

# E-Commerce Personalization in Africa: A Comparative Analysis of Jumia and Konga

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**Abstract.** In this paper, we present the results of an analysis of Jumia and Konga, (the two biggest E-Commerce stores in Africa) to highlight personalization techniques they implemented using framework for E-Commerce personalization. We also compared how personalized experiences are uniquely provided to each customer using the traces of user's purchase history, browsing history, user preferences, on-site behaviour, and personal data. Results show that Jumia and Konga employ various personalization techniques to boost loyalty among African audiences, improve conversion rates, and increase sales. Our findings could guide designers and relevant stakeholders on how to personalize E-Commerce experiences and other related sites to appeal to African audience.

**Keywords:** Personalization, Africa, E-Commerce, Konga, Jumia Persuasive Technology.

## 1 Introduction

Many E-Commerce sites personalize customer experiences to aid and motivate them to purchase goods and services from their platforms.

There are numerous benefits of applying personalization techniques to E-Commerce systems. For instance, such system could learn from a customer and recommends personalized products which the customer may need [1][3][8] [12]. Furthermore, users can subscribe to personalized ads, set system preferences such as the language for browsing, shopping and communication on the platforms [10]. Personalization is a common practice among E-Commerce platforms in western countries such as Amazon and E-bay [1]. For instance, Adaji and Vassileva [1] evaluated personalization techniques employed in Amazon (a non-African E-Commerce platform) to motivate desired customer behaviours. Their study revealed how Amazon provides personalized contents for their users. Most existing studies have been focused on developed nations. If and how personalization is used in Ecommerce sites in emerging

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In: R. Orji, M. Kaptein, J. Ham, K. Oyibo, J. Nwokeji (eds.): Proceedings of the Personalization in Persuasive Technology Workshop, Persuasive Technology 2018, Waterloo, Canada, 17-04-2018, published at <http://ceur-ws.org>

markets of African is unknown. There is yet no study on what personalization techniques are adopted by African-centric websites and how personalized experiences are uniquely implemented for African E-Commerce sites. Research has shown that culture plays a significant role on how people use technology and what persuasive strategies appeals to them, Orji and Mandryk [11]. Ecommerce is relatively new in Africa and the adoption rate is still low. Hence, there is a need to identify personalization techniques that are used in this emerging market of Africa and how the techniques are implemented to increase customer satisfaction, retention, and adoption. Therefore, to contribute to research on personalizing persuasive technologies in African context, we analyzed Jumia [5] and Konga [6] (the biggest E-Commerce sites in Africa) to identify what personalization techniques they employ and how the techniques are operationalized using the framework for E-Commerce personalization developed by Kaptein and Parvinen [7]. We also compared how personalized experiences are uniquely provided to each user of the E-Commerce platforms using the traces of user's purchase history, browser history, user preferences, on-site behaviour, and personal data.

The Jumia and Konga E-Commerce platforms were chosen for this research study because they are easily the biggest and top ranking E-Commerce sites, as well as two of the top 10 most visited sites in Nigeria and Africa, as seen on Alexa rankings [2]. Our analysis reveal the similarities and differences in personalization methods deployed by Jumia and Konga E-Commerce sites and how they are implemented to boost loyalty, drive sales and increase conversion.

Specifically, our studies show that personalization methods can be strategically deployed based on the user's previous behaviors to boost loyalty among African audience, improve conversion rate and increase sales. Our findings could guide designers and relevant stakeholders on how to personalize E-Commerce experiences and other related sites to appeal to African audience. We limited our research to the customer behaviour requirements as they can be deduced from the system. In future, we plan to evaluate technology requirements; technology implemented by the E-Commerce site in order to tailor contents to specific users.

