



Development of an E-Marketing Platform for Farmers in Nigeria

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Abstract This paper focuses on developing an E-Marketing platform for farmers in Nigeria to showcase farm produce. The platform will bridge the gap between farmers and buyers and thereby enabling bulk buyers to access farmers' produce, make orders and pay farmers for the services online. There are several challenges faced by farmers in Nigeria in the marketing of agricultural produce and services. There is high cost of transportation of farm produce, long chain of middlemen that eats away the pockets of both the buyers and farmers, lack of storage facilities, limited access to the market information, to mention but a few. The paper assesses some of the major challenges faced by farmers in Nigeria and proffer a solution by developing a computer application that can eliminate some of the problems mentioned above, add value to the agricultural industry and increase the productivity of farmers by connecting them with buyers worldwide. The computer application was implemented using MYSQL Database Management System for information storage, the Hypertext markup language (HTML) and cascading style sheet (CSS) for webpage design and PHP as the scripting language. The application was tested and found to be working as expected. With the new system, buyers can access farmers' produce, make orders and pay for the ordered products online using credit or debit cards.

Keywords E-Marketing Platform, Farmers, Produce, Computer Application, Buyers

Introduction

The 21st century has brought about a prodigious change in the information technology sector. The 20th century was characterised by the industrial innovation, and became the age of the automobile and the television. The 21st century is characterised by the technological innovation, and has become the age of globalization. In this century, e-marketing is no longer an option for businesses, it is a necessity. The advent of the internet and other online services has brought new ways of performing various activities such e-banking, e-learning, e-voting, e-commerce etc. The usefulness of e-marketing in agriculture, just like other sectors such as banks, education, health care and other organisations cannot be ignored as it has a crucial impact in making transactions between sellers and buyers easier.

E-Marketing is the process of marketing a product or service using the Internet. E-Marketing has been defined in several ways by different authors; [1] defines it as: "Achieving marketing objectives through applying digital technologies", [2] defines it as: "The use of electronic data and applications for planning and executing the conception, distribution and pricing of ideas, goods and services to create exchanges that satisfy individual and organizational goals", [3] views it as: "a new philosophy and a modern business practice involved with the marketing of goods, services, information and ideas via the Internet and other electronic means". Based on these definitions, E-Marketing can be viewed as the use of electronic data or electronic applications for conducting marketing activities. It is the means of using digital technologies to help sell your goods or services. Online



marketing includes a wider range of marketing elements than traditional business marketing due to the extra channels and marketing mechanisms available on the internet. These channels include: Email Marketing, Pay-Per-Click Advertising (PPC), Online Public Relations, Search Engine Optimization (SEO), Affiliate Marketing, Social Media Marketing (SMM), Viral Content Campaigns, and Conversion Rate Optimization (CRO) [4]. E-Marketing offers benefits such as: reduced expenses, elegant communications, better control, improved customer service and competitive advantage.

Agricultural marketing means the economic process under which agricultural goods are exchanged. It is defined as the performance of all business activities included in the flow of products from the beginning of agricultural production until they are in the hands of consumers - "from the farm to the fork" [5]. Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer.

There are several challenges faced by farmers in Nigeria in the marketing of agricultural produce and services. There is high cost of transportation of farm produce, long chain of middlemen that eats away the pockets of both the buyers and farmers, lack of storage facilities, limited access to the market information etc. This paper assesses some of the major challenges faced by farmers in Nigeria in the marketing of agricultural products and services and proffer a solution by developing a computer program that can eliminate some of these problems, add value to the agricultural industry and increase the productivity of farmers by connecting them with buyers worldwide.

E-Marketing Methods

The internet has become one of the primary sources of information for most people worldwide. They prefer doing a quick online search for any vital information, instead of searching the pages of directories and newspapers. E-Marketing has a number of methods that cover every aspect of online promotion from content creation to delivery and sales. The five (5) most widely used methods that can be employed by any online business to get more traffic and customers online are shown in the figure below.

