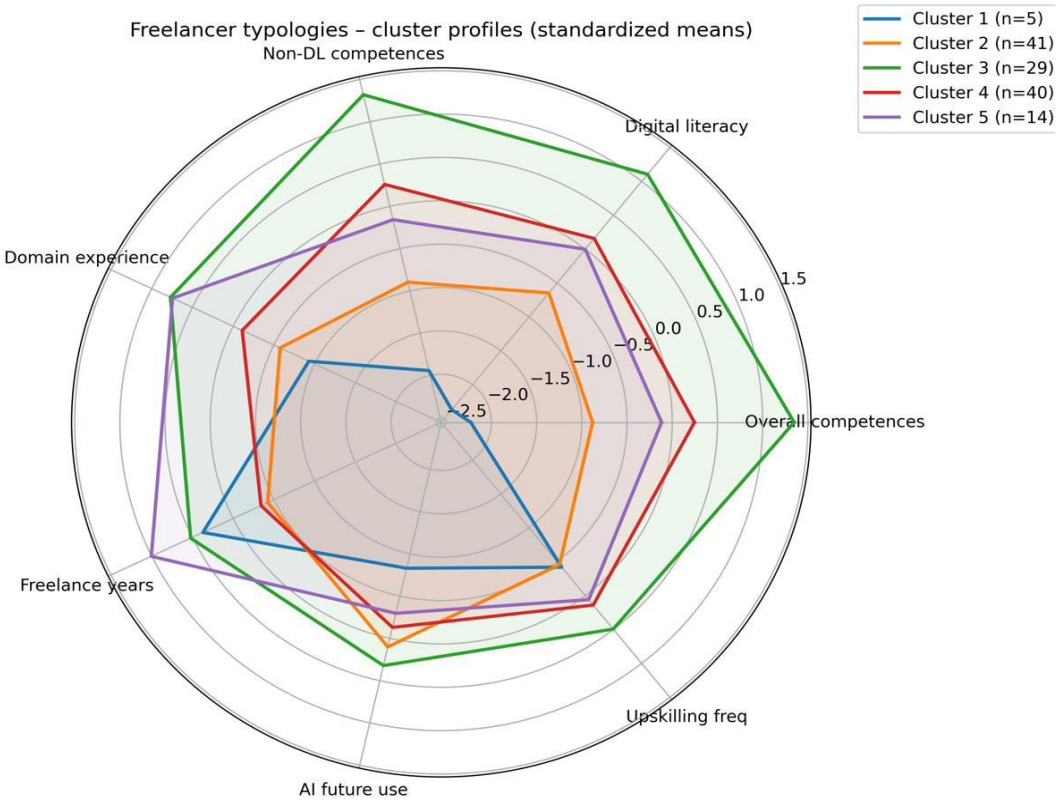

Figure 82. Radar chart of five-cluster freelancer competency profiles.

6.1.3 Detailed cluster profiles

Cluster 1 - Developing Newcomers (n = 5; 3.9%)

This smallest cluster represents freelancers characterised by markedly below-average competency proficiency levels across all assessed dimensions, coupled with limited domain-specific expertise and relatively modest professional tenure. Despite moderate AI orientation and upskilling engagement, members of this segment exhibit fundamental skill deficits, suggesting they are at an early stage in their freelancing trajectories. The profile aligns with individuals who have recently entered the freelance market and are actively navigating foundational challenges in establishing independent professional practices.

- Lowest overall competence proficiency (2.23)

- Substantially below-average digital literacy (2.06)
- Minimal domain experience accumulation (2.20)
- Limited freelancing tenure (4.0 years)
- Moderate AI adoption expectation (3.20)
- Lower-than-average upskilling intensity (2.80)

Cluster 2 - Early-Stage Builders (n = 41; 31.8%)

Representing nearly one-third of the Ukrainian freelancer sample, this cluster comprises professionals with moderate overall competence levels, very recent market entry, and minimal accumulated domain expertise. Notably, members exhibit an elevated AI orientation and slightly above-average digital literacy, given their limited experience base, suggesting technologically forward-leaning dispositions despite nascent professional development. This profile characterises individuals who have transitioned to freelancing relatively recently and are actively building foundational skill portfolios while remaining open to emerging technological tools and platforms.

