



# Impact of Digital Technology Adoption on Employment in Senegal

*Thierno Malick Diallo<sup>1</sup>, Tsambou André Dumas<sup>2</sup>  
and Fomba Kamga Benjamin<sup>2</sup>*

August 2022 / No.DT-003

## Digital technology adoption in Senegal: An overview

In Senegal, digital transformation remains a top priority for the country's government. Since the early 2000s, this has resulted in the creation of several institutions responsible for promoting digital technologies, among which is the Ministry of the Digital Economy and Telecommunications. This political will has made digital technology adoption a reality in Senegal and the narrowing of the

---

1 Gaston Berger University at Saint-Louis,

2 Yaoundé II University

digital divide a major goal for the government. In 2015, ICT penetration rates were 15% for computer use, 20% for internet access, 26% for personal internet access, 1.9% for fixed telephone use, 98.7% for mobile phone use, and 50% for 3G internet coverage. Today, the country has a high rate of ICT use, with its smartphone adoption rate (35.6%) being among the highest in West Africa (*Banque Mondiale* [World Bank], 2019). Senegal is ranked 14<sup>th</sup> in Africa on the World Economic Forum's Network Readiness Index 2016 and 1st on the continent for the weight of the Internet in its economy, estimated at 3.3% (*République du Sénégal* [Republic of Senegal], 2016). Despite these achievements, the country still faces many challenges. In fact, the International Telecommunication Union (ITU, 2017) ranked Senegal 124<sup>th</sup> in 2012 and 142<sup>nd</sup> in 2017 out of 176 countries, according to the ICT development index. This 18-place drop was due to lack of competition on the ICT market and the attendant high rates. While these rates have decreased over the last few years, they remain high: the cost of mobile internet represents 12% of the gross monthly per capita income in Senegal, compared to only 6% in Kenya (*Banque Mondiale* [World Bank], 2019). The results of the Gallup survey (2017) also revealed that broadband internet access had deteriorated between 2016 and 2017 in both urban and rural areas, while the urban-rural internet divide had increased by 4 percentage points during the same year. All this goes to show that Senegal is still marked by limited coverage and a significant urban-rural digital divide. Furthermore, the development of the ICT sector requires adaptability and rapid response, and, hence, a high level of human capital. However, Senegal's population is characterized by a low level of academic qualifications and skills, a situation which is not conducive to a rapid expansion of a dynamic digital economy. Indeed, the country was ranked 168<sup>th</sup> out of 189 countries in the 2019 Human Development Index published by the UNDP (2020) and 128<sup>th</sup> out of 130 countries in the 2017 Human Capital Index published by the World Economic Forum (2017). This may explain why Senegal has not taken full advantage of ICT benefits.

## Employment opportunities arising from digital technology adoption

To promote digital inclusion, the Government of Senegal adopted, in 2016, the Senegal Digital Strategy 2025 (*Stratégie Sénégal Numérique, SN2025*), with the aim of breathing new life into the sector by providing the industry players with new drivers and sources of growth. Based on the guidelines set by the Emerging Senegal Plan (*Plan Sénégal Émergent*), this strategy aims to increase the contribution of the digital economy to the country's GDP to 10% by 2025, to generate an induced increase in GDP of CFAF 300 billion, and to create 35,000 direct jobs in the digital industry.

While this strategy is expected to accelerate the country's socio-economic development, there is currently little empirical evidence on how the diffusion of digital technologies affects the economy, and more specifically employment in