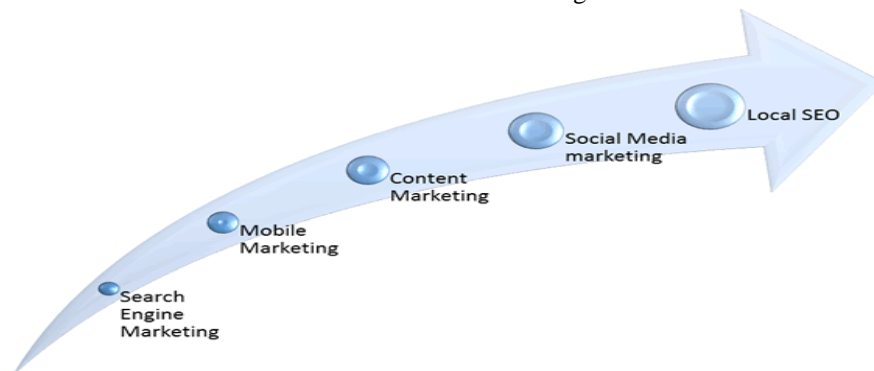


Figure 1: E-Marketing Methods

1. Search Engine Market (SEM)

Search engine marketing (SEM), which allows firms to target consumers by placing ads on search engines, has proven to be an effective audience acquisition strategy. Unlike traditional online advertising, advertisers pay only when users actually click on an ad [6].

2. Mobile Marketing

Mobile marketing consists of ads that appear on mobile smart phones, tablets, or other mobile devices. Mobile marketing is the art of marketing your business to appear to mobile device users. When done right, mobile marketing provides customers or potential customers using smart phones with personalized, time and location sensitive information so that they can get what they need exactly when they need it [7]. Mobile Marketing can be conducted through: SMS (Short Message Service), MMS (Multimedia Messaging Service), WAP (Wireless Application Protocol) banner advertisements, mobile TV and Bluetooth.

3. Content Marketing

This strategy revolves around giving a prospective customer information about your product or service, as well as information in general. Everyone is trying to sell, but those that can inform are more likely to get more sales. People will attribute a certain level of expertise to a company, and this instils confidence in the consumer.



Content marketing in the past was often done with printed brochures and guide books, but today, this can be done with articles and other forms of information on a business's website [8].

4. Social Media Marketing

Employment of social media marketing services is considered to be the most important and result-oriented marketing strategies for online businesses. These services give quick results and have profound effect on the overall functioning of a business. Social media marketing basically means promoting company or a website on different networking sites and popular media channels such as Twitter, LinkedIn, Facebook, Blogger etc. Promoting websites of businesses through social media marketing pricing ensure increased traffic, thereby resulting in good amount of profits. Having your business on social networking sites is an easy and simplest way to communicate and share your products with your target audience [9].

5. Local Search Engine Optimization (SEO)

The process of producing the most relevant and appropriate results with respect to the query entered by the user is called Search Engine Optimization (SEO). Search engine optimization is a best practice that includes right strategies and powerful techniques used to enhance the amount of visitors to a website by obtaining a high ranking placement in the search results page of a search engine (SERP) including top search engines like Google, Bing, Yahoo and others [10].

Problems in Agricultural Marketing

There are numerous problems faced by farmers in Nigeria in the marketing of agricultural products and services. Some of these problems include the following [5]:

- **Communication Problem:** One of the key elements of efficient agricultural marketing system is the availability of proper communication infrastructure. Rural areas are inadequately placed with reference to Information Communication Technology. The literacy rate being low among the farmers, it poses difficulty of the communication tasks.
- **Forced Sales:** The financial obligations committed during production force farmers to dispose the commodity immediately after the harvest though the prices are very low. Such forced sales or distress sales will keep the farmer in vicious cycle of poverty.
- **Growth of Urban Centres:** The growth of urban centres creates more marketing problems concerned with inadequate supply to meet the increase in size and the need to create new markets, storage and even parking problems for prospective buyers who own cars.
- **Inadequate Storage Capacity and Warehousing Facilities:** Inadequate storage facilities are the cause of heavy losses to farmers in many parts of the world; and this result in serious wastage of foodstuffs, and increased costs to producers. There are no scientific storage facilities for perishable products (fruits, milk, meat, vegetables, fish, etc).
- **Lack of Information about Production and Marketing:** Some marketing problems can be traced to lack of information about production. For instance, sellers may not be able to identify sources of supply of commodities, while producers may curtail their production as a result of poor sales.
- **Lack of Transport Facilities:** This problem has many dimensions. Lack of transport services refer to absence of the transport service in reasonable agricultural marketing areas, seasonality of transport service, high freight charges due to inadequacies, lack of all-weather roads and transport vehicles, unsuitability of the present transport facilities for transportation of some products like fruits, vegetables, eggs, etc. In some cases there are insufficient vehicles to carry goods from the farms to the rural markets and from the rural markets to the towns.
- **Large Number of Middlemen:** The field of agricultural marketing is viewed as a complex process and it involves a large number of intermediaries handling a variety of agricultural commodities, which are characterized by seasonality, bulkiness, perishability, etc. The prevalence of these intermediaries varies with the commodities and the marketing channels of the products and due to the intervention of many middlemen, the producer's share in consumer's naira is reduced.



Methodology

The computer application was developed in the form of a database, using a Relational Database Management System (RDBMS) called MYSQL. Hypertext Preprocessor (PHP) a server-side, cross-platform, HTML-embedded scripting language designed for Web development to produce dynamic web pages was used as the programming language. The computer application has four users; the seller, buyer, administrator and agricultural extension agent. The schematic diagram of the developed system is presented below;

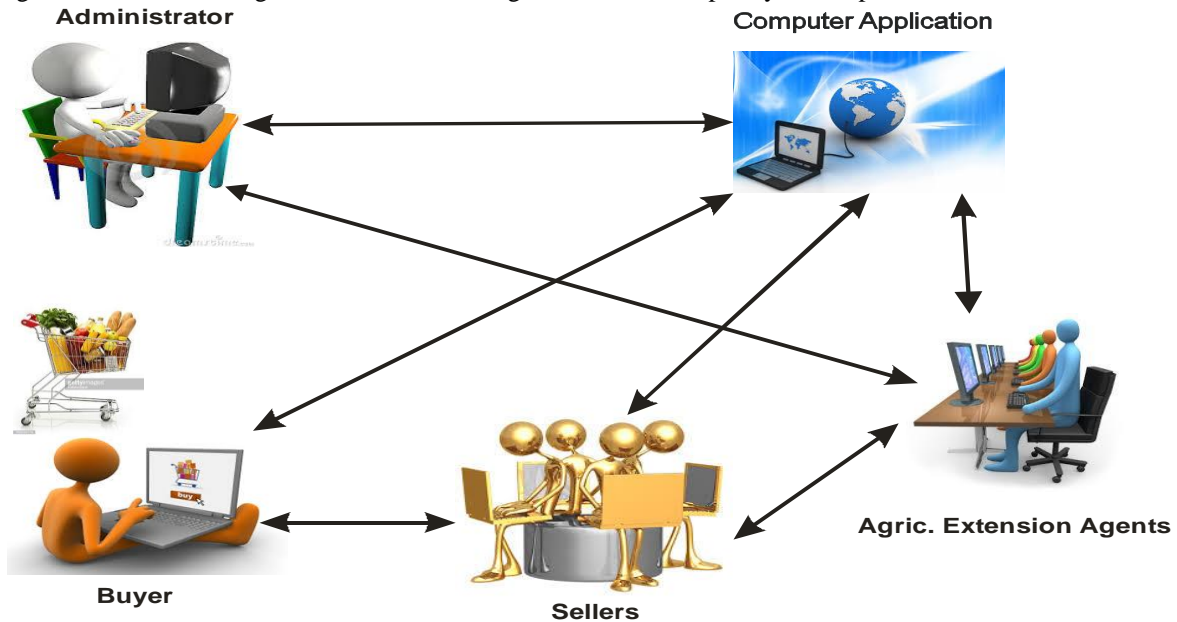


Figure 2: Schematic diagram of the E-Marketing platform

The administrator is the person responsible for the upkeep, configuration and reliable operation of the computer application. He ensures that the performance, resources and security of the computer application meets the needs of the users. He also trains and supervises agricultural extension agents and offers technical support for the smooth running of the application.