- Moderate overall competence (3.08)
- Above-average digital literacy (3.23)
- Very limited domain experience (2.61)
- Minimal freelancing tenure (1.35 years)
- High AI adoption orientation (4.10)
- Moderate upskilling engagement (2.76)

Cluster 3 - Advanced Experts (n = 29; 22.5%)

This cluster represents the most proficient segment within the Ukrainian freelancer population, distinguished by uniformly elevated competency ratings across both digital and non-digital domains. Members demonstrate substantial accumulated domain expertise, moderate professional tenure, strong AI adoption orientations, and comparatively intensive engagement in continuous skill development activities. The profile reflects mature, highly capable professionals who have achieved expert-level mastery in their specialisations while maintaining strong technological fluency and a commitment to ongoing competency enhancement. This segment epitomises

successful freelance career trajectories characterised by sustained skill investment and adaptive capacity.

- Highest overall competence proficiency (4.48)
- Highest digital literacy capability (4.43)
- Highest non-digital competence mastery (4.50)
- Substantial domain expertise accumulation (4.17)
- Moderate freelancing experience (4.5 years)
- Strong AI adoption commitment (4.31)
- Highest upskilling intensity (3.86)

Cluster 4 - Digitally-Oriented Developers (n = 40; 31.0%)

Constituting nearly one-third of the sample, this substantial cluster comprises freelancers exhibiting above-average overall competency alongside balanced digital and non-digital proficiency profiles. Despite relatively limited professional tenure and moderate domain expertise accumulation, members display elevated AI adoption expectations and consistent upskilling engagement patterns. The typology characterises technologically adaptive professionals who are systematically building comprehensive skill portfolios and demonstrate strong responsiveness to evolving market demands and technological innovations, positioning themselves for continued professional advancement through strategic competency development.

- Above-average overall competence (3.78)
- Balanced digital literacy (3.78)
- Balanced non-digital competence (3.79)
- Moderate domain experience (3.15)
- Limited freelancing tenure (1.63 years)
- High AI orientation (3.88)
- Above-average upskilling engagement (3.45)

Cluster 5 - Experienced Specialists (n = 14; 10.9%)

This cluster encompasses seasoned freelancing professionals distinguished by extensive accumulated tenure, substantial domain-specific expertise, and moderate-

to-high overall competency levels. While digital literacy scores remain somewhat below those observed in more technologically intensive clusters, members exhibit moderate AI adoption orientations and sustained upskilling patterns consistent with established professional practices. The profile characterises experienced practitioners who have developed deep specialisation within their domains and maintain stable, mature freelancing careers built upon accumulated expertise and professional reputation rather than aggressive technological adoption or rapid skill diversification.

- Above-average overall competence (3.56)
- Moderate digital literacy (3.67)
- Moderate non-digital competence (3.50)
- Substantial domain expertise (4.14)
- Highest freelancing tenure (6.11 years)
- Moderate AI adoption expectation (3.71)
- Moderate upskilling frequency (3.36)

6.1.4 Synthesis and interpretation of freelancer typologies

Cluster	Assigned Profile	Key Characteristics
Cluster 1	Developing Newcomers	Minimal competencies, limited experience, foundational developmental stage
Cluster 2	Early-Stage Builders	Moderate competencies, very recent entry, high AI orientation despite limited experience
Cluster 3	Advanced Experts	Highest competencies across all dimensions, intensive upskilling, strong technological fluency
Cluster 4	Digitally-Oriented Developers	Above-average balanced competencies, high AI adoption, active skill building despite limited tenure
Cluster 5	Experienced Specialists	Extensive tenure, deep domain expertise, stable mature careers, selective technology adoption

Table 6. Summary characteristics of identified freelancer clusters.

The Ukrainian freelancer typology reveals pronounced heterogeneity across competency levels, professional maturity stages, and technology adoption trajectories.

Notably, three distinct career-stage clusters emerge: Developing Newcomers occupying the earliest entry phase, Early-Stage Builders representing recent market entrants actively constructing foundational portfolios, and Advanced Experts exemplifying successful progression to elite professional status. This developmental gradient underscores the importance of career-stage-specific support mechanisms and differentiated training interventions aligned with evolving competency requirements.

Technological orientation constitutes a critical differentiating dimension within the segmentation structure. Early-Stage Builders and Digitally-Oriented Developers demonstrate elevated AI adoption expectations despite limited professional tenure, suggesting that newer cohorts entering Ukrainian freelance markets exhibit greater technological receptiveness than some more established practitioners. Conversely, Experienced Specialists display moderate AI orientation alongside deep domain specialisation, reflecting adaptive strategies that prioritise accumulated expertise and professional reputation over aggressive technological adoption. This pattern indicates generational and entry-cohort effects shaping technology engagement patterns within the Ukrainian freelancer population.

