FIRM-LEVEL DETERMINANTS OF SENIORITY COMPOSITION IN UKRAINE'S IT JOB POSTINGS

by

Daria Aniskina

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Thesis Supervisor: _____ Professor Olga Kupets

Approved by _____
Head of the KSE Defense Committee, Professor [Type surname, name]

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LIST OF ABBREVIATIONS

IT Information Technology

HR Human Resources

R&D Research and Development

AdTech Advertising Technology

ERP Enterprise Resource Planning

SaaS Software as a Service

Mil-tech Military technology

OLS Ordinary Least Squares

WLS Weighted Least Squares

GLM Generalized Linear Model

VIF Variance Inflation Factor

CHAPTER 1. INTRODUCTION

Since its establishment, a Ukrainian IT sector has experienced a lot of shocks, with two of the biggest ones in the last few years, but despite that it's still the most stable segment of the Ukrainian economy. Industry now unites more than two thousand active companies of various types – from service to research and development – providing a significant share of export revenues in 2024 even after facing severe challenges.

However, this resilience is not accidental. The Ukrainian IT sector has a broad functional spectrum that includes roles in software development, data and marketing, HR, operations, cybersecurity, and many other specializations. Additionally, the labor market is strongly connected to global demand, which helps sustain its stability despite the uncertainty in Ukraine's economy.

Yet this overall success is accompanied by several underlying tensions. Numerous market research reports highlight an "aging" talent pyramid, meaning that the majority of vacancies and employment opportunities are concentrated at the Middle-level specialists, whereas Trainees and Juniors face a noticeable reduction in available entry-level IT positions.

In 2024-2025, the junior segment in Ukraine remained significantly smaller than the middle one, even though higher education institutions and professional retraining programs continue to supply new candidates to the labor market.

This poses both a practical and a research challenge. On the one hand, the IT sector increasingly tends to hire experienced specialists and relies heavily on poaching or horizontal transfers. While this approach helps companies close skill gaps quickly and creates an impression of a highly professionally developed structure, it also carries long-term risks. A limited inflow of junior talent slows the development of the lower levels of the job pyramid, ultimately reducing opportunities for internal growth, weakening promotion pipelines, and constraining the sector's future talent supply.

Additionally, relying exclusively on middle and senior workers makes the system more expensive and more vulnerable to external shocks. Such a hiring structure increases salary pressure, reduces flexibility in workforce planning, and limits the sector's ability to adapt during some rapid change or crisis periods. It also makes the labor market less accessible for students, recent graduates, and individuals undergoing professional retraining, thereby narrowing the long-term talent pipeline.

On the other hand, the majority of existing studies focus on explaining individual drivers, such as work format or productivity differences across firms, yet they do not highlight how multiple company-level characteristics jointly shape seniority composition within a single national IT market.

Prior studies of Barrero, Davis and various IT associations report that remote work persists and that firms tend to favor experienced developers, but these findings are not contextualized for Ukrainian specifics. What remains unclear is why this tendency emerges in the Ukrainian market – whether it is driven by firm size, presence in Kyiv, industry domain, or work format – and how these traits reflect on entry-level hiring.

The Ukrainian IT sector is atypical in many respects. Wartime displacement, security constraints, and the concentration of the key activity in Kyiv, what makes it a dominant commercial hub, distort the usual talent pyramid. These factors affect both the geographic distribution of specialists and the balance between different seniority-level roles on the market. Consequently, there is a lack of context-specific evidence that accurately reflects the realities of Ukrainian IT companies.

Following this gap, our research question examines how observable firm characteristics – such as size, Kyiv presence, domain, work format, role mix, and organizational type – are related to the shaping of seniority composition of publicly posted and advertised vacancies in Ukrainian IT companies.

Based on the research question, we derive three hypotheses:

- H1: Larger and more spatially developed companies have a deeper talent pyramid and, therefore, higher proportions of new employees and managers.

- H2: Presence in Kyiv may be associated with higher proportions of new employees and managers, as Kyiv is a center for universities and customer-related functions.
- H3: The composition by seniority differs depending on the field of activity.

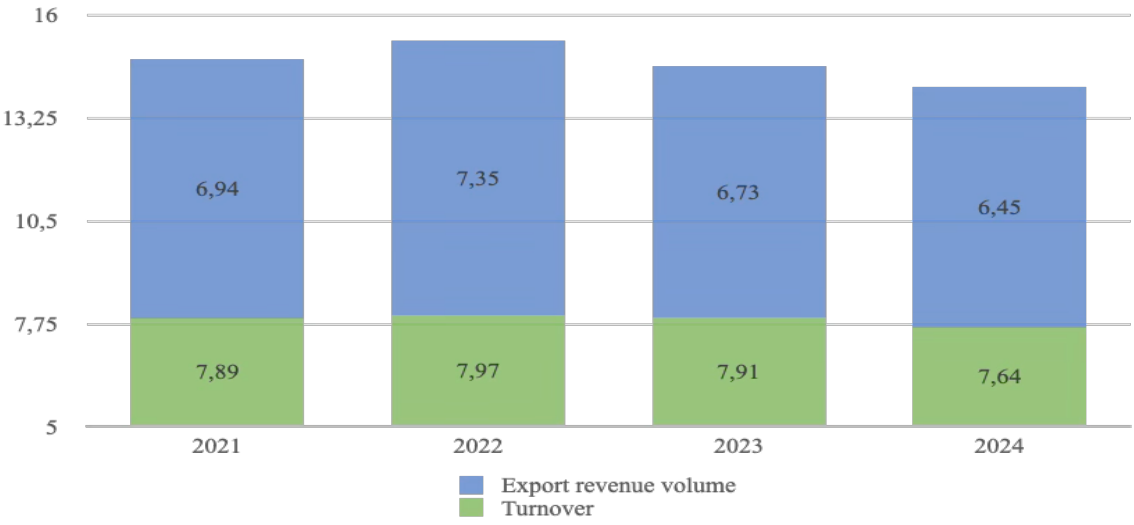
To address the research question and test the hypotheses, we employ a cross-functional research design based on firm-level data aggregated from publicly available job postings. For each company, we classify vacancies by seniority level, work format, functional domain, and organizational type.

Two key outcome variables are constructed from the share of new hires and the share of leaders, with middle and senior staff serving as the residual category. To examine the relationship between company traits and seniority composition, we estimate two linear regression models – ordinary least squares (OLS) and weighted least squares (WLS) – where the latter reduces the influence of low-volume companies and minimizes noise in the estimation of new-hire and leadership shares.

CHAPTER 2. INDUSTRY OVERVIEW AND RELATED STUDIES

In recent years, Ukraine's IT sector has rapidly evolved and is now in high demand both domestically and internationally, proving its reputation of a key technology exporter trusted by businesses globally. Still, it has also proven itself positively outside of Ukraine, as it evidenced by the fact that at the end of 2024, service exports accounted for about 11.5% of total export earnings, reaching $6.45 billion (Ain.ua).