The agricultural extension agents are needed to train farmers on how to make effective use of the computer application. They train farmers on how to register, publish farm produce for sale, track sales and how to perform other functions.

The seller and buyer are the most important actors of the computer application. The application allow sellers/farmers to showcase farm produce online thereby enabling buyers to access the produce, make orders and pay for the service online using credit or debit cards. Figure 3 below depicts the use case diagram of the seller and buyer. A use case diagram shows the user a detailed view of the system and how the actors would interact with each other and with the system.

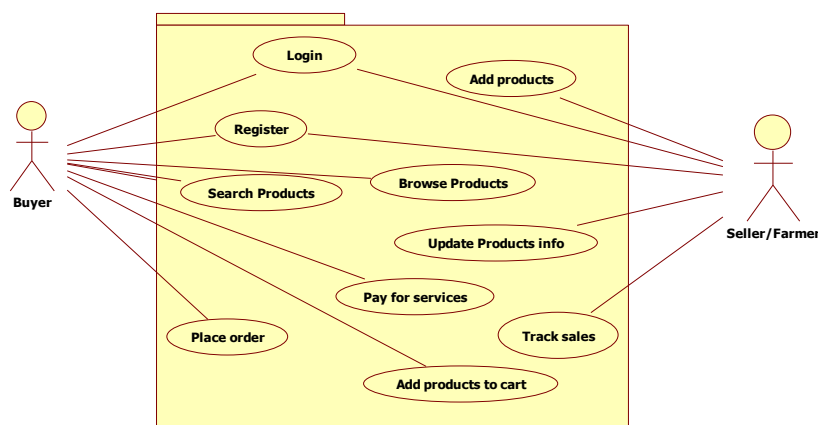


Figure 3: Use case diagram

From the use case diagram above, both the seller and the buyer can login to access the E-Marketing platform. The system verifies that the username matches the password. If successfully authenticated, they are granted full access, else an error message is displayed. The seller can also add products, update products information, register and track sales. The buyer on the other hand, can search for products, browse for products, place order, add products to shopping cart and pay for the services ordered online.

Discussion of Results

Figure 4 below shows the home page of the developed computer program. The page allow users to create a new account or login if an existing user, browse for products, order and pay for any product online

