

CASE STUDY: RECRUITING OPPORTUNITIES FOR WEB DEVELOPERS ON THE CURRENT LABOR MARKET

Dragos-Paul POP ^{*1}
Serban Radu Cristian HERLEA ²

ABSTRACT

In the ever changing world of Information Technology students often feel undecided when they need to choose a career path. The following research aims to show the growth of the web development demand on the workforce market by comparing job offerings and salaries across several countries: Romania, USA, Germany, France and UK.

Keywords: web development, labor market, case study

1. INTRODUCTION

With the advent of products such as Google Chrome and smartphones the World Wide Web has known a second great boom. It all started around the year 2008 and it grew even bigger in 2010, when the HTML5 concept became a mainstream term. Ever since, technologies started to flourish driven by competing companies. Google, Microsoft, Mozilla, Adobe, Apple, Facebook are among the main drivers of the industry, but the governing body of the World Wide Web standards, the W3C has a total of 380 members. These include not only companies in the tech industry and other industries (like film making), but also universities. This only serves to show that web development is a highly active and evolving area. This research aims to show why web development is a good present and future career path choice. We do this by presenting 3 arguments that analyzes different aspects of the industry.

2. FIRST ARGUMENT: THE INCREASE IN DEMAND FOR WEB DEVELOPMENT SPECIALISTS ON THE CURRENT LABOR MARKET

To highlight the economic impact of this research, we have studied the labor markets of the offers of the following countries, focusing on the area of web design:

- Romania (primarily)
- United Kingdom
- France
- Germany
- The United States of America

¹ * Corresonding author. Teaching Assistant, Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: pop.dragos.paul@profesor.rau.ro

² Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: serban.herlea@gmail.com

From January to September 2014 we have analyzed the job offers published on 3 major online platforms (BestJobs, eJobs and Hipo) and one major platform from each of the other countries - UK, France, Germany and USA.

The research was conducted based on the following algorithm:

- The queries were conducted after IT specific terms
- For each platform, we have counted the total number of resulting job offers
- We have compared the web development specific jobs with other relevant IT jobs
- We have analyzed the first ten offers listed on each platform
- We have calculated how many of these offers include advantages for prospective web application developers

The keywords used for querying the recruitment platforms were as follow:

1) From the field of web development:

- a) **Web developer** - a person working in the field of developing web applications
- b) **Front-end developer** - the term describes a person working in the field of developing web applications, but specialized in the development of the client side of the client-server architecture.
- c) **Back-end developer** - the term describes a person working in the field of developing web applications, but specialized in the development of the server component of the client-server architecture.

2) From the general area of Information Technology:

- a) **C++ developer** - the term describes a person working in the field of product development, who uses the C++ programming language.
- b) **Network administrator** - the term describes a person that works in the field of computer networks.
- c) **Database administrator** - the term describes a person that works in the field of data collections, specialized in administering database systems.
- d) **Windows developer** - the term describes a person that works in the field of application development for the Microsoft Windows operating system.

The two areas were selected to better understand the importance of web development in the context of both the Romanian IT market and the other countries included in the research.

The distribution of the keywords used on the recruiting platforms included in the research shows the following:

	Web dev.	Front-end dev.	Back-end dev.	C++ dev.	Net. admin.	DB admin.	Win. dev.
Bestjobs	192	54	26	44	21	22	28

eJobs	197	22	45	25	26	9	24
Hipo	55	9	7	85	8	10	13
UK	176	30	45	11	53	56	28
France	1439	763	909	1112	178	101	550
Germany	161	32	24	20	29	35	119
USA	13824	2571	3146	11558	7906	5579	7112

Chart 1. The distribution of job offers

The data reveals that the job availability for web design professionals is clearly superior compared to the other referenced IT fields. This tendency applies both for Romania and the other countries involved in the research.

The percentage distribution of job offers for each studied platform is as follows:

1) Bestjobs

- a) The percentage of available positions as a **web developer** represents 49.61% of the total of job offers that include all the 7 keywords
- b) **Front-end developer** generated 13.95% out of the total
- c) **Back-end developer** generated 6.72% out of the total of queried job offers.
- d) The three specialized positions of the web development field represent 70.28% of the total of jobs available, filtered using the seven criteria mentioned beforehand.

