



## Making digitisation more inclusive for job matching

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- Job matching inefficiencies in the labour market are known to contribute significantly to the persistent challenge of high youth unemployment in Ghana and most SSA Countries.
- While online job websites have been shown to be useful in reducing labour market inefficiencies, the limited access to the internet and low ICT literacy in the SSA contexts do not make such websites inclusive to many of the low skilled jobseekers and job vacancies in micro and small firms.
- This study designed, developed, and piloted a digitised labour market information system, Text4Jobs Ghana – an AI- enabled system designed to be more accessible through the mobile phone USSD code.
- Data from the successful pilot deployment of Text4Jobs Ghana showed that it fills an important gap in helping jobseekers and employers find each other.
- The platform registered over 500 vacant job positions with over 1460 vacancies and over 1,300 jobseekers in less than 3 months. Over half the jobseekers who registered were successfully matched to multiple vacant positions and were notified in that period.
- The platform was helpful to less educated people looking for low skilled positions. Both jobseekers and employers reported a positive experience with the platform and found it useful. Majority of them were satisfied with the platform and indicated that they were likely to recommend it to their networks.
- The study is a proof of concept, demonstrating that the power of digital technology can be harnessed to address the issue of matching inefficiencies in a way that does not exclude many potential workers and employers.

# Introduction

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## The problem

High unemployment persists in urban areas in most countries in sub-Saharan Africa. In Ghana, urban youth unemployment is as high as 35 percent according to GSS (2021). However, previous studies, including Lambon-Quayefio et al. (2023), have shown that amidst the high rate of unemployment in Accra, there were several job vacancies albeit with limited visibility. Similarly, Hardy and McCasland (2022) have shown that many SMEs are labour constrained, suggesting that the unemployment problem goes beyond the lack of jobs. A key contributor to the high unemployment in this context is the difficulty with which jobseekers and employers find each other due to information frictions. To resolve the matching inefficiencies, various studies such as Kelley et al., (2020) have explored the potential of online job portals in different contexts in sub-Saharan Africa. However, as shown by Lambon-Quayefio et al (2023) online job portals are not sufficiently helpful. This may be because, in the Ghanaian context, such websites may exclude many employers and jobseekers who have accessibility challenges. A large majority of businesses in Ghana are either micro or small-sized and they mostly rely on informal recruitment practices. According to the 2021 Population and Housing Census, about a third (31.4%) of persons 12 years and older did not access the internet in the three-month period from April to June 2021 due to lack of access to internet enabled device or ICT skills. As a result, online portals exclude several people from fully participating in the labour market in an effective manner. This may reinforce information frictions that make it harder for employers and the appropriate jobseekers to find each other.

## Research objectives

To help address this problem, in this study we embarked on an action research to design, develop, launch and operate an innovative and more inclusive intervention/solution as a proof of concept. We sought to:

- (i) demonstrate that it is feasible to implement a digital technology enhanced labour market intervention that does not impose barriers to people who lack access to internet devices or have low ICT skills)
- (ii) show that jobseekers and employers in general would be interested in such an intervention
- (iii) find out what type of users will be attracted to and will benefit from such a system
- (iv) gather user perceptions and experiences which may inform scale-up of the intervention

## The solution: Text4Jobs Ghana

Based on the insights from Lambon-Quayefio et al (2023), we conceptualised, designed, developed and test-run Text4Jobs Ghana as an inclusive labour market information intervention which may better fit the SSA context.

**The research project resulted in the creation of Text4Jobs Ghana – a free artificial intelligence (AI)-aided job matching and information service that is accessible through a mobile phone USSD code.**

Text4Jobs Ghana is a free digital vacancy announcement and job matching service that users (employers and jobseekers) can easily access by dialling a USSD short code on any mobile phone (including analogue phones). The following describes how the system operates:

- Users initiate the service by dialling \*899\*87# on any mobile phone device. Next, they select 1 (“I am looking for workers”) or 2 (“I am looking for a job”).
- Next, they choose whether they would like to complete the form themselves (self-service) or if they would prefer assistance from the call centre.
- Those who opt for self-service are sent a link to complete a simple form which captures the vacancy details or the jobseekers details and preferences. Those who opt for Call Centre assistance receive a call from a call centre agent who asks them the required details (in their preferred language) and completes the form on their behalf.
- The completed forms are submitted to the database where the AI runs through the information submitted by all users and matches jobseekers to vacancies based on four parameters: their preferred job categories, preferred locations, the minimum level of education required for the position, and the sex required for the position.
- Finally, the AI sends a text message (SMS) to jobseekers to notify them about the matched vacant position and how they can apply for the position.