Figure 1 – Turnover and Export revenue volume of IT services for 2021-2024



Source: Ain.ua

As shown in the graph (Figure 1), export revenue volume of Ukrainian IT services experienced moderate fluctuations throughout the analyzed period. The index peaked in 2022, after which it was followed by a slight decline from 7.35 in 2022 to 6.73 in 2023 and 6.45 in 2024, resulting in a 12.3% decrease in 2024 compared to the peak of the index and a 4.2% compared to 2023. The negative trend can be partly explained by the effects of the full-scale war, including large-scale emigration of specialists and general market instability. However, despite the decline, the variations remain relatively modest and do not reflect a significant instability.

Overall, the data suggests that while the sector has faced some pressure after its 2022 peak, Ukraine's IT services market has maintained strong export performance and stable turnover levels, demonstrating resilience even under challenging conditions. This is supported by the fact that a total of 127 counties continued importing Ukrainian services in 2024, including major ones such as the United States, which accounted for 37.2% of all exports, Malta – 7.8%, Cyprus – 6.2%, and Israel – 4.6%.

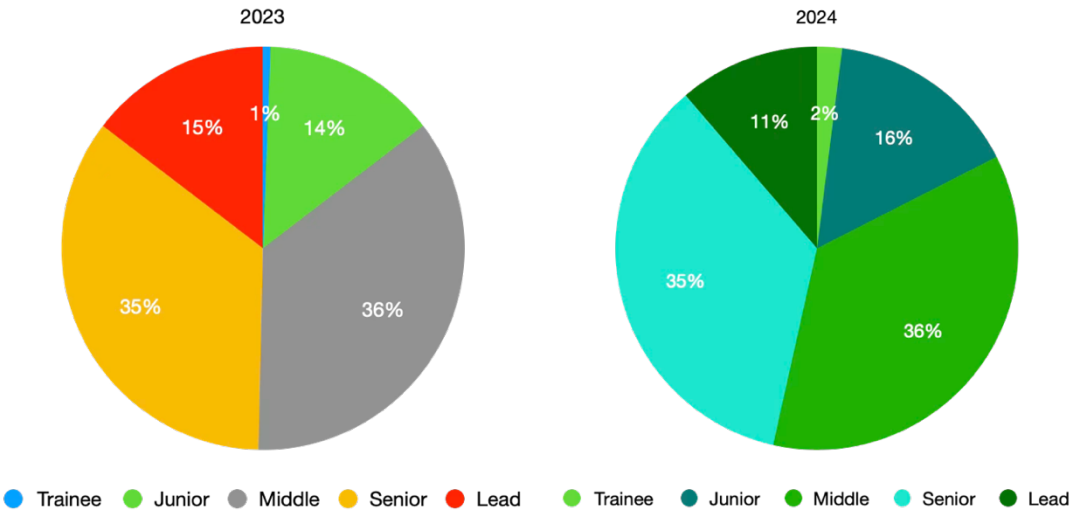
Looking at the leading service providers in the Ukrainian IT market in 2024, the sector comprises 2,118 active and proven technology companies, 47% of which are focused on outsourcing, 31% on product development, and the rest on outstaffing and other models. As for the variety of types, Ukraine has startups and established large companies.

Equally important is that Ukrainian startups are becoming successful worldwide, becoming "unicorns" - a status that companies with a valuation of $1 billion or more have. Today, such companies include Grammarly, GitLab, Creatio, People.ai, Reface, Ajax Systems, Genesis, and Petcube, which work in cybersecurity, SaaS, and consumer tech (The Recursive, 2025).

However, the IT sector would not be in such high demand without the talents of Ukraine's IT workers. More than 300 thousand people worked in the IT sector as of the end of 2024, 230 thousands of whom worked inside the country and 62 thousand outside of it. It is important to mention that Ukrainian IT talent pool has mostly middle and senior specialists; that is not surprising due to companies eager to hire more qualified personnel rather than newcomers in IT.

As shown on the pie chart (Figure 2), the index experienced several fluctuations in 2024: demand for entry-level specialists (trainees and juniors) increased by almost 2%, while senior roles (leads and seniors) declined by 4% and 1% accordingly. Meanwhile, demand for middle-level specialists maintained the same upward trend. However, this increase in posting more juniors vacancies does not show prove that this tendency will completely change the strategy in hiring people with less experience despite more advanced workers.

Figure 2 – IT seniority mix in Ukrainian IT in 2023-2024



Source: Lviv IT cluster

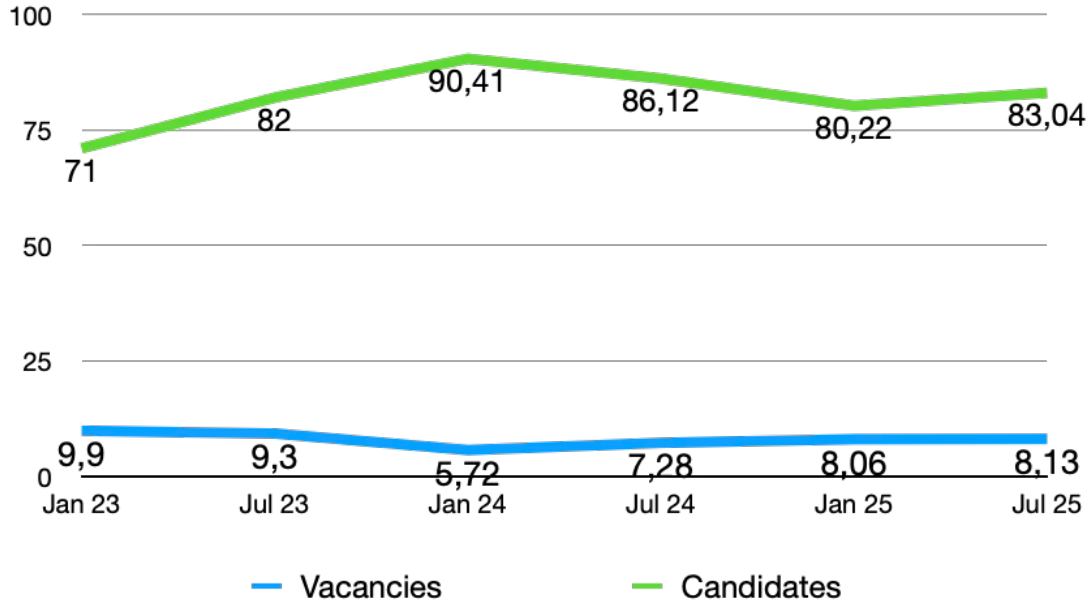
Statistically, Ukrainian students have fewer enrollments in IT programs in universities (Dou.ua, 2025), but nevertheless, this decrease does not display the real situation, due to a lot of companies helping students to study IT faster and with real practice.

