Horti Nigeria
BUILDING A SUSTAINABLE & INCLUSIVE HORTICULTURE SECTOR

Learning Brief 2:

Types of Business-to-Business (B2B) Linkages in the Nigerian Horticulture sector:

Insights from the HortiNigeria program

'Knowledge product 2' developed by the HortiNigeria-B2B team

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The business-to-business (B2B) activity of the HortiNigeria program concerns the facilitation and brokering of trade and other commercial interactions within the value chain systems of the horticulture sector in Nigeria. In addition, the B2B team collects data and insights from its work for learning purposes, to improve B2B brokering through effective approaches and methods, and by involving relevant partners. This learning brief is the second knowledge product developed by the B2B team.

1. Introduction

The HortiNigeria program (2021–2025), implemented by IFDC in collaboration with Wageningen Research and KIT Institute and funded by the Dutch government, supports the development of a sustainable and inclusive horticulture sector in Nigeria to enhance food and nutrition security. The program operates in Kaduna and Kano states in the North and Ogun and Oyo states in the South. Its four components focus on: (1) increasing productivity and income of smallholder vegetable farmers in Kaduna and Kano; (2) piloting production system innovation and regional diversification with entrepreneurial farmers in Ogun and Oyo; (3) improving access to finance for micro, small, and medium enterprises (MSMEs); and (4) enhancing sector coordination and business-to-business (B2B) linkages.

As the team responsible for the B2B activity under component 4, we promote trade and other commercial interactions within the horticulture value chain in Nigeria. We implement various activities to strengthen B2B linkages and partnerships among smallholder farmers, aggregators, off-takers, large processors, major buyers, as well as input and technology providers. Since the start of the project, we have identified a large number of B2B opportunities and brokered nearly 200 B2B linkages/partnerships. In addition, we have collected and analyzed data and insights to develop learning briefs as knowledge products of the HortiNigeria program.

Our starting point of the concept of B2B linkages has its origins in the study of inter-firm relationships in advanced, formal economies, where such linkages are typically understood as structured, contractual, and relatively stable exchanges between two firms (Anderson & Narus, 1990; Håkansson & Snehota, 1995). Within this tradition, B2B interactions are often framed in terms of efficiency, value creation, and long-term partnerships (Webster, 1992). However, such conceptualizations only partially capture the realities of agri-food systems in emerging economies, where markets are fragmented and dominated by small and medium-scale actors, weakly enforced contracts, and highly fluid transaction environments (Fafchamps, 2004; Dorward, Kydd & Poulton, 2005).

In Nigeria's horticultural sector, we observed that B2B linkages are rarely limited to direct transactions between two clearly defined firms. Instead, they often emerge as fuzzy and dynamic arrangements that cut across the formal–informal divide, and involve networks of multiple actors such as small producers, aggregators, transporters, informal brokers, farmer groups, and processors (World Bank, 2020; Reardon et al., 2019). These linkages are shaped by trust, reputation, and social networks rather than formal contracts, and their forms shift over time depending on seasonality, price fluctuations, and market opportunities (Shepherd, 2007; Hellin et al., 2009).

Despite their importance for the functioning of the horticultural value chain, we see that the different types of B2B linkages organized as networks in such contexts remain poorly understood, particularly regarding how smallholder farmers can be included. Existing literature tends to emphasize either formal supply contracts or high volumes market exchanges, leaving a conceptual and empirical gap regarding the variety of intermediary and network arrangements that sustain trade and investment in agricultural value chains (Humphrey & Schmitz, 2002; Gellynck & Kühne, 2008). We emphasize that a more nuanced understanding of these linkages is crucial, as they determine smallholder farmers' access to markets, the efficiency of supply chains, and the ability of programs such as HortiNigeria to foster inclusive agribusiness development.

To deepen our understanding of B2B linkages, we initiated a learning process at the start of the HortiNigeria project in 2022. Alongside the linkages with the value chains that were brokered, this process has led to a second learning brief. The objective of this brief is exploring and categorizing different examples types of B2B linkages and networks in the horticulture sector in Nigeria, examining how they function in practice, how they

diverge from conventional formal-economy models, and what their implications are for supply chain performance and inclusive horticulture development. We do not claim that the examples provide a comprehensive representation of B2B linkages in Nigeria's horticulture sector, as the sector is diverse and organized differently depending on location, actors, and other factors. Our underlying analysis draws on multiple sources, including a database of all brokered linkages and partnerships since June 2022, observations and reflections from the B2B team, as well as fieldwork interviews.

More specifically, the research questions of the learning brief include:

- Types of B2B linkage networks: What examples of types of B2B linkage networks exist in the Nigerian horticultural sector?
- Characteristics and dynamics: How do these linkage networks operate in practice, particularly with respect to their formality/informality, stability, and involvement of multiple actors?
- Implications for the horticultural sector and support programs: How do different types of B2B linkages and networks affect smallholder farmers' access to markets and participation in horticultural value chains? What are the implications of these linkages and networks for programs such as HortiNigeria that aim to strengthen market access and foster inclusive agribusiness development?

The learning is structured as follows. It begins by reviewing theoretical insights on B2B linkages from the existing literature, which provide the analytical foundation for the study. It then presents the models of B2B linkages and networks observed in Kano, Kaduna, Oyo, and Ogun, highlighting the diverse forms and dynamics of inter-firm relations in these horticultural hubs. Building on this, the brief reviews the approaches used by the HortiNigeria program to broker linkages, both formal and informal. The learning brief concludes Summarizez the findings and presents recommendation for the horticultural sector and support programs

2. References on B2B linkages in the literature

The literature on B2B linkages in the horticultural sector in Africa emphasizes their importance in fostering agricultural value chain development, enhancing market access, improving quality standards, and driving inclusive economic growth. In much of the scholarship, B2B relationships are conceptualized as a set of inter-firm linkages that enable the efficient functioning of value chains, connecting actors across production, processing, input supply, and marketing (Håkansson & Snehota, 1995; World Bank, 2013). Although originally theorized within the context of advanced economies, where firms tend to operate under relatively formalized and contractual arrangements (Anderson & Narus, 1990), the concept has gained prominence in the study of agribusiness systems in sub-Saharan Africa. Here, linkages often emerge within dynamic and hybrid institutional environments, characterized by the coexistence of formal contractual mechanisms and informal, trust-based arrangements (Fafchamps, 2004).