The identified typology provides actionable insights for training program design and targeted policy intervention. Developing Newcomers requires comprehensive foundational competency development alongside structured mentorship and practice-oriented learning experiences. Early-Stage Builders and Digitally-Oriented Developers would benefit most from advanced technological skill enhancement, AI integration training, and strategic positioning support to accelerate professional advancement. Advanced Experts are optimal candidates for train-the-trainer initiatives and knowledge-sharing programs. At the same time, Experienced Specialists may benefit from targeted upskilling focused on emerging technologies that complement their established domain expertise. These differentiated intervention strategies reflect the distinct developmental needs and adaptive capacities characterising each identified freelancer segment.

6.2 CHAID decision-tree segmentation for companies

The Ukrainian organisational sample comprises six respondent entities, constituting a markedly constrained dataset that substantially limits the statistical power and generalizability of multivariate segmentation procedures.

Chi-square Automatic Interaction Detection is a recursive partitioning algorithm that constructs decision trees by iteratively applying chi-square independence tests. At each branching node, the procedure evaluates all available predictor variables and selects the variable with the strongest statistically significant association with the outcome measure to define the optimal split. Unlike binary-split algorithms such as CART, CHAID allows multi-way splits and automatically merges non-distinct predictor levels, thereby enhancing interpretability while preserving statistical efficiency.

The algorithm's preference for categorical data structures and transparent statistical testing procedures makes it particularly well-suited to survey-based organisational research where interpretability and stakeholder communication constitute primary analytical objectives. However, CHAID's reliance on chi-square tests necessitates adequate expected frequencies within contingency table cells, rendering the method vulnerable to instability when applied to extremely small samples such as the Ukrainian organisational dataset analysed herein.

The dependent variable is categorical and represents a future-oriented organisational challenge:

- Availability of freelancers with required competences*

This variable captures whether organisations anticipate difficulties in accessing adequately skilled freelance workers in the near future. The explanatory variable with the most significant influence on Ukraine is **the perceived risk of relying on freelancers (RSK_Delay_Unreliability)**.

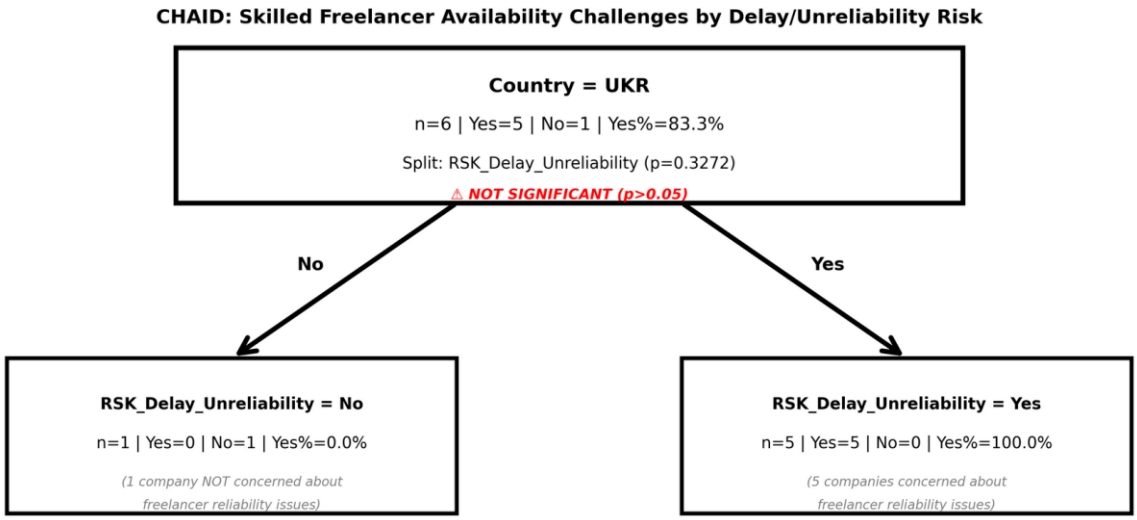

Figure 83. CHAID decision-tree analysis of company segmentation.

Ukrainian companies predominantly identify delays and unreliability among freelancers as their primary operational risk (83%). The CHAID analysis reveals that companies currently experiencing reliability challenges are also those anticipating future difficulties in accessing skilled freelancers.

The findings suggest that availability challenges stem from a scarcity of freelancers who combine technical competence with professional dependability, rather than a simple shortage of workers. It may also indicate high standards among Ukrainian companies regarding the qualities they expect from freelancers. Companies reporting reliability concerns demonstrate greater awareness of difficulties in securing freelancers who meet both quality and reliability standards. The single company without reliability concerns similarly does not anticipate future availability challenges, suggesting that firms securing reliable talent perceive fewer obstacles to continued access.