For example, four the biggest IT companies, such as EPAM, SoftServe, GlobalLogic and Genesis, have a various free or paid programs that help trainees and juniors to gain real projects experience.

Despite lower university enrollments in IT programs, the job market shows demand recovering. In the 3rd quarter, Djinni shows that the quantity of vacancies keeps growing, and this value is bigger compared to 2024.

But looking at the candidates' value, in January of 2025, there was a small drop in the quantity of active candidates, but from the second quarter, the growth can be seen again.

Figure 3 – IT job market highlights from January 2023 to July 2025



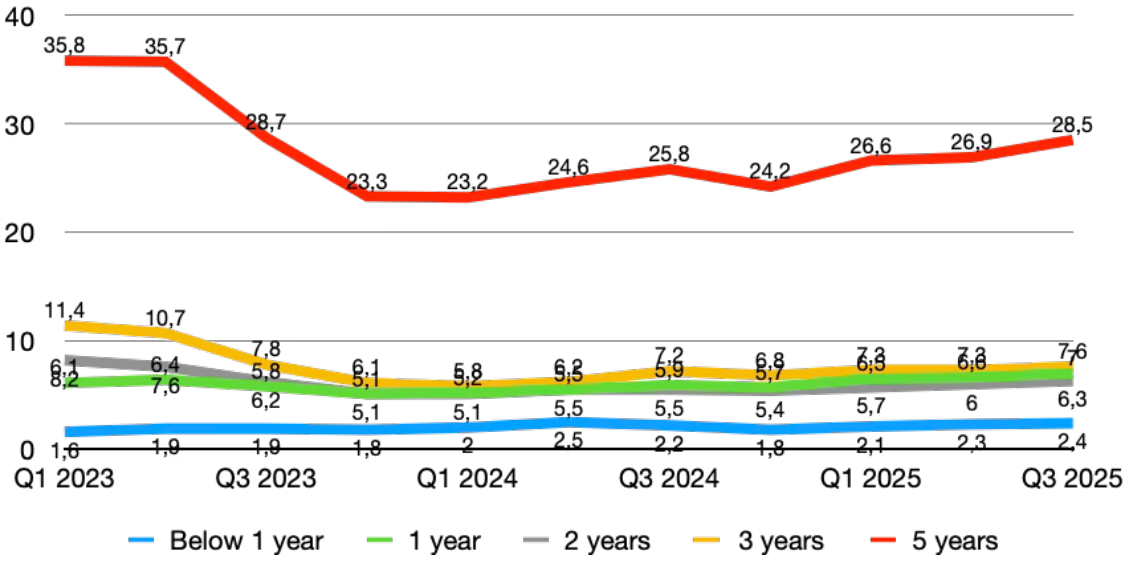
Source: Djinni

But it`s also important to look at required experience which is needed to apply for vacancy. As we've discussed, For entry level vacancies – less or around an 1 year of prior experience – we can see a relatively small growth in 2025, meaning that companies are choosing in favor of less experienced force.

It can be influenced by employers having internal studying or internship programs the main focus of which is to educate trainees and juniors and offer them a contract after a successful completion of the studies. Accordingly, the real statistics of the entry level positions may differ from the mentioned graph.

But we still see that the biggest value of vacancies is offered to more skilled professionals that have 5 or more years of experience. In IT field it`s complicated to define what a senior specialist with 5 years of experience is, but we can say that this person is definitely not a junior or trainee.

Figure 4 – IT vacancies by required experience



Source: Djinni

In 2021, Barrero, Bloom, and Devis (2021) show in their study that remote and hybrid work types are a long-term change in how companies organize work, and after the pandemic, this has become more stable. The time saved on commuting has translated into approximately 4.5% productivity growth, an effect that may be sustained through training, investment, and reduced stigma around working from home. They also outline further implications for cities and organizations, reduced spending on offices, and ongoing changes in how companies use their workforce, which helps explain why hierarchical team structures may change as work formats change.

HackerRank (2025) publishes an annual report on developer skills, and the latest one points to a recovery in hiring in 2024–2025, but with a preference for experienced professionals. The recovery in hiring favors senior employees, as evidenced by a significant growth in posting of senior/lead specialists compared to entry-level specialists.

Despite the growth, many developers still report difficulties in finding work. This asymmetry is reflected in an increase in the stable share of senior specialists in companies, while there are no employment opportunities for junior specialists.

Another IT platform, Stack Overflow (2025), also shows that IT workers remain experienced, with the majority reporting a couple of years of experience. As it's also mentioned in the report, a significant proportion of remote and hybrid work is clearly displayed, along with detailed role distribution, which reflects the market where speed and autonomy are the most valued in the work process. Companies naturally rely on middle and senior employees to minimize onboarding risk and maintain the speed of execution.

Bertheau and Vejlin (2023) show that ranking firms by productivity better reflects the job ladder than ranking firms by average wages. High-productivity companies hire more workers and grow faster than low-productivity firms.

Growth at good is driven by poaching experienced talent; those firms will naturally end up with a higher share of mid/senior and lead roles. Juniors tend to enter from non-employment, which dries up when conditions are tough, so junior hiring is the first thing to stall.

Most existing studies look at individual factors, like remote work trend, and explain the result, rather than the characteristics of what shape the mix of junior, middle, and senior management in a single IT sector.

There is no specific research just for Ukrainian IT, where those factors play the main role. In our study, we use data to estimate how size, office footprint/Kyiv presence, domain type, work format, and function shift Entry and Leadership shares. This delivers clear effect sizes and actionable levers tailored to Ukraine's wartime context – evidence missing from existing studies.

CHAPTER 3. METHODOLOGY

In our study, we want to concentrate on finding out how firm traits – size, office count, Kyiv presence, domains, work format, and functional fields of work – are related to the seniority mix of vacancies in Ukraine's IT companies. Our analysis is cross-sectional and uses firm-level measures constructed from publicly published vacancies.

For the purposes of this study, we examine three hypotheses

1. H1: Larger firms and those with more office locations exhibit a deeper talent pyramid – higher Entry and Leadership shares.
2. H2: Kyiv presence is associated with higher Entry and Leadership shares, reflecting access to university pipelines and client-facing lead roles concentrated in the capital.
3. H3: Seniority mix differs by domain – standardized/productized domains show higher entry shares; security/hardware/mil-tech skew experienced given higher stakes and compliance/tooling complexity.

In the study we conduct a cross-sectional analysis by aggregating vacancy postings at the firm level. We deduplicate all postings and retain only those firms for which every modeling variable is observed, ensuring consistency and comparability across the dataset.

The data captures only those companies that have publicly visible vacancies, meaning that firms hiring exclusively through private channels or recruitment agencies are not represented and may differ systematically from the observed sample. Before proceeding to the modeling stage, we conduct descriptive and exploratory analyses to examine variable distributions, identify major tendencies, access data quality, and detect potential issues of the data.