Test4Jobs Ghana was deployed on a pilot basis in some suburbs of Accra for a period of about 10 weeks starting on 17<sup>th</sup> April 2023.

## Data and analysis

We used administrative data from the Text4Jobs Ghana database (back-end) which contains full details of all the vacancies, the employers and jobseekers who used the service, as well as information on which vacancies and jobseekers were matched.

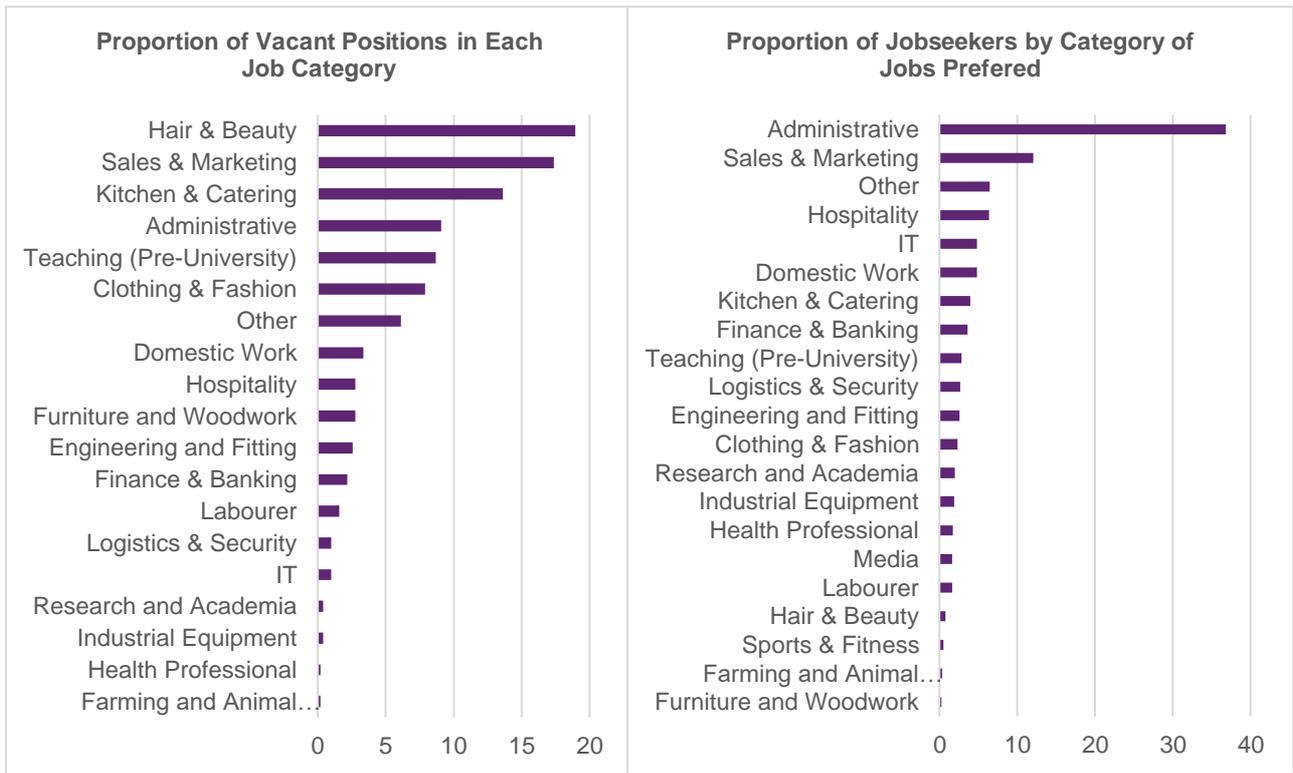
In addition, we run a small survey comprising of 820 jobseekers and 181 employers to solicit their feedback to complement the administrative data.

## Findings

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### 1. There is sufficient user-interest in Text4Jobs Ghana

In the brief pilot period, there were about 250 employers who registered over 500 vacant job positions for which they were looking for over 1460 workers. There were also over 1300 jobseekers who registered and indicated the kinds of jobs and the locations they are interested in working. By this, employers and jobseekers (both male and female) showed sufficient interest in the solution – i.e. take-up was good.