B2B Linkages and Value Chains

B2B linkages are frequently highlighted as a cornerstone of competitive and efficient agricultural value chains. They enable the coordination of activities across multiple nodes of the chain, often in networks, from input supply to final market outlets, thereby reducing transaction costs, improving quality control, and ensuring a more predictable flow of goods and services. In the African horticulture sector, these linkages typically occur between smallholder producers and exporters or processors, between input suppliers and farmers, and between wholesalers and retailers in both domestic and international markets (World Bank, 2013; Neven et al., 2009; Jaffee & Masakure, 2005).

The relationship between producers and exporters or processors is perhaps the most widely studied. Exporters and processing firms depend on consistent supplies of high-quality produce, while smallholders rely on these firms for reliable market access. Such arrangements often take the form of contract farming, out-grower schemes, and other partnership and network models, which serve to embed farmers into global and regional value chains (Minot & Sawyer, 2016). These forms of B2B linkages encourage the flow of resources, information, and technology, thereby enhancing both productivity and competitiveness. Similarly, linkages between input suppliers and farmers are vital for ensuring access to critical inputs such as seeds, fertilizers, and agrochemicals. Input companies often extend credit, technical assistance, or bundled packages to farmers in exchange for loyalty to their products, creating interdependencies that sustain the value chain (Neven et al., 2009).

At the distribution end of the chain, wholesalers and retailers play a crucial role in bridging production and consumption, whether for domestic urban markets or export destinations. Their relationships with producers and intermediaries are critical for determining not only the flow of goods but also the ability of the value chain to respond to consumer preferences and price fluctuations (Jaffee & Masakure, 2005). Collectively, these B2B linkages constitute the backbone of horticultural value chains, with the potential to generate efficiencies, stabilize supply, and create opportunities for upgrading.

Enhancing Market Access

Another central theme in the literature is the role of B2B linkages in enhancing market access for farmers and agribusinesses. By connecting producers to higher-value domestic and international markets, B2B relationships help overcome structural barriers that would otherwise exclude smallholders. One important pathway is through compliance with international quality and safety standards, such as GlobalGAP, organic certification, and fair-trade schemes. Export-oriented firms and input suppliers often play a pivotal role in helping farmers meet these requirements by providing training, resources, and certification support (FAO, 2020).

Export markets in Europe, the Middle East, and Asia represent major opportunities for African horticultural products, including fresh fruits, vegetables, and flowers (Ouma, 2010). However, participation in these markets requires adherence to stringent phytosanitary and quality standards. B2B linkages, particularly those mediated through exporters and processors, are therefore indispensable in connecting smallholders to these global value chains. At the same time, B2B relationships can enhance competitiveness in domestic markets, where producers must increasingly compete with imported produce. Strengthened linkages with local wholesalers, retailers, and supermarket chains help farmers secure reliable outlets and negotiate better terms of trade, thereby increasing their share of the domestic consumer market (Vorley et al., 2007).

In this sense, B2B linkages serve as critical enablers of market inclusion. They facilitate not only physical access to markets but also the institutional and technical support required to meet evolving demands. The literature highlights that without such linkages, smallholders risk being excluded from the benefits of globalization and market liberalization (Minot & Sawyer, 2016).

Technology and Knowledge Transfer

Beyond market access, B2B linkages also serve as conduits for technology and knowledge transfer. Exporters, processors, and input suppliers frequently act as intermediaries for the diffusion of agricultural innovations and best practices, filling critical gaps left by under-resourced public extension systems. These actors provide training in areas such as integrated pest management, post-harvest handling, grading, and sustainable farming practices, all of which are essential for improving productivity and meeting market requirements (Mithöfer & Waibel, 2011).

For example, exporters working with smallholder out-growers often introduce innovations in storage, packaging, and logistics, thereby reducing post-harvest losses and improving the consistency of supply. Processors may provide technical support in the form of quality control mechanisms or capacity-building workshops, which not only benefit individual farmers but also strengthen the overall competitiveness of the value chain. Similarly, input suppliers frequently promote the adoption of improved seed varieties that are high-yielding, disease-resistant, or better suited to export market preferences (Ashraf et al., 2009). In some cases, these suppliers establish demonstration plots or farmer field schools as part of their marketing strategy, effectively linking commercial objectives with knowledge dissemination.

The literature underscores that such technology and knowledge transfers are not unidirectional but embedded in reciprocal relationships. Farmers often provide critical feedback to exporters, processors, and input suppliers, thereby influencing the adaptation of products and practices to local contexts. In this way, B2B linkages become mechanisms not only for disseminating innovations but also for co-creating solutions that align with both market demands and the realities of smallholder production systems.

Barriers and Emerging Models of B2B Linkages

While the literature underscores the potential of B2B linkages to enhance value chain performance and market inclusion, a range of barriers constrain their effectiveness in the African horticultural context. Fragmentation of production remains a significant challenge, as most smallholder farmers operate independently or in loosely organized groups, complicating efforts at aggregation and undermining the reliability of supply chains (Barrett et al., 2012). Market volatility, including sharp price fluctuations and uncertain demand, can erode trust and discourage long-term cooperation between actors (Reardon et al., 2009). Furthermore, persistent infrastructure deficits—such as inadequate transportation networks, limited cold storage, and insufficient processing facilities—restrict farmers' access to markets and contribute to post-harvest losses (World Bank, 2013). Financial constraints compound these challenges: both farmers and small agribusinesses often lack the capital to invest in technologies, inputs, or certification processes required to participate in high-value markets (Vorley et al., 2007).

In response to these constraints, emerging models of B2B linkages emphasize inclusivity and sustainability. Smallholder-inclusive value chains, for instance, integrate farmers into supply networks by coupling procurement with support in the form of inputs, credit, and extension services, thereby addressing both productivity and market access challenges (Maertens et al., 2012). Digital platforms also offer new opportunities by connecting farmers directly to buyers, facilitating supply chain traceability, and providing timely market information, which can reduce transaction costs and mitigate risks associated with price volatility (World Bank, 2019). In addition, public–private partnerships (PPPs) are increasingly leveraged to strengthen B2B ecosystems by investing in infrastructure, co-financing training initiatives, and sharing risks between private firms, governments, and development actors (Spielman & Grebmer, 2006). Together, these approaches illustrate a shift towards models of B2B engagement that are not only commercially viable but also socially inclusive and responsive to the structural challenges facing African horticulture.

Despite these advances, however, the diversity of B2B linkages in practice—particularly the informal, hybrid, and dynamic arrangements that characterize contexts such as Nigeria—remains insufficiently documented and understood, highlighting the need for further empirical exploration.