To accomplish that, we employ a set of simple predictors:

- Size rank of each company so that larger firms have higher values.
- Kyiv presence if the company has an office in Kyiv.
- Role mix with a share of engineering and technical roles within the vacancy structure.

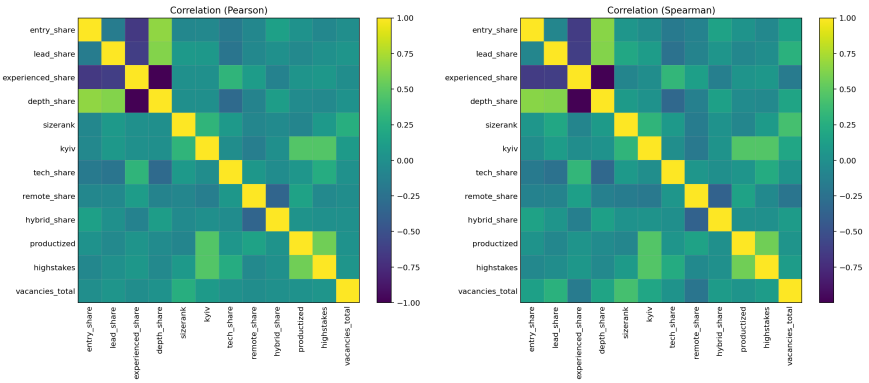
- Work format – although we classify it into three categories, the model includes only two types: remote and hybrid.
- Domain – is distinguished between productized areas that consist of more scalable product areas like AdTech, ERP, and Big Data, and high-stakes domains operating in regulated or mission-critical sectors such as Mil-tech.
- Firm type – a set of dummy variables, with non-tech firms serving as the reference category; other types include tech, startup, service, recruitment, R&D, and outstaff companies.

For each firm, we observe two outcome variables: Entry and Leader. The Entry share represents the proportion of a firm's vacancies labeled as Trainee or Junior, while the Leader share reflects the proportion of vacancies labeled as Team Lead.

Middle and Senior roles are not modeled directly; instead, they form the implicit residual category once Entry and Leader positions are accounted for. The structure allows us to capture both ends of the seniority spectrum and examine how firm characteristics influence entry-specialists and leadership hiring.

Before modeling, we will conduct descriptive and exploratory analyses to understand the distribution, tendencies of the data, and potential issues. We start with computing missing values to identify if there are gaps in them and then move to descriptive statistics, measuring mean, median, standard deviation, and skewness with kurtosis for all numeric variables.

Figure 5 – Pearson and Spearman correlation maps for numeric values



And the correlation analysis shows the strongest relationship is an inverse association between experienced share and depth share, which indicates that those measures move in opposite directions, so we will drop it to avoid redundancy.

Our key variables, Entry and Leader shares, are moderately correlated with the previous two variables, with higher seniority shares corresponding to lower shares of experienced and higher shares with depth of experience.

Outside the "seniority mix" block, the strongest positive correlation is observed between productized and high-stakes customers, followed by Kyiv with both productized and high-stakes variables. And moving to work format shares – remote and hybrid are moderately correlated, but Tech share has weak or moderate associations.

We planned to add geographic footprint variable log(1+ location count) to test that more offices will show a deeper pyramid, but in the current build, the underlying office count has no usable variation, so keeping it could inflate multicollinearity. So, we test the H1 hypothesis through size rank.

We estimate two regressions with the same covariates: for Entry and for Leadership

$$Entry\ (Leader) = \alpha + \beta_1 * size\ rank + \beta_2 * Kyiv\ presence + \beta_3 * tech\ share + \beta_4 * remote\ share + \beta_5 * hybrid\ share + \beta_6 * productized + \beta_7 * high\ stakes + \beta_8 * type + \varepsilon$$

And we define the expected directions for each predictor, based on the logic of the study. So, according to our expectations of firm size, we expect a positive impact for both Entry and Leader shares: larger firms should support a deeper pyramid with a sufficient number of offers for both entry-level specialists and leaders.

Additionally, a positive impact is expected for the Kyiv city determinant, as this will reflect university portfolios and customer-oriented leadership concentrated in the capital.

Also, it is expected that product domains will increase the hiring of entry-level employees, while more established companies with high stakes will, on the contrary, increase the number of managerial positions that require more experience.

The control variable capturing the share of technical roles is expected to have a negative input, as firm operating in more technically demanding domains typically hire more experienced stuff. Its relationship with the Leader share maybe be negative or statistically insignificant, given that leadership roles are less dependent on technical specialization alone.

The effects of work format are expected to reflect adjustment frictions: a higher remote share is plausibly associated with reduced entry-level hiring, while the impact of hybrid work remains an empirical question.

We are presenting two views on the same relationship: OLS and WLS. OLS gives for each company the same weight that reflects the average firm perspective, but the WLS gives more weight to better measured shares and less to noisier ones.

This helps us compare whether the effect is real or was caused because of measurement noise. And after that we report HC3 robust standard errors for all regressions.

To evaluate the overall personnel structure of each company – not only individual seniority shares – we additionally classify firms as Junior-heavy, Balanced or Senior-heavy, depending on which category constitutes the largest share of their vacancies.

We then estimate a multinomial logit model using the same set of predictors as in the linear specifications, treating the Balanced category as the reference group. This allows us to examine how firm-level traits relate to broader hiring profiles across the seniority spectrum.

We also perform a standard test of the independence of irrelevant alternatives assumption. When the assumption does not hold, we document this violation and report a simple sensitivity check using the nested logit specification. In addition, we compute Variance Inflation Factors (VIF) to assess multicollinearity among the predictors.

Table 1 – VIF result for observable variables

variable	VIF result
C(type)[T.outstaff]	3.65
C(type)[T.r&d]	1.71
C(type)[T.recruitment]	1.92
C(type)[T.service]	8.05
C(type)[T.startup]	2.22
C(type)[T.tech]	6.88
size rank	1.20
Kyiv	1.21
tech share	1.12
remote share	1.20
hybrid share	1.14
productized	1.11
highstakes	1.18

The VIF results indicate that most key variables have values below 5, suggesting that collinearity is negligible for the majority of predictors. However, two variables – service and tech, both belonging to the firm-type dummy set – exhibit VIF values above 5. This is expected, as dummy variables are compared against the same reference category (non-tech), which naturally increases their VIF values.

