

State of Freelancing in IT and Future Trends

Mihai Gheorghe

Abstract—Freelancing in IT has seen an increased popularity during the last years mainly because of the fast Internet adoption in the countries with emerging economies, correlated with the continuous seek for reduced development costs as well with the rise of online platforms which address planning, coordination and various development tasks. This paper conducts an overview of the most relevant Freelance Marketplaces available and studies the market structure, distribution of the workforce and trends in IT freelancing.

Keywords—Freelancing in IT, Freelance Marketplaces, Freelance Market Structure, Globalization, Online Staffing, Trends in Freelancing.

I. INTRODUCTION

THE modern meaning of the term *freelancer* has started to be used since the second part of the 20th century in order to define the unaffiliated journalists who provided on-demand services for various press organizations. It was not long until the term started to be used for other services (graphic design, multimedia content creation and editing, advertising, marketing, legal or business consulting, IT&C) that were delivered beyond the traditional employment connection.

The occurrence and fast spreading of the Internet turned the freelancing concept into a global phenomenon so that freelancers became a stand-alone class of professionals with a continuously increasing share among the labor market.

A report from Edelman Berland, "Freelancing in America: A National Survey of the New Workforce" [1], conducted in July 2014 revealed that 53 million Americans, meaning 34% of the USA's total workforce, have been freelancing at least once in the previous 12 months. Out of this, 40%, meaning 21.1 million people declared that their revenue is due exclusively to freelancing. \$715 billion is the amount added to USA's economy by freelancing activities, the study states as well.

A Federal General Accountability Office report [2] estimated that in 2004, 42.6 million Americans were part of the contingency workforce, which includes among others the freelancers' category. The growth in 10 years is considerable.

The European Union faces a similar evolution as revealed by a 2012 report of the European Forum of Independent Professionals (EFIP) [3] which shows an 82% growth of the number of the Freelancers between 2000 and 2011, up to 8,569,2100 individuals.

A key role for this dynamic is played by the online freelance marketplaces which facilitate the connection between demand and offer.

The current study focuses on identifying the most relevant

online platforms for freelancing in general, and IT in particular, as well as various metrics and indicators which describe the degree of activity or market structure of these platforms.

The following research questions are to be assessed in this paper:

RQ1. Which are the most relevant online platforms for Freelancing in IT?

RQ2. What can be said about the Market Structure on these platforms? Is there any kind of monopoly?

RQ3. How is the volume of activity expected to evolve in the following years on these platforms?

II. ONLINE FREELANCING PLATFORMS

In order to identify the freelancing platforms and consider them relevant, the following criteria were analyzed:

- The number of registered Freelancers or users based on the statistics, public reports or database queries provided by each platform.
- The user traffic estimated by *Alexa.com* [4] which is presumably the only public available form of measuring traffic for all major websites in the world.
- The mentioning of these platforms in the literature for the following search terms: *Freelancing, Global Software Development, Offshore Outsourcing, Crowdsourcing*
- My own professional experience as an Associate and Manager of a software development company which has activated as freelance web development agency since 2008.
- The web search interest and trends according to *Google Trends* estimations.

From more than 50 preliminary results, 10 platforms have been selected for further analysis as shown in Table I [4]-[15]. The data was collected in December 2014. Out of these, only 6 (*Elance.com, Odesk.com, Freelancer.com, Guru.com, Peopleperhour.com* and *99designs.com*) provide a full toolset for listing jobs, provider profile and portfolio, bidding and selection tools, project management features, billing and international payments. Freelance jobs can be posted in categories such as: IT & Programming, Design & Multimedia, Sales & Marketing, Engineering & Manufacturing, Finance & Management, or Legal. However, *99designs.com*, deals exclusively with creative jobs and cannot be defined as a platform for IT freelancing.

Stackoverflow.com is a professional community for IT specialists with significantly more user traffic [4] than the conventional freelancing platforms. Along with *Linkedin.com* which is one of the most visited websites in the world [4] these two provide free and paid means to browse, evaluate and contact IT specialists from all over the world, which make

Gheorghe Mihai is with the Bucharest University of Economic Studies, 6 Piata Romana, 1st district, Bucharest, 010374 Romania (e-mail: mihai.gheorghe@gdm.ro).

them valuable resources in the Global Freelancing context.

Unfortunately, most of the statistics about the operations performed on the mentioned Freelance Marketplaces are available as part of their own marketing campaigns so peer – to-peer comparisons is generally unavailable. However Elance.com issues yearly impact reports and features a permanent section with the number of jobs posted and value

per country, global payments, skills in demand and other indicators [16]. Since 2014, Elance and oDesk, the largest Freelance Marketplaces according to their up to date payments, have merged into a single company, though keeping stand-alone identities for their websites. An aggregated annual report import has been issued for both platforms [17].