## 2. Types of Vacancies and Jobseekers

Over 80 percent of the vacant positions were in these 8 job categories: Hair & Beauty; Sales & Marketing; Kitchen & Catering; Administrative; Teaching (Pre-University); Clothing & Fashion; Domestic Worker; and Hospitality. Nearly all the vacant positions came from micro and small businesses who typically do not use any online means to advertise their vacant positions. For example, from the survey data, over 75 percent of the employers reported that they normally publicise their vacancies through personal network, posters and vacancy banners/boards placed near their business premise.

Over 80 percent of the jobs advertised on the platform were full time positions. With respect to educational requirement, over 90 percent of the jobs required at least secondary or vocational education. Majority of the jobs (about 80 percent) paid a monthly salary of less than GH¢1,000 on average.

The jobseekers who used Text4Jobs Ghana in the brief pilot period were mostly between the ages of 18-24 years who had completed either secondary education (47 percent) or only basic level of education (11 percent). They were mostly single/never married (85 percent) with about 0-3 years working experience (57 percent). They were mostly looking for administrative (37 percent), Sales & Marketing (12 percent), Hospitality (6 percent), IT (5 percent), Domestic Work (5 percent) or Kitchen & Catering (4 percent) positions with an average minimum salary expectation of about GH¢1,456.

### 3. Job matching performance

In the brief period of the pilot, the Text4Jobs Ghana AI database was able to match about 451 jobseekers (34.4 percent of the registered jobseekers) to 251 vacant positions (about 50 percent of the vacant positions). The matching was based on their job category and location preferences as well as their level of education and their sex. Multiple jobseekers can be matched to one vacant position and the same jobseeker can be matched to multiple vacancies. It should also be noted that for some of positions, the employers were looking to employ more than one worker.

The jobseekers were sent an SMS (text message) to notify them about the vacant positions matched to them. About 25 percent of the jobseekers acknowledged receiving the text messages, based on the survey data.

### 4. User Feedback

The survey of a random sample of 820 jobseekers (63 percent) and 181 employers (73 percent) reported positive user feedback. In the brief period of the pilot about 25 percent of the employers indicated that the platform had helped them in finding their workers and close to half (47.5 percent) indicated that they found the service useful. In addition, more than half (52.5 percent) of the employers said they were satisfied with Text4Jobs Ghana. When asked if they would like Text4Jobs Ghana to continue, about 69 percent of the employers indicated that it should continue with close to 30 percent asking for some improvement in the service to make it even more helpful to them. More than half of the employers (56.4 percent) reported that the Text4Jobs service was better than their previous methods of finding their workers. Based on this, a large majority of them (72.9 percent) were likely to recommend the service to other people.

The jobseekers also shared similar positive feedback on Text4Jobs Ghana. Most of the jobseekers (56 percent) found the service useful. They were mostly satisfied (51 percent) and majority (67 percent) of them indicated that they are likely to recommend the service to their family and friends.

## Lessons and recommendations

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Firstly, this project has fully and successfully demonstrated that it is possible to use advanced digital technology to address labour market matching frictions in a context where purely online interventions (job websites) are likely to exclude a significant proportion of employers and jobseekers. This was done through the launch and operation of a new labour market intervention – Text4Jobs Ghana – in the city of Accra as a proof of concept. Text4Jobs Ghana was designed to be accessible through any basic mobile phone and relies on AI capabilities to help employers and jobseekers find each other with little effort.

Secondly, the results from operating Text4Jobs Ghana confirms that such an intervention is needed and useful. Sufficient number of jobseekers and employed used the service and found it very helpful and convenient. The feedback from users was generally positive.

Thirdly, the platform functioned effectively and was able to successfully perform the function of automatically matching jobseekers to the appropriate vacancies within their specified job categories and locations. Additionally, jobseekers were promptly notified once a match was established, ensuring that there is timely communication, and facilitating quick action on the part of the job seekers. Another feature of the solution that made it appealing to users was its simplicity.

Nevertheless, changes will have to be made to improve the matching accuracy; to better validate the identities of users to address privacy concerns and strengthen cyber security; and to improve/automate how jobseekers and employers can stop receiving help from the service when they no longer require it.

This intervention could be adopted, improved and scaled-up nationally by the Labour Department of the Ministry of Employment and Labour Relations. The Labour Department Offices are mandated to provide job matching services by keeping registers of jobseekers and vacancies. The Text4Jobs Ghana intervention transforms the work of the Labour Department, through the use of digital technology in a way that is even more inclusive or accessible. This proof of concept may also guide and inform the Labour Market Information System projects being sponsored by the World Bank in some countries.

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