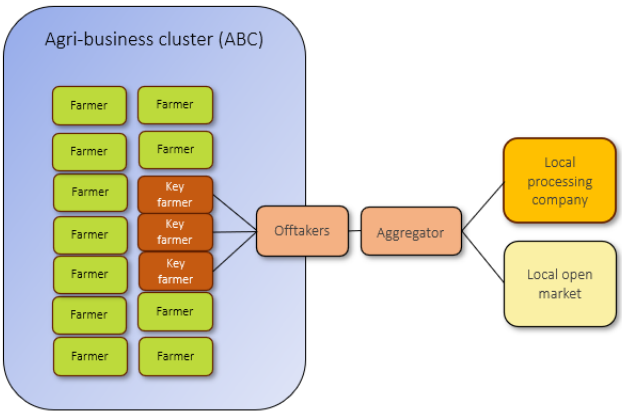
Taken together, we observe that the literature points to the multifaceted role of B2B linkages in shaping the performance and inclusivity of horticultural value chains in Africa. These linkages enable value chain integration, enhance access to domestic and global markets, and serve as vehicles for the transfer of technology and knowledge. While much of the existing literature highlights the potential of formalized B2B arrangements—such as contract farming and structured out-grower schemes— we argue that it is equally important to recognize the prevalence of hybrid and informal linkages in practice. We believe that understanding the diversity and dynamism of these relationships remains a key research frontier, particularly in contexts such as Nigeria where institutional environments are fluid and rapidly evolving.

3. Identified examples of types of B2B linkages

3.1 ABC farmers selling via offtakers/aggregators to local markets nearby

The first example of a type of B2B linkage network is the ABC (Agri-Business Cluster), which serves nearby local markets. These clusters are organized in specific geographical areas where farmers had previously participated in training programs offered through the East-West Knowledge Transfer initiative. ABCs are designed to bring together a diverse set of stakeholders within the local agricultural ecosystem, including individual smallholder farmers, cooperatives, aggregators, and offtakers who purchase produce for further processing or sale. By organizing farmers and other actors into ABCs, HortiNigeria aims to create localized hubs for learning, collaboration, and market access. Each ABC is supported by dedicated coaches, who are civil servants from the Local Government Area (LGA). These coaches play a crucial role in guiding the activities of the ABCs, ensuring that members have access to technical knowledge, organizational support, and connections to relevant market actors.

Within each ABC, a number of farmers are identified as key farmers. These key farmers serve as community leaders and focal points for knowledge sharing. They maintain learning or demonstration plots that allow other farmers to observe and adopt best practices in crop production, post-harvest handling, and input management. Key farmers often have higher visibility and credibility within their communities, which makes them effective channels for spreading information and encouraging adoption of new techniques.



Beyond their role as model farmers, some key farmers also participate in aggregation activities, collecting produce from other farmers to supply larger buyers. In addition, certain key farmers serve as input dealers, providing seeds, fertilizers, and other agricultural inputs to neighboring farmers, further strengthening the local farming network.

Most deals between ABCs and offtakers, as well as with aggregators and processing companies, are conducted through informal, verbal agreements. Farmers generally prefer cash payments, as many lack access to mobile banking, though some use POS systems to make transactions or receive funds (annex 1). Pricing remains a key risk factor in these arrangements: during periods of oversupply, offtakers often sell excess produce directly on the open market, causing prices to drop. Aggregators hold the most influence in the local value chain, as they have the contacts, transport capacity, and capital to sell produce in larger markets. Farmers frequently face pressure to sell quickly to avoid spoilage or meet urgent cash needs, which can result in lower prices. Despite these dynamics, strong trust exists between farmers and offtakers, who generally honor agreements and maintain mutually respectful relationships.

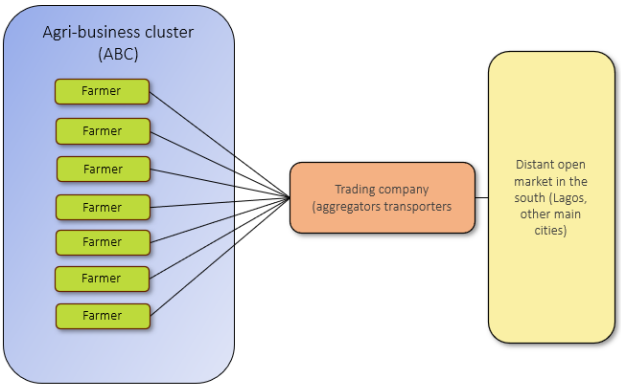
Many ABC coaches were already active as brokers before the project began, positioning them at the center of networks connecting farmers, offtakers, aggregators, and processors. Once the project concludes, the coach coordinator is expected to continue acting as a broker, earning modest income through transaction margins. The broader networks of farmers, offtakers, aggregators, and marketers have remained largely stable over time, with the coach coordinator having worked with many of these actors for over a decade. Supply chain challenges persist, particularly due to limited funds for inputs. Farmers often rely on informal loans from input

dealers for fertilizers and seeds, repaying the full amount after harvest. These arrangements, while practical, underscore the highly informal nature of local agricultural value chains.

3.2 ABC farmers selling via aggregators/ transporters to distant markets

The second example of a type of B2B linkage network is the ABC, which connects producers to distant markets. Trading companies that also function as aggregators have developed robust and direct linkages with farmers in the Northern regions as well as with marketers and agents operating in open markets in the Southern regions. These companies possess the necessary capital in the form of liquid cash, which allows them to efficiently collect produce from multiple farms, and they are equipped with vehicles, such as trucks, to transport the harvested goods over long distances. For instance, they can aggregate produce from individual farms and transport it to major southern cities such as Lagos, ensuring a consistent flow of goods to high-demand urban markets. Because of this logistical capacity and financial strength, trading companies occupy a position of considerable influence and control within the agricultural supply chain.

These trading companies actively establish business-to-business (B2B) linkages directly with farmers. Their access to distant markets, particularly large urban centers in the South, allows them to offer farmers opportunities that would otherwise be unavailable. They provide critical market information to farmers, including details on demand trends and price levels, and play a key role in negotiating and brokering sales agreements.



Some of these companies have integrated mobile payment systems, which facilitate rapid and reliable payments to farmers once their produce has been delivered, thereby reducing delays and increasing trust in commercial transactions. Additionally, the companies maintain a local office in Kano to provide a permanent point of contact, while also communicating with farmers and market agents through WhatsApp, phone calls, and email, ensuring efficient coordination and a responsive supply chain network.

