Scaling Responsible Digital Payments in the Indonesian Cocoa Sector

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Scaling Responsible Digital Payments in the Indonesian Cocoa Sector

Foreword

Mr. Mahendra Siregar
Head of Board of Commissioners of Otoritas Jasa Keuangan (OJK)

In the vibrant tapestry of Indonesia’s economy, one thread stands out for its resilience and significance: agriculture. At the heart of this sector lie the farmers, whose dedication and hard work sustain not only their families but also the entire nation. Yet, despite their vital role, many of these farmers face formidable challenges in accessing the financial tools and services they need to thrive.

At the Financial Services Authority (OJK), we are acutely aware of the critical importance of addressing the financial needs of farmers. Agriculture forms the backbone of our economy, providing livelihoods for millions and ensuring food security for all Indonesians. Therefore, ensuring that farmers have access to appropriate financial services is not just a matter of economic development but also a moral imperative.

Ensuring that rural communities and businesses also benefit from Indonesia’s flourishing digital economy through the extension of formal financial services across our 38 provinces is the key goal of OJK’s Regional Financial Access Acceleration Team (TPAKD). Since its inception, 516 projects have been initiated to accelerate financial access in the regions and contribute to the significant narrowing of the financial inclusion index gap between rural and urban areas, from 15 percent in 2019 to only four percent in 2022.

This publication represents a significant step forward in our collective efforts to promote regional financial inclusion with a specific focus on Indonesia’s cocoa farmers, who are key contributors to the regional economy in Sulawesi.

From the rice paddies of Java to the cocoa plantations of Sulawesi, every farming community has its own distinct set of requirements and aspirations. Whether it be access to credit for purchasing seeds and equipment or insurance against crop failure, the financial needs of farmers are diverse and complex. It is incumbent upon us, as regulators, policymakers, and financial institutions, to tailor our interventions to meet these needs effectively as advocated by the UN Principles for Responsible Digital Payments. The dual focus of the research, firstly on how to responsibly digitize payments to cocoa farmers, thereby also increasing the transparency and sustainability of these value chains, and secondly on identifying gaps and hence the significant and untapped business opportunities for Indonesia’s financial service providers, offers insightful recommendations. The research findings also reinforce the vital role of formal transaction accounts and digital payments as a gateway to broadening financial inclusion for underserved segments including farmers in a way that responds to their needs and unique challenges. The extension of low-cost and interoperable payment channels such as QRIS at the last mile is also supported by TPAKD.

We call upon all stakeholders to collaborate and embrace these recommendations, focusing on innovations that will catalyze responsible digital payments as a key driver for sustainable development and greater inclusion. Together, we embark on this journey, committed to leveraging responsible digital payments and financial services for the sustainable development of our nation and the well-being of its people.
It is with great pleasure that I introduce this groundbreaking exploration into the transformative power of digitizing payments and financial services within the cocoa farming sector. Having spent decades working with and for Indonesian farmers, I am acutely aware of the challenges faced by our cocoa farmers. The findings of this research demonstrate that embracing digital innovations can be a game-changer in enhancing their productivity and livelihoods.

Cocoa farming holds a special place in the heart of Indonesia’s agricultural landscape, contributing significantly to our nation’s economy and cultural heritage. However, despite its importance, many cocoa farmers continue to grapple with various obstacles, including limited access to financial services, inefficient payment systems, and lack of market information.

This publication delves into the potential of leveraging digital technologies to address these longstanding issues. By streamlining payment processes, facilitating access to credit and insurance, and providing real-time market insights, digital solutions have the capacity to revolutionize the livelihoods and incomes of cocoa farmers, including a sizable number of women, both on and off the farm. Digital payments also emerge as a vital instrument to deliver on commitments by leading international and national companies in the cocoa sector to increase transparency and sustainability within supply chains.

Moreover, the benefits of digitization extend beyond mere convenience. By empowering farmers with financial inclusion and access to vital resources, we can foster greater resilience against economic and climate shocks, promote sustainable agricultural practices, and ultimately improve the overall well-being of farming communities.

As Indonesia continues steadfastly on this journey toward digital transformation, it is imperative that we leave no one behind, including our farmers and other key actors in the agricultural sector. It is essential that we collaborate across sectors and harness the expertise of various stakeholders, including government agencies, financial institutions, technology firms, and, most importantly, the farmers themselves. Together, we can build an inclusive and resilient cocoa industry that thrives in the digital age.
## List of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
</tr>
<tr>
<td>CGAP</td>
<td>Consultative Group to Assist the Poor</td>
</tr>
<tr>
<td>CH</td>
<td>Certificate holder</td>
</tr>
<tr>
<td>CICO</td>
<td>Cash-in cash-out</td>
</tr>
<tr>
<td>DFS</td>
<td>Digital financial services</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus group discussions</td>
</tr>
<tr>
<td>FSP</td>
<td>Financial services provider</td>
</tr>
<tr>
<td>G2P</td>
<td>Government-to-person</td>
</tr>
<tr>
<td>IDR</td>
<td>Indonesian rupiah</td>
</tr>
<tr>
<td>KUR</td>
<td>Kredit Usaya Rakyat – government programme for micro-credit</td>
</tr>
<tr>
<td>OJK</td>
<td>Otoritas Jasa Keuangan (Financial Services Authority of Indonesia)</td>
</tr>
<tr>
<td>PI</td>
<td>Pupuk Indonesia</td>
</tr>
<tr>
<td>PKH</td>
<td>Program Keluarga Harapan</td>
</tr>
<tr>
<td>QRIS</td>
<td>Quick Response Code Indonesian Standard</td>
</tr>
<tr>
<td>SCCH</td>
<td>Supply Chain Certificate Holder (for traders)</td>
</tr>
<tr>
<td>SHF</td>
<td>Smallholder farmer</td>
</tr>
<tr>
<td>TPAKD</td>
<td>Regional Financial Access Acceleration Team</td>
</tr>
<tr>
<td>VC</td>
<td>Value chain</td>
</tr>
</tbody>
</table>
Executive summary

Indonesia has the largest cocoa sector in Asia, and the sixth largest by volume globally. The sector has been a mainstay of the national economy for decades and currently contributes over IDR 10.85 trillion (US$700 million) per year to GDP.¹ In Sulawesi, which accounts for 70 percent of total national production, approximately 1.4 million people are reliant on the cocoa bean for their livelihoods.² Approximately 32 percent of Indonesian cocoa farmers are women.³

To support the development and sustainability goals of our members, the Government of Indonesia, and the Indonesian cocoa sector, the Better Than Cash Alliance has conducted a first-of-its-kind sizing exercise to assess opportunities for digital financial inclusion for smallholder cocoa farmers.

Today, Indonesian cocoa farmers are paid almost exclusively in cash. Cocoa-buying companies have committed to increase efficiency, sustainability, and transparency in their sourcing, and major global players⁴ have public targets for up to 100 percent of their supply to be certified sustainable by 2025. Digitizing payments offers end-to-end financial transparency by helping global cocoa processors to verify where their product is sourced.⁵ This study reveals that certified supply chains, which account for roughly 40 percent of all production in Indonesia today, emerge as a potent tool in digitization efforts.

Digitized cocoa payments can catalyze access to broader financial services for farmers, which is essential in addressing the mounting challenges in the sector. Yields have decreased by more than 50 percent during the last decade, due to a perfect storm of ageing trees, deteriorating soils, lack of investment, and the injurious effects of climate change. It is crucial to digitize farmers’ payments to improve the sustainability of their businesses, grow incomes, boost productivity, and develop resiliency against external risks such as climate change.

For digital payments to be meaningful for farmers, this study finds that digitization needs to be strongly linked to access to a broader suite of financial services, to unlock farm investments and smooth day-to-day consumption.

Due to a significant credit gap, smallholder farmers – most of whom are underbanked – are currently caught in a negative feedback loop of reduced income and falling profits. Each hectare of cocoa farmland requires IDR 697,500 ($45) per annum in inputs alone. To effectively restore cocoa yields, larger and longer-term loans of IDR 20.15 million ($1,300) per hectare are needed to fund replanting and rejuvenation of trees and soil. This study finds that approximately 65 percent of cocoa farmers borrow to cover farm needs, with only half of these loans provided by formal financial service providers (FSPs). The number of women farmers with formal access to finance is half that of male farmers.

