



# **An Information Technology Service Hub for Effective Service Delivery in Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

This paper aims at supporting freelancing and self-employment among information technology service providers, particularly newcomers, by allowing them to use the internet's broad reach to find jobs both inside and outside their location. The ongoing growth in unemployment in Nigeria has impacted every sector of the economy, including the delivery of information technology services. There are many skilled persons in the industry, but possibilities appear to be limited. This is due to the lack of specific platforms for information technology service providers to offer their services, which makes it difficult for potential clients to find a service provider to accomplish their work. This dilemma prompted the construction of a dedicated platform, which would serve as a one-stop shop for both an information technology service provider and a potential client, bridging the gap between them. The object oriented analysis and design methodology (OOADM) was employed in this research, and HTML, CSS, PHP, MySQL, and JavaScript were used to design the application in order to achieve a high level of scalability and platform performance. It is simple to use and allows service providers on the platform to operate freely without being charged a percentage of their earnings. This paper will be of immense benefit to the unemployed, masses and the Government.

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## 1. INTRODUCTION

The service delivery sector has seen a massive shift in the way services are delivered to people since the introduction of computers and the internet. Every business owner or service provider who wants to make an immediate effect in their industry, regardless of location, needs to have an online presence [1]. Furthermore, in order to succeed in today's economy, a company must employ information technology services. This development has prompted a big number of young people to pursue education in IT-related disciplines in order to supply services to the vast number of people and businesses who require them. Despite the Nigerian education system's shortcomings in the field of information technology, those who want to work as IT service providers have not been prevented from obtaining the expertise they need to fill the gap in demand for IT services. Many people who are interested go so far as to enroll in online courses in order to receive the information they require, and some of those who are successful in obtaining the information go on to establish IT training academies to teach others. We now have a significant number of qualified specialists capable of providing high-quality IT services to a wide range of people all around the world. Even if some have already made a name for themselves in the field, many, especially newbies, want a platform through which they may earn a living by providing services to interested individuals and businesses. A platform like this might be provided by an online IT service hub. Furthermore, the internet allows workers in developing countries to deliver in-person services and compete directly with workers in other countries. This has a number of significant implications, including expanded job prospects and workforce globalization.

A hub is a single multipurpose facility that houses a variety of services. He points out that a hub might also incorporate public gathering spaces [2]. A hub is a center of activity, according to Merriam Webster's online dictionary. An online information technology service hub, according to this definition, is a platform where information technology service activities are carried out. It can also be viewed as a meeting point for customers and information technology service providers. Because the need for information technology services is increasing, many individuals and businesses who use such

services are unsure where to begin their search for a provider. People who require information technology services will be able to search for and obtain the services they require through an information technology service hub.

An online platform, such as the proposed information technology service hub, will go a long way toward exposing the abundance of information technology specialists in our area while also assisting them in finding work. It will act as an online marketing platform for registered members, allowing them to create a profile that details what information technology services they can give, the rates they charge, and an office or home address where a consumer can come for a physical meeting.

## 2. RESEARCH PROBLEM

It is a well-known truth that Nigeria's unemployment population is steadily increasing. This issue affects every sector of the economy, including information technology. In 2018, 40% of Nigerians (83 million people) lived below the poverty line, while another 25% (53 million) were considered vulnerable, according to the World Bank (2022). Between 2019 and 2024, there will be an additional 7.7 million Nigerians living in extreme poverty as population growth continues to exceed efforts to reduce poverty.

While the economy is anticipated to expand by an average of 3.2% in 2022–2024, adverse risks to the growth outlook include additional drops in oil production and increased insecurity. Meanwhile, continued currency shortages and reduced liquidity could have an impact on non-oil sector economic activity and jeopardize macroeconomic stability as a whole. Along with the uncertainties, it is anticipated that there would be high inflation, ongoing fiscal pressure, and increased debt pressure. [3].