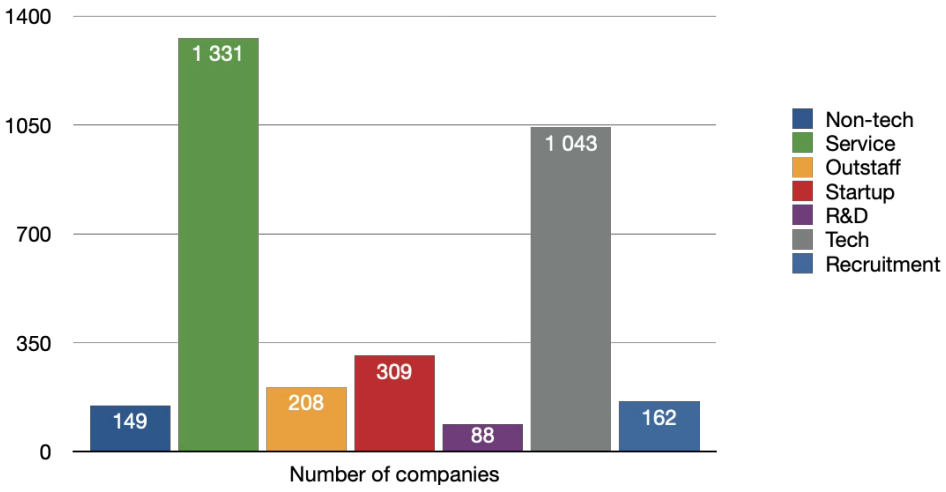
CHAPTER 4. DATA

The basis of this study is a firm-level analysis of how observable company traits relate to the seniority composition of publicly posted IT vacancies in Ukraine. We have captured information for seven types of IT companies: service, technical, non-technical, startup, R&D, recruiting and outstaff. Also, we have separated each type of company on 29 domains with the most popular domains in IT. Further on, we will focus on each company type.

For each firm we have also recorded:

1. Using each company's DOU profile, we extracted information on the number of offices represented by the company and created a binary indicator denoting whether the firm has a presence in Kyiv.
2. Job openings and vacancy descriptions were primarily collected from company websites; however, in cases where firms also posted vacancies on DOU, these listings were included as well. Each vacancy was classified according to work format, level of experience required, functional domain, and company type.

Figure 6 – Division by number of companies in the dataset



We begin with the largest category in our dataset – service companies. In Ukraine, this group comprises 1,320 firms, where remote work is the predominant format and the majority of vacancies are technical. Software engineering roles dominate the hiring structure, significantly exceeding the number of openings in other functional areas. Large companies – those with 800 to 1,500 employees or more than 1,500 – tend to focus on hiring Senior specialists or Team Leaders, offering only a limited number of entry-level vacancies. At the same time, many of these large firms invest in developing their own training programs or internal academies for young professionals, which they use as a controlled pipeline for selecting and preparing new talent.

Medium-sized companies with 200-800 employees, as well as firms with 80-200 employees, generally prioritize hiring Middle-level specialists. Smaller companies, with 20-80 employees or fewer, tend to offer slightly more opportunities for young professionals. However, a considerable share of vacancies in these smaller firms do not explicitly specify seniority, In such cases, it can be inferred that the position requires prior work experience, but the exact seniority level cannot be determined.

Table 2 – Seniority profile per function

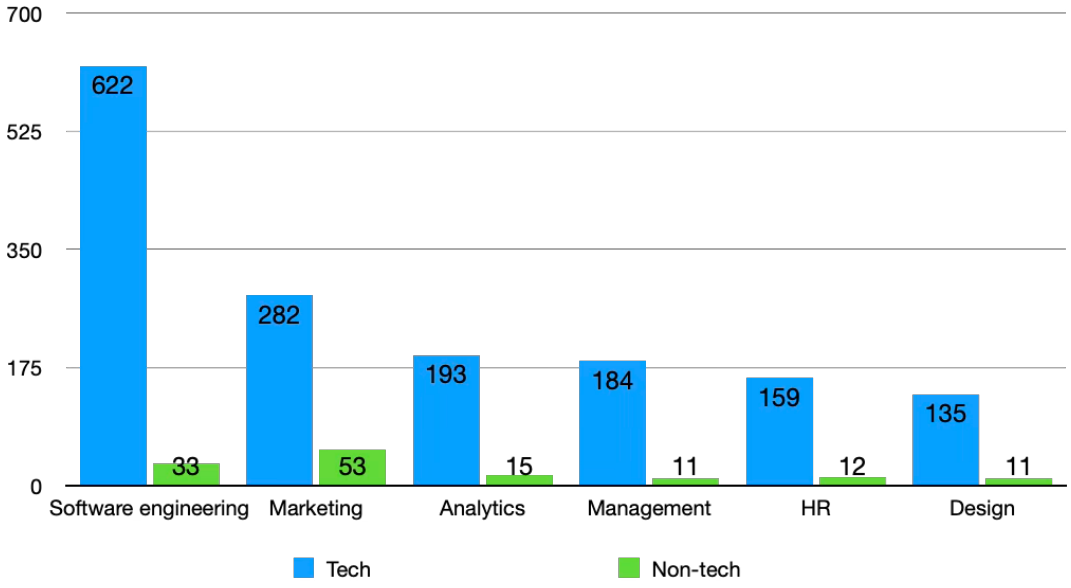
Field of work	Head	Team lead	Senior	Middle	Junior	Trainee	Not Mentioned
Software engineering	14.23	159.03	531.79	506.79	65.7	24.14	233.9
Content& Communications	2.39	2.90	4.93	10.16	3.23	0.86	35.53
Data & Analytics	3.19	47.64	134.99	91.24	10.68	5.24	44.02
Design& Multimedia	3.12	11.39	22.23	30.05	6.88	3.76	48.57
Education& Training	0.12	5.09	10.89	4.76	1.38	0.11	4.65
Finance& Accounting	1.73	1.25	4.95	6.33	3.46	0.6	12.68
HR & Operations	2.56	4.83	15.49	34.24	13.66	2.08	33.14
Legal	0.65	0.72	4.05	4.05	0.38	0.55	3.61
Management	4.42	13.29	33.47	33.6	6.97	3.91	64.35
Marketing & Sales	8.88	23.05	35.9	62.6	23.04	7.04	132.49
Security & IT	0.96	8.58	16.25	8.66	1.97	0.19	11.39

other	2.76	31.22	70.66	46.53	9.66	7.51	100.66

The next two categories are tech and non-tech companies. In Ukraine, there are 1,048 companies focused on creating and delivering tech products, while non-tech companies are represented to a much lesser extent, with only 151 companies in the dataset. Tech companies have published 2,076 vacancies, 57.6% of which are remote. Notably, tech firms posted 1,289 non-tech vacancies compared to 787 tech ones, indicating a substantial demand for supporting roles beyond core engineering. Software engineering still accounts for the widest range of vacancies, followed by Marketing and Sales, HR, and design roles.

Tech firms in Ukraine are predominantly small (fewer than 80 employees) to mid-sized (80–800 employees), and the majority of them maintain a presence in Kyiv, reinforcing the city's role as a major hiring hub. In contrast, non-tech companies exhibit a much lower vacancy intensity, with an average of only 1.3 vacancies per firm. Similar to tech firms, non-tech vacancies dominate their posting structure^ 137 non-tech roles compared to just 57 tech roles.

Figure 7 – Comparison of domain counts among technical and non-technical companies



Across both types of companies, functionality is a crucial and most consistent factor of seniority. Security and IT vacancies skew senior and hire mostly to work non-remotely, reflecting access control and compliance constraints.