² Market intelligence gathered from cocoa stakeholders, including the Cocoa Sustainability Partnership.
⁴ Major cocoa buyers such as Mars, Mondelez, and Cargill have made sustainable sourcing commitments.
⁵ Waldron, Daniel, Marjolaine Chaintreau, and Oswell Kahonde, The Hidden Costs of Cash to Ghana’s Cocoa Sector, Better Than Cash Alliance and World Cocoa Foundation, July 2020, p. 8.
In addition to improving the efficiency and transparency of the supply chain, digital payments provide bespoke financial histories for individual farmers, which facilitate credit assessments by FSPs. In certified value chains, the tight relationships between farmers, traders, and buying companies, along with the traceability measures, offer useful data points giving FSPs an insight into the unique needs of this large, viable, and untapped market segment. A bundled product including credit also increases the viability of the FSP business model in serving rural customers and improves the overall sustainability of the broader financial ecosystem at the last mile. This is key to building a viable digital payment ecosystem at this level. There is an opportunity for cocoa companies to support interest and investments by FSPs, through sectoral commitments such as around data sharing.

The study finds that there is a more than ample opportunity for digitization of payments in the Indonesian cocoa sector.

Figure 1. Potential market opportunity

<table>
<thead>
<tr>
<th>IDR 10.9 TRILLION ($706 MILLION)</th>
<th>IDR 79.7 BILLION ($5.14 MILLION)</th>
<th>IDR 4 TRILLION ($258 MILLION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>estimated annual revenue received by cocoa farmers.</td>
<td>estimated annual premium payments received by sustainable cocoa farmers in Sulawesi</td>
<td>estimated annual transactions made by farmers for regular input materials (seed, fertilizers, etc.)</td>
</tr>
</tbody>
</table>

Capturing this significant opportunity for digitization will require huge commitment and creative partnerships that leverage the strengths of key stakeholders: farmers, traders, cocoa companies, FSPs, and government. This research also identifies additional market opportunities and customized financial product development for women in cocoa farming households. Sulawesi women are not only key decision-makers in household financial management, but also enterprising businesswomen. This research uncovers a refreshing trend of women in farming and cocoa communities who operate microbusinesses on e-commerce platforms. First-mover FSPs that offer digital financial products appropriate for women customers can demonstrate a ‘double bottom line’ win for the private sector: increased customer numbers and retention, as well as improved formal economic participation for women.6

This report identifies key actions and clear recommendations for each key actor. These must be undertaken as part of a larger and collaborative commitment toward improving smallholder incomes and livelihoods and achieving lasting profitability within the Indonesian cocoa sector.

### Key recommendations at a glance

Key recommendations that have potential to achieve transformation at scale are denoted with a ✷.

**Central and regional government** possess unparalleled convening power that is critical to drive collaboration and alignment between stakeholders, to enable adoption of responsible digital payments.

- Leverage centrally managed and regionally driven initiatives such as the Regional Financial Access Acceleration Team (TPAKD) to pilot and evaluate the impact of digital payments in agricultural value chains. ✷
- Incentivize the expansion of low-cost digital payment infrastructure through Quick Response Code Indonesian Standard (QRIS) to build a last-mile ecosystem for digital payment acceptance. ✷
- Improve reliability of digital connectivity in rural areas, by building a widespread and reliable internet service.
- Digitally distribute government funding, such as the agricultural inputs subsidy scheme Kartu Tani, to increase the use of digital payments to farmers. ✷
- Regulate to encourage expansion of distribution channels, high volumes, and high-value transactions.

**Cocoa companies** have a unique voice and access to tools and relationships that are vital for responsible digitization of payments at scale.

- Prioritize digitizing agricultural purchase payments to traders and farmers alongside premium payment disbursements. ✷
- Champion collaborative data-sharing practices with FSPs to extend financial services, especially credit to farmers. Competitive concerns may be addressed by leveraging a trusted and neutral actor. ✷
- Support payment digitization goals by incorporating digital skills into existing capacity-building initiatives for farmers, to improve the sector’s readiness to absorb FSP offerings.

**Financial services providers** are the primary agents for the delivery of responsible digital payments and broader financial products as a pathway to a brighter economic future for smallholder farmers.

- Capture the opportunities offered by the ‘certified supply chain’, which is lower risk and has a more organized structure, permitting a higher degree of influence between value chain actors. ✷
- Consider developing bundled financial service products that may bridge smallholders’ short- and long-term financing gaps. These could leverage the digitization of regular corporate agricultural payments to farmers, facilitating easier access to finance.
- Leverage traders’ liquidity needs and their influence over the value chain to unlock their willingness to pay farmers digitally. This approach could help in understanding how to encourage traders to adopt responsible digital payment methods in transactions with farmers, while improving financial flows. ✷
- Recognize the economic power of women in cocoa-growing communities, develop suitable products, and support business growth through value-added tools and capacity-building programs that address inherent gaps and trust deficits.
Context: The problem and why it matters

Indonesia is one of the world’s most important cocoa bean producers. Smallholder farmers own 98 percent of cocoa plantations, with an average landholding of 1.3 hectares. Globally recognized cocoa companies operate here, including Barry Callebaut, Cargill, Mars, Mondelez, Nestlé, and Olam Food Ingredients (OFI). On the island of Sulawesi, which is the focus of this research, 1.4 million people depend on cocoa farming for their living. The region contributes 70 percent of national cocoa output, which generated IDR 9.9 billion ($64 million) in exports and IDR 17 trillion ($1.1 billion) in intermediate values in 2022. However, the cocoa sector is facing systemic challenges that threaten its viability.

Over the last 10 years, yields have declined sharply. The sector is less than half as productive as a decade ago. A combination of factors has led to this downward trend: ageing trees, deteriorating soil quality, the effects of the climate crisis, and a widely recognized credit gap among unbanked smallholder farmers. Despite eroded profits, cocoa companies remain committed to the market and continue to invest in the sourcing of certified cocoa beans, which also helps to supplement farmer incomes through premiums.

“I’ve been facing challenges with my cocoa trees due to their old age, leading to diseases. Unfortunately, replanting them isn’t feasible at the moment, as it would take 3-8 years for them to fully grow again. To make up for the loss in income, I decided to start a business selling cosmetics and skincare products.”

Ibu Mirna, 33 years, Sigi district, Central Sulawesi

9 Ibid.
Investments are needed to remedy dwindling yields. However, Indonesian cocoa farmers – who on average earn less than half the region’s minimum wage – currently struggle to prioritize farm expenses and investments. This research pinpoints an untapped opportunity to roll out impactful digital financial services (DFS) to both cocoa farmers and traders, especially in the certified sustainable cocoa value chains.

For the farmers, digital payments could act as gateway products to a broader suite of DFS such as savings and insurance products.

Digitizing crop payments to farmers offers the highest value proposition for creating digital finance infrastructure in rural areas. Digitizing crop payments lowers the cost of finance provision for FSPs, which is a key concern in expanding services in rural areas, where the financial ecosystem is generally underdeveloped. Digitized payments offer increased visibility of the value and regularity of farmers’ incomes, supporting credit assessments and product diversification. Financial institutions and payment service providers have traditionally struggled to justify investing in rural digital payment infrastructure, believing that volumes and values are too low to be sustainable. A structural problem with this calculation is that most analyses of rural payment volumes have focused on retail payments and remittances, rather than agricultural value chains.10

Through demand- and supply-side analysis, this study focuses on two broad questions:

(1) How can we design and deliver digital payments that meet the needs of farmers and other key actors in the cocoa value chain?
(2) What is required to build a digital payment ecosystem in agri-led rural economies?