According to Sahara Reporters (2016), of the 89,755 respondents to the survey on jobberman.com, 41,032 (or 45.72 percent) claimed to be unemployed graduates. Based on an increase from 12.3 percent in 2006 to 23.9 percent in 2011, it was discovered that 23 percent of adults and 60 percent of youth in Nigeria are unemployed. This increase can be attributed to inconsistent policies, the misappropriation of funds for empowerment programs, the continued deindustrialization, and the failure of small businesses due to inadequate

power supplies [4]. Despite the fact that the field of information technology (IT) is touted as the new gold, with a plethora of chances for individuals with IT abilities, few people have been successful in obtaining accessible positions. This is due to the lack of specific venues for information technology service providers to offer their services, which makes it difficult for many potential clients to find a service provider to accomplish their work. Service providers that sell their services through some of the accessible platforms occasionally complain that price fixing and escalating percentage charges on earnings cause them to be underpaid for some of their services.

### 3. SIGNIFICANCE OF THE RESEARCH

Many people, particularly young ones, choose to continue their schooling after receiving their first degree, oblivious to the fact that what they really need is work experience [5]. The issue is that when someone with only two years of work experience shows up for an interview with an MSc or PhD, the company becomes concerned. Are they capable of leading a team? Will they be able to deal with the complexities of the workplace? Can they perform under duress? Can they own up to their mistakes and offer credible solutions? [6]. All of these issues have some validity, but every man or woman has to start somewhere, as a beginner, apprentice, or master, and gain experience over time to reach a specific degree of ability.

The system will assist its users, particularly newcomers, in developing a network, gaining work experience in their area, and establishing a reputation in their physical region. It will give users a platform to promote themselves and the services they can offer to a broad audience. It will assist in narrowing the extensive search that some people go through when seeking for an IT service provider to a specific website, resulting in increased traffic and job opportunities for the registered members.

This research aims to develop an information technology service hub for effective service delivery in Nigeria which will support IT entrepreneurs by providing them with equal work prospects and not charging them a fee to use it. It will also support freelancing and self-employment among information technology service providers and allows them to make use of the internet's broad reach to find jobs both inside and outside their location.

This research will benefit anyone who wants to work on or improve the developed system by increasing their knowledge on how to implement an online service hub.

### 4. REVIEW OF RELATED WORKS

The Information Age has had a variety of effects on the workforce. It has resulted in a situation where workers who undertake things that are easily automated are forced to look for work that requires them to conduct tasks that are not easily mechanized [7]. Employees are also pushed to compete in a global labor market. Finally, workers are being replaced by machines that can perform their tasks more quickly and efficiently [8]. This creates issues for workers in industrialized nations that have yet to be resolved. Solutions that include reducing working hours, on the other hand, are frequently met with strong opposition. People who lose their occupations have two options: either further their careers by becoming "mind workers" (engineers, doctors, attorneys, teachers, scientists, professors, CEOs, journalists, and consultants) or settle for low-skill, low-wage service positions. The "mind workers" can compete well in the global economy and earn good money.

Furthermore, the internet allows workers in developing countries to deliver in-person services and compete directly with workers in other countries. This has a number of significant repercussions, including greater job opportunities and workforce globalization.

Over the years, the number of freelancers using digital freelancing platforms has grown to the point that most global platforms, such as Amazon Mechanical Turk, Upwork, and Freelancer.com, now have tens of millions of active users [9]. Platform usage is increasing by more than 25% per year globally, according to current statistics [10]. Although some of these platforms focus on digital microwork, such as tagging images and categorizing text into categories, others offer more creative and comprehensive work experiences, such as designing a company's brand guidelines or logo, and programming a website [11].

Different applications of the platform economy have been described in a positive light as alleviating poverty [12], empowering ordinary people through entrepreneurship and providing upward mobility [13,14]; and in a negative light as 'neoliberalism on steroids' [15] and

undermining workers' rights, causing millions to live in constant worry and insecurity [16].