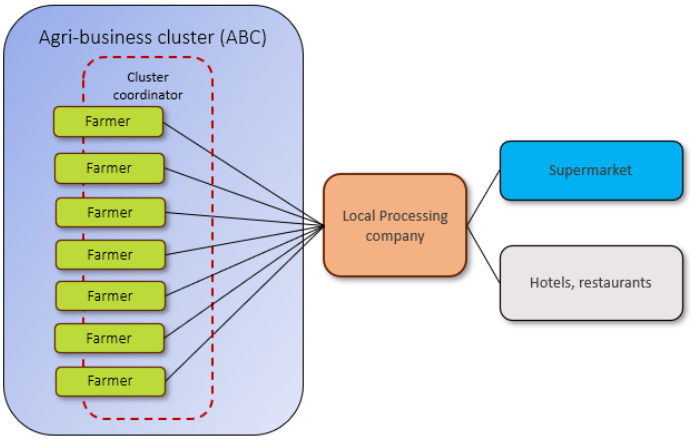
3.3 ABC farmers selling directly to small local processing companies

The third example of a type of B2B linkage network is the ABC, which sells directly to small local processing companies. The HortiNigeria cluster coaches play a central role in facilitating direct B2B connections between smallholder farmers and local processing companies. Their work is not just about linking parties; it involves building trust, understanding the specific needs of both farmers and processors, and ensuring that transactions run smoothly. These cluster coaches are embedded in the communities and have developed strong relationships with farmers over time, allowing them to act as a reliable bridge between production and processing.

Within this structure, the ABC coach coordinators serve as the main point of contact for farmers and processors alike. Their work is often described as straightforward, but it relies heavily on personal knowledge and social networks. As one coordinator put it, "I just make calls." This simplicity, however, belies the complexity of maintaining relationships and negotiating mutually beneficial agreements.

The coach coordinator typically knows each farmer personally, including the scale of their production, preferred crop varieties, and the timing of their harvests. This detailed knowledge allows the coordinator to match farmers effectively with processors who have specific demands.

Processors usually initiate contact with the coach coordinator when they need particular varieties of produce. They specify their requirements, such as the types of crops, the desired quality, and the quantities needed. The coach coordinator then negotiates the terms of the deal on behalf of the farmers, which can include the volume to be supplied, the agreed-upon price, and any additional conditions.

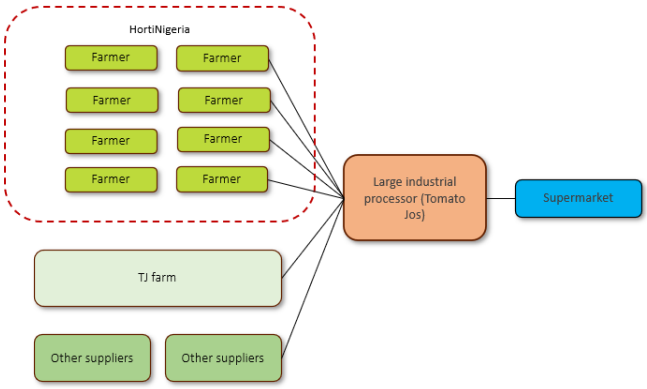


This negotiation process ensures that both parties—farmers and processors—benefit fairly from the transaction while reducing the risk of misunderstandings or disputes. The actual volumes involved in these transactions tend to be modest, reflecting the small scale of many HortiNigeria farmers. Typically, a smallholder harvest ranges from 30 to 50 crates per harvest, though in some cases, farmers may produce up to 100 crates. Even at these relatively small volumes, the coordination provided by the ABC coaches is critical for creating consistent market access and avoiding crop losses.

In situations where farmers are not formally part of the HortiNigeria ABCs, the coach coordinator still plays a facilitating role. In these cases, they typically receive a small margin from the processing companies as compensation for connecting them with additional farmers. This arrangement ensures that the coach coordinator has an incentive to maintain broad market linkages and continue supporting both the farmers and processors, even beyond the core ABC network.

3.4 Farmers selling directly to large industrialized processing companies

The fourth example of a type of B2B linkage network is farmers organized by and around a large industrial processing company. A well-known example is Tomato Jos (TJ), which sources its tomatoes through a combination of its own farms and nearby smallholder farmers. The company initially concentrated on farmers within a specific geographic area to minimize logistical challenges and control pricing, ensuring a reliable supply of tomatoes that meets both quality and quantity requirements.



By focusing locally, TJ could manage transportation costs more effectively, reduce delays, and maintain consistent production levels for its processing operations. Through the HortiNigeria initiative, TJ was able to expand its sourcing network beyond its immediate surroundings. This expansion included farmers in the Kaduna and Kano regions, which broadened TJ's access to fresh tomatoes and helped stabilize supply, particularly during periods of peak demand. Connections with these external farmers were facilitated through partnerships with organizations such as the Tomato Growers Association, which acted as an intermediary between the farmers and TJ. HortiNigeria also provided support, including partial funding of certain operational activities aimed at improving farmers' productivity, such as better inputs, training on cultivation techniques, and improved post-harvest handling practices.

Despite these efforts, one persistent challenge is the misalignment between farmers' production timelines and TJ's factory schedules. Tomatoes mature at different rates depending on farming practices, climate conditions, and input availability. This means that farmers' harvest cycles often do not perfectly coincide with the factory's processing needs, creating planning challenges and occasional mismatches between supply and demand. When production volumes are higher or lower than expected, TJ must adjust operations, which can affect efficiency and costs.

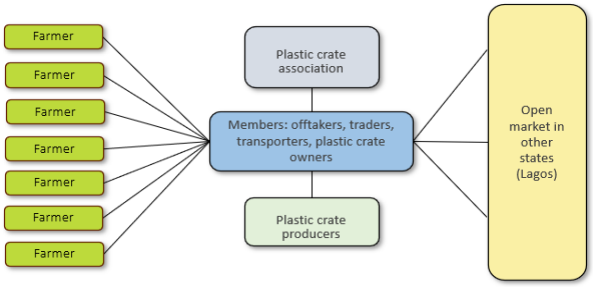
To address these challenges, the B2B team at TJ works closely with farmers to facilitate agreements that provide a more predictable flow of produce. These agreements are designed to stabilize relationships between TJ and the farmers, providing a level of certainty for both parties. While the agreed-upon prices are sometimes below prevailing market rates, farmers honor the contracts because the arrangement offers guaranteed buyers and reduces the risk of unsold produce. Similarly, TJ benefits from reliable supply, which helps maintain its processing operations without interruptions. These arrangements illustrate the importance of structured B2B relationships in agricultural value chains, particularly when dealing with smallholder farmers who may have variable production levels.