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**Figure 2.** Annual cocoa production is in decline; the sector is less than half as productive as a decade ago

<table>
<thead>
<tr>
<th>Financial year</th>
<th>Production (1,000 metric ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>767,280</td>
</tr>
<tr>
<td>2019</td>
<td>734,795</td>
</tr>
<tr>
<td>2020</td>
<td>720,660</td>
</tr>
<tr>
<td>2021</td>
<td>688,210</td>
</tr>
<tr>
<td>2022</td>
<td>650,612</td>
</tr>
</tbody>
</table>

Source: Indonesia Cocoa Statistics 2022

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Opportunity: The certified sustainable cocoa value chains

Most of the world’s leading cocoa and chocolate producers have committed to sourcing sustainable cocoa beans, with some having made public targets for up to 100 percent of their supply to be certified sustainable by 2025. Sustainable sourcing is enabled via certified value chains which are shorter, better organized, and enjoy enhanced traceability. Beyond ensuring that the cocoa beans are sourced from sustainable and responsible farming practices, the increased traceability of certified value chains also helps combat issues such as deforestation, child labour, and other ethical concerns in the sector. The concision of the certified value chain generates stable relationships between cocoa companies, certified traders, and farmers. Each actor in the value chain has a stronger influence over the others.

The certified value chain also provides better returns for farmers through premium payments, which also encourage farmer loyalty. Farmers receive a minimum of IDR 1 million ($70) per metric ton.\(^1\) Most digital payment pilots in the country have targeted premium payments. Cocoa companies are keen to digitize premium payments, as this directly contributes to increasing the traceability\(^2\) of payments received. However, certification could offer even more significant opportunities for digitization.

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\(^2\) Due to a requirement of certification agencies that records be kept of premium payment transfers for audit purposes.
Figure 3. The certified value chain, enabled by sustainability standards and certification implemented by the Rainforest Alliance, leverages traceability to prevent further deforestation and ensure ethical sourcing practices.

Traders are critical actors within the chain, providing vital services to companies and farmers. A medium to large trader might partner with up to 2,000 smallholder farmers. Small to medium traders operate regionally with roughly 600 farmers. Premium payments are issued by companies to farmers who grow certified beans – sometimes months after the event. Both regular and premium payments are ripe for digitization. In the shorter certified value chain, relationships are stronger and more stable between cocoa companies, certified traders, and farmers; this structure facilitates a smoother and swifter transition to digital payments.

Figure 4. Farmer-trader-company dynamics; the structure and trusted relationships in the certified value chain support a smoother and quicker transition to digital payments.

### Relationship with farmers
- Traders are paid by bank transfer, and in turn pay farmers in cash.
- Traders assess value/price of farmers’ beans per kg.
- Traders often supply agri-input materials and sometimes issue short-term credit to farmers.
- Some traders disburse premium payments to farmers selling certified beans.

### Relationship with company
- Traders evaluate beans and ensure they meet quality requirements.
- Medium/large-scale traders may have long-term trust-based relationships with buyers. Companies can buy certified beans SCCH.

**Conventional**

**Certified**
3. Know your smallholder farmers and traders

Farmers rely on diversified income sources, and their financial transactions are almost exclusively in cash.

The average cocoa farmer’s income is IDR 1 million ($68) per month. This is far below the minimum wage for the region (IDR 2.4 million ($154) in 2022), as well as the threshold for achieving a minimum model diet – in Sulawesi, this is IDR 1.7 million ($108).13

Cocoa farmers do aspire to make sufficient profit to (a) pay for inputs and (b) improve yield, but the irregular income stream from cocoa makes this difficult. Currently, given the low incomes, farmers’ main priority is to meet household living costs. Consequently, only 20 percent of farmers’ income is used for agricultural expenses.14

Increasingly, farmers are turning to other crops and livelihoods. Day-to-day needs are met using a combination of income, savings, bartering of cash crops, additional work, or engagement in other occupations.

The focus group discussions (FGDs) with farmers revealed their preference for cash, due to familiarity and ease of use; they did not express any interest in digitizing transactions. They receive crop payments in cash, and day-to-day transactions are also almost exclusively performed in cash. The FGDs also provided deeper insights into their money management behaviors and revealed three distinct segments of farmers in relation to their engagement with formal financial services and digital readiness.

“I had taken a loan and struggled to repay it because of the high interest rate. I am determined to save enough to re-invest in my farm to boost productivity and not take another loan.”

Bapak Burhanuddin, 56 years old, Palolo village, Central Sulawesi

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14 Better Than Cash Alliance primary data collection (FGD).
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The principal priority for farmers is to invest in their farms and businesses to increase income. There is also a significant need to meet personal or unexpected expenses in a timely manner. Payments and transfers could be digitized, but their adoption by farmers will hinge on the added value of the service (or incentives) when compared with cash.

---

**Figure 5. Typical money management behaviors of Indonesian cocoa farmers**

- **Weekly**
  - On a weekly basis, farmers make grocery purchases in the market, buy fuel, give their children pocket money for food stalls, and make air time top-ups. These transactions are in cash.
  - Every two weeks, farmers sell their crops to traders and receive cash payments.

- **Monthly**
  - Farmers procure farm inputs every month.
  - They also pay school fees, medical bills, credit installments, make family transfers, and make arisan (saving group) payments.
  - Some farmers also engage in formal labour and receive monthly wage payments, mostly in cash.

- **Annual and beyond**
  - Some farmers make big purchases or transactions annually. These could be a new motorcycle, home appliance, or house maintenance.
  - Some farmers also save for long-term objectives such as children’s college education, Hajj pilgrimage, old age, and emergency funds.

---

**Figure 6. Farmers’ financial needs encompass the professional and personal**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Financing</th>
<th>Payment and transfers</th>
<th>Saving and insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa production</td>
<td>• Working capital for inputs, farming equipment, transportation</td>
<td>• Receiving payments</td>
<td>• Crop insurance</td>
</tr>
<tr>
<td></td>
<td>• Longer-term investments (farm renovation)</td>
<td>• Making payments for inputs</td>
<td>• Savings: preparation of investment</td>
</tr>
<tr>
<td>Other crops/small business</td>
<td>• Working capital for other crops and trading activities</td>
<td>• Making payments</td>
<td>• Crop insurance</td>
</tr>
<tr>
<td>employment</td>
<td></td>
<td>• Receiving payments: crop payments, customer payments</td>
<td>• Savings: preparation of investment</td>
</tr>
<tr>
<td>Personal needs</td>
<td>• School fees</td>
<td>• Air time top-ups</td>
<td>• Savings: children’s education, potential emergencies, old age, Hajj pilgrimage</td>
</tr>
<tr>
<td></td>
<td>• Household appliances</td>
<td>• Transfer to/from family member</td>
<td>• Insurance: health/medical insurance</td>
</tr>
<tr>
<td></td>
<td>• House renovation</td>
<td>• Transfers to saving groups</td>
<td></td>
</tr>
</tbody>
</table>

The principal priority for farmers is to invest in their farms and businesses to increase income. There is also a significant need to meet personal or unexpected expenses in a timely manner. Payments and transfers could be digitized, but their adoption by farmers will hinge on the added value of the service (or incentives) when compared with cash.
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Figure 7. Farmers’ financial needs: working capital and long-term investments

**Per hectare of land per year (approximately $45)**
- Fertilization, pest and disease control: IDR 690,000
- For working capital to afford regular input materials such as seedlings, fertilizers and pest control, and manpower costs.

**Per hectare of land (approximately $1,290)**
- Replanting and rejuvenation: IDR 30 million
- For long-term investment in replanting and rejuvenation of soils and trees.