Design and Marketing are the most remote-compatible and focus on middle-level professionals and still offer some junior roles. Software engineering is also middle-heavy with significant demand on seniors.

In non-tech companies, the highest growth in juniors is observed in medium-size companies with 80 to 200 employees, which indicates the capacity to adapt and train newcomers. Despite this, in tech ones, this range remains overloaded with middle vacancies, suggesting that the ask execution model still favors ready-to-work employees rather than young professionals.

Startups have a bigger presence than non-tech products with more than 312 remote-first companies with small numbers of employees and non-active hiring processes. Due to the specific of startups, they prefer to hire more experienced talents to reduce coordination costs, so we see a shift to Seniors and Leads.

Remote work reinforces the trend toward greater independence in technical roles, while roles related to regulatory compliance and internal infrastructure, such as security, IT, and legal, remain more tied to offices and require more experience.

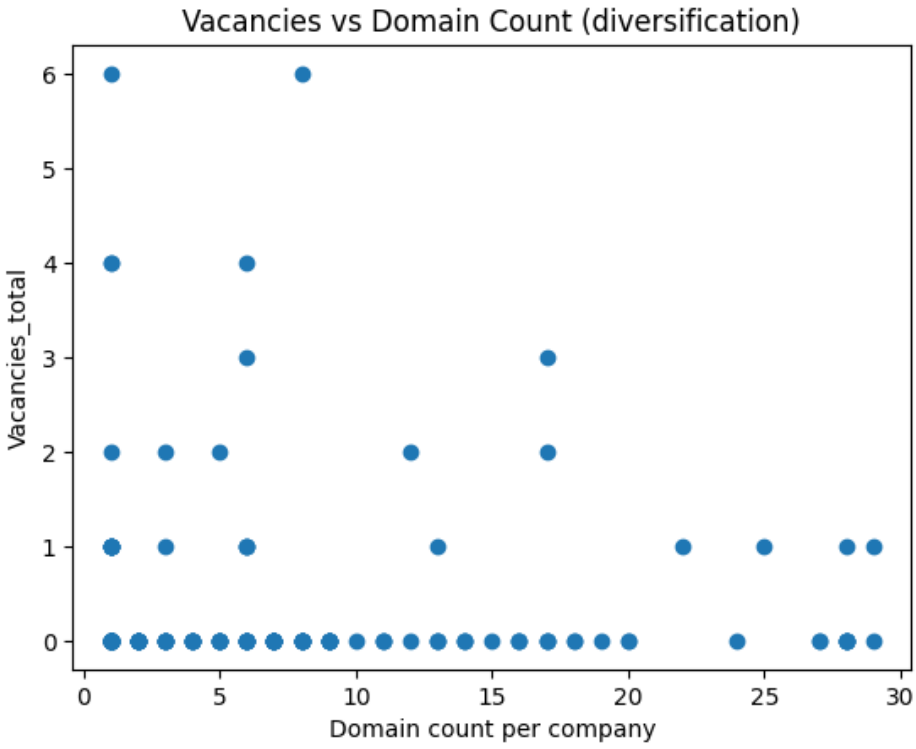
Table 3 – Remote share comparison between startups

Size	Remote	Non-remote	Hybrid	Remote Share
Below 20 employees	50	2	3	0.9091
20-80 employees	53	24	0	0.6883
80-200 employees	33	19	0	0.6346
200-800 employees	32	0	0	1

Within the Ukrainian IT sector, we identified 62 recruitment companies, but only 56 vacancies were posted directly by them. Importantly, we gathered information exclusively on vacancies published by these recruitment firms themselves, without including listings advertised on behalf of their partner or client companies. Due to their

work with a diverse portfolio of client companies, recruitment agencies operate across a much wider range of functional and industry fields than the company types discussed above. This result in greater variation in the roles and domains represented in their vacancy postings.

Figure 8 – Diversity of work domains and number of available vacancies

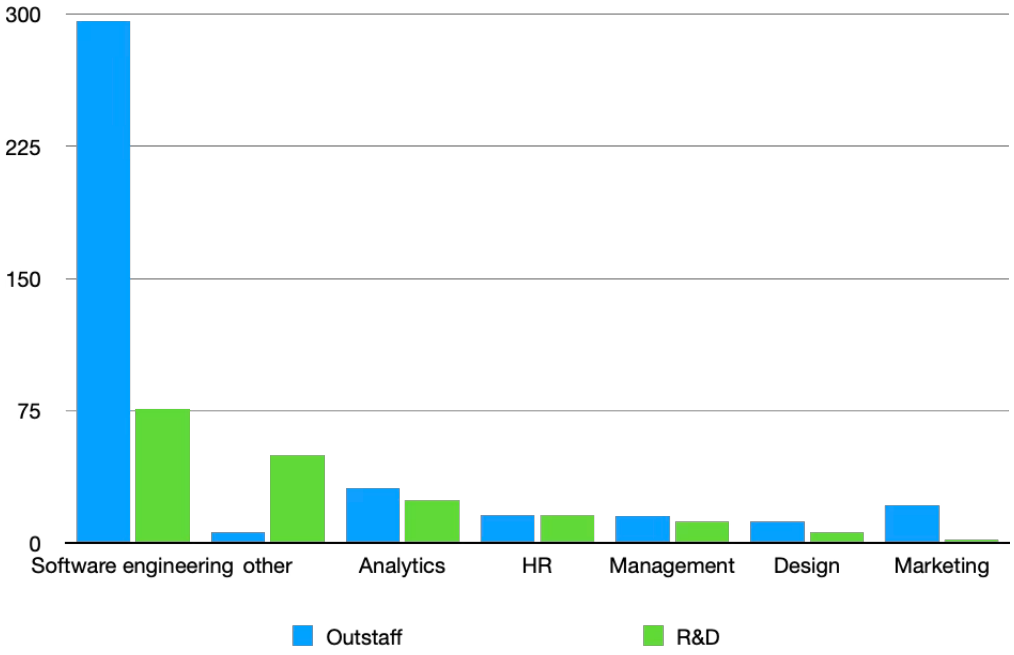


The last two types are Outstaff and R&D. Outstaff includes 208 companies, most of which are small and medium-sized. These companies offer 420 vacancies, most of which are remote-friendly and mainly technical.

R&D represents the smallest company type in our dataset, with only 88 firms.

However, this group contains the largest share of medium-sized companies (200–800 employees). The prevalence of remote work varies notably by company size: among mid-sized R&D firms, 67% of vacancies are remote, whereas in large firms share drops to just 18%.

Figure 9 - Comparison of domain counts among outstaff and R&D companies



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CHAPTER 5. RESULTS

In this chapter we present empirical patterns linking observed firm characteristics to the seniority composition of job openings.