3.5 Farmers selling via plastic crate company and association to distant markets

The fifth example of a type of B2B linkage network is farmers organized by members of the Plastic Crates Association. Today, plastic crates are a crucial component in the transportation and handling of vegetables, particularly tomatoes, which are highly perishable and prone to damage if not transported carefully. They provide protection, facilitate easier handling, and help maintain the quality of produce during transit from farms to markets. Current estimates indicate that the country's horticulture sector requires around 5 million plastic crates to meet the needs of farmers and offtakers. However, the actual number of crates available is significantly lower, at approximately 1 million, creating a major gap in the supply chain and limiting the efficiency of vegetable distribution. This shortage can lead to losses, delays, and increased costs for both farmers and trading companies.

The Plastic Crate Association plays a pivotal role in addressing this challenge by acting as an intermediary between the manufacturers of plastic crates, the offtakers, and farmers.

The association purchases plastic crates in bulk directly from manufacturers, leveraging economies of scale to reduce costs and ensure a steady supply.



Offtakers and trading companies, which require crates to manage their vegetable procurement and distribution operations, enter into agreements with the association to obtain the crates. These agreements formalize the process and ensure that crates are available to the actors who need them, while also avoiding

the inefficiencies that would arise if individual farmers had to purchase crates themselves, which is not feasible given the high costs and logistical difficulties.

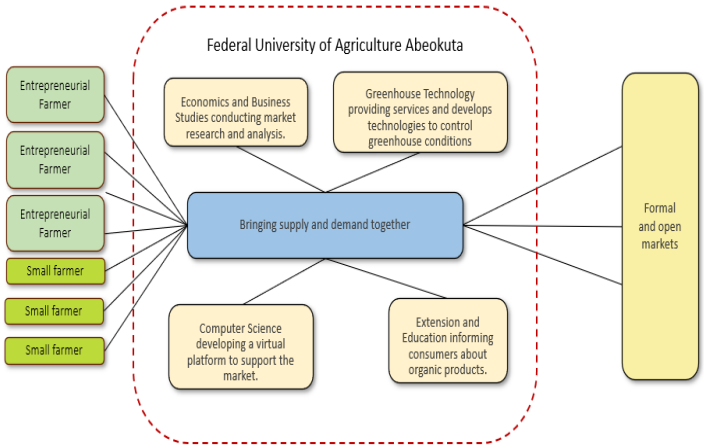
Once the crates are procured, they are distributed to farmers through a recovery system designed to maintain sustainability and reduce losses. Under this system, farmers use the crates to harvest, transport, and deliver vegetables to markets such as Lagos, after which the crates are returned to the offtakers or trading companies for reuse. This circular approach ensures that crates are continually cycled back into the system, maximizing their utility and minimizing waste. It also helps maintain order in the supply chain, as crates are expensive assets that cannot simply be left in the hands of individual farmers.

The distribution system for plastic crates involves careful planning and coordination. Crates are allocated to farmers based on expected harvest volumes and market demand. Farmers then transport the vegetables in these crates to the Lagos market, ensuring that produce arrives in good condition and can be sold quickly. The system has become essential for maintaining both the quality of vegetables and the efficiency of the supply chain, highlighting the importance of coordinated management in a sector where timing, logistics, and infrastructure are critical to reducing post-harvest losses.

3.6 Farmers selling via Federal University of Agriculture Abeokuta

The sixth example of a type of B2B linkage network is organized around a university with different expertise areas.

In this example the, the Federal University of Agriculture of Abeokuta plays a central role in linking producers to markets and building capacity in Nigeria's horticultural sector. Through the HortiNigeria project, it engages both the agricultural community and scientists to mobilize expertise for production, market analysis, and advocacy.



The university works directly with producers to understand market demand, including consumer preferences, willingness to pay, and product standards, while advising them on how to meet these requirements. Organic produce, in particular, has gained prominence due to the university's advocacy efforts, helping producers access premium markets.

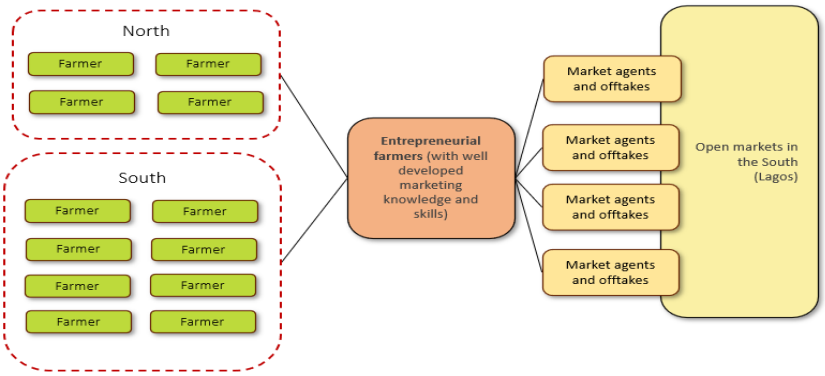
To stabilize supply and prices, the university promotes staggered planting, diversification of varieties, and the use of protected cultivation such as greenhouses. It provides technical advice, screens varieties, and develops context-specific greenhouse technologies to ensure yield and quality. Through its extension unit and collaboration with local technicians, the university addresses skill gaps and reduces dependence on external experts. It also gathers market data—through studies and student research—to guide production planning and reduce guesswork, helping farmers match supply with demand.

Overall, the university acts as a bridge between producers, vendors, and consumers, ensuring that fresh horticultural products are available at the right quality, quantity, and price while building capacity for sustainable and informed production practices.

3.7 Farmers selling via entrepreneurial farmers to open markets

The seventh example of a type of B2B linkage network is entrepreneurial farmers who organize farmers and aggregate and sell to open markets. The business of entrepreneurial farmers has evolved significantly over time, growing from a focus solely on primary vegetable production to taking on a more comprehensive and integrated role in the agricultural supply chain. Beyond producing vegetables themselves, these farmers now engage in aggregation, collecting produce from neighboring smallholder farmers, and off-taking, effectively acting as intermediaries between local producers and larger buyers. This expansion allows entrepreneurial farmers to increase their influence within the supply chain, manage larger volumes of produce, and capture more value from their business activities while supporting other farmers in the community.