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**Experience with FSPs**
- All payments made in cash
- All purchases made in cash
- Savings kept at home
- Uses bank account occasionally
- Little or no interest in loan

**Digital readiness**
- Owns one smartphone per household
- Knows how to make digital transactions but has greater trust in cash

<table>
<thead>
<tr>
<th>Segments</th>
<th>Description</th>
<th>Average income</th>
<th>Experience with FSPs</th>
<th>Digital readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>~1 hectare farm (farms are often managed jointly by husband and wife)</td>
<td>IDR 1.4 million ($84) per month</td>
<td>• All payments made in cash • All purchases made in cash • Savings kept at home • Uses bank account occasionally • Little or no interest in loan</td>
<td>• Owns one smartphone per household • Knows how to make digital transactions but has greater trust in cash</td>
</tr>
<tr>
<td>Enterprising</td>
<td>~2–6 hectare farm</td>
<td>IDR 1.5–3 million ($96–195) per month</td>
<td>• Farming income received in cash • Business income received through combination of cash and digital means • Savings held in bank account • Purchases all made in cash (unless they are e-commerce merchants)</td>
<td>• Owns smartphone • Digitally literate • Uses phone daily to check business income • Understands convenience of mobile money/banking • Some (although very few) are e-commerce sellers</td>
</tr>
<tr>
<td>Diversified income from salaried work</td>
<td>~2–6 hectare farm</td>
<td>IDR 1.5–3 million ($96–195) per month</td>
<td>• Farming income received in cash • Salary paid in bank account • Buys products online • Transfers money to distant family • Savings held in bank account • Purchases all made in cash (farming and household)</td>
<td>• Owns smartphone • Digitally literate • Uses phone daily to check salary payments • Uses phone to research farming methods • E-commerce transactions</td>
</tr>
</tbody>
</table>

---

In certified value chains, there is the added benefit of farmer groups – which are vital to onboarding farmers and managing loans. **Farmer groups play a central role at each step of the farmer’s journey in securing and repaying their loan.** Formalized groups are easier for FSPs to mobilize. Cocoa companies can support farmer groups in getting formalized. Potential opportunities to leverage these trusted relationships, in order to reduce the risk perception of FSPs and address the financing gap, are discussed in Figure 9.

**Figure 9.** Farmer groups can play a more significant role at each step of the farmer’s journey in securing and repaying their loan.

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Application</th>
<th>Disbursement</th>
<th>Renewal</th>
<th>Renewal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer groups can sensitize farmers to the benefits of digital payments and loans. They can advise on the optimal timing to obtain a loan and provide basic financial education. They could pre-select farmers who meet eligibility criteria and negotiate the conditions with the FSP.</td>
<td>Farmer groups could assist farmers in loan application, by supporting them in the gathering of information and documentation. They could collect a deposit throughout the year to build up collateral for the loan.</td>
<td>Depending on the loan disbursement model, farmer groups play different roles. For example, they could negotiate with the input supplier and provide inputs to each farmer depending on the amount of the loan. If the loan disbursement is in cash, the farmer group could support its digitalization by enabling cash-outs.</td>
<td>For the farmer groups selling directly to cocoa companies, loan repayments could be deducted directly from the crop payments, channeling to the farmer only the remaining amount. They could also leverage on a collect deposit collateral to ease the repayments.</td>
<td>Farmer groups could gather data on repayment history to pre-select farmers (and potentially adjust loan amounts) for the next recycle.</td>
</tr>
</tbody>
</table>
Box 1. Women farmers play critical roles in business and domestic management

88% of respondents report that women were either wholly or jointly responsible for household financial decision-making

65% of respondents report that women were either solely responsible for their farm financial decisions or jointly with their spouse

The predominant approach was joint decision-making, although there is a pattern of division of responsibility:

- **Overall, men have more say in farming decisions.** For 29 percent of respondents, the man made farming decisions alone. In 15 percent of cases, the woman made decisions alone.
- **Women are more likely to be responsible for household decisions such as grocery budget and children’s education.** For 48 percent of respondents, women were responsible for household financial decisions alone.

The findings suggest that, while women and young people do not usually occupy formal leadership positions, they do have access to alternative informal networks and can influence the community.

Women leverage virtual social networks and are particularly well networked, often through places of worship and local farmers’ markets, where they exchange information about produce, yields, and prices. Critically, although e-commerce transactions are still low in Sulawesi, online merchants and early adopters are predominantly women.

- Women in cocoa-growing households actively contribute to helping their family address the need for income diversification.
- Those who engage in economic activities outside farming often become merchants – by setting up their own warung.*
- Women engaged in online business use e-commerce platforms such as Shopee and Tokopedia, as well as Facebook and WhatsApp.
- Products sold via e-commerce include farm produce, clothes and cosmetics.
- Informal women’s groups are an important platform where exchanges of business insights freely occur.

* Warung is a colloquial Indonesian word used for a small-scale business, usually an eatery.
3.1 Traders also have diverse requirements covering short-term credit to payment facilities

The research revealed a diversity of needs for traders. They play a central role in the value chain: they collect cocoa beans from farmers and pay them, then receive payment from the cocoa company upon delivery. They can also supply agri-input materials, for which they have to pay a lump sum to the distributor. Some issue short-term credits to farmers.

Traders at district level (one level above village) also engage in other businesses (commodity trade, grocery).

Figure 10. Traders’ financial needs

<table>
<thead>
<tr>
<th>Domain</th>
<th>Financing</th>
<th>Digital payment and transfers</th>
<th>Saving and insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa trade</td>
<td>• Short-term credit needs:</td>
<td>• Receiving crop payments from cocoa companies</td>
<td>• Savings: preparation of investment</td>
</tr>
<tr>
<td>Input trade</td>
<td>&gt; Cocoa supplies</td>
<td>• Receiving input payments and loan repayments from farmers</td>
<td></td>
</tr>
<tr>
<td>Other trade</td>
<td>&gt; Purchase of inputs</td>
<td>• Making payments to farmers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; Credit to farmers</td>
<td>• Making payments to input manufacturers (input traders)</td>
<td></td>
</tr>
<tr>
<td>Personal needs</td>
<td>• School fees</td>
<td>• Air time top-ups</td>
<td>• Savings: children’s education, potential emergencies, old age, Hajj pilgrimage</td>
</tr>
<tr>
<td>(same as for</td>
<td>• Household appliances</td>
<td>• Family transfers</td>
<td>• Insurance: health/medical insurance, life insurance</td>
</tr>
<tr>
<td>farmers)</td>
<td>• House renovation</td>
<td>• Transfers to saving groups</td>
<td></td>
</tr>
<tr>
<td>Personal needs</td>
<td>• School fees</td>
<td></td>
<td>• Savings: children’s education, potential emergencies, old age, Hajj pilgrimage</td>
</tr>
<tr>
<td></td>
<td>• Household appliances</td>
<td></td>
<td>• Insurance: health/medical insurance, life insurance</td>
</tr>
<tr>
<td></td>
<td>• House renovation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IDR 93 million ($6,000) per month of traders’ short-term credit needs (assuming a credit facility of 10 percent of their supplies)

IDR 1 billion ($64,500) per month of liquidity to manage cocoa payment to farmers
Scaling Responsible Digital Payments in the Indonesian Cocoa Sector

3.2 Cocoa offtakers seek guarantee of supply and ordered payments

- Cocoa companies are interested in securing long-term and stable supply chains. They wish to ensure future supply through the rejuvenation of ageing trees, and to develop relationships of trust and loyalty with their farmers. By doing so, they improve access for both farmers and traders to capital, investments, and insurance.

- Cocoa companies wish to increase the transparency and traceability of the supply chain. To achieve this, they will work to reduce its component layers and to manage sourcing digitally. This grows digital payments and information flows and strengthens the certified supply chain.

- Cocoa companies seek managed payment flows. The goal is to make managed payments to traders and farmers in a timely and secure manner. Digitization enables this goal to be realized.

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**Figure 11** Purchase and payments in Sulawesi’s cocoa sector

The cocoa purchase cycle in Sulawesi happens on a biweekly basis.

Bigger harvests used to happen twice per year, but nowadays there are no peak seasons.

<table>
<thead>
<tr>
<th>Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An average farmer supplies ~35kg(^1) to traders every two weeks. The price is roughly IDR 24,000/kg(^2) (around $1.5/kg).</td>
</tr>
<tr>
<td>• All payment are cash-based.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traders</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An average trader transacts with 600-2,000 farmers per cycle.</td>
</tr>
<tr>
<td>• Traders use cash to pay farmers instantly but are paid by the cocoa companies through a combination of digital transfers and/or cash.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cocoa companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cocoa companies buy and pay traders once they receive the cocoa beans.</td>
</tr>
<tr>
<td>• Cocoa companies prefer to pay digitally but may transact in cash to cater to farmers’ preference.</td>
</tr>
</tbody>
</table>

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1 Better Than Cash Alliance, primary data collection (FGD & KII and key informant interviews).
2 Price of cocoa beans per kg is June 2022 price.
### Supply side: Growing uptake of responsible digital payments

#### 4.1 Landscape of financial service provision

Only 6 percent of rural banks’ lending portfolios are in the agricultural sector. Overwhelmingly, agricultural loans go to large commercial plantations. Smallholder farmers are viewed as unbankable.\(^{15}\)

**Key barriers preventing lending to smallholders:**
- Limited knowledge of agricultural credit
- No significant incentive to lend to farmers
- Digital credit offerings require specific license from the OJK (Financial Services Authority)
- Lack of durable relationships with farmers.