Table 4 – WLS model results for Entry and Leader shares

	WLS model	
	Entry	Leader
Intercept	0.2976***	0.4071***
	(0.0651)	(0.0859)
Outstaff	0.0963	-0.2640***
	(0.0615)	(0.0827)
R&D	0.0232	-0.1665
	(0.0794)	(0.1041)
Recruitment	-0.1005	-0.2843***
	(0.0629)	(0.0951)
Service	0.0847	-0.2338***
	(0.0524)	(0.0796)
Startup	0.0228	-0.1253
	(0.0661)	(0.0977)
Tech	-0.0169	-0.2525***
	(0.0499)	(0.0781)
Size	-0.0184**	0.0127
	(0.0081)	(0.0088)
Kyiv	-0.0134	0.0142
	(0.0200)	(0.0198)
Tech share	-0.1507***	-0.1546***
	(0.0296)	(0.0302)
Remote share	-0.0520*	-0.0264
	(0.0288)	(0.0297)
Hybrid share	0.2294**	-0.0532
	(0.1005)	(0.0834)
Productized	-0.0054	-0.0107
	(0.0217)	(0.0211)
High stakes	-0.0486**	0.0451**
	(0.0212)	(0.0196)

And we start from Entry share. Junior's pipeline is most sensitive to work format and role mix. Companies with higher technical role share have less offerings for juniors and moving from non-technical to technical work is associated with a lower share of new hires by about 15 percentage points, a significant and well-measured difference.

Work formats are significant, especially the proportion of hybrid work, which is positively associated with vacancies for new employees, consistent with the benefits of adaptation and mentoring, when a certain part of the workweek is spent in the office under the supervision of mentors or coaches.

However, employees also have the option to work part-time and remotely, while the fully remote option has a weak negative impact, which may be related precisely to the risks of a person's lack of work experience or its insufficient level.

Turning to the difference between industries, we see that its asymmetry, on the one hand, is that industries such as security, military technology and other critical industries are associated with fewer vacancies for new employees due to a high entry level for unskilled personnel. In addition, higher compliance and risks encourage the hiring of more experienced employees. For the Productized industry, there was an expectation that it would promote greater hiring of young employees, which is not true in the model.

And continuing the trend with company type, the company size indicator also does not favor hiring young workers, which may be since companies hire not through open external channels, but through their own courses. Finally, the variables on firm types are not statistically significant for young workers, as is the indicator of the presence of firms in the capital.

So, moving on to leadership, we see a radically different trend compared to younger workers. Once again, the share of technical roles is again negative, indicating that hiring for technical roles tends to be focused on mid-level or senior-level employees, rather than team leaders.

Domain has a skewed significance from younger workers, as high-stakes environments are associated with a higher proportion of leadership positions, consistent with the coordination, supervision, and customer-related responsibilities typical of

regulated and mission-critical work. However, Productized is still not statistically significant for either juniors or executives.

And it is for the share of Leaders that company size variable is positive, indicating that larger companies exhibit a higher share of hiring managers. And while this effect is positive in the linear estimates, it is not significant overall. Nevertheless, the direction is consistent with the idea that organizational breadth supports thicker layers of management.

Moving on to the company types, we see strong statistical significance for service companies, outstaffing companies, and technical companies. However, the statistical significance is negative, meaning that the above types of companies employ about 23-28% fewer managers than non-technical companies. Thus, for most companies, the key role is played by middle and senior-level employees, not Leaders.

So moving on to the generalized logistic model, which is compared to the previously used Weighted least squares, since this model narrows down several conclusions at extreme values by keeping the predictions between 0 and 1.

For entry-level jobs, the GLM strengthens the interpretation of job format, as remote share corresponds to about half the probability of placing junior positions, while the hybrid mix multiplies these odds several times. The negative association with the share of technical roles remains high, but insignificant. Company size is still negative for Entry and hovers near conventional significance. The "high stakes" domain continues to lean against Entry, but in this model, high stakes lose their statistical significance.

For Leadership, firm size becomes significantly positive and each increase in the size indicator is associated with approximately a quarter higher probability of a management vacancy. In addition, presence in Kyiv also becomes significant and firms with a presence in Kyiv show approximately a forty percent higher probability of posting a management vacancy, while in the linear representation it was indistinguishable from zero. However, the job format variables remain weak for Leadership.

And now outstaffing, recruitment, service, and tech-product firms have significantly lower chances of leadership vacancies compared to the non-tech base, which is consistent with the preference for middle-level staff vacancies over management roles.

Table 5 – GLM model results for Entry and Leader share

	GLM model	
	Entry	Leader
Intercept	-0.0415 (0.610)	-1.2428** (0.443)
Outstaff	-0.1752 (0.594)	-2.0006*** (0.499)
R&D	-0.1752 (1.005)	-0.4405 (0.421)
Recruitment	-2.6229** (1.122)	-1.8912** (0.720)
Service	-0.0432 (0.488)	-0.9373** (0.328)
Startup	-0.4318 (0.561)	-0.2970 (0.447)
Tech	-0.3224 (0.481)	-1.1792*** (0.316)
Size	-0.1441 (0.080)	0.2037** (0.069)
Kyiv	-0.1124 (0.160)	0.3392** (0.165)
Tech share	-1.6018*** (0.278)	-1.441*** (0.254)
Remote share	-0.7890** (0.238)	-0.1030 (0.217)
Hybrid share	1.4605** (0.470)	-0.7882 (0.637)
Productized	0.2329 (0.205)	0.1774 (0.155)
High stakes	-0.2680 (0.187)	0.2594* (0.150)

GLM and WLS tell the same qualitative story for the main covariates, but GLM makes the effect of size on leadership more statistically understandable and emphasizes the role of the junior work format by operating on logarithmic coefficients and ensuring that

the unit interval is respected, while WLS offers transparent interpretations in percentages. And moving to hypotheses that we wanted to test.

Table 6 – Hypotheses and expected results

Hypothesis	Outcome	Predictor and expected sign
H1: Larger firms exhibit a deeper talent pyramid	Entry	Positive size variable
	Leader	
H2: Kyiv presence correlates with higher Entry and Leadership shares	Entry	Positive Kyiv variable
	Leader	
H3: Seniority mix differs by domain	Entry	Positive productized value and negative high-stakes
	Leader	Positive high-stakes value and negative productized

We start from H1, and for Entry share we reject it, because larger post fewer junior vacancies, if we control for role composition, work format, industry, and company type. It`s clearly visible in negative and significant value in WLS and negative in GLM. But in the Leader share WLS shows positive size effect but imprecise and GLM shows clearly positive value meaning that larger firms are more likely to have leader vacancies in their public portfolio, so we do not reject H1 for Leader share.

For H2 we still reject hypothesis for Entry share due to Kyiv indicator is close to zero in WLS and still insignificant in GLM. Despite in Leader model especially in GLM Kyiv becomes positive and significant which related to the idea that some Leader roles related to work with stakeholders are concentrated in the capital. But since only one model prove hypothesis, so we can say that for Leaders it is partially supported.