TABLE I
ONLINE PLATFORMS THAT ENABLE FREELANCING

Type	Elance Freelance Market place	Odesk Freelance Market place	Freelancer Freelance Market place	Guru Freelance Market place	Peopleperhour Freelance Market place	Fiverr Microjobs Market place	LinkedIn Professional Social Network	Stackoverflow Professional Community	99designs Freelance Market place	Amazon mturk Microtasks Crowdsourcing Platform
Launched in	1999	2003	2009	1998	2005	2010	2003	2008	2008	2005
Alexa.com global rank	560	504	945	4915	2426	244	13	57	2203	4842
Alexa.com USA rank	614	727	2897	6400	10249	437	10	43	2087	1677
Alexa.com rank in India	151	170	266	1054	856	162	9	18	1011	2088
% of visits from USA	26.5	22.1	11.2	19.8	7.3	23.3	34.4	27.7	31.1	65.7
% of visits from India	27.9	23.8	32.0	47.7	30.7	17.4	13.0	19.8	21.9	21.8
Freelancers (est.) *10 ³	9300		13900	2000	36	150 -3000	1632	161	932	-
Payments to Freelancers – mill. \$	2900		300+	200	-	-	-	-	89	-
Freelancers in IT (est.) * 10 ³	1015	738	-	1215	-	-	-	161	0	-
Market cap (est.) mill. \$	-	-	275	-	-	-	27040	-	-	-
Funding (est.) – mill. \$	94.8	44	40	19	10	50	206	18	35	-
Brand value (est.) – mill. \$	229	268	88	54	41	347	6380	2927	535	52
Freelancer fee / Customer fee %	8.75 / 0	10 / 0	0-10 / 0-3	4.95 - 8.95/0	3.5 – 15	20	-	-	40	10

III. MARKET STRUCTURE – CASE STUDY ON ELANCE.COM

The general perception is that *freelancing in IT* is synonymous with *offshore development* and those countries requiring services versus countries offering freelancing services are disjunctive clusters.

Elance.com operates worldwide. Based on public available information the Herfindahl–Hirschman Index (HHI) was calculated for both hiring countries and service providing countries. Only IT & Programming jobs have been taken into consideration.

HHI is a statistical measure of concentration which describes the degree of competition in a certain market [18]. It is calculated as the sum of squared market share for each component.

$$HHI = \sum_{i=1}^n s_i^2 \quad (1)$$

- An *HHI* below 0.01 (or 100) indicates a highly competitive index.
- An *HHI* below 0.15 (or 1,500) indicates an

unconcentrated index.

- An *HHI* between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration.
- An *HHI* above 0.25 (above 2,500) indicates high concentration [19].

Table II [16] depicts the all-time demand in IT & Programming on Elance.com. The data was collected in March 2015.

USA stands approximately 60% of the total, followed by a great margin by UK, Canada, Australia and India. The rest of the countries score less than 1% each.

This leads to an **HHI = 0.365** for jobs posted which can be translated in a rather monopolized demand structure.

Table III [16] depicts the all-time payments IT & Programming on Elance.com. The data was collected in March 2015.

India leads as the top IT provider with a market share of 34.19%. Rather unexpected the USA is the second freelancing provider with a market share of 14.15%. 10 countries score above 1% in market share.

TABLE II
ALL-TIME JOBS POSTED IN IT ON ELANCE.COM

	Jobs value in IT - \$	Market Share
USA	1730800256	59.61
United Kingdom	179558482	6.18
Canada	135097410	4.65
Australia	128248887	4.42
India	107911881	3.72
Singapore	23772854	0.82
Germany	23742725	0.82
Netherlands	22177884	0.76
UAE	19428667	0.67
Israel	17945471	0.62
Ireland	14578212	0.50
Switzerland	13242872	0.46
South Africa	13076326	0.45
France	12668312	0.44
Spain	12652790	0.44
New Zealand	12212453	0.42
Hong Kong SAR	11290149	0.39
Italy	11032848	0.38
China	10757113	0.37
Pakistan	10568262	0.36
Denmark	10389917	0.36
Sweden	9931546	0.34
Belgium	8753485	0.30
Ukraine	7604321	0.26
Malaysia	7597796	0.26
Rest of the World	348375300	12.00
Worldwide	2903416219	100.00