## **2 Background**

### **2.1 Jumia E-Commerce and Marketplace**

Jumia, previously known as Africa Internet Group (AIG), is a system of E-Commerce marketplace and classified websites and applications [5]. With over 1.5 million subscribers and 22,000 listing [5], Jumia is the number one E-Commerce and online marketplace in Nigeria and one of the leaders in African continent. It was founded in 2012 by Jeremy Hodara and Sacha Poignonnec, co-founders and co-CEOs [5]. Currently, the company operates across 23 African countries and still expanding. It is observed that Jumia offers for sale, a wide variety of products including electronics, books, home appliances, kiddie's items, and fashion items for men, women and children, gadgets, computers, groceries, automobile parts, and many more [5]. Hence, Jumia customers enjoy the opportunity to choose from over 600,000 items [5].

### **2.2 Konga E-Commerce and Marketplace**

Launched by Sim Shagayain in July 2012 [6], Konga is one of Nigeria's biggest online mall, offering products that cut across several kinds of goods and services such as phones, computers, clothing, shoes, home appliances, books, healthcare, baby products, personal care and much more [6]. Ranked as the 6<sup>th</sup> most visited website in Nigeria by Alexa [2], Konga is a leader in E-Commerce online retailing. With an estimated 200,000 subscribers and over 700 employees in 2015 [6], Konga is seen to be ready to give her customers the best experience in online marketplace.

### **2.3 Process Framework for E-commerce Personalization**

In order to assess personalization in Jumia and Konga E-Commerce sites, we employed the framework for E-Commerce personalization developed by Kaptein and Parvinen [7] to analysis and compare personalization methods used in both E-Commerce sites and how they are implemented to boost loyalty, drive sales, and increase conversion. The model postulates that there are several requirements for a successful personalization and these are grouped into two categories: 1) requirement related to customer behaviour and 2) requirement related to technology.

The three requirements regarding customer behaviour are 1) the personalized content presented to a user must have an effect on the outcome of the business. 2) The effect should be different for each customer – it should be heterogeneous. 3) The effect should be stable to a large extent. On the other hand, the requirement regarding technology consists of the technology implemented by an e-business in order to tailor contents to specific users. These requirements are: 1) ability to measure the effect of personalization. 2) Ability to manipulate content, 3) ability to scale the algorithm used for personalization. This study focused only on the first category: requirement regarding customer behaviour, since our aim is to reveal the personalization methods used by both E-Commerce sites; Jumia and Konga online marketplaces, and how they are implemented to boost loyalty, drive sales and increase conversion.

### 3 Research Methods and Results

To collect data for this study, we used the survey technique and the structured questionnaire taken in December 2017. The questionnaire was based on a pre-existing tool developed by Venkatesh [16] which has been used by Moran [9] and Tibenderana & Ogao [14]. The research question was prepared in two sessions: The first session contained questions about user's personal data, which sought to find out user's demographic information and general experiences with computers and internet. The second session contained questions about E-Commerce products and services provided by Jumia and Konga sites. These questions collected information about users' awareness and appreciation of the use of personalization techniques in those E-Commerce sites. These questions were measured using participants' agreement with a 4-point Likert scale ranging from "1= Strongly Disagree" to 4= Strongly Agree". We studied a total of 112 participants in the survey; the number of males and female participants were fairly evenly distributed as shown in Table1.

Table1. Participant's Demographic Information

Total Participants	112
Gender	Females (65, 58%) and Males (47, 42%)
Age	18 – 25 (43, 38%), 26 – 45 (50, 45%), over 45 (19,17%)
Education	Less than high school (1, 1%), High school graduate (39, 35%), BSc & MSc Degree holders (72, 64%)
Country	Egypt (9, 8%), Ghana (22, 20%), Kenya (14, 12%), Nigeria (67, 60%)

Data analysis was carried out using descriptive statistical method [4]. We used this statistical technique because it is important and best suited for presenting qualitative data insights across a large dataset in a more meaningful way [15]. We violated no assumptions using this technique. In this research, we adopted this technique to analyze the frequency count and compute the mean score of the respondents on the second session of the questionnaire item so as to present a simpler interpretation of data, using the mean formula below:

$$X = \sum fx / N$$

Where X = the mean score, f = the frequency of each questionnaire item, x = the rating scale point, and N = Total number of respondents on each questionnaire.