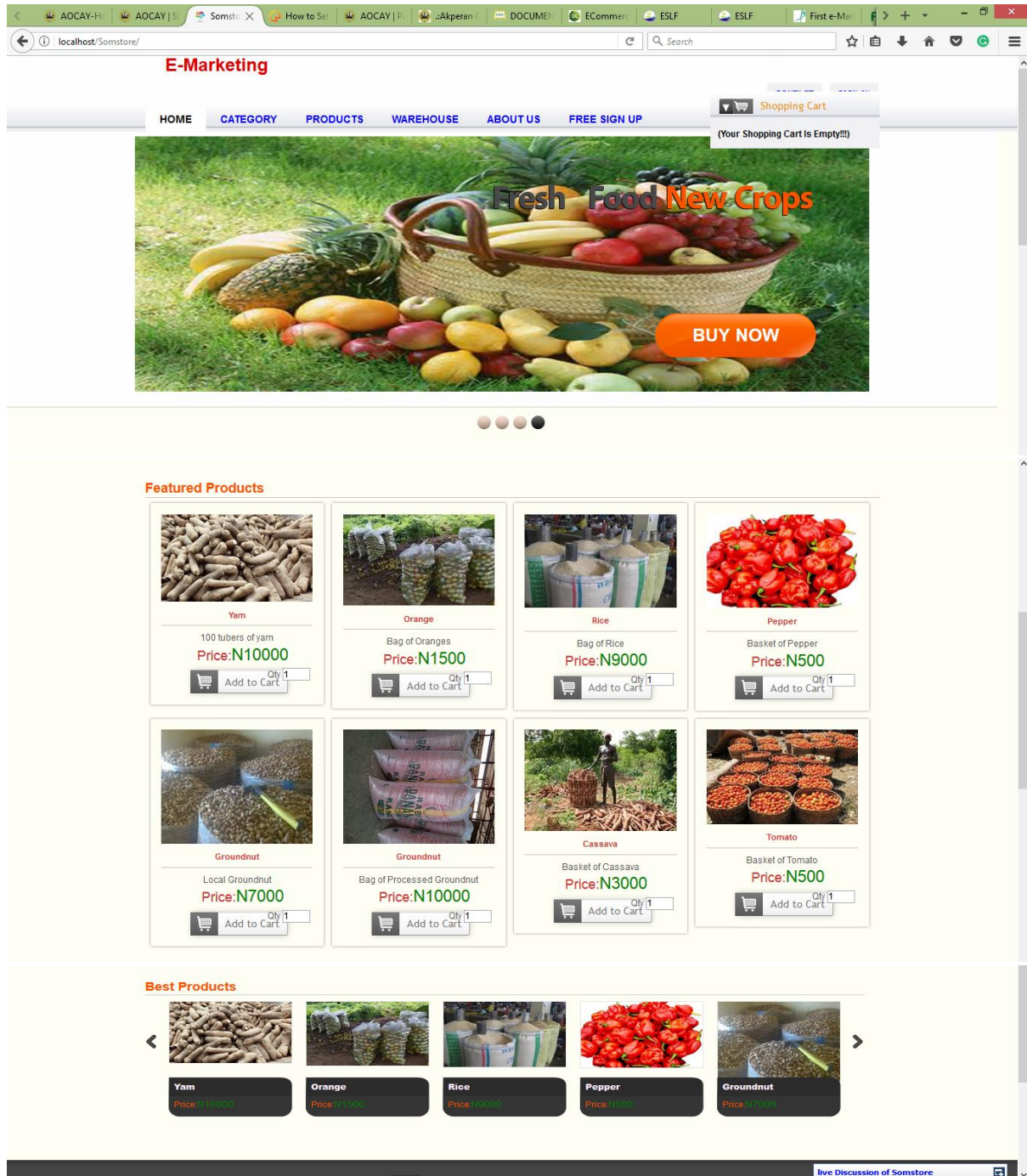


Figure 4: Home page

When the buyer finds the products he wants, he adds them to the shopping carts. The system will store and keep track of the products that have been added into shopping cart. He can request to view the contents of the shopping cart. The system will return the contents of the shopping cart to the customer; the unit price and total price will also be displayed as shown in figure 5 below.