2) Ejobs

- a) The percentage of available positions as a **web developer** represents 56.61% of the total of job offers that include all the 7 keywords
- b) **Front-end developer** generated 6.32% out of the total
- c) **Back-end developer** generated 12.93% out of the total of queried job offers.
- d) The three specialized positions of the web development field represent 75.86% of the total of jobs available, filtered using the seven criteria mentioned beforehand.

3) Hipo

- a) The percentage of available positions as a **web developer** represents 29.41% of the total of job offers that include all the 7 keywords
- b) **Front-end developer** generated 4.81% out of the total
- c) **Back-end developer** generated 3.74% out of the total of queried job offers.
- d) The three specialized positions of the web development field represent 37.97% of the total of jobs available, filtered using the seven criteria mentioned beforehand.

4) UK

- a) The percentage of available positions as a **web developer** represents 44.11% of the total of job offers that include all the 7 keywords

- b) **Front-end developer** generated 7.52% out of the total
 - c) **Back-end developer** generated 11.28% out of the total of queried job offers.
 - d) The three specialized positions of the web development field represent 62.91% of the total of jobs available, filtered using the seven criteria mentioned beforehand.
- 5) France
- a) The percentage of available positions as a **web developer** represents 28.48% of the total of job offers that include all the 7 keywords
 - b) **Front-end developer** generated 15.1% out of the total
 - c) **Back-end developer** generated 17.99% out of the total of queried job offers.
 - d) The three specialized positions of the web development field represent 61.58% of the total of jobs available, filtered using the seven criteria mentioned beforehand.
- 6) Germany
- a) The percentage of available positions as a **web developer** represents 38.33% of the total of job offers that include all the 7 keywords
 - b) **Front-end developer** generated 7.62% out of the total
 - c) **Back-end developer** generated 5.71% out of the total of queried job offers.
 - d) The three specialized positions of the web development field represent 51.61% of the total of jobs available, filtered using the seven criteria mentioned beforehand.
- 7) USA
- a) The percentage of available positions as a **web developer** represents 26.74% of the total of job offers that include all the 7 keywords
 - b) **Front-end developer** generated 4.97% out of the total
 - c) **Back-end developer** generated 17.99% out of the total of queried job offers.
 - d) The three specialized positions of the web development field represent 6.09% of the total of jobs available, filtered using the seven criteria mentioned beforehand.

To sum up, the job offers in the field of web development surpass all other candidate areas of IT included in the research.

In Romania, two out of the three recruitment platforms have revealed that the available positions that require web developers represent more than two thirds of the total listed IT jobs.