Consequently, there is no formal focus on the cocoa sector. Financial services provision in Central Sulawesi is dominated by large state-owned commercial banks such as Bank Rakyat Indonesia. There are two regional development banks (Bank Sulselbar and Bank Sulteng), operating in South and Central Sulawesi, respectively. These commercial banks provide credit but have no specific programme to deliver agricultural loans. Local savings cooperatives exist in some districts, with larger concerns servicing 150-200 members. These cooperatives are not agriculture focused. According to government statistics, credit for the cocoa sector in Central Sulawesi amounted to just IDR 325 billion ($21 million) in 2022.

At the national level, significant progress is evident in terms of access to account ownership. Bank account ownership in Indonesia has more than doubled to 51 percent in the last decade.\(^{16}\) Mobile money account ownership has also seen robust growth, from under a million users in 2014 to 18.8 million users in 2021. In addition, around 75 million Indonesians made a payment through mobile phones in 2021, almost twice as many as in 2014.\(^{17}\) However, only 54 percent of farmers surveyed had a bank account, and these do not see regular use.\(^{18}\) In Central Sulawesi, awareness of mobile money is very low among farmers: almost none of the respondents had heard of major players such as Gopay or OVO.

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\(^{16}\) World Bank, *Global Findex Database 2021.*

\(^{17}\) Ibid.

\(^{18}\) Ibid.
Cash-in cash-out (CICO) agent networks are spreading but face greater challenges in rural areas.

A CGAP Study in 2020 estimated that 87 percent of Indonesians live less than 5 km from a CICO agent. Distances to the nearest ATM or bank branch are much further. Despite the relative proximity of CICO agents, 44 percent of Indonesians did not know the location of a banking agent. In addition, the lack of agent interoperability restricts the number of suitable agents, and the dormancy rate is high.

Branchless banking has existed since 2014. There are three types of agents:

- **Laku Pandai**: agent banking services aimed at financial inclusion (regulated by OJK)
- **LKD**: e-money services that can be offered by both banks and non-banks (regulated by Bank Indonesia)
- **Fintech agents**: digital payment solutions offered by fintech players via agent networks (no defined regulatory framework)

In the South and Central Sulawesi regions, which are the primary focus of our research, reports indicate that there are over 31,000 and 15,900 branch-less banking agents (Laku Pandai), respectively.

4.2 Limited connectivity and higher distribution and service costs inhibit scaling

Connectivity remains a major problem. Nearly half the population is without access to the internet. Eighty percent of the unconnected live rurally and cite expense as the reason why they do not possess an internet-ready device. In tandem, Indonesia has the second slowest download speeds in the ASEAN region. Consequently, only half of young people aged 15 years and over, are online via 3G/4G.

60% of farmers surveyed own a mobile phone, but figures vary greatly from one village to another. They are used mostly for communication.
Key findings from farmer FGDs conducted include:

- **Mobile phone ownership varied from 38 percent to 88 percent depending on villages.** Possession of SIM card in own name ranged from 31 percent to 88 percent.\(^2\) **Ownership of both phone and SIM card is higher among certified farmers.**

- **Women are less likely to own a mobile phone (66 percent for men; 62 percent for women), but there is almost no difference in SIM ownership.**

- **Access to stable voice connection varied from 38 percent to 94 percent.** Access to stable internet connection was much lower at between 6 percent and 38 percent.

- **Predominant mobile uses are calling (98 percent) and texting (67 percent), followed by browsing for information (47 percent). Just under 1 in 10 used e-commerce, and only 1 in 20 had used the mobile phone for financial transactions.**

\(^2\) The reason there is a huge variation in the mobile ownership numbers is due to the diversity of results in different focus groups (which were conducted in different villages).
The principal challenges in scaling a digital financial ecosystem can be attributed to distribution costs. This table summarizes the issues.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Consequences for the FSPs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connectivity</strong></td>
<td>• Need to provide DFS using Unstructured Supplementary Service Data (feature phones)</td>
</tr>
<tr>
<td>• In cocoa production areas, network coverage is suboptimal. Indonesia has the second slowest mobile broadband download speed (17.24 Mbps) in the ASEAN region.</td>
<td>• Reduced potential market</td>
</tr>
<tr>
<td>• Low adoption by farmers of smartphones (50 percent in rural areas) and internet</td>
<td></td>
</tr>
<tr>
<td><strong>Distribution costs/CICO agent networks</strong></td>
<td>• Significant upfront investments limit expansion of agent networks</td>
</tr>
<tr>
<td>• Rural areas are under equipped; CICO agent network requires significant upfront investment and needs scale to enable profitability.</td>
<td>• Fewer transactions mean a high level of agent dormancy and low profitability</td>
</tr>
<tr>
<td>• Regulation: agents are exclusive</td>
<td></td>
</tr>
<tr>
<td>• Regulation: transaction pricing</td>
<td></td>
</tr>
<tr>
<td><strong>Farmers’ digital financial literacy</strong></td>
<td>• Need to invest in farmers’ education, including presence in the field</td>
</tr>
<tr>
<td>• Lack of awareness about digital products</td>
<td></td>
</tr>
<tr>
<td>• Low financial literacy</td>
<td></td>
</tr>
<tr>
<td>• High customer risk exposure</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 Emerging low-cost channel innovation and regulatory evolution could boost the viability of rural digital payments

**QRIS transactions are gaining traction.** The Quick Response Code Indonesian Standard (QRIS) is a standardized and interoperable QR code approved for payments by the payments regulator, Bank Indonesia. QR codes facilitate simple, seamless payments without the need for cash, cards, personal identification numbers (PINs), or signatures. QRs are well suited as a channel – especially in rural and last-mile locations given their low cost and ease of use (simply aiming a smartphone camera at a code). Additionally, they offer a more secure user experience.

Bank Indonesia regional office statistics record 2.1 million digital payment transactions through QRIS (with a value of around IDR 387 billion ($25 million)) in Central Sulawesi. A large share of the transactions is still limited to urban centers and in Palu, which is the capital city of the province. FGDs conducted as part of this study revealed that 7 percent of respondents had heard of QRIS, and only 3 percent had actually used it.

There are several other government initiatives to support scaling of DFS and maximize use of farmer transaction accounts.

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Figure 12. Government initiatives focused on extending digital financial inclusion and improving farmer productivity

**Credit Subsidy Programs**

KUR (Government Subsidized Loan)
Fewer than 1 percent of KUR borrowers are farmers (CGAP, 2020). According to the Ministry of Agriculture (MoA), almost 1.3 million farmers took KUR loans in 2019. Indeed, FSPs require collateral that many farmers do not have, and are hesitant about lending to a sector that they perceive as high risk.

**Regional Taskforces as a coordinating Platform**

OJK’s TPAKD (Taskforce for Regional Financial Access Acceleration)
TPAKDs are potentially strategic partners to engage in incubating smaller-scale financial service deployment in the cocoa sector and beyond.

**Subsidized Fertilizer Program**

Pupuk Subsidi
Aimed at members of a farmer group. The group submits a list of recommended farmers to the district government, which then shares that list with input distributors (PI network). These groups can expand broader access to finance for farmers.

**Bank Indonesia Payment Infrastructure**

QRIS (QR Code Indonesia Standard)
QRIS expansion in rural areas supply chains is an important component for digital payments to scale, given its low cost and affordability.

**Digitized Agriculture Subsidy Programs**

Kartu Tani
Kartu Tani is an MoA program aiming to digitize payments of farmers’ input materials subsidy. Farmers’ basic savings account expand its operation to other crops (including cocoa) will be critical.