The concept of freelancing is claimed to date back to the Middle Ages. The troops who gave their services to the kings who paid them were known as freelancers. They were mostly troops who had already lost their monarchs in battles and now fought for whomever they pleased. After 1000 A.D., hired troops became commonplace. Condottiere was the name given to these soldiers in English. The leader of a band of mercenary warriors is referred to as a mercenary. These soldiers were originally known as stipendiaries, according to Latin archives. As the name implies, these are troops who were paid a stipend to work [17].

America was the birthplace of contemporary freelancing as we know it today. In the 1970s, there was a transportation difficulty in the cities of the United States, making it extremely unpleasant for those living in rural areas to commute to the major cities for their daily work. Even the government was concerned about this and was trying to find a solution [17]. This struck Jack Nilles, and he came up with the notion of using the telephone to address the problem. Through telephones, he developed the concept of working from home. Many people were hesitant to work from home at the time since the internet had not yet appeared to astound the globe. There were many concerns, and it was required to demonstrate that remote work works in order to promote it to the general public. As a result, he began testing at the University of California, and he was able to get positive results. This is how he will be able to get the money from the National Science Foundation. As previously stated, the government was supportive of this plan because it not only provided a solution to the transportation problem, but it also had the potential to reduce gasoline usage and keep growing levels in check. On the plus side, many IT technicians, designers, academic writers, and scientists are joining the freelancing business, and these service providers have found it to be an appealing workplace in terms of economic, social, technical, and emotional benefits. On the other hand, many service providers are voicing their dissatisfaction with these e-lancing sites. They say that these platforms benefit to the greatest extent possible, while service providers suffer the consequences [18,19]. Critics have dubbed these freelancing platforms "digital sweatshops," where you can earn a living but not enjoy a lavish lifestyle [20]. Because a competent pool of

experts generates demand for platforms, freelancing platforms must consider these part-time employees. It is simple for freelancers to migrate from one platform to another because the cost of switching is little [21]. In order to be competitive in the freelancing business, the platform must build strong and long-term relationships with freelancers, as well as establish tactics for attracting and retaining freelancers.

Workers that are creative require time and space to generate novel ideas that can lead to more fulfilling work experiences [22]. Yet, due to the aforementioned pressures, many freelancers on digital marketplaces frequently lack both. Their work begins to resemble 'digital Taylorism' [23,13] and it is a long way from reaching one's 'dream job' and self-development [24].

Second, most freelancers felt powerless in the client-freelancer relationship, and that they lacked choice and control over their job. This compounded feelings of being dominated as well as the inability to do meaningful job. Many freelancers believe that the platforms and their evaluation processes are the source of power imbalance. Review and rating systems, according to the majority of freelancers, take away autonomy, authenticity, and innovation. Client reviews can significantly influence freelancers' future employability and are thus used as disciplinary tools [25]. Because rating and review systems replace traditional credibility measures (e.g. qualifications, employment references, and personal recommendations), clients' reviews can significantly influence freelancers' future employability and are thus used as disciplinary tools [25].

Fear of negative feedback prevents freelancers from exploring and applying for hard work, limiting their options, ability to grow, and ability to challenge themselves. The majority of freelancers said that the review methods restricted their capacity to freely navigate their client relationships.

Work is undergoing a transition not witnessed since the Industrial Revolution, thanks to technological advancements and shifting lifestyles. A normal employee could find a position right out of college with a large corporation and reasonably expect to stay there for the rest of his or her career just a generation ago. Compare that to the following alarming data from the Bureau of Labor Statistics in the United States: In 2010, the average length of

employment for an American worker was fewer than four years.

Many studies show that hubs can take many different forms, but that the majority of them function as a combination of a workspace, Internet café, coffee shop, training center, incubator, accelerator, event venue, and/or maker space [26]. While there is a lot of variation between hubs in terms of organization, amenities, membership, and other criteria, the general assumption is that hubs function as a community gathering space [27]. Hubs, for example, aim to promote knowledge sharing and creativity by bringing together like-minded people and competent outsiders through mentorship and networking opportunities [27]. In general, hubs exist to facilitate and assist entrepreneurship and innovation rather than to initiate or implement it.