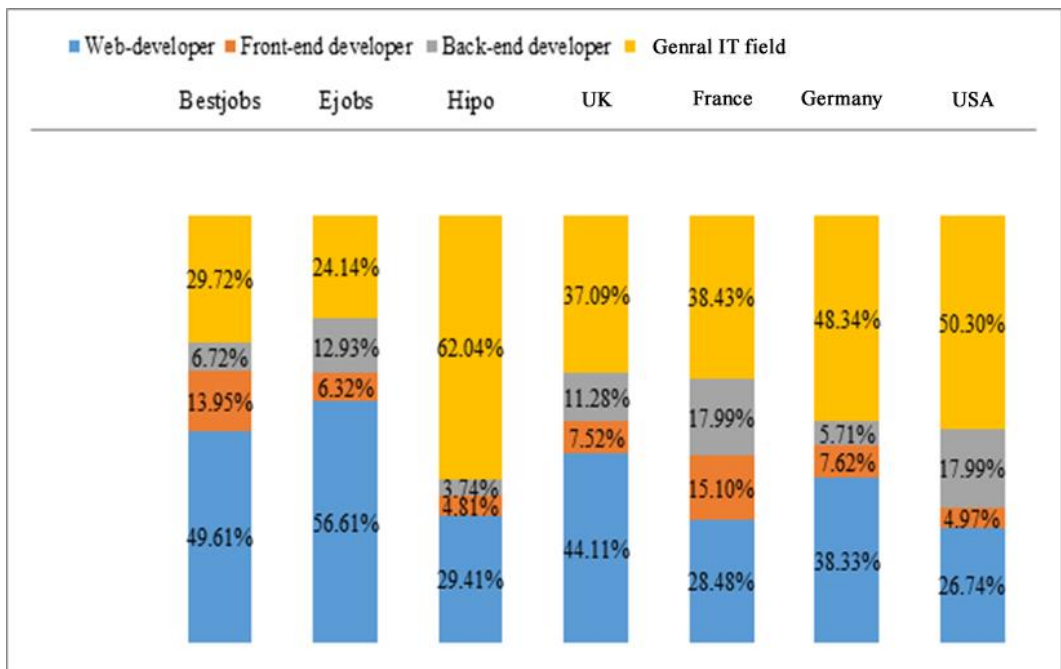


Chart 2: The distribution of available positions sorted by area of activity.

The column chart above illustrates the importance of web development in the IT sector, based on our research.

8) SECOND ARGUMENT: THE LABOR MARKET'S DEMAND FOR EXPERTISE IN SPECIFIC FRAMEWORKS OR DESIGN PATTERNS REGARDING THE WEB DEVELOPMENT FIELD.

In our research, we consider the available positions that require development skills for web applications.

We have studied the first 10 offers shown on all recruitment platforms mentioned in the last section and we have calculated how many of them contain the three qualifications we seek to highlight: web developer, front-end developer and back-end developer.

The following table contains the general view of the data we have collected. The data for Romania is calculated by average of the results obtained from the three online platforms (Bestjobs, Ejobs and Hipo).

	Web dev.	Front-end dev.	Back-end dev.
Romania	5.7	6.3	5.7
UK	5.0	6.0	6.0
France	7.0	5.0	8.0
Germany	6.0	7.0	9.0

USA	8.0	5.0	6.0
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Chart 3: Skill requirement for development platforms in the first 10 queried results.

The percentage distribution of job offers that require knowledge of a development framework or design pattern is as follows:

- 1) Romania
 - a) 57% of the cases mentioned a requirement for **web developers**
 - b) 63% of the cases for **front-end developer**
 - c) 57% of the cases for **back-end developer**
- 2) UK
 - a) 50% of the cases mentioned a requirement for **web developers**
 - b) 60% of the cases for **front-end developer**
 - c) 60% of the cases for **back-end developer**
- 3) France
 - a) 70% of the cases mentioned a requirement for **web developers**
 - b) 50% of the cases for **front-end developer**
 - c) 80% of the cases for **back-end developer**
- 4) Germany
 - a) 60% of the cases mentioned a requirement for **web developers**
 - b) 70% of the cases for **front-end developer**
 - c) 90% of the cases for **back-end developer**
- 5) USA
 - a) 80% of the cases mentioned a requirement for **web developers**
 - b) 50% of the cases for **front-end developer**
 - c) 60% of the cases for **back-end developer**

The information presented in Chart 3 show that:

- in over 50% of the cases, the employers prefer specialists who master a development framework or an design pattern.
- 80% / 90% of the cases (depending on the recruitment platform) show that these skills are essential.

The following chart illustrates the presented statistics for this case.