**G2P Transfer Program**

PKH program
PKH is a conditional cash transfer program that incentivizes poor households to access specified health and education services. Many PKH beneficiaries have opened their first formal account with the programme. However, they have then cashed out in full without further digital transactions. Cash out through an ATM was preferred by 69 percent of beneficiaries.

Sizing and seizing the digital payments opportunity

Historically, financial institutions and payment service providers have struggled to justify investing in rural digital payment infrastructure, believing that volumes and values are too low to be sustainable.

A key problem with this calculation is that most analyses of rural payment volumes have focused on retail payments and remittances, rather than agricultural value chains.\(^2^2\)

Digitizing farmers’ payments positively impacts their ability to redress productivity levels and return the value chain to sustainable profitability.

**Figure 13. Solving the credit gap requires improving the overall value proposition for FSPs**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Barrier</th>
<th>Role of digital payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa farmers face insufficient access to credit to hedge against external risks that erode their productivity</td>
<td>An estimated IDR 20.1 million ($1,300) credit gap per hectare for each farmer</td>
<td>Lowers the cost of finance provision, as digitizing crop payments allows FSPs to better assess the value and regularity of farmers’ credit history</td>
</tr>
<tr>
<td></td>
<td>Inability to access this fund hampers farmers’ ability to address yield challenges</td>
<td>Digital payments are a gateway to introduce farmers to other DFS such as digital saving or insurance products</td>
</tr>
</tbody>
</table>

5.1 In the certified value chains, there is a unique opportunity to build farmers’ economic identity through cocoa certification data

The sustainability-certified supply chain consists of cocoa companies that source certified beans, certified farmers, and certified traders. Companies buy certified beans from Certified Holders (CHs), which deal directly with farmers – making the supply chain concise. This contrasts with conventional supply chains, which may involve multiple layers of traders before the beans are received by cocoa companies. The certified supply chain is based on stronger relationships between actors. For example, farmers consistently supply the same CHs, and consequently CHs hold valuable data on farmers’ agricultural activities. In addition, stakeholders exert stronger influence over each other, which turbocharges digitization. Currently, the impetus to digitize payments comes from cocoa companies. They can foster and establish familiarity and desire among farmers for digital payment technology. In the long run, thanks to digital payments, farmers will build a digital transaction history, providing data for fairer risk assessment.

**Figure 14.** For FSPs, digitizing payments promises new customers and an expanded suite of product offerings

<table>
<thead>
<tr>
<th>Channel payments</th>
<th>Onboard new customers</th>
<th>Cross-sell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing high volumes of payment flow aids:</td>
<td>Have traders and farmers get acquainted with digital payments and use them for:</td>
<td>Saving products</td>
</tr>
<tr>
<td>Rural agent network viability</td>
<td>Personal transfers</td>
<td>To farmers: farm-related needs; other business needs; personal needs</td>
</tr>
<tr>
<td>Improved assessment of the value and regularity of farmers’ income and transactions (de-risking lending)</td>
<td>Other business needs</td>
<td>To traders: cocoa and input trading; channeling credit to farmers; personal needs</td>
</tr>
</tbody>
</table>

**IDR 11 TRILLION ($711.4 MILLION)**
Estimated value of annual crop and certification premium payments received by farmers in Sulawesi

**IDR 2.1 TRILLION ($136 MILLION)**
Estimated annual transactions made by farmers for regular input material purchases (seed, fertilizers, etc.)

**IDR 93 MILLION ($6,000) PER MONTH PER TRADER**
Short-term credit needs

**IDR 21 MILLION ($1,355)**
Annual investment to address productivity challenges, per farmer
5.2 Focus on FSP partnerships in the certified supply chain to de-risk credit and realize stakeholder value

Figure 15. Cocoa certification data that can serve to build farmers’ economic identities

- General farm profile: land ownership (if any), production volume/capacity, product type, etc.
- Basic identities: name, age, group, period of affiliation with farmer group
- Sales projection at the start of the year (calculated through historical records) and sales receipts
- Capacity-building and training history

Figure 16. The certified supply chain’s tautness and concision afford the best environment to forge impactful partnerships

- Cocoa companies buy cocoa beans from those with whom they have a built a solid, loyal relationship. Certified beans are purchased systematically, providing a guarantee of income to certified farmers. They are also purchased at a higher price than non-certified beans. FSPs could leverage the secured income and the possibility of withdrawing repayment from the crop payments.

- Traders interact with numerous farmers and farmer groups regularly. They retain key information on farmers’ production. FSPs should leverage their knowledge of – and privileged access to – farmers.

- Farmer groups (in the certified supply chain only) interact with members frequently. They also act as traders, selling directly to cocoa companies. In addition to access to farmers and farmers’ data, FSPs could empower farmer groups to provide loans to farmers and manage repayments.
5.3 Partnerships in the cocoa value chain reduce operational costs, achieve scale, and de-risk credit

Figure 17. Opportunities for partnership

<table>
<thead>
<tr>
<th>Partnership opportunities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruit value chain (VC) stakeholders as agents</td>
<td>• Building and expanding CICO agent network is key for adoption of digital payments.</td>
</tr>
<tr>
<td></td>
<td>• Traders (and potentially farmers or farmer groups) play a vital role, enabling farmers to cash in their crop payments to save, and to cash out when needed. In turn, traders would receive additional revenue through commissions and reduced cash management.</td>
</tr>
<tr>
<td>Support agent economic viability through scale and broader service range</td>
<td>• CICO agents require a quotient of commissions (transactions and other services) to break even.</td>
</tr>
<tr>
<td></td>
<td>• Broader service range offered by agents: account opening, airtime top-up/bill payments, transfers, etc.</td>
</tr>
<tr>
<td></td>
<td>• Sustainability programme can promote digitized payments to make them more viable for FSPs.</td>
</tr>
<tr>
<td></td>
<td>• Subsidizing agents with a fixed remuneration beyond the commissions drives uptake.</td>
</tr>
<tr>
<td>Empower VC stakeholders to educate/raise awareness of farmers</td>
<td>• Raising farmers’ awareness of formal financial services and DFS is a prerequisite for adoption of DFS.</td>
</tr>
<tr>
<td></td>
<td>• Several VC stakeholders could raise farmers’ awareness of the benefits of digital payments. Cocoa companies could raise awareness about digital payments and access to financing, traders (and farmer groups) about digital payments, input manufacturers about access to financing and digital payments, etc.</td>
</tr>
<tr>
<td>Use agents/VC partnerships to support client onboarding/ account opening</td>
<td>• Supporting farmers in opening accounts is a requisite for adoption of DFS.</td>
</tr>
<tr>
<td></td>
<td>• CICO agents and other traders (and farmer groups) could play a role in assisting farmers in opening digital accounts on their mobiles.</td>
</tr>
<tr>
<td>Share farmer information</td>
<td>• Data on farmers and their production could be leveraged for credit risk assessments.</td>
</tr>
<tr>
<td></td>
<td>• Cocoa companies and certification agencies could share these data with FSPs, to ensure that farmers get better access to finance.</td>
</tr>
<tr>
<td>De-risk lending: deduct repayment from cocoa payments, share risk, etc.</td>
<td>• FSPs need to secure repayments to increase farmers’ access to financing.</td>
</tr>
<tr>
<td></td>
<td>• Cocoa companies could partner with FSPs to share lending and to secure the payments by debiting the due amounts from cocoa payments.</td>
</tr>
</tbody>
</table>

Source: Better Than Cash Alliance primary data collection (FGD).
In addition to these partnership opportunities to de-risk credit, risk-sharing mechanisms could be set up among FSPs and cocoa companies. Using farm and sales records and partnering with farm certificate holders reduces information asymmetry. De-risking lending can already be initiated, then be enhanced by digital payments.

**Figure 18.** Examples of risk-sharing mechanisms that could be set up among FSPs and cocoa companies

**Box 2.** **Case-study**
**Advans Côte d’Ivoire – risk-sharing credit mechanism integrated in the value chain**

Advans provides input credit to farmers, relying on cocoa cooperatives, input suppliers, and traders. The credit risk is shared between Advans and the two direct beneficiaries, cooperatives and input suppliers.