One of the critical ways entrepreneurial farmers add value is by helping smallholder farmers access better markets. Through targeted training programs, they provide guidance on improved cultivation techniques, post-harvest handling, and market-oriented production.



These programs also empower farmers to negotiate better prices, reducing the risk of exploitation and unfair pricing by middlemen or other buyers. By facilitating market access and equipping farmers with knowledge and skills, entrepreneurial farmers strengthen the capacity of local producers and ensure that the broader supply chain benefits from more efficient and equitable transactions.

Strong relationships with middlemen and other market contacts are essential for entrepreneurial farmers to function effectively. These connections allow them to navigate market access, manage price negotiations, and respond to daily price fluctuations in highly dynamic markets. Maintaining these networks requires ongoing engagement, trust-building, and careful monitoring of market trends. For entrepreneurial farmers, these relationships are not just transactional—they are strategic assets that enable them to secure consistent buyers for themselves and the farmers they aggregate from, helping to stabilize the flow of produce through the supply chain.

Initially, entrepreneurial farmers relied on informal agreements with the smallholder farmers they aggregated from. While these arrangements were flexible and easy to set up, they often created disputes around pricing, quality, and delivery schedules. To address these challenges and formalize relationships, entrepreneurial farmers increasingly shift toward formal contracts with the farmers supplying them. These contracts establish clear expectations on quantities, quality standards, and prices, minimizing the risk of conflicts and fostering trust between the parties. Formal agreements also help entrepreneurial farmers plan more effectively for production, aggregation, and sales, reducing uncertainty and improving overall business efficiency.

Despite these operational improvements, the business faces significant challenges, particularly related to transportation. High transportation costs, driven in large part by rising fuel prices, have become a major concern, affecting both profitability and the ability to move produce efficiently from farms to markets. Transport logistics are especially critical for perishable vegetables, where delays can lead to losses and reduce product quality. Entrepreneurial farmers must carefully manage routes, vehicle maintenance, and fuel use to keep transportation costs under control while ensuring timely delivery to buyers.

When it comes to market preferences, entrepreneurial farmers generally favor open markets over supermarkets or export-oriented channels. Open markets offer faster payment cycles, which helps with cash flow and reduces financial risk, whereas supermarkets and export markets often impose stricter quality and volume requirements and have slower payment schedules. Although larger buyers can offer higher prices in some cases, the complexity and delay associated with meeting their requirements make open markets a more attractive option for many entrepreneurial farmers. This strategic choice reflects a balance between securing reliable sales and managing operational constraints, illustrating the practical decision-making that underpins the growth and sustainability of their businesses.

4. B2B team's role in establishing linkages and partnerships

Since the start of the project, as the B2B team, we have employed several approaches to facilitate the brokering of B2B linkages. This approach has been varied but basically includes the following steps: identifying opportunities for B2B linkages (which can take place within all examples described in the previous chapter or beyond); approaching potential B2B partners directly and engaging in conversations to explore and match interest and build trust. The reputation of the HortiNigeria program (and of IFDC, Wageningen University & Research, KIT, and the Dutch Embassy) has proven critical in establishing trust and commitment. We then participate in discussions about the terms of the B2B linkage (deal). Once the B2B relationship is established, the specifics of the linkage are collected in a database for our learning and for reporting purposes.

We acknowledged that our role was sometimes more, and sometimes less, important depending on the context. Our work appeared to be most valuable in close proximity to the farmers. Conversely, further down the value chain—closer to end consumers—market linkages are generally well-established. Aggregators, processors, and retail outlets often know one another, operate under pre-existing agreements, and have built trust over time. In these segments, there is minimal need for B2B facilitation, as the actors can manage transactions independently. This contrast highlights the relevance of our work in empowering farmers, bridging knowledge gaps, and creating market connections where they are most needed.

Below, several key elements of the our B2B facilitation approach are discussed.

ABC clusters

Smallholder farmers often lack marketing knowledge and skills, have limited or no contacts with buyers, and frequently face low prices due to unfavorable market conditions. These farmers struggle to identify profitable market outlets or negotiate terms that reflect the quality and volume of their produce. As mentioned above, we have played a facilitation role at the interface between farmers organized in ABCs and wider market actors such as offtakers, aggregators, and processors. When companies seek to source directly from farmers, we facilitated in collaboration with coaches introductions, coordinates meetings, and supports negotiations to ensure agreements are clear, fair, and mutually beneficial. Their close and regular contact with farmers builds trust and credibility, enabling them to act as reliable intermediaries who represent both farmers' and buyers' interests. This brokering function not only connects farmers to dependable markets but also mitigates risks, prevents misunderstandings, and promotes sustainable relationships. By ensuring continuity, accountability, and adherence to quality standards, the B2B team helps create more efficient, transparent, and inclusive value chains in which smallholder farmers can participate effectively and companies can secure quality produce.

Sourcing Events

HortiNigeria (HN) has played a central role in building farmers' capacity through training in Good Agricultural Practices (GAP) and the introduction of new, high-yield crop varieties. These initiatives improve both the productivity and quality of the produce, preparing farmers for more competitive engagement in the market. Building on this foundation, the we have organized structured sourcing events aimed at linking farmers with potential offtakers, aggregators, and processors. These events provide a platform for direct interaction, enabling farmers to showcase their produce and for buyers to evaluate quality, suitability, and volume. By promoting face-to-face engagement, sourcing events help establish trust and lay the groundwork for long-term, mutually beneficial business relationships.

We coordinated these events around the farmers' production schedules, ensuring they occur just ahead of harvest. This proactive timing is critical due to the perishable nature of vegetables, where delays can reduce quality, shelf life, and ultimately, prices. Prior to the events, the we provided farmers with detailed information on the attending offtakers, including their locations, purchasing preferences, and specific product

requirements. This allows farmers to prepare strategically, ensuring they present relevant produce that meets buyers' needs. Farmers are encouraged to bring produce samples to the events, giving buyers a tangible sense of quality and readiness. Beyond centralized sourcing events, we have also promoted on-farm visits, enabling offtakers to inspect crops in their growing environment, assess farming practices, and negotiate deals directly with farmers. This approach strengthens transparency, builds trust, and allows buyers to make informed purchasing decisions while giving farmers a chance to secure favorable terms.