TABLE III
ALL-TIME PAYMENTS IN IT ON ELANCE.COM

	Payments in IT - \$	Market Share
India	244359491	34.19
USA	101130359	14.15
Ukraine	67491758	9.44
Pakistan	47700063	6.67
Russia	25039916	3.50
Romania	20111856	2.81
United Kingdom	14269906	2.00
China	13560467	1.90
Canada	11457699	1.60
Serbia	7721306	1.08
Argentina	6842494	0.96
Bangladesh	6641611	0.93
Vietnam	5301756	0.74
Poland	4338175	0.61
Germany	3430770	0.48
Australia	3211769	0.45
Bulgaria	2561887	0.36
Egypt	2524487	0.35
Philippines	2330988	0.33
Nepal	2123449	0.30
Spain	2015578	0.28
Macedonia	1650068	0.23
Croatia	1464843	0.20
Indonesia	1370311	0.19
Armenia	1367462	0.19
Rest of the World	114645581	16.04
Worldwide	714664050	100.00

The calculated index is $HHI = 0.153$ and it reveals a market with a moderate concentration, therefore with a good degree of competitiveness.

An interesting finding is that providers from Asia total score just above 45%.

10 countries can be found in both tables. Out of these, Ukraine has an earnings share 36 times greater than the posted jobs value share. At the other end, USA has a 4 times lower earnings share compared to the jobs value share.

In order to evaluate the workforce structure per country, data from Elance.com regarding the number of PHP, HTML, and JAVA specialists for each country has been collected in March 2015. The results have also been filtered by the number of specialists who have passed Elance's specific tests for the same programming technologies.

Using ArcGIS, the World map, Fig. 1, has been symbolized with the number of PHP programmers normalized with the population per each country. This shows the countries with the highest degree of specialization in PHP - number of specialists / estimated population. The symbology is built upon 4 Natural Breaks (Jenks) classes.

Two interesting aspects have been found:

1. There are regional similarities
2. Countries such as USA, Canada, United Kingdom or Australia have a greater number of registered PHP programmers / est. population than traditionally IT Freelancing countries from Asia - India, Pakistan, or China.

Similar results have been observed with the other datasets - programming languages.

IV. TRENDS IN IT FREELANCING

When comparing the total value of jobs posted in IT & Programming on Elance (Table II) with the total value of payments made through Elance for IT jobs (Table III) we observe a ratio between them of approximately 4:1. This is explained by the fact that not all job postings result in a contract which may have multiple causes:

- The demand is greater than the supply. There is just not enough workforce available for the needed jobs.
- Candidates do not convince the employers to a mix of factors: cost, qualification, lack of trust
- The selection happens but outside the platform, in order to avoid the 8.75% fee

However, for instance, on oDesk.com there are about 85% of the registered users who haven't managed to earn \$1.

This is a favorable context for the development of operations. Also, automated candidate allocation based on properly defined jobs might be a solution to evaluate.

The increasing interest on Elance and oDesk Freelance Marketplaces is illustrated in Fig. 2. While Guru, has seen a constant decline, Freelancer.com is still at an insignificant level compared with the first two competitors.