1. Advans identifies eligible cocoa cooperatives (or farmer groups) and analyzes sales data obtained from traders.
2. Cooperatives select and register eligible farmers and collect the collateral deposit.
3. Advans determines the acceptable level of risk exposure per cooperative.
4. Advans disburses funds to the input supplier.
5. Input supplier delivers inputs to cooperatives and trains farmers.
6. Advans trains cooperatives and farmers on loan management.
7. Cooperatives sell cocoa to cocoa companies.
8. Cocoa companies deduct loan payment from cooperatives’ cocoa sales and repay Advans on behalf of the cooperatives.

- This risk-sharing mechanism has been in place since 2013. In 2023, more than 3.6 billion FCFA of input credits (around IDR 89.9 billion ($5.8 million)) were granted to more than 400 cooperatives.
- Repayments rate for this credit scheme are reported to be satisfactory. At the end of February 2024, the PAR30* was 0.5%.

*PAR30 (Past Due 30 Days) represents the percentage of loans in a bank’s portfolio that are 30 days past due but not yet considered delinquent.
Conclusion and recommendations

Structural challenges to responsible digitization of payments in the cocoa sector fit into the five categories below:

1. **Lack of clear value proposition for farmers to digitize, complicated by their low incomes**
   - Highly cash-based local economy; cash-out fees ranging from IDR 5,000 to IDR 10,000 ($77.5 million-$155 million) are high for smallholder farmers (SHFs)
   - Key gap is in access to credit, no perceived hassles for payments
   - Need to demonstrate improvements to incomes and cash-flow management

2. **High delivery costs of rural financial services means challenging business models for FSPs**

3. **Lack of digital payment ecosystem and limited viability of CICO agent models to facilitate cash-out as an alternative**
   - QRIS roll-out in the regions predominantly in urban/peri-urban areas yet to reach last mile
   - Low/insufficient number of CICO rural agents

4. **Limited connectivity which reduces reliability of digital services and keeping funds digital**
   - 60 percent of cocoa SHFs have access to mobiles,* little difference between men and women
   - Access to stable internet connection much lower at between 6 percent and 38 percent

5. **Low awareness of DFS**
   - Even SHFs who use smartphones had never heard of the most popular local apps e.g. Gopay, DANA, OVO

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* High variation at the village level within the same region.

### 6.1 Recommendations

Analysis of the demand-side dynamics and the supply-side ecosystem generates four categories of recommendations for the development and scaling of digital payments.

**Demand**

**Know your smallholder farmers and traders**

1. Design a clear value proposition to encourage farmers to adopt digital payment methods, highlighting incentives that make these options more attractive than cash transactions.

2. Ensure farmers have access to DFS. Improve access to mobile phones and the internet, improve digital and financial literacy, and embed awareness of DFS.

**Supply**

**Grow uptake of responsible digital payments**

3. Leverage value chain partnerships to digitize payments (premium payments, crop payments, input payments).

4. Support the development of CICO agents in cocoa production areas and drive acceptance of digital merchant payments.
The recommendations are designed to help key stakeholders (cocoa companies, policymakers and regulators, development partners and FSPs) enable a digital financial ecosystem at scale, delivering a commercially viable rural expansion model.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Stakeholders</th>
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</thead>
<tbody>
<tr>
<td><strong>1. Design a clear value proposition for farmers for the digitization of payments, including incentives that make them more attractive than cash</strong></td>
<td></td>
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<tr>
<td>i. Consider the rural market and its actors holistically to maximize use cases and business model viability.</td>
<td>FSPs</td>
</tr>
<tr>
<td>• In certified value chains, there is potential to digitize regular payments. Digitizing premium payments will significantly accelerate adoption by farmers.</td>
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<tr>
<td>• Identify opportunities to digitize input payments by engaging with input suppliers.</td>
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<tr>
<td>ii. Design DFS and delivery channels for farmers in a customer-centric way.</td>
<td>FSPs</td>
</tr>
<tr>
<td>• Consider (age-related) capacities of SHFs and constraints (literacy/numeracy), and ensure DFS can be used through feature phones and/or offline channels.</td>
<td>Development partners</td>
</tr>
<tr>
<td>• Recognize women’s role in the household and in financial decisions. Design services, for both household and farming needs, in a gender-smart way. Indonesian women, even in rural areas, are increasingly engaged in social and e-commerce, and this offers opportunities for increased demand for financial services at the household level.</td>
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<td>• For development partners, there is an opportunity to help de-risk product design and rural market expansion by funding demand-side market research and SHF journey-mapping.</td>
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<td>iii. Incentivize digital payment usage by subsidizing transaction costs.</td>
<td>Companies</td>
</tr>
<tr>
<td>• Incentivize farmers and traders to accept digital payment (consider bonus, cashback).</td>
<td>FSPs</td>
</tr>
<tr>
<td>• Cost-sharing agreements between cocoa companies and FSPs could help to fund incentives. Benefits from incentivization include (i) greater transparency and accountability to support cocoa sustainability goals, and (ii) increased transaction volumes to CICO agents and other FSP channels in the cocoa-growing areas.</td>
<td></td>
</tr>
<tr>
<td>iv. Design bundled services for farmers to mitigate the credit gap and cash-flow management challenges.</td>
<td>FSPs</td>
</tr>
<tr>
<td>• Secure a part of the cocoa payment in an interest-generating savings account.</td>
<td>Development partners</td>
</tr>
<tr>
<td>• Provide access to transfer/remittance services at farmer household level.</td>
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<td>• Ensure access to financing (both DFS and non-DFS).</td>
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<tr>
<td>Leverage SHF mobile phone usage data to strengthen credit assessment, incentivize digital transfers, and build SHF understanding of how this enables greater access to small loans.</td>
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<tr>
<td>For FSPs there is an opportunity to partner with farmer support firms that are increasingly onboarding and serving SHFs via digital platforms. Multilateral development banks and innovation funds could support fintech firms in improving credit-scoring for SHFs.</td>
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<tr>
<td>v</td>
<td>Prioritize digitization of government-to-person transfers, particularly those specific to SHFs.</td>
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<td>•</td>
<td>The Kartu Tani program (cash/voucher-based agri-input subsidy for farmers) could operate through digital payment.</td>
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<tr>
<td>•</td>
<td>These are opportunities for development partners to support the Ministry of Agriculture in enabling direct-to-account transfers for agri-input subsidies.</td>
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<tr>
<td>Governments</td>
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<td>Development partners</td>
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</tbody>
</table>

### 2. Address infrastructure barriers such as access to mobile phones and internet connectivity; build trust by raising awareness of DFS and promoting financial literacy

<table>
<thead>
<tr>
<th>vi</th>
<th>Support and accelerate initiatives by the Ministry of Communications to deliver rural economic inclusion through consistent and widespread internet connectivity at the last mile.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Align roll-out of these connectivity initiatives with other central/regional government initiatives such as TPAKD and QRIS at the regional level.</td>
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<tr>
<td>Government</td>
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<td>Development partners</td>
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<tr>
<th>vii</th>
<th>Raise farmers’ awareness while promoting DFS.</th>
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<tr>
<td>•</td>
<td>Leverage trusted relationships between farmers and traders, especially in certified value chains, to raise awareness on the ground. This requires active engagement and partnerships between FSPs and cocoa companies/traders.</td>
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<tr>
<td>•</td>
<td>Government programs implemented at the regional level (e.g. TPAKD) could raise awareness and build trust in digital payments in partnership with cocoa companies.</td>
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<td>•</td>
<td>Common messages can be developed and used by government, cocoa companies, and FSPs, with a focus on addressing key grievances faced by cocoa SHFs.</td>
</tr>
<tr>
<td>Cocoa companies</td>
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</tbody>
</table>

Where farmer data are leveraged, the importance of data privacy and consent from SHFs cannot be overstated. Companies must invest in helping SHFs understand how their data are being used. Development partners could play a role in developing a platform that serves the needs of all cocoa companies.
## 4. Support the development of CICO agents in cocoa production areas and drive acceptance of digital merchant payments