## 5. LIMITATIONS FROM THE PAST WORK AND IMPORTANCE OF THIS RESEARCH

The goal of an online IT services hub is to bring together interested IT service providers or freelancers on a platform that will make them more visible and accessible to potential employers. However, for some consumers, most existing service hubs are overburdened with a wide range of services, making navigating on platforms and for service providers difficult. The most common issue with most existing platforms has been the fixing of service prices, which has resulted in service providers being underpaid for their services and an increase in the percentage fee on payments made to service providers [28]. This problem necessitated this research and the development of the new platform.

## 6. METHODOLOGY

Object-oriented analysis and design methodology (OOADM) was adopted in this research, and it is a set of standards for system analysis and application design. It uses a formal methodical approach to the analysis and design of information system. Object-oriented design (OOD) elaborates the analysis models to produce implementation specifications.

The OOADM approach is motivated by the kind of system desired to be developed. It is our desire to build a usable and evolvable application. The very nature of this research, in which navigation is combined with the inherent difficulties of dealing with multimedia data, needs an OOADM approach. The interface of Web apps is more complex than in traditional software systems, navigation and functionality should be seamlessly integrated and the navigational structure should be decoupled from the domain model of the app, therefore OOADM was chosen for its functionalities, in that it allows object oriented abstractions for analysis and design of information-intensive web applications. Besides the modeling abstractions, it also provides a methodology which guides a developer through different activities in the web application development. The research was also done by reviewing related studies on the internet by using mainly google and Google scholar searches and referring to the key word freelancing.

### 6.1 System Architecture

Below is a contextual structure of the system, highlighting its basic ideology and processes.

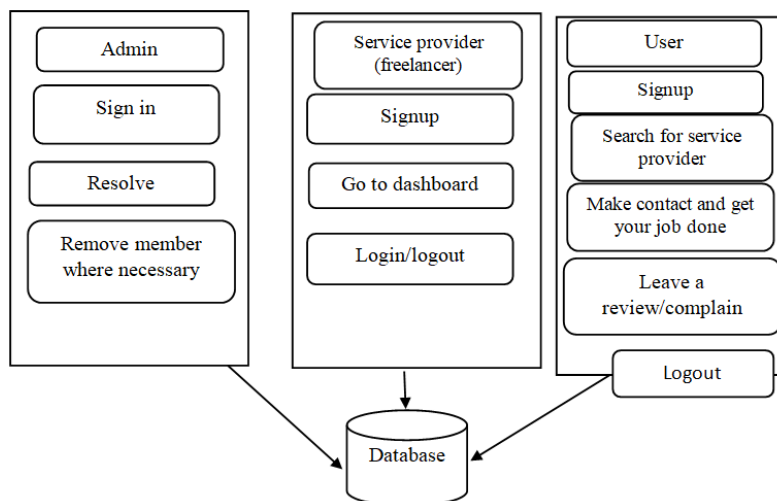
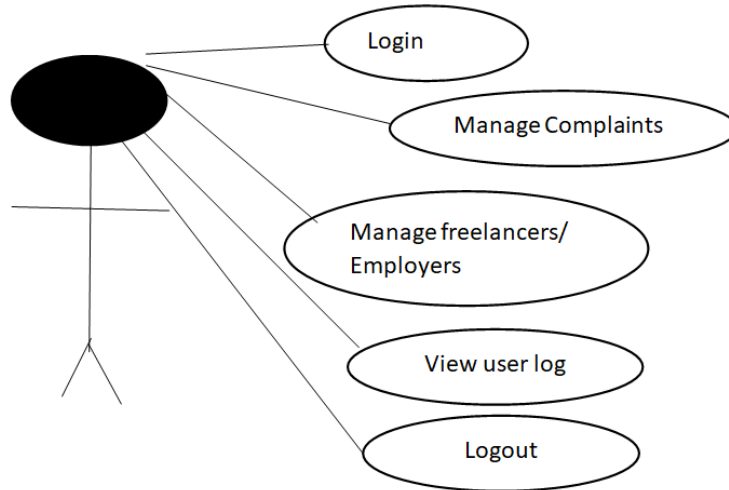