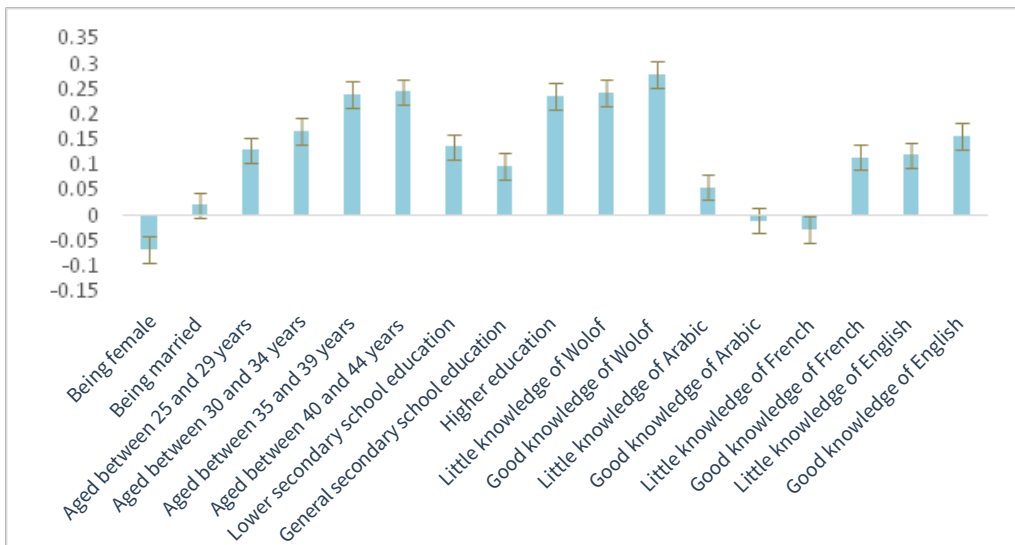
Senegal. The present study fills this gap on two levels: first, it aims to enhance our understanding of how digital technology adoption changes the unemployed persons’ labour market behaviour and facilitates their access to employment; second, it seeks to determine the extent to which digital technology adoption influences employment dynamics by driving firms to create new jobs while at the same cutting some others.

## Results of the study

*Men, adults, and individuals with a high level of education and good language skills were found to be more likely to use digital technologies for job-search purposes.*

The results of the present study indicate that gender, age, education level, and proficiency in languages are the main factors in adopting digital technologies for job search purposes (see Figure 1). Specifically, male jobseekers are more likely to adopt digital technologies than female ones; the likelihood of a jobseeker adopting digital technologies increases with age; adult jobseekers are more likely to use digital technologies than younger ones; education level has a positive and significant impact on digital technology adoption; having a secondary school or higher education level, compared to simply having a primary education level, significantly increases the likelihood of digital technology adoption; jobseekers who are proficient in languages other than French (that is Wolof, Arabic, or English) are more likely to use digital technologies than those who are not.

**Figure 1: Determinants of digital technology adoption**

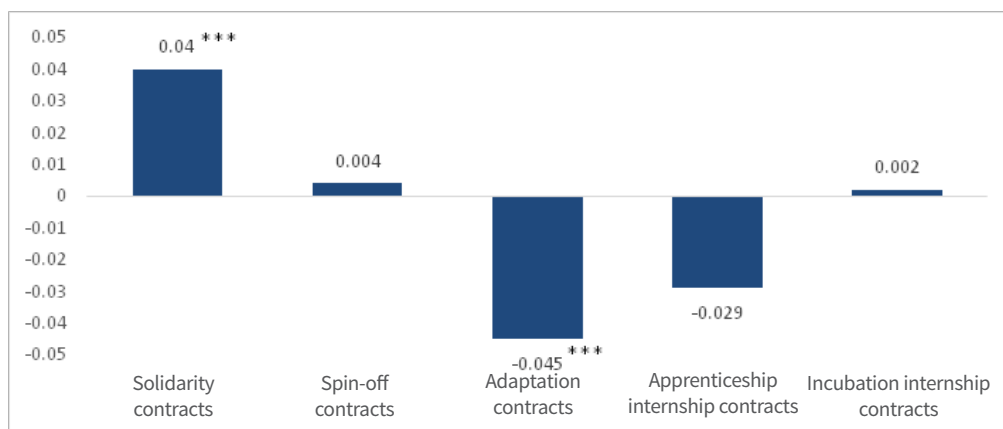


Source: Calculated by the authors based on data from the Improving Employment Policies (*Améliorer les Politiques d’Emploi*) (2018) survey

## Digital technology adoption helps the unemployed to participate in solidarity contract programmes

The results further show that digital technology adoption increases jobseekers' chances of benefiting from solidarity contracts by 4% but does not significantly influence their chances of participating in incubation internship, apprenticeship, and spin-off contracts (see Figure 2). In other words, while digital technology adopters are more likely to benefit from solidarity contracts, they are as likely as its non-adopters to benefit from incubation internship, apprenticeship, and spin-off contracts.