Partnering with GOs, large private sector actors, branch associations and NGOs involved in horticulture

On a continuing basis, we have partnered with government organizations (GOs), large private sector actors, branch associations, and NGOs active in the horticulture sector. These collaborations have allowed us to combine resources, networks, and expertise in order to create lasting value for smallholder farmers as well as for agribusinesses.

To name just a few examples, we have explored innovative opportunities for business-to-business (B2B) facilitation with the Nigerian Tomato Association (TOPAN), Tomato Jos, the Plastic Crates Association, the Federal University of Agriculture Abeokuta, and the EU agricultural trade platform. Each of these partnerships brought unique strengths to the table: TOPAN provided access to organized farmer groups, Tomato Jos groups smallholder tomato producers, the Plastic Crates Association contributed to improved post-harvest handling, while the university and EU platform supported research, knowledge exchange, and international market linkages.

Many of these initiatives have already led to tangible results, including the establishment of commercial linkages between farmers and buyers, the introduction of improved technologies, and the strengthening of value chain coordination. Importantly, a number of these collaborations are still active today, growing further in scale and depth. They not only contribute to immediate business opportunities but also build a foundation for long-term sustainability and resilience in Nigeria's horticulture sector.

Pricing and Sales Conditions

One of the central objectives of initiatives such as the HortiNigeria project is ensuring that farmers receive fair prices for their produce and access sales conditions that allow for sustainable income generation. Historically, smallholder farmers in Nigeria have been at a disadvantage due to inefficiencies in market linkages, poor infrastructure, and limited bargaining power. These factors frequently result in produce being sold at prices well below market potential. For instance, a farmer growing tomatoes might sell their harvest at local markets at a fraction of the price that could be obtained in distant urban centers or to large processors, simply because transportation is costly or because they lack direct contacts.

Addressing this challenge requires a combination of market intelligence, relationship building, and contractual support. By facilitating both formal and informal agreements with buyers, the we ensures that farmers are not only aware of current market prices but are also supported in negotiating transactions that reflect the true value of their produce. Moreover, improving pricing transparency encourages farmers to invest more confidently in quality inputs, adopt better production practices, and plan for sustainable growth. Fair pricing is therefore not just a transactional issue; it is an integral part of strengthening the overall agricultural ecosystem, reducing vulnerability, and incentivizing farmers to engage more actively in market-oriented production.

We equipped farmers with up-to-date and reliable market intelligence, including weekly vegetable price updates provided through tools such as the HortiPrice Index. For smallholder farmers, having access to timely and accurate price information is critical, as it allows them to make informed decisions about the timing, location, and volume of their sales. Without this knowledge, farmers often sell their produce under unfavorable conditions, accepting lower prices due to a lack of awareness of current market trends or potential

buyers' needs. By contrast, informed farmers can anticipate fluctuations in demand and price, adjust their harvesting schedules, and target markets where they can achieve the best returns. This data-driven approach helps them avoid exploitation by intermediaries and reduces the risk of unsold stock or losses due to perishable goods.

In addition to supporting immediate sales decisions, access to market intelligence enables farmers to develop more effective marketing strategies and production plans. For example, knowing which varieties of vegetables are in high demand in particular markets allows farmers to prioritize planting and harvest cycles accordingly. They can also better negotiate with buyers, using verified price information to justify fair pricing and terms of sale. We strengthen these efforts by combining price intelligence with direct linkage facilitation, connecting farmers to aggregators, processors, and other buyers. This dual approach not only enhances farmers' bargaining power but also positions them as more competitive, informed, and professional players within the supply chain. Over time, these practices contribute to higher earnings, improved business sustainability, and a stronger sense of agency among farmers, helping them move beyond subsistence-level sales toward more commercially viable operations.

5. Summary of findings

In this learning brief, we review examples of B2B linkage networks in the Nigerian horticultural sector, which deepen our understanding of their characteristics and dynamics, particularly in terms of formality versus informality, stability, and the involvement of multiple actors, including smallholder farmers.

Critical bottleneck of B2B; smallholder farmers' access

The examples suggest a large variety of types of B2B linkage networks in the horticultural sector in Nigeria. Often informal, farmers, offtakers, aggregators, and marketers are frequently well-acquainted with one another, maintaining ongoing informal relationships that enable routine transactions. These established linkages, particularly among actors further down the value chain, suggest that the challenge does not lie in familiarity or the formation of connections at these stages. The critical bottleneck, however, emerges closer to the grassroots level: among smallholder farmers. Many of these farmers have limited marketing knowledge, lack technical negotiation skills, and are often excluded from key contacts that would allow them to access better markets. As a result, they are frequently subjected to low pricing, and unfavorable sales conditions.

The Dynamic Nature of B2B Models

The agricultural sector's B2B landscape is highly fluid and constantly evolving. Smallholder farmers are increasingly transitioning from purely producing crops to taking on broader roles within the value chain. Some are becoming aggregators, collecting produce from neighboring farms to sell in larger quantities, while others are entering into the business of providing inputs to other farmers. This evolution has significant implications for B2B models, as the boundaries between production, aggregation, and trading become more flexible.

In practice, this fluidity means that the roles and responsibilities within the value chain are continually shifting. A farmer today might sell only their own produce, but tomorrow could be aggregating for multiple neighboring farms, negotiating contracts with processors, or acting as a small-scale input supplier. B2B networks must therefore be adaptable, supporting actors as their roles expand and change. For the B2B team, this dynamic environment underscores the importance of proactive engagement, continuous training, and the facilitation of both formal and informal relationships that can withstand the changing structures of the agricultural sector.

Market Challenges

Despite the opportunities presented by these evolving B2B networks, multiple structural and logistical challenges hinder smooth market access.

A key issue is the persistent constraint posed by poor infrastructure and transportation. Moving produce to major urban centers, particularly in southern Nigeria, involves navigating poor road conditions and security risks, both of which increase costs and reduce efficiency. Rising fuel prices further exacerbate the situation, making transportation a significant barrier for smallholder farmers who often operate with limited volumes. A farmer may have 50 crates of tomatoes ready for sale, but the high cost of delivering these to Lagos or Abuja can wipe out potential profits.

Cashless transactions and limited cash availability are another important issue. Nigeria's monetary policies encouraging cashless payments create additional complexities for agricultural transactions. Many farmers prefer cash payments, as mobile money systems are less familiar and less reliable for high-volume or frequent transactions. Furthermore, weekly withdrawal limits (currently capped at 500,000 naira or approximately 282 Euros) can prevent large-scale transactions from being executed smoothly. This limitation creates friction in a sector where timely payments are critical due to the perishable nature of crops.