And the most strongly supported hypothesis – H3. In WLS companies that works in high stakes domain companies publish fewer entry-level vacancies and at the same time they place more openings for Leaders exactly what we expected. In GLM directions remain unchanged, although in Entry indicator slightly weakens showing negative but insignificant value. For the Leader variable it still insignificant but positive.

And productized is the only part of the hypothesis that is not reflected in the data due to productized firms don`t increase their share of Junior specialists in a statistically significant way.

So taken together results show us that in hiring picture in in Ukraine's IT firms depends more by hat kind of work firms do and how they organize it than by simple geography or firm type.

CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

Analysis shows that composition of seniority vacancies mix in Ukrainian IT is mainly determined by domain, share of technical roles and work format rather than by their location or open offices in Ukraine.

Trainee and Juniors hiring is limited because larger companies, companies with a high share of technical roles, companies with fully remote work and companies which are operating in high-stakes or regulated areas tend to publish fewer vacancies for interns and junior specialists and hire more Middles. But the only clear organizational condition that supports the hiring of junior specialists is hybrid work, which probably reduces adaptation and management costs.

But Leads hiring is different, so larger companies and firms in high-stakes industries are more likely to post leader or manager vacancies which may reflect the fact that coordination and customer-facing roles are concentrated in large, capital-intensive, and risk-sensitive organizations.

At the same time common IT companies type such as service, technical, outstaffing, and recruiting, post fewer executive positions than non-tech firms, so we can suggest that those companies primarily rely on Seniors and Middles workers.

As the result, H1 hypothesis in which we suggest that larger firms have deeper pyramid rejects for Juniors but supports for Leader positions. For H2 – presence in Kyiv increases the share value is fully rejected for Entry share but partially supported for Management positions. And the last one H3 in which we tested if areas differ in seniority composition has the best support for Entry and Leader shares, especially for high-stakes areas.

Overall Ukrainian job market in 2024 and 2025 years remains experience driven, as junior hiring only occurs where mentoring is organizationally cheap, while the highest observed demand continues to be for mid-level, senior-level, and executive-level talent.

Our findings suggest that Ukrainian IT companies, especially those operating entirely remotely, highly tech-savvy, and in high-stakes or regulated industries, are gradually

becoming locked into a narrow recruitment funnel. Companies are mostly hiring mid- and senior-level employees while posting very few entry-level or low-experience vacancies.

However, this model will only work as long as there is a stable external supply of experienced candidates. But once that external supply decreases or becomes more expensive, companies will face longer hiring cycles and higher pressure on salary expectations.

The only work format that actually increases the share of young professionals is the hybrid work format. So for companies implementing or planning to work with young professionals, it is worth considering the hybrid format not as a convenient advantage, but as a technology for adaptation. For companies, this will mean planning workdays around mentoring and coaching new hires, which can include paired review sessions rather than just regular meetings.

In addition, high-stakes areas will remain largely focused on senior specialists, so firms should not shift their focus on junior specialists to areas such as security, military technology or other critical projects.

Instead, they should create standardized workflows, such as product maintenance, content or analytical support, where newcomers can safely start work without risking harming the project's work. These tasks can include internal tools, partial documentation, training, and quality assurance for non-confidential products, as well as data cleansing and low-risk front-end or integration tasks.

And while most large companies do not publicly disclose their junior recruitment figures, which may seem like a complete lack of engagement with young professionals, these companies do focus on their own academies, internship schools, or partner universities.

For the business community, this only means that such internal channels need to be more systematic, with clear conversion rates and collaboration not only with universities but also with regional centers to support a broad portfolio, as a large number of specialists are moving from other fields, who also need experience to enter the IT field.

Alternatively, quarterly or bi-annual cohorts can be conducted, tied to real teams, with a target conversion rate and some compensation that automatically increases after reaching pre-defined milestones. Highlighting this information on resources such as DOU will allow to reach candidates who are currently reflected in market statistics as "junior surplus".

Although there was a hypothesis about the importance of a company presence in Kyiv, this importance was only recorded for hiring for managerial positions, leaving junior specialists out of the picture. Therefore, companies should focus on working with stakeholders and managing supplies in Kyiv, but continue to hire performers nationally and remotely.

Ultimately, companies that provide services and outsource or build technology products rely disproportionately on mid- and senior-level talent and do not consider increasing the number of junior staff even for support functions.

Non-technical specialties such as marketing operations, HR operations, and design are areas where management is cheaper and hybrid days can be easily coordinated. Even a few percent shift to junior specialists in these functions will free up senior capacity for more responsible work, which is more realistic than trying to directly replace senior engineers with juniors.

Companies should also track three metrics on a monthly basis: the share of junior positions, the time to hire for senior employees, and the share of hybrid roles. If it takes longer to hire senior positions while the share of junior employees remains low, it would mean that the company is "eating" its own talent pyramid.

In this case, the first corrective step should be to create or expand structured hybrid roles to accommodate them, rather than constantly raising salaries for senior employees or finding new talent to replace them, which would mean a new hiring cycle for a specialist.

Due to limited access to information, further work on the composition of seniority in the Ukrainian IT labor market should deepen, confirm, or reject the current findings by incorporating new information.

First, a panel of vacancies by firm and month will allow us to observe whether changes in size, job format, or presence in Kyiv actually precede changes in the share of junior or management staff, rather than simply correlate with them.

Also, vacancy data should be linked to realized hires, for example, through public career updates or internal academy cohorts. This will help measure the conversion from placement to hire, as well as whether firms are implicitly increasing or decreasing seniority when closing positions.

In addition, it is worth focusing on the identified relationship between hybrid work and entry-level hiring to assess the true impact of job format on junior staff recruitment and whether there are any indirect causes that may affect this value.

We can also improve the modeling by using methods built for limited outcomes and adding multilevel structures to combine information across regions and firm types. And not least, it is important to create new variables from job descriptions that were not used in the original version of the work. These could be requirements for mentoring, security sensitivity, autonomy, which would help explain why high-stakes companies remain predominantly senior.

Future research should integrate supply-side data – university cohorts, boot camps, corporate academies, regional channels – to investigate whether the placement of junior staff is driven by company preferences or local shortages, especially outside the capital.

It is also worth paying attention to comparative replication in neighboring ecosystems, such as Poland or the Baltics, which will allow separating Ukraine-specific trends from general IT trends in Central and Eastern Europe.

Finally, methodological extensions, such as alternative company weights, clustering, regularized models, can be used to test the stability of our current results.

And looking ahead, the key challenge is coordination, not just data. Individual firms can optimize their needs today, but together they create a market that is too "senior" and too expensive for companies. This is where collaborative action is needed to help balance the numbers of young and older workers. And if companies, industry associations, and educational institutions do this together, the market can maintain its current productivity

advantage, not depleting the limited pool of experienced engineers, but attracting new talent to replace existing middle and senior-level workers.

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