Findings, essentially shows that respondents are aware and appreciated the facts that Jumia and Konga E-Commerce sites use personalized ads and recommendations, surveys, reviews and ratings, email notifications and many other personalization techniques to provide user-specific contents to customers.

### 3.1 Evaluating Personalization in Jumia and Konga Sites

Using the framework for E-Commerce personalization discussed in [7], we analyzed personalization in Jumia and Konga E-Commerce sites [5] [6], based on the requirements regarding customer behaviour, in order to find out how they were used to meet customer's needs, boost loyalty, drive sales and increase conversion. The implementation of the requirements regarding customer behaviour in Jumia and Konga E-Commerce sites are described in this section.

Close observation show that Jumia and Konga sites provide user-specific contents to their customers. They modify product display shown to the user on the home page using purchase history and browser history of the users, as well as product information that the user checked out or purchased on the site, in the recent past. Additionally, Jumia and Konga sites send personalized email notifications to users using data from purchase and browsing history.

Specifically, Jumia and Konga personalize customer experience using purchase history, browser history, user preferences, on-site behavior, and personal data as compared in this section.

#### **Similarities Between Personalization in Jumia and Konga.**

**Purchase History:** Using user's purchase history which the system manages, we found out that both Jumia and Konga E-Commerce sites automatically changes the product content on the home page that is shown to each user. The products shown to each user are similar to the one that the user purchased in the recent past from the site. Similarly, products searched for or purchased by others (from same geographical location or age as the current user) are suggested.

For instance, when a user buys a wrist watch on both E-Commerce sites; Jumia and Konga, on coming back to the site, the system shows the customer many other personalized ads of wrist watches offered at discount, especially those that are related to the one that users checked out during their last visit to the E-Commerce site. This type of personalization could lead to increase in sales and conversion rate.

**Browsing History:** Going by the privacy policy statements, it is obvious that Jumia and Konga sites track and collect information about the browsing pattern of users and uses such information to modify what products are served to the users. They analyze user's previous browsing behaviors and recommend products that they predict the user might want.

On both E-Commerce sites, customer's browsing history helps the system to keep track of user movement around the site such as what products the user checked out, what products user wanted to pay for, pages the user visited, etc. Using such infor-

mation, E-Commerce sites presents customers with a personalized reminder of those pages containing products previously checked or visited, so you don't miss any new thing. For instance, this is why these E-Commerce sites display "Privacy Policy" and "Terms of Use" information that reads as follows: "We use cookies to deliver targeted contents, analyze trends, administer the site, track users' movements around the site and gather demographic information about user base as a whole. By continuing to browse our website, you accept that we are using cookies..." This mode of personalization could lead to increase in product sales and conversion rate.

**User Preference:** Jumia and Konga E-Commerce sites readily rely on data generated through surveys, reviews and ratings, to promote personalized ads to their users. This is seen from the buyer trust and safety section in both sites. They show that data generated via surveys, reviews and ratings are used to determine user preferences and subsequently present personalized products to these users. It compares data gathered from a user via surveys against other subscribers and then with the help of the support personnel and system recommendation and personalization algorithms, it promotes personalized products to users.

Again, both E-Commerce sites also use customer reviews and ratings to determine user preferences and subsequently present personalized products to their customers. The system uses how users have rated different products in the past to figure out what they might like and make recommendations. This is particularly visible in Jumia more than in Konga as Jumia has an extensive review and rating feature that seamlessly provides needed user data for personalization purposes.

**On-site Behaviour:** We observed that both E-Commerce sites: Jumia and Konga employ the on-site behaviour strategy to capture both known and unknown behaviour data from site visitors. This is a type of strategy used by the system to capture product detail pages viewed, product categories viewed, search details for products or category, number of times a product was viewed (aggregated), product(s) added to the shopping cart, etc. This valuable information is used to promote personalized ads and campaigns to users.

