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Counteracting institutional voids through digital authentication: building brand trust in West Africa's textile market

Si Qiuhua,
Al-Farabi Kazakh National University, siqiuhuasylvia@gmail.com

Scientific supervisors: Karashalova Alma, Al-Farabi Kazakh National University, PhD, associate professor;
Zhusupova Zhanat Mukhtarovna, Al-Farabi Kazakh National University, PhD

Abstract. The article examines digital authentication as a compensatory institutional mechanism in the West African wax print textile market. Weak regulation, opaque supply chains and widespread counterfeiting undermine consumer trust, above all in new suppliers from China. Drawing on institutional void theory, signalling theory and the author's practitioner experience in the wax print trade (2013–2022), the article shows that blockchain traceability, QR/RFID labelling and smart contracts can partially substitute for missing certification institutions by converting product quality into verifiable information. The framework is illustrated with first-hand observations from the markets of Lomé and Cotonou and from the author's 2021 company-level study. Staged adoption is proposed: pilot QR verification on flagship designs, retailer partnerships and consumer education. Implementation constraints — infrastructure, consumer digital literacy and costs — are discussed.

Keywords: digital authentication, institutional voids, brand trust, blockchain, traceability, counterfeiting, wax print textiles, West Africa.

West African textile markets combine strong demand for wax print fabrics with weak formal institutions for product certification and consumer protection. Because buyers cannot easily verify the origin and quality of cloth, information asymmetry is severe and low-quality imitations drive trust out of the market. In Togo, the Chinese supply that has captured a large share of the wax print segment is labelled by consumers as "real fakes" — copies that visually imitate European originals while selling at a fraction of the price [1]. For Chinese wax print enterprises this perception is a core brand-upgrading obstacle: even where quality is adequate, products are discounted as inauthentic.

The problem belongs to a broader class of institutional voids — the absence of specialised intermediaries that, in developed markets, perform certification, enforcement and information disclosure [2]. This article asks whether digital authentication technologies can partially substitute for such missing institutions and rebuild brand trust. The argument is grounded in the author's direct engagement in the wax print trade between 2013 and 2022, which allows the framework to be illustrated with first-hand observations.

Institutions reduce uncertainty by stabilising the rules of exchange. Where formal institutions are absent, markets rely on reputation, relational contracting and informal governance, and firms operating in informality face a persistent legitimacy deficit. Signalling theory supplies the micro-foundation: when quality is unobservable, credible signals that are costly and hard to imitate allow genuine sellers to separate themselves from counterfeiters [3].

The wax print category itself amplifies the trust problem. The value of the fabric is anchored in design originality and cultural meaning — attributes that are difficult to verify at the point of sale. The category leader maintains premium trust through decades of brand presence across the region, while entrants without such reputational capital are structurally suspected of selling fakes [1]. Institutional voids therefore translate directly into a price and trust discount for newcomers.

Digital authentication denotes a set of technologies that make a product's origin and path traceable and verifiable by the end user. Three tools dominate the literature: blockchain traceability [4; 5; 6], QR, RFID or NFC tags linked to the Internet of Things (IoT) [4; 7], and smart contracts [4; 8]. Their respective trust functions are tamper-proof records of origin and ownership, track-and-trace from factory to point of sale, and automated rule-based verification that adds an institutional layer of trust.

Blockchain-based systems give supply chain partners and consumers access to a ledger that cannot be silently altered; pilot tests in cross-border e-commerce show that consumers can verify authenticity before paying, which protects both brands and platforms [4; 5]. In the textile and clothing industry, blockchain frameworks have been proposed and implemented to document every stage from fibre to garment [6]. QR- and RFID-based track-and-trace systems, combined with IoT identification, extend verification to the point of sale in real time [4; 7]. Beyond traceability, smart-contract-based provenance has been described as a new institutional mechanism that creates "institutional trust" through transparency and tamper-proof data, countering counterfeit "lemons markets" [8]. In digital-branding terms, authentication operationalises the institutional tier of trust signals alongside visual identity and social proof [9].

Risk assessments of China–West Africa digital trade identify institutional, technological and sociocultural barriers as decisive for cross-border e-business [10]. Authentication systems therefore succeed only when paired with consumer education, reliable upstream data entry and governance of the data chain [4; 8; 9].

The framework can be illustrated from the author's own practice. From 2013 to 2022 the author conducted annual market research and client visits in Togo, Benin, Nigeria, Côte d'Ivoire and the Democratic Republic of the Congo, while operating a wholesale business

in Guangzhou serving African buyers; the material below was additionally documented in the author's company-level marketing study in the Togo market (2021).

Three structural features of the market frame the trust problem. First, scale: China exports roughly 1.2 billion yards of wax print to Africa each year, approaching 80 per cent of the continental market, and in 2019 Chinese suppliers shipped close to 300 million yards to Togo alone (author's company-level study, 2021). Second, position: the port of Lomé handled more than 1.5 million twenty-foot equivalent units (TEU) in 2019, fifth in Africa and first in West Africa, and reforms that lifted Togo into the top half of the World Bank's 2020 ease-of-doing-business ranking have made the country a staging point for onward trade into Ghana, Burkina Faso, Niger and Nigeria (author's company-level study, 2021). Third, competition: with more than twenty Chinese producers and over forty established Chinese firms active in the country, rivalry takes the form of price competition rather than quality differentiation, which suppresses the price premium that authentication could otherwise capture.