**Figure 2: Impact of digital technologies on jobseekers' participation in employment programmes**



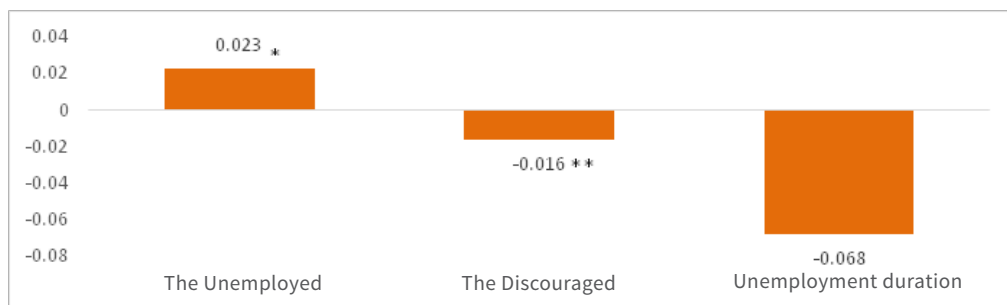
Note: \*\*\*, \*\* and \* represent statistical significance levels at 1%, 5% and 10%, respectively.

Source: Calculated by the authors based on data from the Improving Employment Policies (2018) survey

*Digital technologies help the unemployed to continue their job search efforts but do not reduce the duration of their unemployment.*

The results also show that digital technology adoption increases by 2.3% the probability that an unemployed person will remain in the labour force and reduces by 1.6 the probability that he/she will give up looking for a job (see Figure 3). However, the use of digital technologies does not reduce the time an unemployed person spends in unemployment before getting a job. This latter finding is in line with previous findings showing that the internet has little or no significant influence on unemployment duration (see Kuhn and Skuterud, 2004; Fountain, 2005).

**Figure 3: Impact of digital technologies on jobseekers’ participation in employment programmes**



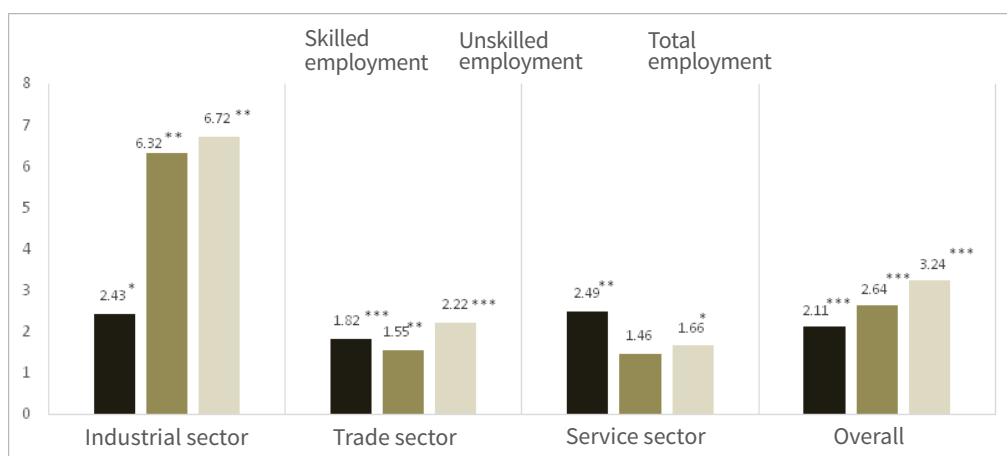
Note: \*\*\*, \*\* and \* represent statistical significance levels at 1%, 5% and 10%, respectively.

Source: Calculated by the authors based on data from the Improving Employment Policies (2018) survey

*Digital technology adoption by Senegalese firms increases the demand for both skilled and unskilled jobs*

Overall, digital technology adoption was found to increase the proportion of skilled workers by 2% and that of unskilled ones by 3% (see Figure 4). On the other hand, the results of the present study show that digital technology adoption has a greater impact on the demand for unskilled jobs in the manufacturing sector but has a greater impact on the demand for skilled jobs in the trade and service sectors.