Once captured, these on-site behaviors or activities are allocated to a customer's or user's profile. With this, E-Commerce site is able to figure out what the customer needs, they are able to show personalized ads to specific users when user comes back or send personalized ads to user's email address which was supplied during user profile creation. This method of personalization could lead to increase in sales and conversion rate.

**Personal Data:** These are personal details of users who visit a site. Personal information includes names, email address, gender, marital status, age; address etc; they are usually captured during signup, email campaigns or subscription processes and stored for login purposes as well as for the future needs of the site.

Looking by the privacy policy of both E-Commerce site: Jumia and Konga, it is evident data generated during signup, email campaigns or subscription processes are used to discover what type of user one is and in which category a user belongs. That

information assists the system to show personalized ads to specific users when user logs into the site or send personalized ads that are relevant to the user's interests, unto their email accounts.

For instance, on some weekends, Jumia would use personal data that users supplied to determine prospective ready-for-marriage users and forward personalized wedding brand ads or promote/recommend some other items that it feels such category of users might like. On the other hand, Konga uses data generated during signups, email campaigns ad subscription processes to send personalized ads to customers' email address reminding them of the exact product page(s) they visited last and/or notifying customers about new products. This way, relevant personalized ads are served to the customer as at when required. This could lead to general improvements in customer engagement, increase in customer satisfaction, sales and conversion rate.

#### **Difference between Personalization in Jumia and Konga.**

One big difference between the Jumia and Konga is that Jumia has built and integrated a ChatBot known as JumiaBot which assist users to make informed decisions about what to buy and how to buy products in real-time with respect to their cultural and economic status. On the other hand, this Chatbot helps the E-Commerce administrators to quickly track and understand user preferences real-time. This way, personalized ads are served to customers as at when required. This could ensure that customer's perceived needs are met, sales driven and conversion rate increased.

**Table 2.**A Comparative Summary of Personalization Techniques Implemented on Jumia and Konga E-Commerce Platforms.

Process Framework For E-Commerce Personalization	Jumia	Konga
Purchase History	User's purchase history determines what products are shown next time he visits.	User's purchase history determines what products are shown next time he visits.
Browsing History	User's browsing history are tracked with cookies, and then used to deliver targeted or personalized contents to her.	User's browsing history are tracked with cookies, and then used to deliver targeted or personalized contents to her.
User Preference	Uses the Jumia ChatBot to assist users to make informed decisions online and help system track user preferences in real-time.	Uses of surveys, reviews and ratings alone to track user preferences.

	Also, makes use of surveys, reviews and ratings.	
Onsite Behaviour	Captures user’s known and unknown onsite behaviour and uses them to provide personalized contents.	Captures user’s known and unknown onsite behaviour and uses them to provide personalized contents.
Personal Data	Uses personal data generated during signup, email campaigns and subscription processes to know user category and likely contents user will need at some time.	Uses personal data generated during signup, email campaigns and subscription processes to know user category and likely contents user will need at some time.

In summary, E-Commerce shop will generally struggle to improve site engagement, raise sales dynamically and increase conversion if it fails to personalize experiences to its customers [13]. Our analysis shows that Jumia and Konga use data generated by customers such as customer purchase history, browse history, user preferences, on-site behaviour, and personal data to personalize products and services to customers.

#### 4 Conclusion and Future Work

This paper contributes to research in E-Commerce personalization by analyzing Jumia and Konga, which are two of the biggest E-Commerce stores in Africa, to discover what personalization techniques they employ, using the framework for E-Commerce personalization. We also compared how personalized experiences are uniquely provided to each E-Commerce user of the platforms using data about user’s purchase history, browse history, user preferences, on-site behaviour and personal data.

Results show that Jumia and Konga apply various personalization techniques to boost loyalty among African audience, improve conversion rates and increase sales. Findings from this research could guide designers in building personalized experiences into E-Commerce shops and other related sites that are specifically targeted at African audiences.

In this study, we limited our research to the customer behaviour requirements as they can be deduced from the system. In future, we plan to evaluate technology requirements; technology implemented by an E-Commerce site in order to tailor contents to specific users.



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