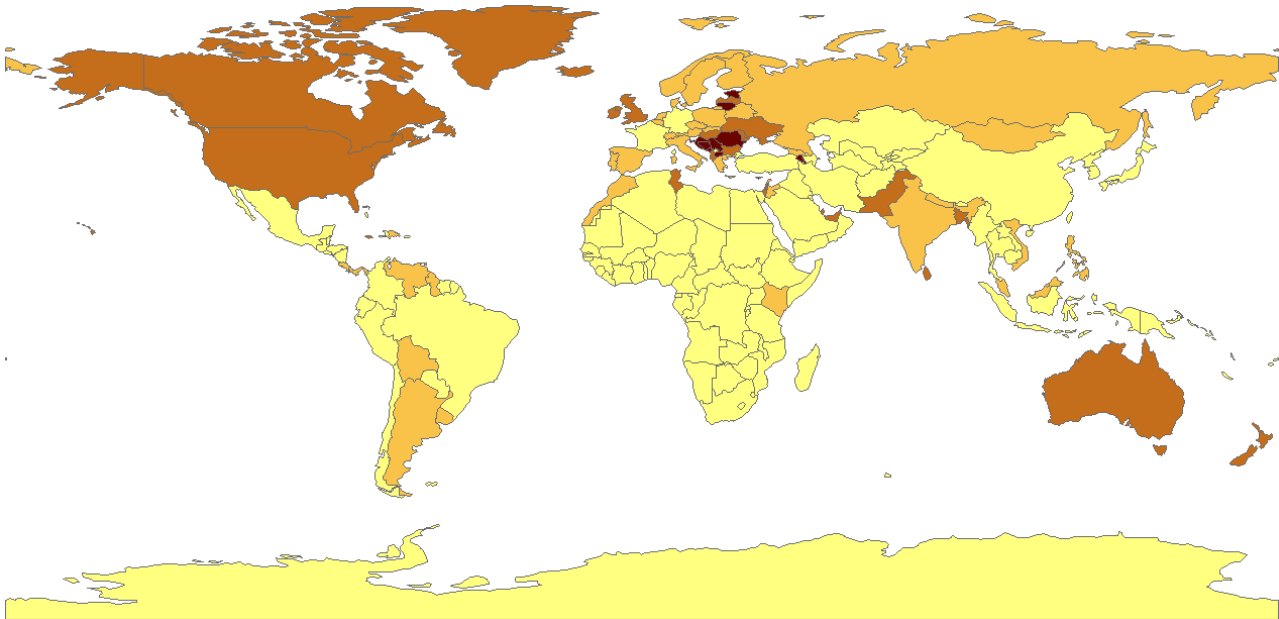


Fig. 1 Number of PHP Freelancers from Elance.com / estimated population

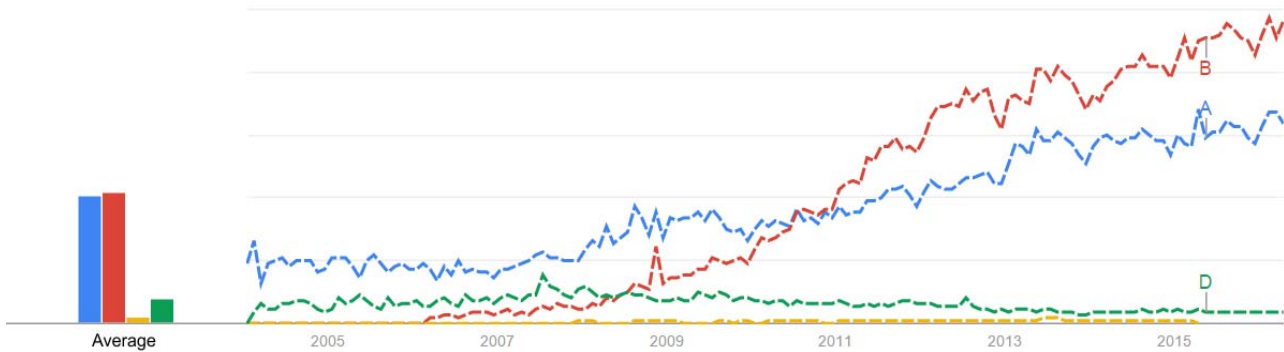


Fig. 2 Google Trends for search results for Elance.com (blue), oDesk.com (red), Freelancer.com (orange), and Guru.com (green) [20]

Analyzing Elance’s annual impact reports we learn that in 2012, 345,000 new businesses and 780,000 freelancers have joined the platform. For freelancers, that’s a 25% YoY growth.

In 2013, 441,000 new business and 1,153,000 freelancers have joined the platform. For freelancers, that is a 40% YoY growth. The same YoY growth rate of 40% has been reported in 2013 for IT & Programming earnings.

V.CONCLUSION

Three Research Questions have been issues at the beginning of this paper.

RQ1 has been addressed and summarized in Table I. However, if we compare the reports indicating the total number of freelancers in USA or in the European Union, we notice that the numbers are considerable higher that the total of freelancers who are registered on the platforms described by the current study. Possible causes for this discrepancy:

- Lack of trust in Online Freelance Marketplaces for both the customers and the providers

- Lack of usefulness of this platforms for fields that have large shares in freelancing, such as journalism or law
- Lack of notoriety for these platforms
- A high market fragmentation among Freelance Marketplaces
- High fees that make both freelancers and employers decide non-mediated collaboration channels are more cost effective.

RQ2 was considered based only on Elance’s public reported indicators. Given the fact Elance is one of the largest platforms, it is possible to extend the conclusions to the other Freelance Marketplaces as well. The analysis revealed a monopolized demand structure while the IT provider’s market describes a rather high degree of competitiveness, even between global regions.

USA and India stand for the first 2 positions in both contracting and providers datasets which is also in accord with the reported user traffic from Alexa.com. In most cases, both countries gather more than 50% of the whole traffic that is

conducted through these platforms.

The geographical analysis over the degree specialization revealed regional similitudes.

RQ3. Recent reports provided by Elance and oDesk as well as the dynamic of the freelancing phenomenon [1]–[3] and the sustained interest in the platforms [20], leads to the conclusion that online staffing will continue to rise in the following years.

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