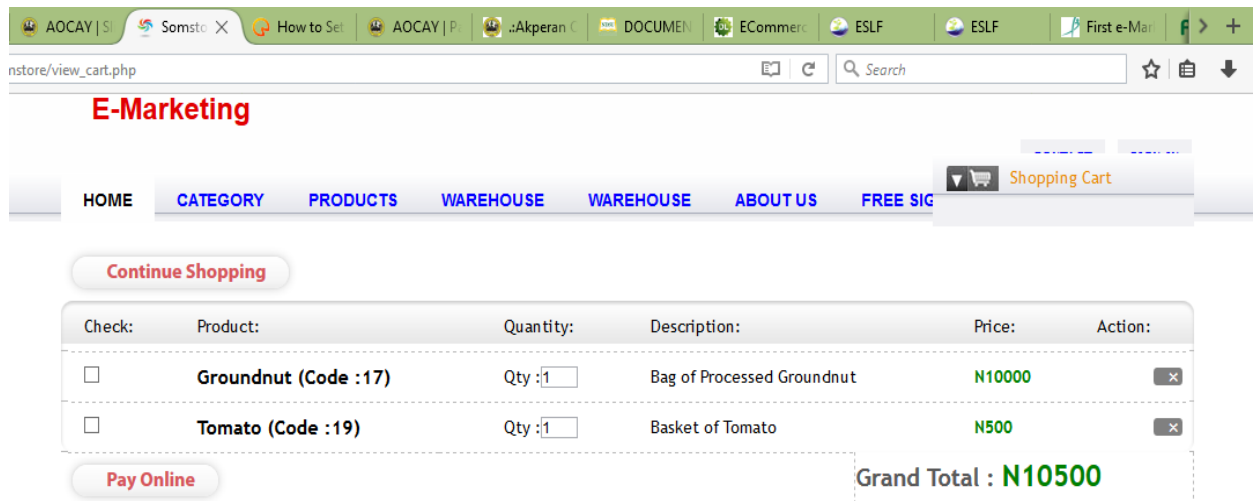


Figure 5: Shopping cart

When the buyer requests to checkout, the system will display the online payment page. The buyer enters his credit/debit card information and the online payment solution provider validates the supplied information. If the payment is successful, the buyer will be given a choice on whether he wants the item shipped to his stored address or to an alternative address and charged appropriately. Figure 6 below shows the online payment solution.

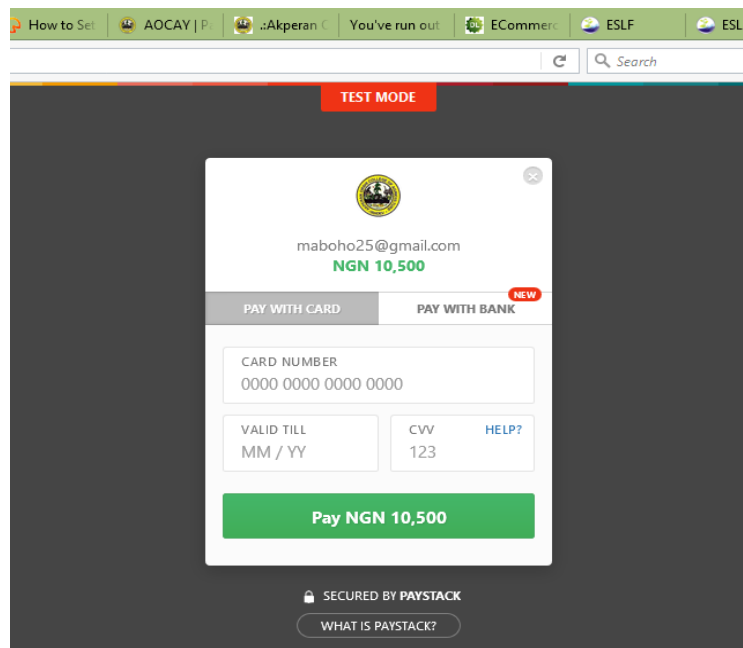


Figure 6: Online payment solution

After getting the order request, the sales clerk ships the products to the customer within a stipulated number of days.

Conclusion

The internet has brought new ways of performing various activities such e-banking, e-learning, e-voting, e-commerce etc. This paper "Development of an E-Marketing Platform for Farmers in Nigeria" is meant to bridge the communication gap between farmers and buyers. The paper highlights the five most important methods of E-Marketing which include: search engine marketing, mobile marketing, content marketing, social media marketing and local search engine optimization. In addition, it assesses some of the major challenges faced by farmers in Nigeria in the marketing of farm produce and proffer a solution by developing a computer application. The application was successfully developed, tested, and found to be working as expected. It is capable of storing and presenting agricultural products with high speed and accuracy. The new system is flexible and can be modified to suite any kind of record keeping and data processing. It uses graphical user interface (GUI) rather than command-line approach, hence is easy to use, reasonably secure, and enforces data integrity resulting from the use of a relational database management system. With this application, bulk buyers can access farmers' produce, make orders and pay for the services online.

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