While freelancers remain available in absolute numbers, the proportion meeting professional standards for both competence and reliability is a problem. Consequently, availability challenges should be understood as reflecting increased search and screening costs rather than an absence of freelancers. Companies experiencing reliability issues recognise that identifying trustworthy, skilled freelancers requires

more extensive vetting or higher compensation, both of which increase the effective cost of freelance engagement.

7 Identifying Training Needs

Training priorities were identified through analysis of competency gap scores from both freelancer and company respondents. Two aggregation methods were applied: the Max-gap approach, which captures the highest deficit observed across both populations, and the Joint-gap method, which identifies competencies with concurrent gaps in both populations. Training needs were classified into four categories based on gap magnitude: LOW (below 2.0), MEDIUM (2.0 to 3.0), HIGH (3.0 to 4.0), and CRITICAL (4.0 or above). Only competencies achieving HIGH or CRITICAL priority designations were retained for detailed analysis.

Two competencies attained **CRITICAL priority** status under the Max-gap methodology. Business relationship maintenance exhibited the most severe company-side gap (4.17), substantially exceeding freelancers' modest deficit (1.94). This pronounced asymmetry indicates that Ukrainian organisations place exceptional value on sustained client relationships and collaborative partnerships, yet struggle to identify freelancers possessing sophisticated interpersonal and business development capabilities. Task prioritisation and time management demonstrated the single most significant gap across all evaluated domains, with companies reporting the most significant discrepancy (5.00) between importance and proficiency. Freelancers acknowledged moderate challenges (2.72) in this area, though they substantially underestimated organisational expectations for workload management, navigating competing deadlines, and strategically sequencing delivery across multiple concurrent projects.

Nine additional competencies achieved **a HIGH priority** designation with gap scores ranging from 3.0 to below 4.0. Within the Communication and Teamwork domain, clarity of expression (freelancer gap 2.71; company gap 3.00) requires development in effective articulation and unambiguous messaging. Multicultural competence (gaps 1.97 and 3.00) necessitates training in cross-cultural collaboration and international client adaptation. Negotiation skills (gaps 3.57 and 2.00) demand improvement in contract discussions, compensation structuring, and conflict

resolution. Self-promotion and personal branding (gaps 3.97 and 1.00) require cultivating visibility and strategic market positioning capabilities.

Digital literacy high-priority areas are limited to the assessment of online information quality (gaps 1.97 and 3.00), indicating needs in source verification, credibility evaluation, and evidence-based decision-making. Personal profile competencies requiring high-priority attention include domain experience accumulation (gaps 3.40 and 3.17), problem identification and solving capabilities (gaps 2.30 and 3.33), self-organisation and work discipline (gaps 3.07 and 3.33), and uncertainty and stress management (gaps 3.12 and 3.50). These nine competencies collectively indicate substantial developmental challenges across business-oriented soft skills and personal effectiveness domains.

When aggregated to broader competency classes, Communication and Teamwork skills demonstrated MEDIUM priority (freelancer gap 2.74; company gap 2.77). This moderate classification masks substantial internal variation, as constituent competencies, including business relationships, task prioritisation, negotiation, and self-promotion, individually achieved HIGH or CRITICAL designations. Digital Literacy Skills exhibited a LOW aggregate priority (gaps 1.86 and 1.31), suggesting adequate baseline technological capabilities relative to perceived importance. This contrasts markedly with patterns in partner countries, where digital competencies, particularly the adoption of artificial intelligence, were critical priorities. Personal Profile competencies achieved MEDIUM aggregate priority (gaps 2.67 and 2.63). However, this moderate designation obscures significant within-class variation, given that domain experience, problem-solving, self-organisation, and stress management individually attained HIGH priority status.

The Ukrainian training needs profile reveals critical deficits in business-oriented communication and organisational skills, high-priority challenges in interpersonal and self-management domains, and relatively adequate digital literacy capabilities. This pattern diverges from certain partner countries where technical digital competencies constitute primary developmental imperatives. The exceptional severity of company-reported gaps in business relationship maintenance and task prioritisation suggests

fundamental concerns regarding freelancers' capacity to operate as strategic business partners rather than transactional service providers.

Training program design should prioritise immediate, intensive interventions targeting the two critical-priority competencies, followed by systematic curriculum development that addresses the nine high-priority domains spanning communication, problem-solving, and self-management. The favourable digital literacy profile suggests that technological skill development can adopt selective, advanced-capability approaches rather than comprehensive foundational training. This evidence-based prioritisation framework provides actionable guidance for Ukrainian stakeholders seeking to enhance freelancers' capabilities and align competency portfolios with organisational performance expectations.