Practice adds three observations to this picture. First, the counterfeit perception is real and economically consequential. In the markets of Lomé and Cotonou, consumers explicitly distinguished "original" European cloth from Chinese copies; Chinese products were treated as inauthentic by default, and some consumers switched back to premium European brands [1]. Second, traders already respond to the trust deficit with proto-authentication: the company studied by the author launched its own corporate sales website precisely to remove the fear of counterfeits and to add a layer of guarantee for distant buyers (author's company-level study, 2021). Third, the adaptation potential is concrete: mobile-friendly QR or NFC tags on fabric bales, connected to a permissioned ledger linking spinners, dyers, wholesalers and retailers, would let any buyer verify a consignment at the stall; comparable deployments have been shown to work in environments with similarly weak regulatory monitoring [4; 7].

The constraints are equally visible in practice: unstable electricity and network coverage in market environments, limited consumer familiarity with verification apps, the unit cost of tags on low-margin cloth, and the risk that inaccurate upstream data entry is faithfully recorded and therefore still trusted. Adoption should accordingly be staged — pilot QR verification on flagship designs, partnership with lead retailers, and consumer communication in local languages [8; 9; 10].

Against this background, a staged route is realistic. In the first phase, a producer would apply tamper-evident QR labels to a limited number of flagship designs — those with the strongest design originality — and link each code to a permissioned ledger record covering printing, dyeing and finishing; the incremental cost per bale stays modest because the labels are applied at final packaging rather than embedded in production. In the second phase, the producer would co-sign consumer-facing verification with two or three lead wholesalers in Lomé and Cotonou, whose stall-level reputation lends the scheme credibility, and publish the verification result in French and in local languages. In the third phase, a shared registry among cooperating suppliers would let buyers separate one firm's authenticated output from unverified goods, turning authentication from a single-firm signal into a category-level institution. Each phase is deliberately reversible: if a pilot design fails commercially, the labels can be withdrawn without disturbing the underlying supply chain.

The article makes a bounded but practical argument. Theoretically, digital authentication is best understood as a compensatory institution: it converts private, unverifiable quality claims into public, verifiable information and performs the certification function that formal institutions fail to provide [2; 8]. Practically, for Chinese wax print enterprises in West Africa, authentication offers a route from price competition towards brand trust, and it complements rather than replaces the reputational work of design localisation and market presence [1].

Two implications follow. For managers, authentication is an organisational commitment rather than a technology purchase: its value depends entirely on the accuracy of upstream records, so a firm that authenticates while tolerating undocumented subcontracting merely converts one form of opacity into another. For policy, the same logic favours public or industry-association registries over purely proprietary platforms, since buyers who have learned to distrust supplier claims are unlikely to accept a verification system owned by a single seller. The argument offered here is conceptual and practitioner-grounded and does not rest on a systematic consumer survey; the trade and port figures above describe the setting rather than measure the effect of authentication. A natural next step would be a choice experiment in Lomé and Cotonou testing how much consumers and small retailers are willing to pay for verified origin, and whether that premium differs between flagship and commodity designs.

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Russian version

Противодействие институциональным пустотам с помощью цифровой аутентификации: формирование доверия к бренду на текстильном рынке Западной Африки

Сы Цюхуа, Казахский национальный университет имени аль-Фараби

Научные руководители: Карашалова Алма, Казахский национальный университет имени аль-Фараби, доктор философии (PhD), ассоциированный профессор; Жусупова Жанат Мухтаровна, Казахский национальный университет имени аль-Фараби, доктор философии (PhD)

В статье цифровая аутентификация рассматривается как компенсаторный институциональный механизм на рынке тканей с восковой печатью в Западной Африке. Слабое регулирование, непрозрачность цепочек поставок и широкое распространение контрафакта подрывают доверие потребителей, прежде всего к новым поставщикам из Китая. Опираясь на теорию институциональных пустот, теорию сигналов и собственный практический опыт работы в торговле тканями с восковой печатью (2013–2022 гг.), автор показывает, что прослеживаемость на основе блокчейна, QR- и RFID-маркировка и смарт-контракты способны частично заменить отсутствующие институты сертификации, превращая качество продукции в проверяемую информацию. Предложенная концепция иллюстрируется личными наблюдениями автора на рынках Ломе и Котону, а также данными проведенного им в 2021 г. исследования на уровне компании. Предлагается поэтапное внедрение: пилотная QR-верификация флагманских дизайнов, партнерство с розничными продавцами и просвещение потребителей. Рассматриваются ограничения внедрения — уровень развития инфраструктуры, цифровая грамотность потребителей и затраты.

Ключевые слова: цифровая аутентификация, институциональные пустоты, доверие к бренду, блокчейн, прослеживаемость, контрафакт, ткани с восковой печатью, Западная Африка.