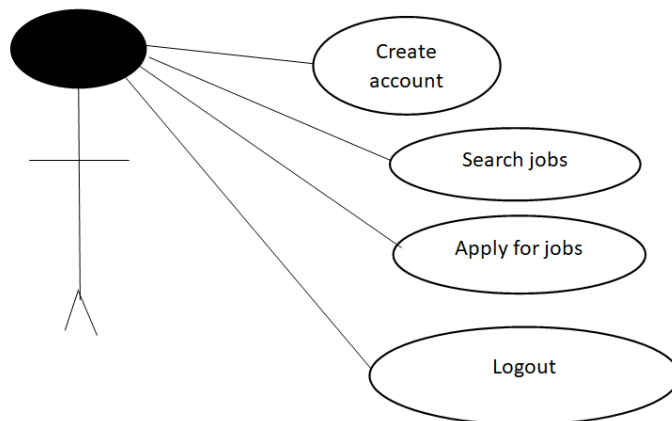
Fig. 1. System architecture for information technology service hub

**Use case diagram admin**



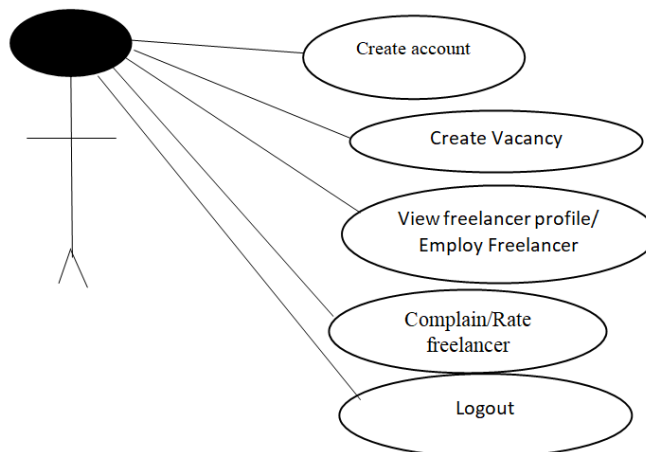
**Fig. 2. Use case diagram of the admin**

**Service provider (freelancer)**



**Fig. 3. Use case diagram of the service provider**

**Use case diagram of the employer**



**Fig. 4. Use case diagram of the employer**

## 7. RESULTS AND DISCUSSION

A freelancing platform acts as an intermediary between the company (requester) and freelancer (requester). The platform was designed to allow the requester to upload the description of tasks to be outsourced to freelancers, and for freelancers to apply for them. The index page which is the first page and entry point to the application, also known as the default page loads in the browser when the application is called up

and houses the links to the other sections of the site. After the browser has been called up, the user registers either as a freelancer or an employer in order to become a member and have access to other functionalities within the scope of his/her membership in the application.

The system collects information from the terminal and uses the input to produce an output which is used to convey the information to the user.

### 7.1 Results

#### Input forms

Freelance Marketplace Home Login Register

### Register

Name

Username

Email address

Password

Retype Password

Contact no.

Gender  Male  
 Female  
 Other

Date of birth

Address

Usertype  Freelancer  
 Employer

[Sign up](#)

[Activate Win](#)  
Go to Settings to

Fig. 5. The registration page

#### Login

Freelance Marketplace Home Login Register

### Login

Username

Password

Usertype  Freelancer  
 Employer

[login](#)

[Forgot Password](#)