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Responsible Parties</th>
</tr>
</thead>
</table>
| ix   | Strengthen the roles and capacities of farmer cooperatives by prioritizing the certified value chains.  
• In the certified supply chain, farmer groups have regular interactions with farmers and act as traders, selling directly to cocoa companies. In addition to data provision, farmer groups can be leveraged to provide loans to farmers and manage repayments.  
• In the palm oil value chain, there is appetite for FSPs to provide financing/loans to independent SHFs.  
These groups need support in building adequate governance structures to play a meaningful role. | Cocoa companies and partners  
Development partners |
| x    | Implement risk-sharing mechanisms to leverage digital payments.  
• Credit risk could be shared between FSPs, cocoa companies and traders.  
Within existing subsidized lending schemes, such as KUR, consider tying in disbursement (in the form of short working capital loans or subsidized fertilizer financing) with cocoa companies’ programs to pilot digital premium and agri-payments. | Cocoa companies and partners  
FSPs |
| xi   | Enable sectoral cross-fertilization.  
• Support knowledge-sharing among FSPs and other value chain actors by fostering discussions and promoting partnerships.  
Share lessons learned from existing pilots. Communicate advantages to farmers and companies. | Cocoa companies and partners  
Government  
Development partners |
| xii  | Encourage greater agent interoperability, through the adoption of low-cost transaction channels such as QRIS. This allows CICO agents to increase their transaction volumes and build viable rural business models.  
Expanding QRIS functionality to include cash-out services could also potentially increase transaction demand. To build trust in the digital payment ecosystem, users will need to be able to cash out easily at CICO agents.  
Development partners could disseminate lessons learned from other countries. | Governments  
Development partners |
| xiii | Leverage existing value chain relationships to expand CICO agent networks.  
For example, cocoa traders could be recruited as CICO agents, as they are already managing payments and have farmers’ trust. Input distributor networks could be used to build agent networks.  
Development partners could assist FSPs through investments in products/use-case development, agent incentives, and technical support. | FSPs  
Cocoa companies  
Development partners |
| xiv  | Secure agent revenue through diversified activities and incentives.  
Expand agent activities to include financial education and promotion and account opening. Fixed remuneration could encourage engagement in agent activity.  
Develop partnerships with experienced managers of third-party agent networks. | Governments  
FSPs  
Development partners |
| xv   | Prioritize expansion of the digital payment ecosystem in rural areas through QRIS for agricultural transactions/payments, complementing its urban retail strategy, e.g. at popular locations (local markets, warung, food vendors, and gas stations). | Governments  
FSPs |
Annex A: Detailed methodology

Our approach

Building upon the structure of earlier work within cocoa supply chains in Ghana, two areas of focus were identified as critical enablers of the sustainable adoption of digital payments within the Indonesian cocoa supply chain.

1. Demand

Primary research and field interviews sought to identify the financial requirements of smallholder farmers and their businesses, through the following questions.

- What is the extent of farmers’ exposure to, ownership of, and use of both digital technology and formal financial services?
- What different needs do farmers, traders, and cocoa companies have for financial services?
- Women farmers typically make domestic budgetary decisions. Are their needs different than men’s?
- How does the above inform product design?

2. Supply

The study considered how to build the infrastructure of a robust digital ecosystem for farmers to access, spend, and maintain sustainable digital liquidity. To identify solutions, answers were sought to the following questions.

- What business opportunity exists for financial service providers to build products and services for smallholder farmers in Sulawesi?
- What challenges need to be overcome to build a viable digital financial ecosystem in rural areas?
- What are some opportunities to scale digital payment in the cocoa sector?
- What are some product development opportunities for financial services?
- How can ecosystem actors collaborate?

The following key stakeholders were interviewed for their supply-side perspectives:

Government:

- Ibu Musdhalifah Machmud, Expert Staff for Connectivity, Service Development and Natural Resources, Coordinating Ministry of Economic Affairs, and team
- Bapak Edwin Nurhadi (Director of OJK Financial Inclusion) and regional team of OJK TPAKD (Tim Percepatan Akselerasi Keuangan Daerah – Financial Access Acceleration Taskforce)
- Bapak Puji Iman Siagian (Sub-Division Head at OJK Financial Inclusion)
- Bapak Dwiyanto Cahyo Sumirat, Head of Bank Indonesia Central Sulawesi, and team
- Bapak Rudy Bambang Wijanarko, Deputy Head of Bank Indonesia South Sulawesi Representative Office, and team
- Ibu Rini, Head of Plantation Unit, Department of Agriculture, Central Sulawesi Governor Office
- Research and Development Department, Ministry of Agriculture
Financial institutions:

- Bapak Sunarso, President Director, Bank BRI
- Ibu Melissa E. Gultom, Vice President Corporate Banking Group 6, Bank Mandiri
- Bapak Syahid Rohmatullah, Business Development, Bank Mandiri
- Representatives from Bank BPD Sulselbar
- Bapak Manfred Borer, Co-Founder and CEO, Koltiva
  and Ainu Rofik, Co-Founder and Board Member, Koltiva
- Bapak Theodorus Aji, Business Development, LinkAja
- Ibu Katrina Inandia, Head of Impact and Sustainability, Amartha
- Ibu Yasaka Rani, Kios Strategy and Planning Manager, GrabKios
- Ibu Sara Dhewanto, CEO, DuitHape

Cocoa companies:

- Ibu Fay Choo, Asia Cocoa Director, Mars
- Bapak Imam Suharto, Head of Cocoa Sustainability, Olam Indonesia
- Ibu Talitha Wibisono, Country Sustainability Lead, Cargill Indonesia
  and Bapak Fadhil Akbar, Central Sustainability Partnership, Cargill Indonesia
- Ibu Maria Benedikta, Sustainability Head, Barry Callebaut
- Bapak Suherman Sumpala, Country Sustainability Manager, JB Cocoa
- Bapak Wahyu Wibowo, Former Executive Director, Cocoa Sustainability Partnership (CSP)
- Bapak Insan Syafaat, Executive Director, PIStAgro (Partnership for Indonesia’s Sustainable Agriculture)

Development agencies:

- Bapak Andi Ikhwan, Director of Agriculture, Entrepreneurship and Financial Inclusion, Mercy Corps
- Bapak Jonas Dallinger, Principal Advisor for SASCI+ in Indonesia, GIZ-SASCI project
- Bapak Fitrian Adriansyah, Executive Chairman and Founder, Inisiatif Dagang Hijauh (IDH)
Notes on calculation of the figures below:

**Estimate of overall annual revenue received by cocoa farmers in Sulawesi:**

The calculation is derived by utilizing the global price of cocoa in 2022, verified during our fieldwork, standing at IDR 25,000 per kg and multiplying this price by the total cocoa production (438,101,000 kg), as reported by the official Central Bureau of Statistics (BPS) data in 2021. This calculation estimated a total transaction value of USD$ 706,614,516.13.

**Estimate of overall annual premium payments received by cocoa farmers in Sulawesi:**

The calculation is derived by utilizing the total premium payment made to individual farmers and multiplying it by the estimated number of certified farmers in Sulawesi. According to BPS data, farmers in South and Central Sulawesi typically produce around 500 kg of cocoa per year. Considering that the minimum premium paid per metric ton is $70, we used this figure to determine the premium payment per farmer. The estimated number of certified farmers was derived from stakeholder interviews, which suggest that approximately 40 percent of farmers in Sulawesi are part of the certified value chain. This calculation estimated as a total transaction value of USD$ 5,148,446.

**Estimate of overall estimated annual transactions made by farmers for regular input materials (seed, fertilizers, etc.)**

The calculation is based on multiplying the estimated annual spending for seeds and fertilizers per farmer ($709.8) derived from our key informant interview research, by the total number of farmers in South and Central Sulawesi (364,082 farmers), as indicated by the data from the BPS. This calculation estimated a total transaction value of USD$ 258,425,403.6.

Please note that for all calculations a currency conversion rate of USD$ 1 = IDR 15,500 is used.
About The Better Than Cash Alliance

Based at the United Nations, the Better Than Cash Alliance is a partnership of governments, companies, and international organizations that accelerates the transition from cash to responsible digital payments to help achieve the Sustainable Development Goals. The Alliance has over 80 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion.

www.BetterThanCash.org