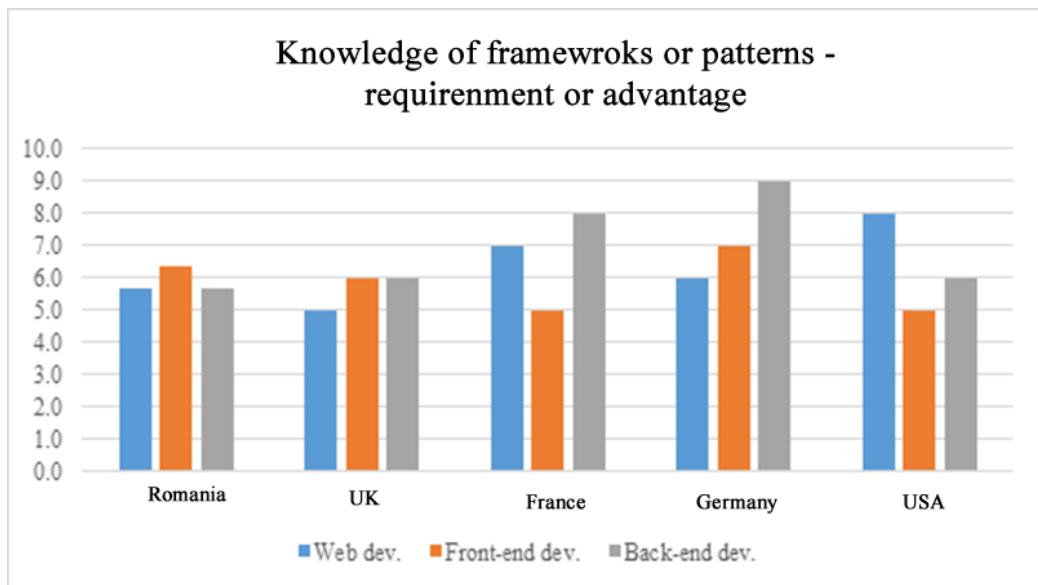


Chart 4: Knowledge requirements of development platforms for the first 10 results of the search.

3. THIRD ARGUMENT: THE EVOLUTION OF THE AVERAGE SALARIES FOR WEB DEVELOPMENT SPECIALISTS.

The following research compares the average salary of a web developer with the average salary of an IT specialist.

The research instruments were the following:

- 1) **SalaryExplorer.com**, which reveals that the average salaries in Romania, Germany and UK as being:

	Web dev.	C++ dev.	Networking	National avg. for IT	Currency
Romania	68.650	43.500	57.162	54.099	RON
Germany	34.050	53.705	55.900	46.573	EUR
UK	34.623	51.500	36.844	60.904	GBP

Chart 5: Average salary levels, as presented by SalaryExplorer.com

Analyzing the data above, we can appreciate that the web development branch offers better average salaries than the average salary rate for the IT industry. Therefore, the salaries in the field of web development are, on average, 26% bigger than the IT average salary. This does not apply to the other two considered countries, Germany and the UK.

The following chart shows the average salaries in the IT industry for the three sample countries: Romania, UK and Germany:

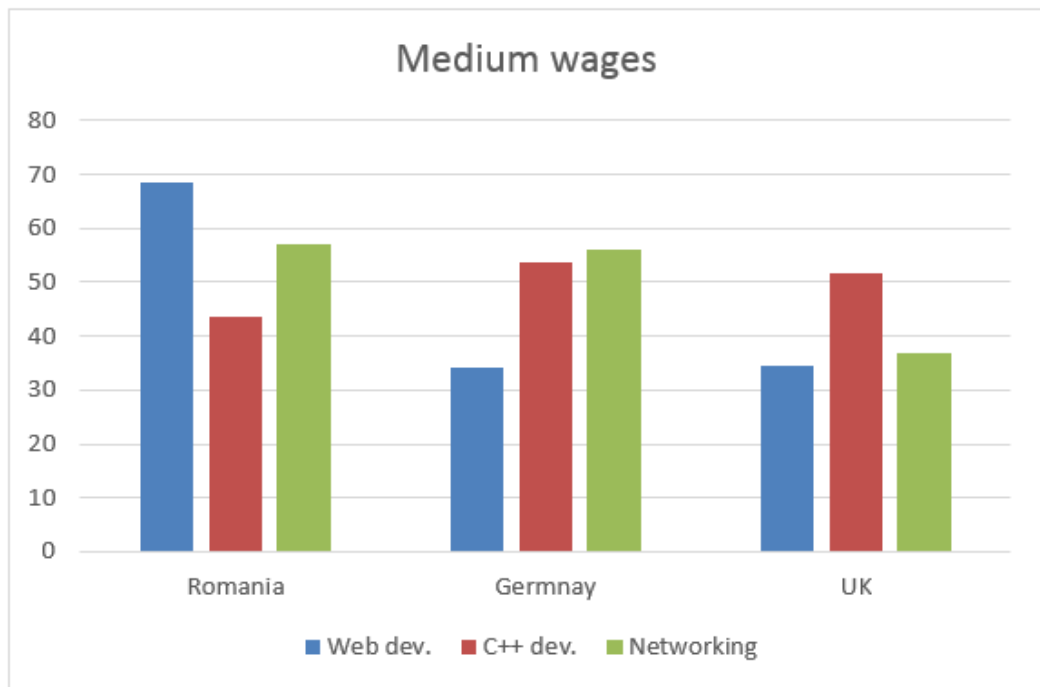


Chart 6: Average salaries, according to SalaryExplorer.com

- 2) **ITCareerFinder.com**, which uses as data source the Robert Half Technology Salary Survey of 2012, 2013 and 2014, presents the following statistics for the IT sector in the United States of America:

	2012 (k USD)		2013 (k USD)		2014 (k USD)		Evolution, spanning 2 years
	Min	Max	Min	Max	Min	Max	
Web dev.	85,75	118,5	92	127,25	97,75	135,25	+14,1%
DB adm.	76	109,5	79	113,75	83	119,5	+9,2%
Net adm.	55,75	82,75	58,75	87,25	62,75	93,25	+12,6%
SW dev.	70	111	75,5	118,25	80,25	127,25	+14%

Chart 7. Salary level, according to ITCareerFinder.com in USA

According to ITCareerFinder.com, USA has registered the following progress between 2012 and 2014:

- the most significant salary growth has been registered for web development specialists: 14.1%

Regarding the difference between the average salary of a specialized web developer and the average salary of an IT specialist, in general, ITCareerFinder.com states the following:

- the Database Administrator position is paid 13.37% less than a Web Developer position.

- the Network Administrator position is paid, in average, 33.34% less than a Web Developer position.
- the Software Developer position is paid, in average, 11.91% less than a Web Developer position.

4. CONCLUSION

The main conclusion that can be drawn from this research is that the web development field is on a rising wave. This is mainly because technologies have come a long way in the last few years. Google and the advent of smartphones have paved the way for a boom in the web development field. Companies like Google, Apple, Microsoft and Adobe invest a lot of time, money and manpower in advancing web technologies. For example, Google has created an entire sector for laptop devices, called Chrome books that use a modified version of the Chrome Browser as an operating system. Microsoft has made it possible for web developers to create native Windows 8 and Windows 8.1 applications easily, without the need to switch technologies. Adobe has shifted its focus from the famous Flash platform that it owns and that was a huge product for almost two decades, to web technologies. The rising offer in Virtual Private Servers as an alternative to the classic shared hosting environment has made it easy for web developers to create and publish websites and applications using whatever technologies they desire.

Not only is the labor market responding to these industry changes with a higher demand for specialists but the salaries offered to them are also on the rise.

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REFERENCES

- Ankolekar, A., Krötzsch, M., Tran, T., & Vrandečić, D. (2008). The two cultures: Mashing up Web 2.0 and the Semantic Web. *Web Semantics*, 6(1), 70–75.
- Bender, G. (2008). Web 2.0 - Neue Perspektiven für Marketing und Medien. In B. H. Hass, G. Walsh, & T. Kilian (Eds.), *Marketing Review* St Gallen (Vol. 26, pp. 173–189). Springer-Verlag. <http://doi.org/10.1007/s11621-009-0016-7>
- Greaves, M., & Mika, P. (2008). Semantic Web and Web 2.0. *Web Semantics: Science, Services and Agents on the World Wide Web*.
- Hendler, J. (2009). Web 3.0 Emerging. *Computer*, 42. <http://doi.org/10.1109/MC.2009.30>
- Levy, M. (2009). WEB 2.0 implications on knowledge management. *Journal of Knowledge Management*.
- Shiels, M. (2008). Web 2.0 is set for spending boom. BBC News. BBC News. Retrieved from <http://news.bbc.co.uk/2/hi/technology/7359927.stm>