High Costs of Electricity and Storage: Farmers also face the burden of expensive and unstable electricity, which directly impacts storage and cold chain facilities. Adequate storage is limited, meaning that surplus produce often cannot be held to wait for higher prices or better market conditions. Consequently, farmers may be forced to sell immediately after harvest at lower prices, rather than strategically timing their sales to maximize earnings.

The Role of Informal and Formal Agreements

Traditionally, transactions in the agricultural sector were predominantly informal, relying on verbal agreements and trust. While this system has historically allowed for flexible, low-cost transactions, it also leaves room for disputes over pricing, quantity, and quality. In recent years, there has been a noticeable trend towards formalizing agreements, especially for farmers engaged in aggregation or supplying multiple buyers.

Formal contracts provide a framework for accountability, ensuring that both buyers and sellers understand their obligations and reducing the risk of misunderstandings. By supporting farmers in developing and adhering to these agreements, the B2B team enhances transparency within the supply chain, improves reliability, and fosters stronger business relationships. This transition is particularly valuable for smallholder farmers, who may otherwise be at a disadvantage when negotiating with larger, more experienced buyers.

The Importance of Trust and Technology

Trust remains a cornerstone of successful B2B networks in the agricultural sector. Personal relationships and reputations are central to transactions, especially where formal agreements are limited or absent. Buyers often prefer to work with farmers they know or who have been recommended by trusted intermediaries.

At the same time, technology is increasingly playing a vital role in fostering trust and improving market efficiency. Mobile phones, WhatsApp, and other digital platforms are widely used to facilitate communication, advertise produce, negotiate deals, and track orders. These tools complement traditional trust networks, helping to formalize transactions while maintaining the flexibility that farmers often need. By combining traditional relationship management with technological solutions, the B2B team can support farmers in expanding their networks and engaging more professionally with the market.

Overall, the Nigerian agricultural sector is experiencing a gradual shift toward more formalized business practices, driven by the need for transparency, efficiency, and secure market linkages. Strengthening B2B networks, particularly at the farmer level, is crucial for improving the sector's performance and resilience. Addressing logistical, financial, and infrastructural challenges—such as transportation, storage, cash flow, and electricity—remains central to these efforts. By equipping farmers with market intelligence, facilitating formal and informal agreements, and supporting the adoption of technology, we not only enhances farmers' access to markets but also promotes sustainable growth and competitiveness within the agricultural sector. As farmers evolve into aggregators and input suppliers, and as the roles within the value chain continue to shift, the importance of robust, adaptable B2B networks will only increase, positioning smallholders to fully benefit from Nigeria's expanding agricultural opportunities.

6. Recommendation for the horticultural sector and support programs

Concluding this learning brief, the findings suggest several implications for the horticultural sector and for support programs such as the HortiNigeria program, which aim to strengthen market access and foster inclusive agribusiness development.

Recommendation	Actions	Expected Outcome
1. **Support Role Diversification**	Encourage farmers to act as aggregators or input suppliers; provide mentorship and tools for new roles.	Increased income, stronger position in evolving B2B networks.
2. **Improve Logistics and Infrastructure**	Advocate for better roads, cooperative transport, and cold storage facilities; support local aggregation points.	Lower post-harvest losses, reduced transport costs, higher efficiency.
3. **Enhance Financial Access**	Train farmers on mobile money and cashless payments; accommodate familiar payment methods where needed.	Timely transactions, smoother cash flow, better handling of perishable produce.
4. **Leverage Technology for Market Efficiency**	Promote mobile platforms for communication, marketing, and order tracking; integrate with trust networks.	Increased transparency, expanded market reach, improved business professionalism.
5. **Build Trust and Relationships**	Facilitate networking, peer recommendations, and long-term engagement between actors.	Stronger collaboration, reduced risk, more reliable business relationships.
6. **Acknowledge and Utilize Informality**	Recognize the efficiency and benefits of informal market practices; integrate informal linkages alongside formal initiatives.	Enhanced flexibility and efficiency in transactions, stronger alignment with existing market practices.
7. **Engage Central Network Actors**	Identify and collaborate with key coordinators within multi-actor B2B networks; support their organizational and marketing roles.	Strengthened, sustainable linkages; more effective coordination across value chains.
8. **Focus on Farmer-Level Linkages**	Target interventions upstream to include smallholders in B2B networks; provide mentorship, information, and trust-building opportunities.	More inclusive and resilient value chains, improved smallholder market access and participation.

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Annex 1: The POS System in Nigeria

The POS (Point of Sale) banking system in Nigeria is a transformative approach to financial services, aimed at increasing access for underserved and unbanked populations. It relies on a network of small-scale agents and retailers equipped with POS terminals, who act as local banking touchpoints. These agents bridge the gap between banks and local communities, providing essential services such as cash deposits, withdrawals, fund transfers, and bill payments in areas where bank branches or ATMs are limited or completely absent.

By decentralizing banking through technology, the POS system extends financial services far beyond urban centers, bringing formal banking to rural and remote areas. For many Nigerians, these agents represent their first meaningful access to the formal financial system, allowing safer money management, remittances to relatives, and electronic payments for utilities and services. The system has become a key driver of financial inclusion, supporting household financial management, facilitating small business operations, and reducing risks associated with cash handling, such as theft or loss.

The Central Bank of Nigeria has played a central role in promoting and regulating the POS system through initiatives like the cashless policy, which encourages electronic transactions and aims to reduce reliance on physical cash while increasing transparency in financial flows. Beyond basic banking services, POS agents also enable access to microloans, mobile banking platforms, and insurance products, further integrating rural populations into the formal financial ecosystem.

The POS system also contributes to local economic development. Agents earn additional income, empower small business owners, and strengthen community networks. Over time, these networks help build financial literacy as people gain experience with electronic transactions, digital wallets, and banking products. In this way, POS terminals not only provide convenience but also enhance trust in the formal financial system.

Overall, the POS system in Nigeria is much more than a payment technology—it is a strategic instrument for financial inclusion, economic empowerment, and rural development. By leveraging technology, decentralizing banking services, and promoting electronic payments, POS agents enable communities to participate more fully in the economy, reduce dependence on cash, and access the benefits of the formal financial sector, all supported by national policies and the Central Bank of Nigeria.