**Figure 4: Impact of digital technology adoption on employment dynamics within Senegalese firms**



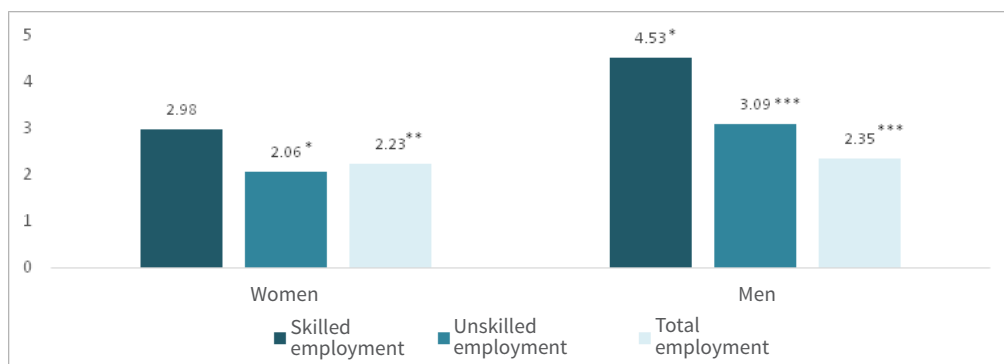
Note: \*\*\*, \*\* and \* represent statistical significance levels at 1%, 5% and 10%, respectively.

Source: Calculated by the authors based on the “Determinants of Firm Performance in Francophone Sub-Saharan Africa” (2014) survey.

*Digital technology adoption benefits more men than it benefits women in terms of employment.*

Finally, our study shows that digital technology adoption within firms increases the employment rate more for men than for women (see Figure 5). This is true regardless of the nature of the employment sought (that is, whether skilled or unskilled).

**Figure 5: Impact of digital technology adoption by gender**



Note: \*\*\*, \*\* and \* represent statistical significance levels at 1%, 5% and 10%, respectively.

Source: Calculated by the authors based on the “Determinants of Firm Performance in Francophone Sub-Saharan Africa” (2014) survey.

## Conclusion

All in all, the results of the present study show that digital technology adoption helps jobseekers to participate in solidarity contract programmes and to continue their active job search efforts but does not reduce the duration of their unemployment. They also indicate that digital technology adoption by Senegalese firms increases the demand for both skilled and unskilled jobs. However, the increase in the volume of employment resulting from digital technology diffusion benefits men more than it benefits women.

Overall, the results show that digital technology adoption plays an important role on the labour market and in job creation. Therefore, in order to help young entrants to the labour market and private sector firms to benefit more from digital technology diffusion, policy makers should ease their financial constraints, through vouchers or direct cash transfers. Implementation of the reforms aimed at stimulating competition in the provision of digital services can also help to reduce the price of mobile internet services, especially for job-seeking young people. The government should also reduce the operators’ operational costs, for example by reducing taxes and charges.

However, the different measures mentioned above may not be enough. As the study's results make it clear, there are other barriers to digital technology adoption. They include low levels of education and of language proficiency. This underscores the importance of human capital development policies. Indeed, low levels of education and/or of language proficiency can prevent ICT use and even fuel some misconception about its potential benefits.

The results further show that there is a gender gap in digital technology adoption. This points to the need for gender-specific measures aimed at promoting the adoption of digital technology. Such policies can include the provision of digital literacy training and initiatives designed to promote sustainable mobile-service-financing programmes destined for women.

## References

- Banque Mondiale (2019).** Digital Economy for Africa (DE4A): Country Diagnostic of Senegal. <http://documents1.worldbank.org/curated/en/814111559645179494/pdf/Country-Diagnostic-of-Senegal.pdf>
- Fountain, C. (2005).** Finding a job in the Internet age. *Social Forces*, 83(3), 1235–1262.
- ITU. (2017).** *Measuring the Information Society Report. Volume 2.* ICT Country profiles. International Telecommunication Union.
- Kuhn, P., & Skuterud, M. (2004).** Internet job search and unemployment durations. *American Economic Review*, 94(1), 218–232.
- République du Sénégal [Republic of Senegal]. (2016).** Stratégie « Sénégal numérique 2025 ». [« Digital Senegal 2025 » Strategy]. Ministère de l'Économie Numérique et des Télécommunications [Ministry of Digital Economy and Telecommunications].



## Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

[www.aercafrica.org](http://www.aercafrica.org)

## Learn More



[www.facebook.com/aercafrica](https://www.facebook.com/aercafrica)



[www.instagram.com/aercafrica\\_official/](https://www.instagram.com/aercafrica_official/)



[twitter.com/aercafrica](https://twitter.com/aercafrica)



[www.linkedin.com/school/aercafrica/](https://www.linkedin.com/school/aercafrica/)

## Contact Us

African Economic Research Consortium  
Consortium pour la Recherche Economique en Afrique  
Middle East Bank Towers,  
3rd Floor, Jakaya Kikwete Road  
Nairobi 00200, Kenya  
Tel: +254 (0) 20 273 4150  
[communications@ercafrica.org](mailto:communications@ercafrica.org)