Conclusions

This national analysis delivers a systematic, evidence-driven evaluation of competency profiles, capability deficits, and developmental priorities within Ukraine's freelance workforce, built on the standardised quantitative methodology established by the ENTEEF collaborative framework. Through integrated examination of perspectives from both independent professionals and organisational clients, the report achieves balanced representation of capability supply dynamics alongside evolving demand-side requirements characterising Ukrainian freelance labour markets. The analytical architecture systematically synthesises descriptive profiling, inferential statistical testing, segmentation modelling, and training-needs prioritisation to construct comprehensive empirical foundations that support targeted intervention design and strategic decision-making.

Empirical evidence consistently demonstrates that Ukraine's surveyed freelance population operates within a distinctive market configuration characterised by overwhelming youth concentration (75.2% under age 24), pronounced sectoral specialisation in software development and information technology services, and substantial male demographic predominance (73.6%). Within this context, freelancers across diverse demographic categories uniformly recognise the fundamental importance of competencies encompassing problem-solving methodologies, autonomous work organisation, effective communication clarity, and sustained capability expansion through continuous learning. Nevertheless, despite widespread acknowledgement of these competencies' strategic significance, substantial importance-proficiency discrepancies persist across multiple domains, revealing systematic challenges in translating competency awareness into demonstrated mastery and practical application within professional contexts.

Advanced inferential analyses conclusively establish that competency gap distributions exhibit systematic heterogeneity rather than uniformity, varying significantly across age cohorts, educational attainment levels, accumulated freelance

experience, anticipated trajectories of artificial intelligence adoption, and primary activity domains. Cluster-based segmentation procedures successfully identified five distinct freelancer typologies - Developing Newcomers (3.9%), Early-Stage Builders (31.8%), Advanced Experts (22.5%), Digitally-Oriented Developers (31.0%), and Experienced Specialists (10.9%) - each manifesting differentiated competency profiles, developmental trajectories, and training requirement configurations. Organisational respondents articulated intensifying concerns regarding the availability of adequately skilled freelance professionals, particularly emphasising deficits in business relationship cultivation and sophisticated time management capabilities. At the same time, freelancers themselves recognised mounting pressure to systematically enhance their competencies in response to technological evolution, shifting client expectations, and intensified market competition.

The training-needs prioritisation framework operationalises empirically observed gaps into implementable intervention hierarchies by applying transparent aggregation procedures and explicitly defined threshold criteria. At granular competency resolution, business relationship maintenance and task prioritisation emerged as CRITICAL priorities requiring immediate, intensive remediation, with organisational gap scores of 4.17 and 5.00, respectively. Nine additional competencies attained a HIGH priority designation, spanning communication effectiveness (clarity of expression, multicultural competence, negotiation, self-promotion), analytical capabilities (problem identification and solving, information quality assessment), and self-management domains (domain expertise accumulation, work discipline, stress management). Notably diverging from patterns observed across several partner nations, Ukrainian digital literacy competencies demonstrated a LOW aggregate training priority (gaps 1.86 freelancer, 1.31 company), suggesting adequate baseline technological proficiency that contrasts markedly with critical artificial intelligence skill deficits identified elsewhere, thereby indicating contextually specific labour market dynamics and differential technological adoption trajectories.

Collectively, analytical findings underscore the imperative for precision-targeted, empirically grounded training architectures that address both transversal soft-skill deficiencies and specialised competency gaps identified through rigorous statistical

assessment. The Ukrainian competency landscape reveals distinctive developmental challenges centred on business partnership capabilities, organisational effectiveness, and interpersonal sophistication rather than on foundational digital literacy, suggesting that intervention strategies must prioritise business acumen development, autonomous work management enhancement, and professional relationship cultivation over comprehensive technological skill-building. These empirical determinations establish robust foundations for developing the project's Competence Assessment Tool, designing targeted MOOC curricula, and constructing differentiated upskilling pathways calibrated to Ukrainian market requirements.

By systematically integrating statistical evidence with prioritised training requirements, this analytical report facilitates evidence-informed strategic decision-making for educational institutions, policy architects, and labour market stakeholders seeking to strengthen alignment between freelancer competency portfolios and organisational performance expectations within Ukraine's evolving independent work economy. The distinctive demographic profile, sectoral concentration, and competency gap architecture documented herein provide essential contextual foundations for designing interventions responsive to Ukraine's specific freelance workforce development needs while contributing comparative insights that enrich cross-national understanding of freelance competency dynamics across ENTEEF partner countries.

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