Fig. 6. The login page

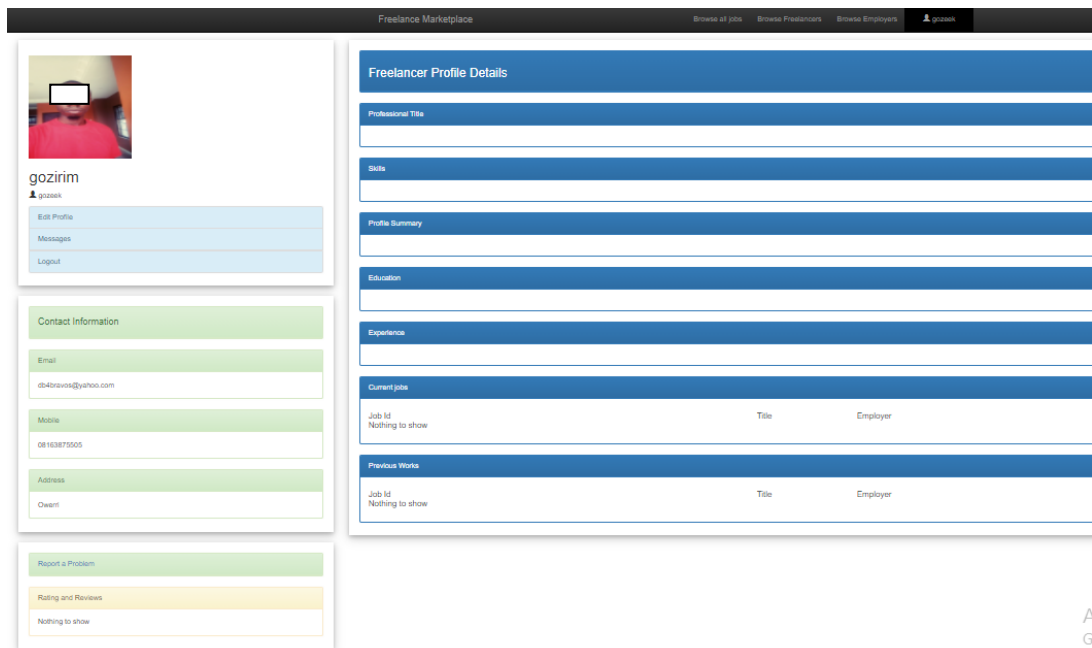


Fig. 7. The freelancer dashboard

## 8. SUMMARY

Freelancers are self-employed individuals who work for a specific employer for a limited time. They are not limited by regular working conditions (such as hours or physical presence) and are not expected to stay with a firm for an extended period of time. The association's terms and conditions, including price, deadlines, milestones, work-related quality requirements, acceptance criteria, and so on, are all mutually agreed upon. These freelancers have a variety of options for receiving paid work from firms, including personal connections with companies, referrals, and freelancing networks.

By signing up on the IT services hub platform, organizations and freelancers can now join a platform that actually works towards attaining an united aim with the click of a few buttons and browser interactions. Rather than waiting for a white collar job to come along, people can now use their talent to make a living. Organizations, on the other hand, have a large pool of capable persons eager to put in the time and effort necessary to support the customer as if they were employees.

The IT service hub platform exemplifies healthy competition and finding the best person for the job. The goal of this work is to provide a completely free platform for users.

## 9. CONCLUSION

In today's society, using IT services has become the norm in all aspects of life, and the importance of having these services available at all times cannot be overstated. Because of the assumption that opportunities abound in the IT profession, many people have been drawn to it. Though the idea is not incorrect, there is a lot of rivalry in the employment market. Even if a person is skilled, he or she may not be exposed to the correct market where his or her talents will be in high demand, necessitating the creation of platforms such as IT service hub, where people with a variety of IT abilities may make themselves more apparent to potential employers. The platform will assist its users in earning a living even when they are not operating in the same location.

## 10. RECOMMENDATION

Since the platform was created to give service providers and freelancers the freedom to do legitimate business with ease, they are encouraged to maintain professionalism in order to keep positive ratings on the platform. Maintaining a high rating will assist one in assuming a position of privilege, since companies will always hire persons with the highest ratings. It is recommended that users or businesses hire the highest rated freelancers



who have completed a number of assignments for others because this indicates that they may be trusted. Users are also encouraged to report any mishaps or fraud they may encounter on the site, as the administrator will act quickly to rectify issues and prevent any fraudster from using the platform in the event of fraud.

## COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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